## Database of Estimates by 6-Digit HUC of Animal Units and Recoverable and Non-Recoverable Manure Nutrients based on the Census of Agriculture

This database is a supplement to a USDA/NRCS report entitled "Estimates of Recoverable and Non-Recoverable Manure Nutrients Based on the Census of Agriculture," authored by Robert L. Kellogg,

This database supplement provides estimates by 6-digit Hydrologic Unit Codes (HUCs) of manure, manure nutrients, and other selected variables derived from the 2007 and 2012 Census of Agriculture Databases. The full report cited above should be consulted for definitions and methods used to derive the estimates from variables available in the Census of Agriculture databases for 2007 and 2012.

Livestock populations reported in the Census of Agriculture were used in this report to estimate total manure and manure nutrients *as excreted*, which are then disaggregated into two parts—

- recoverable manure from animal feeding operations (AFOs), where manure from confined animals is assumed to be collectable and available for land application after recovery, and
- non-recoverable manure from all farms with livestock.

Non-recoverable manure includes manure deposited by pastured animals and manure that was assumed to not be recoverable from AFOs. Manure from confined livestock types on farms too small to qualify as AFOs (based on the size of the on-farm livestock population of confined livestock types) was included with pastured livestock, representing nutrient loadings on farmland in the vicinity of small farms.

Specifically, data from the Census of Agriculture databases were used to estimate

- 1. average annual on-farm livestock population,
- 2. quantity of manure and manure nutrients as excreted for all farms with livestock,
- 3. quantity of recoverable manure and manure nutrients for AFOs,
- 4. quantity of non-recoverable manure nutrients for all farms with livestock,
- 5. capacity of farmland to receive land-applied manure nutrients, and
- 6. potential application rates of recoverable manure on crops and pastureland.

This information was then used to identify areas where the amount of recoverable manure nutrients exceeds the assumed availability of farmland for land application. Results from this estimation process identify areas potentially needing more land for manure application or alternative manure utilization

This database consists of the following seven tables.

- 1. **Table S1**. Farm counts by 6-digit HUC, Derived from the Census of Agriculture Database
- 2. **Table S2**. Animal Units (AU) by 6-digit HUC, Derived from the Census of Agriculture
- 3. **Table S3**. Quantity of Manure and Manure Nutrients Produced *as excreted* for Confined Livestock Types by 6-digit HUC, Derived from the Census of Agriculture Database
- 4. **Table S4**. Quantity of Manure and Manure Nutrients Produced *as excreted* for Pastured Livestock Types by 6-digit HUC, Derived from the Census of Agriculture Database
- 5. **Table S5**. Quantity of Recoverable and Non-Recoverable Manure and Manure Nutrients Produced on AFOs, by 6-digit HUC, Derived from the Census of Agriculture Database

- 6. **Table S6**. Farm-level Excess Manure Nutrients and Related Results from the Land Application Simulation Model on <u>AFOs</u>, by 6-digit HUC, Derived from the Census of
- 7. **Table S7**. Off-Farm Excess Manure Nutrients and Related Results from the Land Application Simulation Model on Non-AFOs, by 6-digit HUC, Derived from the Census of

In some cases the estimates could not be reported because disclosure criteria to protect confidentially were not met, indicated by a "DD" in place of the value in these tables.

The Census of Agriculture is conducted by the National Agricultural Statistics Service (NASS), Department of Agriculture. Electronic databases of farm-level responses maintained by NASS were used to make the calculations at the farm level. Farm-level estimates were then aggregated for reporting. Access to the farm-level data base is restricted to protect the confidentiality of respondents. All estimates published in this supplement database meet the disclosure criteria used by NASS to assure confidentiality.

Beginning in 2007, the National Agricultural Statistics Service (NASS) assigned Hydrologic Unit Codes (HUCs) to all farms. Initial watershed assignments were made based on the principal state, principal county, and zip code for each operation. If the principal county was contained completely within a watershed and the zip code was valid for the principal county, the operation was deterministically assigned to that watershed. Operations that could not be deterministically assigned were probabilistically assigned. Probabilistic assignments were made based on the proportion of agricultural land each watershed had within the principal county. For example, if a watershed represents 60 percent of the agricultural land in a county, a record would have had a 6 out of 10 chance of being assigned to that

(This information was excerpted from a NASS summary of the methodology at http://www.agcensus.usda.gov/Publications/2007/Online\_Highlights/Watersheds/wtrsheds.txt)

**Table S1-2007**. Farm counts by 6-digit HUC, Derived from the 2007 Census of Agriculture Database

 $\begin{tabular}{ll} \textbf{Table S1-2012}. Farm counts by 6-digit HUC, Derived from the 2012 \\ Census of Agriculture Database \end{tabular}$ 

6-digit	Number	Number of Large and	Number of Small and	Number of AFOs with
HUC	of Non- AFOs	Medium AFO- CAFOs	Very Small AFOs	Farm-Level Excess Manure
10100	1,143	0	44	0
10200	1,018	10	70	9
10300	1,517	19	131	16
10400	946	7	85	23
10500	1,636	4	29	<4
10600	2,407	4	92	26
10700	3,034	5	145	62
10801	2,901	40	351	46
10802	4,406	11	222	55
10900	4,049	<4	213	127
11000	3,917	36	238	62
11100	385	18	90	19
20100	3,944	143	776	83
20200	7,008	100	999	108
20301	2,923	<4	63	32
20302	625	<4	21	21
20401	5,659	18	446	60
20402	8,024	201	829	227
20403	1,656	<4	16	7
20501	10,551	139	1,855	210
20502	4,604	70	748	163
20503	15,516	873	4,824	1,029
20600	6,881	985	668	1,158
20700	18,795	833	2,044	1,195
20801	5,740	64	249	107
20802	7,898	124	314	205
30101	11,267	85	510	247
30102	4,236	161	191	213
30201	3,083	127	97	170
30202	4,673	505	199	513
30202	0	0	0	0
30300	8,267	1,406	647	1,665
30401	10,339	588	751	972
30402	8,501	472	327	554
30501	15,142	311	596	596
30501	4,747	144	169	191
30601	10,012	592	585	994
30602	3.038	68	129	994
	- ,			
30701 30702	11,237	363 134	502 113	606
30801	3,396 9,529			165
		8	190	149
30802	986	<4	15	15
30901	2,502	21	43	52
30902	6,855	<4	157	147
31001	3,972	9	74	69
31002	8,110	22	128	110
31101	2,101	25	49	48
31102	8,236	204	277	285
31200	2,128	38	66	49
31300	13,063	396	558	693
31401	3,344	30	112	73
31402	5,155	254	208	377
31403	2,779	152	105	200
31501	13,406	787	640	1,218
31502	4,157	37	126	91
31601	14,040	582	859	1,158
31602	2,717	19	104	78
31700	8,506	612	365	784
31800	8,275	695	503	900

Table S1-2007. Farm counts by 6-digit HUC, Derived from the 2007 Census of Agriculture Database

 $\begin{tabular}{ll} \textbf{Table S1-2012}. Farm counts by 6-digit HUC, Derived from the 2012 \\ Census of Agriculture Database \\ \end{tabular}$ 

		nture Database		
6-digit	Number of Non-	Number of Large and	Number of Small and	Number of AFOs with Farm-Level
HUC	AFOs	Medium AFO- CAFOs	Very Small AFOs	Excess Manure
40101	48	0	0	0
40102	675	<4	34	4
40103	808	<4	84	9
40201	392	0	21	<4
40202	263	<4	17	0
40203	8	0	0	0
40301	6,840	238	2,045	224
40302	6,896	178	2,139	182
40400	2,154	36	373	32
40500	23,047	533	2,499	590
40601	7,145	77	620	60
40602	72	<4	6	<4
40700	2,236	15	163	13
40801	3,252	80	409	66
40802	8,850	78	797	88
40803	86	0	<4	0
40900	3,923	14	302	37
41000	23,624	413	1,820	451
41100	4,059	15	318	30
41201	3,044	73	382	36
41202	24	0	<4	0
41300	3,434	94	394	53
41401	1,078	19	131	15
41402	4,817	133	1,029	117
41501	587	22	238	19
41502	25	<4	4	0
41502	1,877	59	539	40
41504	0	0	0	0
41505	0	0	0	0
50100	11,058	68	1,339	122
50200	9,755	18	543	72
50301	9,752	45	880	71
50302	8,831	15	251	28
50400	14,273	197	2,284	396
50500	12,252	18	398	102
50600	9,209	84	595	99
50701	636	0	<4	0
50702	1,322	0	18	8
50800	10,673	216	1,064	202
50901	5,343	<4	131	38
50902	10,380	32	409	57
51001	9,989	7	361	78
51002	12,737	5	467	104
51100	22,949	260	1,265	486
51201	28,584	855	2,429	702
51202	17,550	367	1,347	392
51301	17,303	97	787	327
51302	15,177	33	597	180
51401	14,516	66	774	183
51402	8,468	99	409	153
60101	20,247	69	706	288
60102	11,936	25	348	127
60200			375	
	6,332	157		315
60300	19,671	657	1,192	1,268
60400	12,646	137	449	280
70101	6,636	80	795	130
70102	11,333	356	2,631	471
70200	19,166	1,381	2,973	797
70300	6,806	56	788	73
,0300	0,000	30	700	13

**Table S1-2007**. Farm counts by 6-digit HUC, Derived from the 2007 Census of Agriculture Database

 $\begin{tabular}{ll} \textbf{Table S1-2012}. Farm counts by 6-digit HUC, Derived from the $2012$ Census of Agriculture Database \\ \end{tabular}$ 

6-digit HUC	Number of Non- AFOs	Number of Large and Medium AFO- CAFOs	Number of Small and Very Small AFOs	Number of AFOs with Farm-Level Excess Manure	6-digit HUC	Number of Non- AFOs	Number of Large and Medium AFO- CAFOs	Number of Small and Very Small AFOs	AFOs wit
						non-AFO	CAFO_LM_count	AFO_SVs_count	f_fexn
70400	15,824	599	4,086	548	70400	14,538	608	3,431	535
70500	7,534	132	2,386	204	70500	7,047	143	2,004	147
70600	12,601	693	4,007	660	70600	12,307	687	3,474	446
70700	13,274	216	3,535	278	70700	11,651	223	2,929	29
70801	14,322	735	2,329	572	70801	14,188	673	1,557	343
70802	18,784	1,137	3,142	741	70802	18,078	1,121	2,433	662
70900	17,584	524	3,629	446	70900	16,616	470	2,962	41
71000	18,827	1,094	2,191	737	71000	18,867	983	1,722	583
71100	14,248	189	985	189	71100	14,072	147	785	18
71200	12,429	181	1,012	258	71200	11,265	151	786	180
71300	20,910	378	1,574	266	71300	21,148	305	1,102	268
71401	14,146	38	903	154	71401	13,457	35 111	615	129
71402	8,500 705	130 7	878 14	142	71402 80101	8,475 511	6	730 13	131
80101 80102	13,581	180	511	8 303	80101	11,206	181	334	274
80201	15,381	0	<4	0	80201	162	0	0	2/2
80201	6,485	36	169	62	80201	6,040	40	97	59
80202	4,436	10	136	31	80203	3,729	<4	75	26
80204	1,124	4	22	13	80204	991	7	21	22
80301	269	0	<4	0	80301	200	0	<4	<4
80302	10,332	10	206	75	80302	9,798	6	195	109
80401	2,954	163	286	299	80401	2,761	148	205	267
80402	4,459	360	212	447	80402	4,034	269	184	360
80403	1,737	35	48	50	80403	1,894	26	56	48
80500	4,907	0	90	24	80500	4,048	<4	52	2:
80601	261	0	12	5	80601	254	0	<4	(
80602	4,791	44	112	88	80602	4,138	40	125	100
80701	210	0	18	6	80701	128	0	6	<4
80702	4,016	50	251	134	80702	3,727	51	197	146
80703	448	0	22	10	80703	439	0	10	
80801	4,399	0	129	31	80801	4,070	0	148	70
80802	6,051	<4	156	76	80802	5,708	<4	142	7:
80901	56	0	<4	0	80901	40	0	<4	<4
80902	713	<4	26	5	80902	765	<4	21	17
80903	902	0	28	6	80903	859	0	30	1:
90100	4,320	10	150	34	90100	4,134	5	174	46
90201	8,610	105	649	122	90201	8,006	73	625	156
90202	5,517	18	197	33	90202	5,403	13	198	44
90203 90300	9,526 901	29 0	276 22	62 <4	90203 90300	8,379 769	26 0	280 40	72
90400	0	0	0	0	90400	135	0	6	4
100100	108	0	5	5	100100	0	0	0	
100200	2,341	11	103	38	100200	2,350	7	126	79
100301	2,572	12	84	29	100200	2,604	10	123	49
100302	2,269	18	98	55	100301	2,129	18	97	40
100401	1,620	<4	48	18	100401	1,515	4	126	54
100402	1,168	<4	32	15	100402	1,045	4	40	19
100500	2,730	4	97	34	100500	2,364	<4	132	66
100600	2,614	<4	67	15	100600	2,286	<4	83	19
100700	3,740	19	135	45	100700	3,526	8	186	9
100800	3,100	8	172	40	100800	3,078	5	245	103
100901	787	0	19	6	100901	824	0	43	2
100902	1,343	0	27	6	100902	1,261	0	74	6
101000	2,125	5	111	42	101000	2,049	<4	143	8
101101	2,500	<4	87	18	101101	2,368	<4	94	2
101102	1,448	<4	49	5	101102	1,476	0	96	4
101201	2,864	4	83	40	101201	2,747	<4	156	10
101202	1,533	<4	59	14	101202	1,712	<4	85	5
101301	5,636	18	342	63	101301	5,242	23	350	104

**Table S1-2007**. Farm counts by 6-digit HUC, Derived from the 2007 Census of Agriculture Database

 $\begin{tabular}{ll} \textbf{Table S1-2012}. Farm counts by 6-digit HUC, Derived from the 2012 \\ Census of Agriculture Database \\ \end{tabular}$ 

AFOS CAFOS AFOS Manure    CAFOS   AFOS   Excess   Manure	6-digit HUC	Number of Non-	Number of Large and Medium AFO-	Number of Small and Very Small	Number of AFOs with Farm-Level
		AFOs		•	
103         1,666         6         74         11         101303         1,508           102         1,915         16         101         25         101402         1,805           100         1,915         16         101         25         101402         1,805           100         3,259         59         323         89         101500         3,258           101         4,460         212         919         90         101701         4,956           101         4,460         212         919         90         101701         4,956           100         4,460         212         919         90         101701         4,956           1001         4,460         212         919         90         101701         4,956           1001         3,248         135         339         99         102001         5,438           1001         3,248         135         339         99         10200         4,438           1002         5,551         409         1,020         228         102200         5,544           1000         5,553         409         1,020         228         102200         <					1111111
101	101302	3,862	12	253	36
1915	101303	1,666	6	74	11
500         3,259         59         323         89         101500         3,258           501         1,0293         230         1,082         154         101600         10,564           501         4,460         212         919         90         101701         4,96           702         7,926         917         1,809         635         101702         8,168           800         4,925         93         289         114         101800         5,188           8000         14,560         180         724         357         101900         14,176           901         3,248         135         339         99         102001         3,347           100         5,030         173         659         165         102100         5,428           100         5,030         173         659         165         102100         5,428           100         5,534         409         1,022         650         102300         9,55         1,084         1,932         650         102300         9,61           100         17,327         332         1,564         252         102400         16,31	101401	2,660	64		
500         10,293         230         1,082         154         101600         10,564           6702         7,926         917         1,809         635         101702         4,956           6702         7,926         917         1,809         635         101702         8,168           8000         4,925         93         289         114         101800         5,188           8000         14,256         180         724         357         101900         14,176           8001         14,560         180         724         357         101900         14,176           8010         3,248         135         339         99         102001         3,347           800         5,534         409         1,020         228         102200         5,967           800         9,555         1,084         1,932         650         102300         9,881           800         10,497         209         627         220         102500         10,102           801         12,222         91         689         165         102801         11,456           801         12,222         91         689         165	101402				
701         4,460         212         919         90         101701         4,956           702         7,926         917         1,809         635         101702         8,168           800         4,925         93         289         114         101800         5,188           900         14,560         180         724         357         101900         14,176           902         4,173         130         386         69         102002         4,548           900         5,030         173         659         165         102100         5,428           900         5,534         409         1,020         228         102200         5,967           900         5,534         409         1,020         228         102200         5,967           900         1,327         332         1,564         252         102400         16.371           900         1,347         209         627         220         102500         10,102           901         1,449         102600         9,961         102         102         202           910         1,449         102701         7,292         102 <th< td=""><td>101500</td><td></td><td></td><td></td><td></td></th<>	101500				
702         7,926         917         1,809         635         101702         8,168           8000         4,925         93         289         114         101800         5,188           900         14,560         180         724         357         101900         14,176           901         3,248         135         339         99         102001         3,347           902         4,173         130         386         69         10200         4,548           900         5,534         409         1,020         228         102200         5,967           900         5,555         1,084         1,932         650         102300         9,381           900         1,327         332         1,564         252         102400         16,371           900         17,327         332         1,564         252         102400         16,371           900         10,304         82         657         149         102600         19,616           901         1,304         82         657         149         102600         9,961           903         12,222         91         689         165 <td< td=""><td>101600</td><td></td><td></td><td></td><td></td></td<>	101600				
860         4,925         93         289         114         101800         5,188           900         14,560         180         724         357         101900         14,176           901         14,560         180         724         357         101900         14,176           902         4,173         130         386         69         102002         4,548           100         5,030         173         659         165         102100         5,428           100         5,534         409         1,020         228         102200         5,957           100         17,327         332         1,564         252         102400         16,371           1600         10,497         209         627         220         102500         10,102           1701         7,999         45         477         111         102701         7,292           101         7,999         45         477         111         102701         7,292           101         2,482         21         1376         397         102801         11,456           301         12,222         91         689         165         10	101701				
000         14,560         180         724         357         101900         14,176           002         4,173         130         386         69         102002         4,548           100         5,030         173         659         165         102100         5,428           100         5,030         173         659         165         102100         5,428           100         5,034         409         1,020         228         102200         5,967           100         17,327         332         1,564         252         102400         16,371           100         10,497         209         627         220         102500         10,102           701         7,999         45         477         111         102701         7,992           101         7,999         45         477         111         102701         7,992           102         8,853         273         803         226         102702         8,816           301         12,222         91         689         165         102801         12,428           201         24,548         202         1,376         397         10	101702				
2011         3,248         135         339         99         102001         3,347           2021         4,173         130         386         69         102002         4,548           2030         5,534         409         1,020         228         102200         5,967           2030         5,534         409         1,020         228         102200         5,967           2030         9,555         1,084         1,932         650         102300         9,881           2030         10,497         209         627         220         102500         10,102           2030         10,304         82         657         149         102600         9,961           2031         12,222         91         689         165         102702         8,816           2031         12,222         91         689         165         102801         1,456           2042         4,752         20         215         54         102802         4,280           2041         24,548         202         1,376         397         102901         22,821           2011         15,696         237         904         314	101800				
002         4,173         130         386         69         102002         4,548           000         5,030         173         659         165         102100         5,428           000         5,534         409         1,020         228         102200         5,936           000         9,555         1,084         1,932         650         102300         9,381           000         17,327         332         1,564         252         102400         16,371           000         10,304         82         657         149         102600         9,961           701         7,999         45         477         111         102701         7,292           801         12,222         91         689         165         102801         11,456           801         12,222         91         689         165         102801         11,456           802         4,755         32         393         114         102902         4,230           901         24,548         202         1,376         397         102901         22,88           902         4,755         32         393         114         10	101900				
100         5,030         173         659         165         102100         5,428           100         5,534         409         1,020         228         102200         5,967           100         17,327         332         1,564         252         102400         16,371           100         10,497         209         627         220         102500         10,102           101         10,304         82         657         149         102600         19,61           101         7,999         45         477         111         102701         7,292           102         8,853         273         803         226         102702         8,816           301         12,222         91         689         165         102801         11,456           302         4,752         20         215         54         102802         4,280           301         12,222         91         689         165         102801         11,456           302         4,752         20         215         54         102802         4,280           301         14,222         31         393         114         102802 </td <td>102001</td> <td></td> <td></td> <td></td> <td></td>	102001				
200         5,534         409         1,020         228         102200         5,967           200         9,555         1,084         1,932         650         102300         9,381           300         9,555         1,084         1,932         650         102300         9,381           500         10,497         209         627         220         102500         10,102           500         10,304         82         657         149         102600         9,961           701         7,999         45         477         111         102702         8,816           801         12,222         91         689         165         102801         11,456           801         12,222         91         689         165         102801         11,456           801         12,222         91         689         165         102801         11,456           801         12,222         91         689         165         102801         12,452           801         4,752         20         215         54         102802         22,821           801         14,525         32         393         114 <td< td=""><td>102002</td><td></td><td></td><td></td><td></td></td<>	102002				
800         9,555         1,084         1,932         650         102300         9,381           800         17,327         332         1,564         252         102400         16,371           800         10,497         209         627         220         102500         10,102           800         10,304         82         657         149         102600         9,961           701         7,999         45         477         111         102701         7,292           801         12,222         91         689         165         102801         11,456           801         12,222         91         689         165         102801         11,456           802         4,752         20         215         54         102802         4,280           901         24,548         202         1,376         397         102901         22,821           901         15,696         237         904         314         103002         2,830           100         25,088         740         1,406         1,244         110100         23,718           800         7,468         36         305         145	102100				
100         17,327         332         1,564         252         102400         16,371           100         10,497         209         627         220         102500         10,102           101         7,999         45         477         111         102701         7,992           102         8,853         273         803         226         102702         8,816           301         12,222         91         689         165         102801         11,456           302         4,752         20         215         54         102801         4,280           301         12,222         91         689         165         102801         11,456           302         4,752         20         215         54         102801         4,280           301         15,696         237         904         314         102901         22,821           302         2,288         22         103         14         103002         2,238           300         7,468         36         305         145         110200         6,748           300         14,272         216         893         261         1110300 <td>102200</td> <td></td> <td></td> <td></td> <td></td>	102200				
500         10,497         209         627         220         102500         10,102           500         10,304         82         657         149         102600         9,961           701         7,999         45         477         111         102701         8,816           801         12,222         91         689         165         102801         11,456           801         12,222         91         689         165         102801         24,280           801         24,548         202         1,376         397         102901         22,821           801         15,696         237         904         314         103001         14,485           802         4,755         32         393         114         103002         2,288           902         2,288         22         103         14         103002         2,300           100         25,088         740         1,406         1,244         110100         2,3718           800         4,089         65         177         91         110400         3,917           900         4,4089         65         177         91         1105	102300				
500         10,304         82         657         149         102600         9,961           701         7,999         45         477         111         102701         7,292           702         8,853         273         803         226         102702         8,816           801         12,222         91         689         165         102801         11,456           802         4,752         20         215         54         102802         4,280           901         24,548         202         1,376         397         102901         22,881           901         15,696         237         904         314         103001         14,485           902         2,288         22         103         14         103002         2,378           900         7,468         36         305         145         110200         6,748           800         14,272         216         893         261         110300         13,859           900         7,468         36         305         145         110200         6,748           800         14,272         216         893         261         110300 <td>102400 102500</td> <td></td> <td></td> <td></td> <td></td>	102400 102500				
701         7,999         45         477         111         102701         7,292           702         8,853         273         803         226         102702         8,816           801         12,222         91         689         165         102801         11,456           802         4,752         20         215         54         102802         4,280           901         24,548         202         1,376         397         102901         22,821           902         4,755         32         393         114         102902         4,723           902         2,288         22         103         14         103001         14,485           902         2,288         22         103         14         10300         23,718           100         25,088         740         1,406         1,244         110100         23,718           100         7,468         36         305         145         110200         6,748           800         14,6272         216         893         261         110300         13,859           100         4,089         65         177         91         110400 <td>102500</td> <td></td> <td></td> <td></td> <td></td>	102500				
702         8,853         273         803         226         102702         8,816           801         12,222         91         689         165         102801         11,456           801         24,542         20         215         54         102802         4,280           801         24,548         202         1,376         397         102901         22,821           802         4,755         32         393         114         102902         4,723           801         15,696         237         904         314         103001         14,485           800         2,288         22         103         14         103001         23,718           800         7,468         36         305         145         110200         6,748           800         7,468         36         305         145         110200         6,748           800         14,272         216         893         261         110300         13,859           800         7,495         16         290         90         110600         6,984           801         7,495         16         290         90         110600	102600				
801         12,222         91         689         165         102801         11,456           802         4,752         20         215         54         102802         4,280           901         24,548         202         1,376         397         102901         22,821           1002         4,755         32         393         114         103001         14,485           100         2,288         22         103         14         103002         2,030           100         25,088         740         1,406         1,244         110100         23,718           100         7,468         36         305         145         110200         6,748           300         14,272         216         893         261         110300         13,859           400         4,089         65         177         91         110400         3,917           500         7,824         21         345         122         110500         7,479           500         7,495         16         290         90         110600         6,984           701         9,091         19         373         100         110701 <td>102701</td> <td></td> <td></td> <td></td> <td></td>	102701				
802         4,752         20         215         54         102802         4,280           801         24,548         202         1,376         397         102901         22,821           802         4,755         32         393         114         102902         4,723           800         15,696         237         904         314         103001         14,485           802         2,288         22         103         14         103002         2,030           800         25,088         740         1,406         1,244         110100         23,718           800         7,468         36         305         145         110200         6,748           800         14,272         216         893         261         110300         13,859           800         4,089         65         177         91         110400         3,917           800         7,495         16         290         90         110600         6,984           800         1,874         837         110701         8,426           802         1,8732         500         1,374         837         110701         8,426	102702				
201         24,548         202         1,376         397         102901         22,821           202         4,755         32         393         114         102902         4,723           202         2,755         32         393         114         103001         14,485           202         2,288         22         103         14         103002         2,030           100         25,088         740         1,406         1,244         110100         23,718           200         7,468         36         305         145         110200         6,748           360         14,272         216         893         261         110300         13,859           400         4,089         65         177         91         110400         3,917           500         7,495         16         290         90         110600         6,984           701         9,091         19         373         100         110701         8,426           702         18,732         500         1,374         837         110702         17,839           8001         1,916         26         94         55         110901 </td <td>102801</td> <td></td> <td></td> <td></td> <td></td>	102801				
202         4,755         32         393         114         102902         4,723           201         15,696         237         904         314         103001         14,485           202         2,288         22         103         14         103002         2,030           100         25,088         740         1,406         1,244         110100         23,718           200         7,468         36         305         145         110200         6,748           300         14,272         216         893         261         110300         13,859           400         4,089         65         177         91         110400         3,917           500         7,824         21         345         122         110500         7,479           500         7,495         16         290         90         110600         6,984           701         9,091         19         373         100         110701         8,426           702         18,732         500         1,374         837         110702         17,839           800         1,816         26         94         55         1110	102802				
201         15,696         237         904         314         103001         14,485           202         2,288         22         103         14         103002         2,030           100         25,088         740         1,406         1,244         110100         23,718           200         7,468         36         305         145         110200         6,748           300         14,272         216         893         261         110300         13,859           400         4,089         65         177         91         110400         3,917           500         7,495         16         290         90         110600         6,984           6701         9,091         19         373         100         110701         8,426           702         18,732         500         1,374         837         110702         17,839           800         1,876         <4	102902				
002         2,288         22         103         14         103002         2,030           100         25,088         740         1,406         1,244         110100         23,718           200         7,468         36         305         145         110200         6,748           360         14,272         216         893         261         110300         13,859           400         4,089         65         177         91         110400         3,917           500         7,824         21         345         122         110500         7,479           500         7,495         16         290         90         110600         6,984           701         9,091         19         373         100         110702         17,839           300         1,876         <4	103001				
100         25,088         740         1,406         1,244         110100         23,718           200         7,468         36         305         145         110200         6,748           300         14,272         216         893         261         110300         13,859           400         4,089         65         177         91         110400         3,917           500         7,824         21         345         122         110500         7,479           600         7,495         16         290         90         110600         6,984           701         9,091         19         373         100         110701         8,426           702         18,732         500         1,374         837         110702         17,839           800         1,876         <4	103002				
200         7,468         36         305         145         110200         6,748           300         14,272         216         893         261         110300         13,859           400         4,089         65         177         91         110400         3,917           500         7,824         21         345         122         110500         7,479           500         7,495         16         290         90         110600         6,984           701         9,091         19         373         100         110701         8,426           702         18,732         500         1,374         837         110702         17,839           800         1,876          4         41         14         110800         1,859           901         1,916         26         94         55         110901         1,820           901         2,667         38         142         72         111001         2,564           902         1,832         18         64         35         111002         1,723           903         9,897         21         266         112         111003 <td>110100</td> <td></td> <td></td> <td></td> <td></td>	110100				
300         14,272         216         893         261         110300         13,859           400         4,089         65         177         91         110400         3,917           500         7,824         21         345         122         110500         7,479           500         7,495         16         290         90         110600         6,984           701         9,091         19         373         100         110701         8,426           702         18,732         500         1,374         837         110702         17,839           800         1,876         <4	110200				
400         4,089         65         177         91         110400         3,917           500         7,824         21         345         122         110500         7,479           500         7,495         16         290         90         110600         6,984           701         9,091         19         373         100         110701         8,426           702         18,732         500         1,374         837         110702         17,839           800         1,876         <4	110300				
500         7,824         21         345         122         110500         7,479           500         7,495         16         290         90         110600         6,984           701         9,091         19         373         100         110701         8,426           702         18,732         500         1,374         837         110702         17,839           300         1,876         <4	110400				
500         7,495         16         290         90         110600         6,984           701         9,091         19         373         100         110701         8,426           702         18,732         500         1,374         837         110702         17,839           800         1,876         <4	110500				
702         18,732         500         1,374         837         110702         17,839           800         1,876         <4	110600				
800         1,876         <4	110701	9,091	19	373	100
201         1,916         26         94         55         110901         1,820           202         8,617         20         305         111         110902         8,199           201         2,607         38         142         72         111001         2,564           202         1,832         18         64         35         111002         1,723           203         9,897         21         266         112         111003         9,352           101         12,631         487         762         786         111101         11,959           102         8,614         584         714         854         111102         7,985           201         3,706         60         179         117         111201         3,632           202         1,203         <4	110702	18,732	500	1,374	837
202         8,617         20         305         111         110902         8,199           201         2,607         38         142         72         111001         2,564           202         1,832         18         64         35         111002         1,723           203         9,897         21         266         112         111003         9,352           101         12,631         487         762         786         111101         11,959           102         8,614         584         714         854         111102         7,985           201         3,706         60         179         117         111201         3,632           202         1,203         <4	110800	1,876	<4	41	14
2001         2,607         38         142         72         111001         2,564           2002         1,832         18         64         35         111002         1,723           2003         9,897         21         266         112         111003         9,352           201         12,631         487         762         786         111101         11,959           102         8,614         584         714         854         111102         7,985           201         3,706         60         179         117         111201         3,632           202         1,203         <4	110901	1,916	26	94	55
002       1,832       18       64       35       111002       1,723         003       9,897       21       266       112       111003       9,352         101       12,631       487       762       786       111101       11,959         102       8,614       584       714       854       111102       7,985         201       3,706       60       179       117       111201       3,632         202       1,203       <4	110902	8,617	20	305	
002       1,832       18       64       35       111002       1,723         003       9,897       21       266       112       111003       9,352         101       12,631       487       762       786       111101       11,959         102       8,614       584       714       854       111102       7,985         201       3,706       60       179       117       111201       3,632         202       1,203       <4	111001	2,607	38	142	72
101         12,631         487         762         786         111101         11,959           102         8,614         584         714         854         111102         7,985           201         3,706         60         179         117         111201         3,632           202         1,203         <4	111002			64	
102         8,614         584         714         854         111102         7,985           201         3,706         60         179         117         111201         3,632           202         1,203         <4	111003	9,897	21	266	112
201         3,706         60         179         117         111201         3,632           202         1,203         <4	111101	12,631	487	762	786
202         1,203         <4	111102	8,614	584		
203         3,477         9         96         44         111203         3,409           301         2,488         <4	111201	3,706	60	179	117
301         2,488         <4	111202	1,203	<4	32	16
802         9,490         17         304         116         111302         8,929           803         9,646         24         376         118         111303         8,546           401         15,354         416         850         723         111401         14,329           402         3,910         183         204         261         111402         3,824           403         10,890         255         432         354         111403         11,606           100         13,721         313         468         460         120100         14,554           200         12,018         247         359         385         120200         11,898           301         26,526         21         784         304         120301         28,249           302         9,062         14         265         109         120302         8,889           401         6,377         4         190         113         120401         6,030           402         3,847         0         91         48         120402         4,217           500         8,715         117         345         195         120500	111203	3,477	9		44
803         9,646         24         376         118         111303         8,546           401         15,354         416         850         723         111401         14,329           402         3,910         183         204         261         111402         3,824           403         10,890         255         432         354         111403         11,606           100         13,721         313         468         460         120100         14,554           200         12,018         247         359         385         120200         11,898           801         26,526         21         784         304         120301         28,249           802         9,062         14         265         109         120302         8,889           401         6,377         4         190         113         120401         6,030           402         3,847         0         91         48         120402         4,217           500         8,715         117         345         195         120500         8,153	111301	2,488	<4		32
401       15,354       416       850       723       111401       14,329         402       3,910       183       204       261       111402       3,824         403       10,890       255       432       354       111403       11,606         100       13,721       313       468       460       120100       14,554         200       12,018       247       359       385       120200       11,898         301       26,526       21       784       304       120301       28,249         302       9,062       14       265       109       120302       8,889         401       6,377       4       190       113       120401       6,030         402       3,847       0       91       48       120402       4,217         500       8,715       117       345       195       120500       8,153	111302	9,490	17	304	116
402     3,910     183     204     261     111402     3,824       403     10,890     255     432     354     111403     11,606       100     13,721     313     468     460     120100     14,554       200     12,018     247     359     385     120200     11,898       301     26,526     21     784     304     120301     28,249       302     9,062     14     265     109     120302     8,889       401     6,377     4     190     113     120401     6,030       402     3,847     0     91     48     120402     4,217       500     8,715     117     345     195     120500     8,153	111303	9,646	24		
403     10,890     255     432     354     111403     11,606       100     13,721     313     468     460     120100     14,554       200     12,018     247     359     385     120200     11,898       301     26,526     21     784     304     120301     28,249       302     9,062     14     265     109     120302     8,889       401     6,377     4     190     113     120401     6,030       402     3,847     0     91     48     120402     4,217       500     8,715     117     345     195     120500     8,153	111401				
100     13,721     313     468     460     120100     14,554       200     12,018     247     359     385     120200     11,898       301     26,526     21     784     304     120301     28,249       302     9,062     14     265     109     120302     8,889       401     6,377     4     190     113     120401     6,030       402     3,847     0     91     48     120402     4,217       500     8,715     117     345     195     120500     8,153	111402	3,910			
200     12,018     247     359     385     120200     11,898       301     26,526     21     784     304     120301     28,249       302     9,062     14     265     109     120302     8,889       401     6,377     4     190     113     120401     6,030       402     3,847     0     91     48     120402     4,217       500     8,715     117     345     195     120500     8,153	111403	10,890			
301     26,526     21     784     304     120301     28,249       302     9,062     14     265     109     120302     8,889       401     6,377     4     190     113     120401     6,030       402     3,847     0     91     48     120402     4,217       500     8,715     117     345     195     120500     8,153	120100				
802     9,062     14     265     109     120302     8,889       401     6,377     4     190     113     120401     6,030       402     3,847     0     91     48     120402     4,217       500     8,715     117     345     195     120500     8,153	120200	12,018	247	359	385
401     6,377     4     190     113     120401     6,030       402     3,847     0     91     48     120402     4,217       500     8,715     117     345     195     120500     8,153	120301	26,526	21	784	304
401     6,377     4     190     113     120401     6,030       402     3,847     0     91     48     120402     4,217       500     8,715     117     345     195     120500     8,153	120302	9,062	14	265	109
500 8,715 117 345 195 120500 8,153	120401		4	190	113
	120402			91	
	120500				
501 5,577 9 140 48 120601 5,187	120601	5,577	9	140	48

**Table S1-2007**. Farm counts by 6-digit HUC, Derived from the 2007 Census of Agriculture Database

 $\begin{tabular}{ll} \textbf{Table S1-2012}. Farm counts by 6-digit HUC, Derived from the 2012 \\ Census of Agriculture Database \end{tabular}$ 

5-digit HUC	Number of Non- AFOs	Number of Large and Medium AFO- CAFOs	Number of Small and Very Small AFOs	Number of AFOs with Farm-Level Excess Manure
120602	13,592	75	383	153
120701	17,326	54	553	245
120702	12,808	68	294	167
120800	6,605	10	184	71
120901	8,964	16	154	76
120902	7,646	<4	129	74
120903	6,417	9	169	72
120904	2,622	4	71	37
121001	4,478	17	142	69
121002	10,911	92	227	200
121003	8,110	4	231	117
121003	4,000	<4	73	25
121101	9,350	14	180	111
121101	7,636	6	196	120
130100	1,632	0	122	16
130201	1,688	0	99	41
130201	3,649	20	451	379
130202	1,646	11	38	29
130301	578	9	26	29
130302	578 442	<4	26	18
	442			
130402		0	8	6
130403	608	0	8	7
130500	1,381	4	36	25
130600	2,406	42	78	94
130700	1,395	6	35	24
130800	1,318	<4	32	23
130900	969	<4	20	17
140100	2,490	<4	118	39
140200	2,218	7	144	43
140300	1,237	<4	111	48
140401	1,042	<4	58	30
140402	98	0	5	0
140500	1,565	<4	66	20
140600	2,569	11	194	71
140700	750	5	115	68
140801	4,326	<4	693	580
140802	2,342	0	548	516
150100	1,199	<4	255	223
150200	5,176	<4	1,611	1,597
150301	521	<4	32	26
150302	222	0	18	17
150400	997	<4	64	48
150501	712	29	79	93
150502	772	<4	36	30
150503	907	14	103	103
150601	916	<4	180	181
150602	608	0	103	100
150701	823	31	100	113
150702	318	4	20	22
150801	76	0	<4	<4
150802	6	0	0	0
150803	274	0	8	8
160101	361	0	42	17
160101	2,640	55	326	93
160201	1,793	8	115	44
160201	2,973	20	206	71
160202	1,883	15	140	44
160300	2,507	85	228	118
	2,507	0.5	220	110

**Table S1-2007**. Farm counts by 6-digit HUC, Derived from the 2007 Census of Agriculture Database

 $\begin{tabular}{ll} \textbf{Table S1-2012}. Farm counts by 6-digit HUC, Derived from the $2012$ Census of Agriculture Database \\ \end{tabular}$ 

AFOS CAFOS Very Small Excess Manure    10,000
10402   264
60501         350         <4
60502         388         16         42         28           60503         287         <4
60503         287         <4
60600         779         <4
00101         672         0         21         <4
00102         6,809         7         160         64           0103         3,707         <4
00103         3,707         <4
02000         8,842         52         239         117           03000         4,786         57         138         117           0401         841         0         87         18           04002         9,396         284         764         372           05501         7,763         112         540         236           050502         911         <4
03000         4,786         57         138         117           04011         841         0         87         18           04012         9,396         284         764         372           0501         7,763         112         540         236           0502         911         <4
0401         841         0         87         18           0402         9,396         284         764         372           0501         7,763         112         540         236           0502         911         <4
70402         9,396         284         764         372           70501         7,763         112         540         236           70502         911         <4
05051         7,763         112         540         236           05052         911         <4
050502         911         <4
050502         911         <4
00602         841         0         42         <4
06062         841         0         42         <4
00603         1,908         <4
070701         5,192         18         146         77           070702         958         <4
070702         958         <4
20703         3,037         4         133         44           20800         4,641         46         149         96           20900         17,236         89         384         245           21001         2,227         16         109         54           21002         1,656         51         115         109           21003         5,555         8         168         67           21100         817         0         57         17           20100         817         0         57         17           20101         4,727         95         155         170           20102         802         0         29         10           20201         15,349         75         376         296           20202         802         0         29         10           20201         15,349         75         376         296           20202         12,867         595         284         589           20400         14,711         772         438         768           20500         4,126         34         133         137           20701
08000         4,641         46         149         96           09000         17,236         89         384         245           01001         2,227         16         109         54           01002         1,656         51         115         109           01003         5,555         8         168         67           01100         10,255         161         360         220           01200         817         0         57         17           030101         4,727         95         155         170           030102         2,205         10         73         29           030200         802         0         29         10           030201         15,349         75         376         296           030300         12,867         595         284         589           030400         14,711         772         438         768           030701         3,458         5         189         189           030702         2,130         114         190         298           030703         7,244         24         249         261
09000         17,236         89         384         245           01001         2,227         16         109         54           01002         1,656         51         115         109           01003         5,555         8         168         67           01100         10,255         161         360         220           01200         817         0         57         17           030101         4,727         95         155         170           030102         2,205         10         73         29           030200         802         0         29         10           030201         15,349         75         376         296           030300         12,867         595         284         589           030400         14,711         772         438         768           030500         4,126         34         133         137           030701         3,458         5         189         189           030702         2,130         114         190         298           030901         87         0         <4
01001         2,227         16         109         54           01002         1,656         51         115         109           01003         5,555         8         168         67           01100         10,255         161         360         220           01200         817         0         57         17           030101         4,727         95         155         170           030102         2,205         10         73         29           030200         802         0         29         10           030201         15,349         75         376         296           030400         12,867         595         284         589           030400         14,711         772         438         768           030500         4,126         34         133         137           030600         6,915         17         196         178           030702         2,130         114         190         298           030703         7,244         24         249         261           030901         87         0         <4
01002         1,656         51         115         109           01003         5,555         8         168         67           01100         10,255         161         360         220           01200         817         0         57         17           01011         4,727         95         155         170           0102         2,205         10         73         29           02020         802         0         29         10           03030         12,867         595         284         589           030400         14,711         772         438         768           030500         4,126         34         133         137           030600         6,915         17         196         178           030701         3,458         5         189         189           030702         2,130         114         190         298           030901         87         0         <4
71003         5,555         8         168         67           71100         10,255         161         360         220           71200         817         0         57         17           80101         4,727         95         155         170           80102         2,205         10         73         29           80200         802         0         29         10           80201         15,349         75         376         296           80300         12,867         595         284         589           80400         14,711         772         438         768           80500         4,126         34         133         137           80600         6,915         17         196         178           80701         3,458         5         189         189           80702         2,130         114         190         298           80800         400         0         26         16           80901         87         0         <4
01100         10,255         161         360         220           01200         817         0         57         17           01011         4,727         95         155         170           0102         2,205         10         73         29           02020         802         0         29         10           020201         15,349         75         376         296           030300         12,867         595         284         589           030400         14,711         772         438         768           030500         4,126         34         133         137           030600         6,915         17         196         178           030701         3,458         5         189         189           030702         2,130         114         190         298           030703         7,244         24         249         261           030901         87         0         <4
01200         817         0         57         17           01011         4,727         95         155         170           01012         2,205         10         73         29           02020         802         0         29         10           02021         15,349         75         376         296           03030         12,867         595         284         589           04040         14,711         772         438         768           05050         4,126         34         133         137           06060         6,915         17         196         178           07071         3,458         5         189         189           080702         2,130         114         190         298           080703         7,244         24         249         261           080800         400         0         26         16           080901         87         0         <4
80101         4,727         95         155         170           80102         2,205         10         73         29           80200         802         0         29         10           80201         15,349         75         376         296           80300         12,867         595         284         589           80400         14,711         772         438         768           80500         4,126         34         133         137           80600         6,915         17         196         178           80701         3,458         5         189         189           80702         2,130         114         190         298           80703         7,244         24         249         261           80800         400         0         26         16           80901         87         0         <4
80102         2,205         10         73         29           80200         802         0         29         10           80201         15,349         75         376         296           80300         12,867         595         284         589           80400         14,711         772         438         768           80500         4,126         34         133         137           80600         6,915         17         196         178           80701         3,458         5         189         189           80702         2,130         114         190         298           80703         7,244         24         249         261           80800         400         0         26         16           80901         87         0         <4
80200         802         0         29         10           80201         15,349         75         376         296           80300         12,867         595         284         589           80400         14,711         772         438         768           80500         4,126         34         133         137           80600         6,915         17         196         178           80701         3,458         5         189         189           80702         2,130         114         190         298           80703         7,244         24         249         261           80800         400         0         26         16           80901         87         0         <4
80201         15,349         75         376         296           80300         12,867         595         284         589           80400         14,711         772         438         768           80500         4,126         34         133         137           80600         6,915         17         196         178           80701         3,458         5         189         189           80702         2,130         114         190         298           80703         7,244         24         249         261           80800         400         0         26         16           80901         87         0         <4
80300         12,867         595         284         589           80400         14,711         772         438         768           80500         4,126         34         133         137           80600         6,915         17         196         178           80701         3,458         5         189         189           80702         2,130         114         190         298           80703         7,244         24         249         261           80800         400         0         26         16           80901         87         0         <4
80400         14,711         772         438         768           80500         4,126         34         133         137           80600         6,915         17         196         178           80701         3,458         5         189         189           80702         2,130         114         190         298           80703         7,244         24         249         261           80800         400         0         26         16           80901         87         0         <4
30500         4,126         34         133         137           30600         6,915         17         196         178           30701         3,458         5         189         189           30702         2,130         114         190         298           30703         7,244         24         249         261           30800         400         0         26         16           30901         87         0         <4
$\begin{array}{cccccccccccccccccccccccccccccccccccc$
80701         3,458         5         189         189           80702         2,130         114         190         298           80703         7,244         24         249         261           80800         400         0         26         16           80901         87         0         <4
80702         2,130         114         190         298           80703         7,244         24         249         261           80800         400         0         26         16           80901         87         0         <4
30703         7,244         24         249         261           30800         400         0         26         16           30901         87         0         <4
80800       400       0       26       16         80901       87       0       <4
80901     87     0     <4
80902     1,007     19     112     117       81001     225     <4
81001     225     <4
81002     1,362     30     62     69       90101     13     0     0     0       90102     12     0     0     0       90103     11     0     0     0       90104     <4
81002     1,362     30     62     69       90101     13     0     0     0       90102     12     0     0     0       90103     11     0     0     0       90104     <4
00101     13     0     0     0       00102     12     0     0     0       00103     11     0     0     0       00104     <4
00103     11     0     0     0       00104     <4
00103     11     0     0     0       00104     <4
00104     <4
00201     20     0     <4
00202     7     0     0     0       00203     111     0     <4
00203     111     0     <4
00204     58     0     <4
00205 184 0 10 4 00206 7 0 0 0
00206 7 0 0 0
917117 14 () <4 <4
00301 13 0 0 0
00302 0 0 0 0
00303 <4 <4 <4 <4
00304 0 0 0
00305 <4 <4 <4 <4

**Table S1-2007**. Farm counts by 6-digit HUC, Derived from the 2007 Census of Agriculture Database

**Table S1-2012**. Farm counts by 6-digit HUC, Derived from the 2012 Census of Agriculture Database

6-digit HUC	Number of Non- AFOs	Number of Large and Medium AFO- CAFOs	Number of Small and Very Small AFOs	Number of AFOs with Farm-Level Excess Manure	6-digit HUC	Number of Non- AFOs	Number of Large and Medium AFO- CAFOs	Number of Small and Very Small AFOs	Number of AFOs with Farm-Level Excess Manure
						non-AFO	CAFO_LM_count	AFO_SVs_count	f_fexn
190401	25	0	<4	0	19040		0	0	0
190402	0	0	0	0	19040	2 3	0	0	0
190403	<4	<4	<4	<4	19040	3 0	0	0	0
190404	15	0	<4	<4	19040	4 8	0	<4	0
190405	152	0	12	4	19040	5 170	0	7	<4
190406	<4	<4	<4	<4	19040	5 5	0	0	0
190407	0	0	0	0	19040	7 2	0	0	0
190408	<4	<4	<4	<4	19040	3 4	0	0	0
190501	4	0	0	0	19050	1 5	0	0	0
190502	0	0	0	0	19050	2 1	0	0	0
200100	4,620	<4	27	28	20010	4,261	<4	19	18
200200	875	<4	4	5	20020	887	0	7	6
200400	57	0	0	0	20040	32	0	0	0
200500	212	0	7	7	20050	200	0	<4	<4
200600	919	7	41	47	20060	968	<4	29	31
200700	727	<4	4	4	20070	581	<4	<4	<4
200800	14	0	<4	<4	20080	7	0	0	0
					Sum of column	1,939,159	36,774	133,248	60,556
					National total Percent of	1,939,159	36,873	133,271	60,584
					national total	100.00%	99.73%	99.98%	99.95%

Notes: The total number of AFOs is the sum of the number of large and medium AFO-CAFOs and the number of small and very small AFOs. The total number of farms is the sum of AFOs and Non-AFOs.

For complete definitions of variables, see the USDA/NRCS report entitled "Estimates of Recoverable and Non-Recoverable Manure Nutrients Based on the Census of Agriculture," authored by Robert L. Kellogg, David C. Moffitt, and Noel Gollehon.

 $\begin{tabular}{ll} \textbf{Table S2-2007}. A nimal Units (AU) by 6-digit HUC, Derived from the 2007 Census of Agriculture Database \\ \end{tabular}$ 

 $\textbf{Table S2-2012}. \ Animal \ Units \ (AU) \ by \ 6-digit \ HUC, Derived \ from \ the \ 2012 \ Census \ of \ Agriculture \ Database$ 

			Commea.		LOSIDICALII		Database						
_	All livesto	ock types	tun	nvestock	tune	vestock		All livestoo	ck types	Confined live	estock types	Pastured lives	stock types
6-digit	AU on	AU on	AU on	AU on	AU on	AU on	6-digit	AU on Non-	AU on	AU on Non-		AU on Non-	
HUC	Non-	AFOs	Non-	AFOs	Non-	AFOs	HUC	AFOs	AFOs	AFOs	AU on AFOs	AFOs	AU on AFO
	AFOs	111 00	AFOs	111 00	AFOs	111 00							TO 1
10100	2.002	2 172	154	2.262	2.560	000					AFO_conf_au >r		
10100	2,992	3,172	156	2,363	2,560	802	10100	3,311	DD	206	DD 12 479	2,623	DI
10200	4,894	13,859	290	12,056	4,252	1,803	10200	3,689	14,140	416	12,478	2,900	1,66
10300	7,827	25,227	722	21,787	6,857	3,438	10300	8,718	32,089	977	29,207	7,482	2,88
10400	4,997	23,432	505	21,847	4,321	1,585	10400	4,254	DD	457	DD	3,667	94
10500	5,005	3,997	406	3,498	3,974	498	10500	4,231	3,150	474	2,625	3,663	52
10600	11,673	8,411	1,176	6,646	10,240	1,763	10600	12,563	6,679	1,395	5,769	10,929	87
10700	15,840	10,450	1,291	8,924	13,910	1,523	10700	15,046	9,873	1,607	8,703	13,098	1,17
10801	15,105	55,811	1,110	48,156	13,678	7,651	10801	14,494	50,777	1,171	44,699	12,995	6,07
10802	20,851	21,661	1,665	18,916	18,681	2,673	10802	20,756	17,272	1,827	14,813	18,677	2,45
10900	18,091	11,595	1,865	9,807	16,013	1,778	10900	15,883	10,544	1,845	8,801	13,899	1,73
11000	20,660	51,331	1,701	44,678	18,529	6,554	11000	25,803	44,794	2,089	39,169	23,223	5,62
11100	2,024	28,965	83	24,558	1,885	3,983	11100	0	0	0	0	0	
20100	25,835	201,916	1,265	176,841	23,880	25,072	20100	0	0	0	0	0	
20200	59,026	172,610	3,059	146,804	54,906	25,517	20200	62,405	168,496	2,921	144,737	58,402	23,74
20301	16,531	4,324	766	3,328	15,304	956	20301	16,228	3,559	783	2,907	15,054	64
20302	2,117	2,297	240	2,132	1,502	DD	20302	2,821	DD	209	2,022	2,297	DI
20401	32,512	57,568	2,102	49,954	29,265	7,611	20401	31,401	62,069	1,906	55,314	28,789	6,75
20402	42,385	151,792	2,493	136,783	38,702	14,956	20402	44,485	151,418	2,646	137,768	41,374	13,63
20403	7,855	1,556	564	1,458	7,182	DD	20403	6,395	DD	589	32,470	5,746	D
20501	80,036	270,232	4,144	229,131	73,513	40,997	20501	78,758	238,507	3,614	204,300	74,291	34,15
20502	27,372	95,615	2,104	81,612	24,311	13,961	20502	26,593	101,252	1,471	85,301	24,462	15,90
20503	107,646	855,638	8,443	771,215	95,154	84,040	20503	102,960	866,191	7,482	780,840	93,090	85,21
20600	41,007	290,509	1,626	282,581	38,244	7,878	20600	32,194	79,514	1,463	74,910	30,249	4,60
20700	328,301	665,560	6,184	559,618	320,464	105,863	20700	313,160	589,809	6,405	487,515	305,827	102,28
20801	109,156	55,055	1,800	41,208	106,864	13,844	20801	116,423	200,297	2,075	190,555	113,737	9,73
20802	181,078	81,947	2,046	63,716	178,184	18,223	20802	187,950	82,125	2,094	57,784	184,950	24,34
30101	218,063	102,885	2,639	82,475	214,663	20,406	30101	208,596	94,558	2,536	73,497	205,524	21,05
30102	42,871	110,660	1,001	105,561	41,607	5,094	30102	34,592	74,790	782	70,632	33,750	4,15
30201	29,941	122,447	382	118,981	29,538	3,466	30201	31,801	82,924	295	80,510	31,490	2,41
30202	36,190	426,032	960	416,684	35,114	9,346	30202	31,234	366,587	774	357,613	30,403	8,97
30203	0	0	0	0	0	0	30203	1,818	42,594	119	41,723	1,694	87
30300	98,848	1,199,916	1,835	1,157,860	96,742	42,029	30300	102,936	983,727	1,837	944,626	100,841	39,09
30401	159,070	287,899	2,221	252,280	156,291	35,612	30401	155,915	246,034	2,529	216,301	153,135	29,72
30402	68,381	364,925	1,844	353,750	66,254	11,051	30402	58,317	330,160	1,949	320,149	56,155	10,01
30501	213,094	204,202	3,483	178,069	209,041	26,112	30501	185,392	192,821	3,350	171,693	181,755	21,05
30502	45,321	58,040	1,360	51,678	43,886	6,362	30502	37,555	56,859	1,533	51,944	35,975	4,91
30601	190,263	270,227	1,891	230,282	187,853	39,945	30601	160,453	298,410	2,194	253,414	158,018	44,98
30602	46,077	38,545	562	32,853	45,471	5,691	30602	37,859	38,048	529	33,128	37,196	4,92
30701	173,301	186,849	2,512	161,207	170,229	25,506	30701	152,087	170,356	2,013	148,901	149,756	21,43
30702	41,948	64,539	1,157	56,136	40,664	8,395	30702	38,436	66,316	931	58,018	37,441	8,29
30801	248,297	17,129	2,892	13,940	244,842	3,186	30801	250,606	21,328	2,816	16,722	247,507	4,60
30802	24,277	DD	299	DD	23,957	DD	30802	24,833	DD	190	DD	24,639	DI
30901	221,829	77,425	333	64,824	221,333	12,600	30901	260,440	84,404	440	72,288	259,112	11,98
30902	159,784	17,515	1,986	15,266	157,167	2,242	30902	191,591	29,943	2,458	27,547	188,928	2,36
31001	181,281	32,201	550	27,092	180,661	5,105	31001	165,651	30,163	686	26,254	164,933	3,90
31002	196,327	40,811	1,907	34,447	193,424	6,299	31002	190,599	34,344	2,449	30,763	187,715	3,57
31101	68,787	19,193	489	17,298	68,078	1,895	31101	54,636	24,488	610	22,780	53,916	1,70
31102	174,005	185,433	2,104	159,942	171,353	25,487	31102	163,661	144,041	2,045	130,681	161,076	13,36
31200	32,309	29,297	513	27,416	31,746	1,881	31200	25,978	18,029	422	17,203	25,490	82
31300	261,980	207,476	2,774	183,180	258,803	24,272	31300	238,843	183,524	2,169	163,078	236,397	20,25
31401	49,458	19,927	740	14,426	48,451	DD	31401	43,008	14,874	734	13,198	42,199	1,67
31401	111,186	105,251	926	88,538	110,099	16,712	31401	96,818	103,563	789	91,391	95,710	12,17
31402	54,142	55,593	505	44,703	53,443	10,712	31402	60,536	52,095	390	41,873	59,844	10,22
31501	258,099	305,905	2,710	272,483	254,821	33,372	31501	249,384	311,437	2,545	278,820	246,475	32,56
31502	128,578	28,368	825	20,838	127,661	7,527	31501	145,048	29,261	737	22,558	144,111	6,70
31601	281,135		2,294	233,374	278,323	39,744	31601	275,591	222,548	1,936	194,743	273,383	27,80
		273,123									7,792		
31602	53,799	14,267	552	11,571	53,148	2,695	31602	53,875	9,853	481 1 537		53,345	2,05
31700	169,378	206,126	1,692	179,385	167,312	26,714	31700	172,632	185,367	1,537	162,042	170,770	23,32
31800	172,972	274,283	1,284	242,941	171,313	31,340	31800	167,393	252,266	1,658	221,683	165,574	30,58
40101	219	0	DD	0	194	0	40101	552 7 421		23	DD 2 228	528	50
40102	8,367	3,607	284	2,716	7,909	890	40102	7,431	3,821	154	3,228	7,180	59
40103	11,208	10,079	321	6,724	10,606	3,315	40103	11,235	8,651	224	6,795	10,980	1,81
40201	2,801	1,870	144	1,189	2,535	DD	40201	3,105	1,187	95	977	2,905	20
40202	2,143	2,146	159	1,699	1,924	447	40202	2,588	DD	119	647	2,463	D
40203	DD	0	DD	0	DD	0	40203	DD	0	DD	0	DD	
40301	44,475	397,546	3,851	363,009	37,972	34,119	40301	37,500	457,449	2,914	430,329	33,091	26,80
40302	37,709	351,658	4,033	317,279	30,884	34,260	40302	34,991	364,129	3,217	338,585	30,106	25,43
40400	8,739	56,096	966	50,216	7,396	5,735	40400	8,265	61,216	916	56,954	7,045	4,26
40500	118,862	639,776	11,932	590,695	103,487	48,866	40500	125,599	725,946	9,443	680,413	113,678	45,51
10 10 1	44,853	133,143	3,360	121,060	38,486	11,888	40601	40,592	129,093	2,882	118,861	35,365	10,09
40601	77,055												

 $\begin{tabular}{ll} \textbf{Table S2-2007}. Animal Units (AU) by 6-digit HUC, Derived from the 2007 Census of Agriculture Database \\ \end{tabular}$ 

 $\textbf{Table S2-2012}. \ Animal \ Units \ (AU) \ by \ 6-digit \ HUC, Derived \ from \ the \ 2012 \ Census \ of \ Agriculture \ Database$ 

Census of A			Commed		1 asomear r		Database						
	All livesto	ock types	tur	nvestock	1 astureu 1	vestock	_	All livestoc	k types	Confined live	estock types	Pastured live	stock types
6-digit	AU on	AU on	AU on	AU on	AU on	AU on	6-digit	AU on Non-	AU on	AU on Non-		AU on Non-	
HUC	Non- AFOs	AFOs	Non- AFOs	AFOs	Non- AFOs	AFOs	HUC	AFOs	AFOs	AFOs	AU on AFOs	AFOs	AU on AFOs
	711 03		711 03		711 03		huc6 r	onAFO_all_au	AFO_all_auc	onAFO_conf_a	AFO_conf_au >	nAFO_pastL_A	AFO_pastL_A
40700	20,681	23,106	1,249	18,699	17,743	4,196	40700	18,122	17,426	803	15,181	16,436	2,245
40801	10,942	116,268	1,213	111,485	9,215	4,762	40801	9,559	146,608	798	142,273	8,500	4,335
40802	45,411	123,333	4,624	113,475	38,526	9,755	40802	37,437	119,567	3,527	110,776	33,000	8,714
40803	670	DD	38	DD	631	DD	40803	DD	0	DD	0	571	(
40900	21,055	28,941	1,744	26,223	18,561	2,613	40900	19,509	33,075	1,764	30,497	17,152	2,573
41000	59,236	378,637	10,838	362,394	47,300	16,184	41000	58,946	388,790	8,963	373,067	49,023	15,687
41100	22,060	33,258	2,184	28,991	19,302	4,266	41100	21,537	33,187	1,642	28,075	19,669	5,111
41201	16,624	97,646	1,277	84,848	15,018	12,785	41201	16,493	95,054	979	84,517	15,335	10,515
41202	DD	DD	DD	DD	DD	DD	41202	DD	0	DD	0	DD	0
41300	26,047	163,739	1,561	146,294	24,220	17,443	41300	25,410	163,967	1,227	150,419	24,119	13,532
41401	7,637	24,912	421	21,917	7,035	2,995	41401	6,953	33,592	283	30,941	6,494	2,650
41402	34,027	238,247	2,058	211,349	30,935	26,869	41402	33,507	237,449	1,642	212,603	31,448	24,842
41501	4,842	51,596	291	46,054	4,500	5,542	41501	4,862	55,796	282	49,892	4,509	5,905
41502	DD	DD	DD	DD	DD	DD	41502	120	DD	DD	DD	DD	DD
41503	17,539	110,813	890	93,687	16,314	17,069	41503	16,219	105,955	716	93,063	15,406	12,889
41504	0	0	0	0	0	0	41504	27,782	201,671	1,673	178,215	25,854	23,455
41505	0	0	0	0	0	0	41505	2,024	29,293	93	25,269	1,923	3,686
50100	78,558	159,755	5,042	131,829	71,569	27,897	50100	72,526	143,731	3,571	120,388	67,571	23,314
50200	117,318	48,586	2,757	39,425	113,799	9,126	50200	113,482	38,385	2,002	30,555	111,168	7,816
50301	95,660	93,084	4,397	39,423 77,691	90,054	15,382	50301	92,065	79,151	3,244	66,438	88,069	12,688
50301	102,800	27,958	2,183	21,089	100,411	6,868	50301	92,063	22,321	2,044	16,597	96,714	5,708
				261,258	153,304								
50400	163,424	314,905	7,303	,		53,553	50400	160,284	324,852	6,165	272,827	152,549	51,951
50500	288,195	52,206	2,640	34,063	285,134	18,126	50500	301,114	49,691	2,753	33,350	298,181	16,333
50600	58,193	102,462	3,826	91,742	53,892	10,717	50600	53,447	110,059	2,967	100,754	50,178	9,299
50701	5,366	DD	127	DD	5,118	0	50701	3,810	DD	59	DD	3,749	0
50702	16,323	DD	354	456	15,949	DD	50702	13,940	DD	313	315	13,611	DD
50800	56,779	217,069	5,092	203,221	51,194	13,841	50800	49,563	206,033	4,215	195,617	45,082	10,413
50901	67,632	7,372	1,523	4,774	65,868	2,598	50901	58,708	10,054	1,288	6,049	57,333	4,004
50902	111,462	53,801	3,424	44,094	107,576	9,706	50902	98,061	45,949	2,839	38,583	94,930	7,366
51001	267,242	30,000	2,537	20,108	264,412	9,886	51001	243,642	23,123	2,054	15,085	241,510	8,037
51002	325,685	31,591	2,846	22,199	322,387	9,380	51002	311,108	31,371	2,670	20,697	308,248	10,674
51100	568,975	209,565	5,743	168,170	562,815	41,388	51100	456,379	183,470	5,303	151,232	450,899	32,231
51201	125,939	794,620	10,995	758,899	113,542	35,532	51201	112,823	821,121	10,143	792,925	101,791	28,151
51202	134,316	394,659	8,037	370,927	124,534	23,657	51202	119,353	351,812	6,992	332,363	111,521	19,439
51301	450,899	89,213	3,981	67,511	446,050	21,697	51301	383,979	68,915	3,360	49,750	379,753	19,133
51302	338,777	65,470	3,119	55,095	335,037	10,303	51302	265,894	52,680	2,839	44,098	262,701	8,576
51401	293,362	88,698	3,903	64,023	288,001	24,628	51401	264,724	70,213	3,353	54,328	260,047	15,869
51402	108,918	87,509	2,202	74,566	106,201	12,941	51402	92,061	88,601	1,717	80,353	90,234	8,247
60101	406,266	81,946	3,955	62,242	401,377	19,678	60101	343,471	61,416	3,149	48,250	339,908	13,166
60102	265,459	32,037	2,176	25,775	262,795	6,261	60102	240,314	24,253	2,088	18,182	238,096	6,071
60200	143,258	75,386	1,497	63,945	141,461	11,437	60200	114,511	68,834	1,239	58,631	113,032	10,201
60300	421,270	254,322	4,203	207,662	416,399	46,597	60300	414,637	212,077	3,368	177,014	410,913	35,043
60400	273,444	72,146	2,214	60,673	270,595	11,432	60400	246,948	61,270	2,107	53,130	244,284	8,096
70101	97,598	132,019	2,486	107,884	92,910	23,940	70101	79,703	153,131	1,488	132,093	76,861	21,036
70102	82,768	555,091	6,104	512,755	74,242	42,261	70102	83,334	533,652	4,583	500,249	77,042	33,285
70200		1,270,807		1,223,603	121,011	47,108	70200	112,098		5,482	1,190,498	105,002	42,486
70300	68,861	115,448	2,996	94,958	63,715	20,460	70300	56,305	105,223	1,754	88,601	53,625	16,586
70400	136,151	744,036	7,645	644,528	123,845	99,301	70400	125,273	753,704	5,757	672,043	116,752	81,170
70500	70,958	342,580	3,481	294,623	64,309	47,865	70500	62,085	338,683	2,646	297,750	56,815	40,921
70600	157,761	892,377	6,001	754,821	150,394	137,187	70600	159,124	885,699	4,608	754,756	153,951	130,801
70700	116,067	465,225	6,036	389,029	106,989	76,027	70700	107,505	452,281	4,456	384,052	101,649	67,924
70700	130,292	662,671	6,433	606,014	122,098	56,515	70801	131,061	646,031	4,340	594,797	125,719	51,219
70801		1,115,399		1,042,184	116,056	73,072	70802	131,145	1,147,171	6,458	1,084,937	123,719	62,181
70900	112,240	733,243	9,080	657,974	100,551	74,647	70802	101,865	689,991	6,973	625,764	93,219	63,660
71000		1,224,514		1,168,147	191,169	56,009	71000	194,725	1,096,990	5,080	1,048,721	189,038	48,256
	271,249	218,292		1,168,147				,			1,048,721		
71100			3,630	,	267,137	49,271	71100	246,359	218,367	3,283		242,865	40,675
71200	50,669	272,927	5,251	255,737	44,682	17,165	71200	43,033	256,388	3,921	243,853	38,380	12,517
71300	143,104	398,046	7,147	357,880	135,010	39,901	71300	122,498	377,812	5,094	339,452	117,031	38,271
71401	260,851	96,437	4,480	64,128	253,840	32,306	71401	224,772	73,667	3,276	56,234	219,691	17,433
71402	46,236	156,337	3,336	143,293	42,631	13,017	71402	40,846	144,722	2,465	135,234	38,158	9,486
80101	5,745	3,235	131	2,847	5,607	388	80101	4,470	DD	116	2,919	4,343	DD
80102	184,191	95,913	2,364	88,572	181,472	7,314	80102	140,077	98,152	2,044	90,900	137,930	7,250
80201	DD	DD	11	DD	DD	0	80201	DD	0	DD	0	471	0
80202	53,257	33,400	1,440	29,820	51,677	3,574	80202	51,139	29,440	1,106	26,861	49,909	2,579
80203	48,876	14,862	1,060	12,641	47,774	2,220	80203	39,054	DD	612	6,664	38,416	DD
80204	12,194	DD	277	DD	11,902	DD	80204	6,621	DD	108	3,067	6,510	DD
80301	DD	DD	DD	DD	DD	0	80301	DD	DD	DD	DD	DD	0
80302	145,677	16,060	1,282	14,690	144,246	1,369	80302	131,622	13,021	1,098	12,259	130,480	761
80401	99,598	72,679	621	52,529	98,941	20,147	80401	90,087	54,620	633	42,974	89,434	11,645
80402	86,501	143,087	1,031	127,145	85,354	15,938	80402	80,566	93,547	880	79,581	79,647	13,960
80403	41,798	15,627	268	14,205	41,503	1,421	80403	39,578	11,317	374	10,137	39,182	1,180
00403	+1,770	15,021	200	17,203	11,505	1,721	33-103	27,270	11,517	314	10,107	27,102	1,10

 $\begin{tabular}{ll} \textbf{Table S2-2007}. Animal Units (AU) by 6-digit HUC, Derived from the 2007 Census of Agriculture Database \\ \end{tabular}$ 

 $\textbf{Table S2-2012}. \ Animal \ Units \ (AU) \ by \ 6-digit \ HUC, Derived \ from \ the \ 2012 \ Census \ of \ Agriculture \ Database$ 

	8	Database					Database						
	All livesto	ock types	tun	nvestock	turno	vestoek	<u>-</u>	All livestoc	k types	Confined live	estock types	Pastured live	stock types
6-digit	AU on	AU on	AU on	AU on	AU on	AU on	6-digit	AU on Non-	AU on	AU on Non-		AU on Non-	
HUC	Non-	AFOs	Non-	AFOs	Non-	AFOs	HUC	AFOs	AFOs	AFOs	AU on AFOs	AFOs	AU on AFO
noc	AFOs	AirOs	AFOs	Aros	AFOs	Aros							
								nonAFO_all_au					
80500	77,087	10,547	614	7,919	76,444	DD	80500	52,845	DD	502	3,352	52,141	DI
80601	1,526	DD	26	DD	1,495	DD	80601	DD	DD	DD	DD	2,690	(
80602	99,698	31,949	699	29,721	98,779	2,227	80602	94,797	35,692	848	33,722	93,885	1,97
80701	5,063	2,649	35	2,383	5,025	DD	80701	2,842	DD	36	DD	2,806	DI
80702	108,241	50,972	773	44,297	107,169	6,673	80702	105,915	35,045	1,006	30,797	104,628	4,24
80703	16,048	1,131	150	1,131	15,879	0	80703	15,604	DD	97	223	15,505	DI
80801	91,915	7,439	1,025	6,447	90,809	DD	80801	81,799	DD	1,146	4,284	80,614	DI
80802	161,293	9,346	1,310	8,033	159,672	DD	80802	148,132	DD	1,527	6,013	146,388	DI
80901	DD	DD	0	DD	DD	DD	80901	DD	DD	DD	DD	DD	(
80902	13,108	2,986	208	2,741	12,879	246	80902	13,320	DD	229	1,615	13,088	DI
80903	27,491	1,881	201	DD	27,218	DD	80903	26,482	DD	213	1,045	26,216	DI
90100	151,105	23,599	675	16,600	144,821	6,999	90100	135,056	24,292	670	15,145	132,561	9,14
90201	96,455	184,226	1,922	163,974	92,232	20,247	90201	94,231	169,618	1,467	155,653	91,429	13,96
90202	122,878	41,828	885	30,633	119,990	11,103	90202	121,525	53,129	560	39,448	115,694	13,56
90203	99,082	52,865	1,190	43,808	95,551	8,562	90203	76,206	53,278	912	41,649	73,883	11,629
90300	10,972	1,959	287	1,150	10,342	809	90300	9,385	DD	143	1,789	9,025	DI
90400	0	0	0	0	0	0	90400	DD	320	DD	320	5,184	(
100100	5,168	DD	DD	DD	5,128	0	100100	0	0	0	0	0	7.47
100200	239,130	32,074	800	20,014	229,052	12,057	100200	250,314	25,147	689	17,451	241,440	7,679
100301	185,264	28,280	840	21,478	183,627	6,772	100301	156,380	30,652	1,235	21,232	154,751	9,420
100302	132,478	36,250	359	29,421	131,810	6,826	100302	111,789	42,001	663	34,884	107,418	7,11
100401	194,356	15,173	318	8,160	193,597	7,009	100401	196,126	DD	328	21,691	195,759	DI
100402	163,784	9,441	217	4,934	162,880	4,505	100402	155,717	10,954	292	5,863	155,308	5,09
100500	234,391	17,410	614	12,045	232,742	5,358	100500	202,326	23,477	473	15,788	201,076	7,689
100600	133,226	11,162	292	6,571	132,467	DD	100600	107,691	10,898	268	8,887	105,783	2,01
100700	211,774	63,109	1,186	43,427	209,467	19,657	100700	214,154	67,576	1,536	40,194	212,047	27,38
100800	297,684	31,973	1,049	21,053	292,245	10,918	100800	225,776	37,046	1,118	24,216	221,874	12,82
100901	87,326	4,050	182	DD	86,857	1,445	100901	90,898	DD	270	2,380	89,965	DI
100902	213,900	7,526	367	2,020	213,013	5,506	100902	201,996	9,496	323	5,802	200,568	3,694
101000	265,934	44,768	338	26,889	264,928	17,878	101000	279,227	29,426	515	19,484	278,374	9,942
101101	98,903	10,806	397	4,846	97,343	5,950	101101	88,051	9,786	300	7,402	86,640	2,37
101102	185,511	16,359	338	6,921	181,583	9,438	101102	206,020	13,815	197	6,596	204,503	7,21
101201	324,011	DD	767	DD	317,538	18,477	101201	315,867	DD	820	DD	310,007	16,670
101202	160,517	17,091	313	10,675	156,155	6,417	101202	165,123	17,991	487	8,110	161,557	9,880
101301	445,493	95,422	964	54,468	437,716	40,929	101301	439,516	106,254	1,007	60,919	433,389	45,33
101302	308,283	50,953	784	26,958	303,123	23,843	101302	301,991	49,067	990	24,734	300,465	24,18
101303	280,162	45,008	327	23,844	268,215	21,163	101303	281,371	45,367	433	23,779	271,516	21,093
101401	292,449	160,443	804	96,263	279,035	63,847	101401	300,495	148,821	713	88,806	288,048	59,68
101402	294,253	63,936	316	36,854	288,935	27,081	101402	285,071	71,546	392	41,779	280,349	29,76
101500	505,616	218,689	564	161,142	494,327	57,546	101500	464,338	245,065	906	183,771	448,385	61,29
101600	622,612	505,991	2,070	358,175	612,955	147,519	101600	594,664	439,030	2,207	322,725 244,745	587,086	116,210 56,933
101701	162,237	342,139	1,715	262,083	159,763	79,937	101701	165,079	301,825	1,710		162,835	
101702	170,823	975,330	3,544	881,966	166,187 498,106	93,322	101702	186,251	1,033,131	3,187	958,091	182,082	74,983
101800	506,200	356,323	1,091	298,175	,	57,309	101800	464,394	365,630	1,634	303,309	457,673	62,310
101900	350,110	930,624	6,032	867,148	325,459	63,276	101900	340,232	819,022	6,093	761,698	321,516	57,16
102001	187,591	461,674	1,160	425,173	185,937	33,241	102001	154,162	501,707	1,081	463,973	152,716	34,040
102002	50,792	219,195	1,297	203,882	49,287	15,313	102002	52,579	173,397	1,872	161,194	50,669	12,203
102100	611,176	623,580	1,535	502,551	606,663	120,983	102100	572,146	603,765	1,784	513,134	566,662	90,62
102200	205,539	841,580	1,903	756,396	203,463	85,175	102200	205,100	784,420	2,123	721,443	202,689	62,96
102300		1,077,439	3,864	1,025,747	96,651	51,682	102300	109,492	982,422	3,326	933,707	105,761	48,35
102400	329,229	468,364	4,952	400,332	323,565	68,024	102400	296,058	408,249	3,749	355,419	291,260	52,82
102500	550,556	950,902	1,750	851,888	547,325	98,993	102500	519,014	994,361	2,241	905,587	515,567	88,76
102600	468,371	522,962	2,120	448,442	464,797	74,506	102600	408,917	485,968	1,606	435,120	405,747	50,780
102701	221,108	99,348	2,639	71,917	216,743	27,425	102701	172,163	77,679	2,135	54,661 386,880	168,232	22,943
102702	221,565	500,853	2,508	446,276	218,118	54,528	102702	197,465	433,799	2,364	386,889	192,873	46,90
102801	373,482	335,848	2,501	291,549	370,451	44,267	102801	301,641	340,494	2,529	308,215	298,807	32,27
102802	147,411	42,149	1,034	28,287	145,320	13,860	102802	119,943	DD 259 640	833	DD 101 479	118,556	10,01
102901	879,376	312,331	6,683	228,613	870,563	83,600	102901	792,401	258,640	6,109	191,478	785,265	67,09
102902	175,522	63,566	1,428	44,454	173,538	19,034	102902	164,835	47,261	1,315	32,692	163,306	14,53
103001	410,837	249,871	4,250	190,103	405,757	59,736	103001	337,889	196,988	3,561	166,293	333,870	30,68
103002	38,698	25,032	756	17,617	37,673	7,415	103002	31,198	21,781	468	14,185	30,662	7,59
110100	865,457	460,456	5,620	367,810	858,083	92,612	110100	759,279	402,266	4,760	316,056	753,190	86,15
110200	299,547	218,123	2,799	192,907	293,916	23,966	110200	266,431	203,137	3,002	190,066	261,880	13,06
110300	470,184	1,527,510		1,445,936	463,641	79,668	110300	377,147	1,323,513	3,149	1,251,456	373,278	71,97
110400	147,497	818,658	457	795,115	146,619	23,389	110400	129,725	860,126	464	850,029	128,478	10,09
110500	373,280	189,498	1,598	170,892	371,214	18,601	110500	299,823	134,367	1,793	119,893	297,704	14,44
110600	387,755	53,304	1,402	37,229	373,745	16,066	110600	316,942	37,543	1,297	29,569	303,098	7,97
110701	431,102	68,894	2,697	37,788	427,128	31,078	110701	381,805	50,571	2,451	30,770	378,173	19,776
110702	783,237	430,865	5,355	336,279	776,049	94,537	110702	691,778	382,892	4,360	305,267	686,277	77,596
110702 110800 110901	127,150 181,048	4,220 383,508	375 296	2,086 357,548	123,239 180,665	DD 25,958	110800 110901	97,887 148,737	8,885 343,416	549 477	DD 332,289	94,433 148,096	DI 11,12

 $\begin{tabular}{ll} \textbf{Table S2-2007}. Animal Units (AU) by 6-digit HUC, Derived from the 2007 Census of Agriculture Database \\ \end{tabular}$ 

 $\textbf{Table S2-2012}. \ Animal \ Units \ (AU) \ by \ 6-digit \ HUC, Derived \ from \ the \ 2012 \ Census \ of \ Agriculture \ Database$ 

	U	Database					Database						
_	All livesto	ock types	tun	nvestock	tane	VESTOCK		All livestoc	k types	Confined live	estock types	Pastured lives	stock types
6-digit	AU on	AU on	AU on	AU on	AU on	AU on	6-digit	AU on Non-	AU on	AU on Non-		AU on Non-	
HUC	Non-	AFOs	Non-	AFOs	Non-	AFOs	HUC	AFOs	AFOs	AFOs	AU on AFOs	AFOs	AU on AFO
	AFOs		AFOs		AFOs		huc6 n	onAFO all au	AFO all auc	nAFO conf a	AFO conf au o	nAFO_pastL_A	FO pastL
110902	300,529	58,877	2,610	43,314	297,027	15,554	110902	250,310	63,439	2,445	57,610	247,227	5,82
111001	170,956	924,481	316	914,572	170,469	9,909	111001	114,829	955,234	391	944,076	114,367	11,15
111002	116,577	284,658	208	269,321	116,292	DD	111002	87,743	DD	174	250,525	87,445	D
111002	335,784	46,341	2,949	38,233	331,746	8,105	111002	270,837	65,942	2,698	54,224	267,017	11,7
111101	399,980	247,900	3,651	200,885	395,551	46,991	111101	361,113	193,266	3,482	162,723	357,038	30,53
111102	252,415	285,969	1,991	236,745	249,851	49,048	111102	231,765	246,384	1,535	211,717	230,044	34,66
111102	213,282	947,299	518	921,615	212,288	25,681	111102	128,674	811,716	803	792,598	127,442	19,1
111201	58,915	947,299 DD	108	921,013 DD	58,793	846	111201	43,845	DD	254	792,396 DD	43,531	19,1
111203	164,977	125,990	554	121,038	164,224	4,907	111203	126,775	92,782	455	88,298	126,150	4,4
111301	136,662	10,059	350	8,336	136,119	1,719	111301	95,786	DD	377	4,433	95,259	D
111302	529,516	50,338	1,910	34,679	526,301	15,657	111302	431,552	41,834	2,293	34,609	428,144	7,1
111303	494,088	98,165	2,240	80,603	490,843	17,560	111303	376,365	75,658	1,938	62,456	373,529	13,1
111401	595,237	215,777	3,593	159,923	590,784	55,800	111401	493,829	166,888	3,838	126,681	489,501	40,13
111402	154,213	78,535	782	60,389	153,241	18,143	111402	152,483	56,394	961	46,105	151,408	10,2
111403	335,251	181,623	2,892	147,783	331,428	33,735	111403	306,835	142,918	3,245	114,281	302,815	28,6
120100	308,445	165,458	4,332	136,793	302,671	28,658	120100	275,347	153,309	5,070	130,688	269,252	22,6
120200	294,108	133,559	3,641	103,179	288,885	30,354	120200	243,923	121,902	3,590	100,819	239,205	21,0
120301	589,171	84,319	9,571	61,783	576,399	22,516	120301	529,633	73,450	11,095	59,504	516,477	13,79
120302	341,954	38,817	2,256	22,095	338,604	16,692	120302	291,624	38,175	2,400	31,920	288,385	6,1
120401	131,995	15,617	2,096	9,106	128,889	6,510	120401	120,078	DD	2,521	7,524	116,754	Ē
120402	110,171	7,263	1,318	4,595	108,127	DD	120402	105,080	10,784	1,704	6,674	103,028	4,1
120500	219,856	1,048,311		1,010,009	218,176	38,264	120500	159,340	1,146,655	1,880	1,097,935	157,270	48,6
120601	223,340	43,661	853	27,759	221,995	15,892	120601	175,867	13,177	1,159	8,081	174,329	5,0
120602	364,346	136,440	3,682	113,887	358,097	22,540	120602	330,285	101,784	4,027	88,780	323,952	12,9
120701	705,109	80,477	3,452	54,922	699,903	25,536	120701	564,503	67,074	4,597	54,847	557,883	12,2
120701				92,216			120701	318,922	91,992	3,327	75,242	313,788	16,6
	437,116	114,102	2,698		432,547	21,856							
120800	165,862	63,185	1,494	54,127	164,093	9,058	120800	117,005	84,495	2,075	75,661	114,646	8,8
120901	378,360	58,153	1,413	50,304	374,466	7,813	120901	276,851	52,172	1,999	41,011	273,129	11,1
120902	253,222	13,138	1,378	8,699	246,634	4,313	120902	183,667	8,286	1,847	6,126	179,280	2,1
120903	225,755	17,749	1,403	8,856	223,154	8,893	120903	173,601	7,620	1,276	6,651	171,660	9
120904	104,334	DD	655	DD	103,537	5,763	120904	86,643	DD	627	DD	85,938	Γ
121001	176,736	20,007	789	15,071	175,504	4,925	121001	138,833	10,689	804	8,768	137,657	1,9
121002	347,188	99,029	1,930	77,087	341,523	21,775	121002	278,221	111,044	2,701	89,755	272,104	21,2
121003	198,781	19,611	2,042	16,549	195,292	DD	121003	164,841	DD	2,733	DD	158,745	D
121004	207,222	18,585	660	12,646	206,083	5,939	121004	145,296	9,230	1,027	7,289	143,876	1,9
121101	359,824	68,744	1,782	53,448	352,880	15,076	121101	306,553	48,798	2,493	43,725	299,010	4,99
121102	235,053	41,162	1,818	37,067	232,265	4,028	121102	193,536	47,641	2,771	43,089	189,452	4,5
130100	73,735	11,308	650	9,960	72,713	1,348	130100	69,834	DD	723	7,020	66,595	D
130201	26,850	3,438	878	3,015	24,736	DD	130201	28,080	4,205	1,570	3,690	24,895	5
130202	100,587	52,160	4,488	44,749	95,660	7,407	130202	95,479	52,182	4,615	45,998	90,742	6,1
130301	23,471	63,611	798	DD	21,144	DD	130301	23,421	DD	1,055	DD	19,450	D, 1
130301	33,366	39,151	157	34,583	33,019	4,568	130301	34,465	DD	314	23,765	34,069	D
130401	7,089		453	54,565 DD					DD	471			L
		4,843			6,636	DD	130401	6,070			DD	5,591	
130402	44,779	988	144	618	44,360	DD	130402	36,086	1,196	132	1,196	35,668	
130403	53,751	290	84	190	53,209	DD	130403	32,148	DD	87	DD	31,693	
130500	64,814	15,382	558	13,414	63,950	1,967	130500	61,956	DD	721	10,278	61,002	Г
130600	175,403	155,215	743	145,031	174,520	10,180	130600	144,311	149,963	1,095	137,690	143,044	12,2
130700	139,155	18,623	327	12,198	138,383	6,425	130700	109,456	DD	550	11,750	108,835	Ε
130800	65,816	DD	304	DD	64,721	2,520	130800	61,403	DD	652	DD	59,249	1,8
130900	25,658	DD	181	DD	25,391	DD	130900	24,633	DD	389	DD	24,112	Ε
140100	70,134	12,648	1,532	11,165	67,605	1,474	140100	78,943	12,834	1,988	10,106	76,221	2,7
140200	70,088	19,010	1,245	14,395	67,107	4,615	140200	67,110	24,032	1,487	19,961	64,776	4,0
140300	31,551	12,842	866	8,649	30,561	4,193	140300	36,030	7,861	622	3,645	35,327	4,2
140401	122,440	9,621	338	2,864	120,179	6,751	140401	121,334	3,391	399	2,644	120,539	7
140402	7,997	DD	74	230	6,693	DD	140402	DD	DD	DD	DD	8,136	
140500	110,497	8,453	518	4,925	109,045	3,527	140500	108,636	DD	679	5,737	107,480	Ι
140600	104,631	27,615	1,635	15,869	109,043	11,744	140600	105,280	24,377	1,662	17,364	107,480	7,0
140700			744		38,250	3,547	140700	38,624	24,377 DD	424	5,904	38,168	
	39,138	13,887		10,340									100
140801	62,714	27,751	6,383	22,046	55,832	DD	140801	79,955	14,206	3,884	11,328	75,873	2,8
140802	28,894	12,359	7,344	11,655	21,293	690	140802	36,365	DD	7,904	11,069	28,080	I
150100	29,858	16,960	1,940	14,096	27,810	2,860	150100	46,151	11,648	2,058	9,984	44,047	1,6
150200	77,718	76,749	19,709	64,510	57,900	DD	150200	97,057	75,670	16,169	72,080	80,797	3,5
150301	4,969	5,458	431	5,415	4,521	DD	150301	8,160	DD	423	DD	7,735	I
150302	11,647	3,851	190	2,897	11,451	DD	150302	14,602	2,088	148	1,179	14,442	I
150400	49,835	10,675	789	8,859	49,024	1,807	150400	56,935	DD	748	6,496	56,149	I
150501	13,540	87,436	799	85,252	12,620	DD	150501	12,820	DD	1,133	78,448	11,294	I
150501	24,968	DD	573	DD	24,367	DD	150501	24,811	DD	717	DD	24,063	I
150502	33,164	DD	848	DD		3,701	150502	34,676	DD	1,333	DD	33,239	
					32,198								
150601	19,286 24,922	16,816	2,222	15,966	16,959	DD	150601	13,728	DD	1,909	16,227	11,803	I
150500		5,924	1,013	4,847	23,868	1,078	150602	26,854	DD	1,190	7,448	25,638	Γ
150602 150701	11,129	125,712	1,005	122,148	9,963	3,337	150701	15,129	134,512	2,111	133,837	12,971	6

 $\begin{tabular}{ll} \textbf{Table S2-2007}. A nimal Units (AU) by 6-digit HUC, Derived from the 2007 Census of Agriculture Database \\ \end{tabular}$ 

 $\textbf{Table S2-2012}. \ Animal \ Units \ (AU) \ by \ 6-digit \ HUC, Derived \ from \ the \ 2012 \ Census \ of \ Agriculture \ Database$ 

	0	Database					Database						
	All liveste	ock types	tun	ar ar	tune	VESTOCK	_	All livestoc	k types	Confined live	estock types	Pastured lives	stock types
6-digit	AU on	AU on	AU on	AU on	AU on	AU on	6-digit	AU on Non-	AU on	AU on Non-		AU on Non-	
HUC	Non-	AFOs	Non-	AFOs	Non-	AFOs	HUC	AFOs	AFOs	AFOs	AU on AFOs	AFOs	AU on AFO
	AFOs		AFOs		AFOs						1 FO 6		FO I
150702	1,079	DD	134	DD	942	DD	huc6 n 150702	onAFO_ali_au 918	AFO_all_auc DD	395	AFO_conf_au of DD	nAFO_pastL_A 523	AFO_pastL_A
150702	DD	DD	40	DD	DD	0	150702	1,002	DD	109	761	796	D:
150801	393	0	0	0	393	0	150801	488	0	0	0	488	D.
150802	8,672	DD	224	455	8,446	DD	150802	10,205	DD	96	DD	10,105	
160101	44,315	10,401	156	3,999	44,141	6,400	160101	47,618	DD	125	2,462	47,479	D
							160101	85,190	84,879	1,574		83,134	13,48
160102	71,056	82,508	1,679	68,176	68,580	14,283					71,386		
160201	37,995	21,136	1,221	13,963	35,423	7,173	160201	37,470	14,331	1,428	13,157	34,866	1,17
160202	44,272	46,669	2,448	36,498	41,282	10,164	160202	46,373	44,378	3,230	38,960	42,839	5,33
160203	113,771	47,358	1,346	38,488	112,104	8,854	160203	91,102 115,227	45,214	1,070	37,331	89,920	7,87
160300	130,491	244,345	1,587	221,510	128,084	22,795	160300	· · · · · · · · · · · · · · · · · · ·	DD	1,752	DD	113,163	27,62 D
160401	97,842	14,443	263	10,522	97,515	3,919	160401	97,971	9,012	323	DD 2 202	97,628	
160402	46,828	DD 5 217	219	DD	46,535	DD	160402	31,801	DD	358	3,303	31,409	D
160501	6,559	5,217	355	3,673	6,150	1,544	160501	9,395	DD	457	3,487	8,680	D
160502	19,339	25,967	378	21,635	18,867	DD	160502	25,198	25,686	790	20,381	24,267	5,30
160503	20,161	9,012	285	DD	19,802	DD	160503	23,681	DD	297	DD	23,280	D
160600	70,421	21,370	837	17,695	69,532	DD	160600	64,344	20,116	925	18,728	63,358	1,38
170101	7,763	957	227	809	7,459	DD	170101	7,496	DD	349	855	7,061	D
170102	193,192	23,169	2,570	13,177	187,198	9,984	170102	163,692	22,650	2,934	14,081	158,696	8,56
170103	32,598	7,479	1,442	5,724	29,862	1,749	170103	28,343	5,389	1,495	4,283	26,245	1,0
170200	146,818	212,919	2,344	190,303	143,822	22,569	170200	108,941	242,112	1,815	224,883	106,681	17,22
170300	67,042	162,996	1,616	152,936	65,182	9,976	170300	53,489	242,476	1,849	235,352	51,464	7,12
170401	28,683	8,145	341	4,837	28,275	3,308	170401	35,468	6,100	414	4,781	35,017	1,3
170402	321,795	933,235	4,075	828,417	314,981	104,436	170402	310,427	991,629	4,207	920,288	304,036	69,29
170501	313,789	441,156	4,428	388,292	308,426	52,843	170501	307,531	436,532	3,716	399,022	303,112	37,49
170502	75,969	10,949	373	4,526	75,511	6,422	170502	66,733	DD	366	5,370	66,267	D
170601	100,941	24,217	1,114	15,053	99,198	9,164	170601	85,331	24,621	1,226	16,307	83,667	8,3
170602	61,188	6,175	351	3,247	60,710	2,928	170602	58,657	8,893	258	4,334	57,731	4,55
170603	33,772	5,226	432	2,597	32,873	2,625	170603	33,135	7,631	440	4,991	32,300	2,6
170701	96,411	175,207	1,738	164,777	93,839	10,366	170701	77,519	167,254	1,403	157,333	75,826	9,85
170702	62,411	8,686	264	4,630	61,821	4,055	170702	60,709	10,577	216	3,512	60,460	7,00
170703	89,220	20,226	1,466	10,465	86,975	9,760	170703	86,920	16,993	1,351	9,572	85,142	7,42
170800	34,116	36,207	1,262	31,940	32,206	4,261	170800	28,008	34,653	1,766	30,737	26,004	3,9
170900	110,304	102,484	5,743	92,167	102,166	10,292	170900	92,306	98,854	5,153	90,074	85,872	8,75
171001	23,019	22,121	713	20,536	22,004	1,550	171001	17,254	20,933	743	19,272	16,277	1,65
171002	19,408	47,106	558	41,212	18,477	5,893	171002	17,905	43,299	569	37,280	17,220	6,01
171003	105,316	21,459	2,357	12,151	102,118	9,295	171003	92,418	16,075	2,077	11,705	89,645	4,37
171100	90,784	162,075	3,750	146,002	85,249	16,049	171100	66,615	151,602	3,528	139,336	62,286	12,25
171200	150,389	12,974	363	7,293	149,839	5,681	171200	140,159	DD	339	4,175	139,722	D
180101	70,060	96,928	1,430	81,661	68,349	15,238	180101	61,080	107,176	1,414	89,580	59,465	17,59
180102	113,247	30,915	948	20,024	112,119	10,890	180102	84,856	29,787	957	18,811	83,779	10,97
180200	61,197	8,878	401	DD	60,664	6,117	180200	58,626	DD	344	1,710	58,218	D
180201	221,633	109,495	5,275	94,260	213,592	15,176	180201	220,261	109,932	5,676	88,714	213,285	21,0
180300	159,606	1,829,890	2,761	1,767,424	156,535	62,457	180300	152,332	1,894,423	2,861	1,833,923	149,354	60,45
180400	277,252	1,322,679	4,090	1,248,147	272,438	74,496	180400	223,216	1,295,588	4,788	1,245,808	217,919	49,76
180500	69,959	32,164	1,145	24,229	68,442	7,934	180500	69,270	38,727	1,371	31,516	67,708	7,20
180600	149,622	33,245	1,965	24,079	147,099	9,133	180600	144,845	25,467	2,035	19,423	142,262	6,00
180701	14,534	10,042	2,403	9,172	11,982	860	180701	9,453	DD	1,640	4,452	7,735	D
180702	12,691	243,655	2,751	235,875	9,758	7,719	180702	9,506	172,525	1,944	166,779	7,484	5,70
180703	20,756	39,832	2,929	37,886	17,027	1,944	180703	10,298	40,037	2,288	38,416	7,759	1,6
180800	29,280	991	376	906	28,765	DD	180800	28,755	DD	360	1,473	28,243	D
180901	7,283	DD	45	DD	7,228	0	180901	6,660	DD	76	DD	6,553	
180902	18,238	60,683	1,254	59,500	16,719	1,171	180902	16,309	70,326	1,412	68,666	14,834	1,6
181001	2,100	DD	324	DD	1,751	0	181001	DD	DD	211	DD	DD	Γ
181002	7,787	294,034	531	292,283	7,166	1,752	181002	3,548	DD	600	248,519	2,915	Ī
190101	0	0	0	0	0	0	190101	0	0	0	0	0	
190102	DD	0	DD	0	0	0	190102	DD	0	DD	0	DD	
190103	DD	0	DD	0	DD	0	190103	DD	0	14	0	DD	
190104	0	0	0	0	0	0	190104	0	0	0	0	0	
190201	DD	DD	DD	DD	DD	DD	190201	DD	DD	8	DD	DD	Ι
190202	DD	0	DD	0	DD	0	190201	DD	0	DD	0	0	
190202	711	DD	74	80	597	DD	190202	708	DD	74	DD	621	Γ
190203	240	DD	32	DD	127	0	190203	DD	DD	64	DD	DD	Ι
190204	976	792	32 77	663	689	DD	190204	1,043	DD	76	492	705	I
190205	DD	0	DD	0	089 DD	طط 0	190205	1,043 DD	טט 0	DD	492 0	DD	1
190207	2,181	DD	DD	DD	DD	DD	190207	2,182	0	DD	0	DD	
190301	DD	0	0	0	DD	0	190301	DD	0	0	0	DD	
190302	0	0	0	0	0	0	190302	DD	0	DD	0	0	
190303	0	0	0	0	0	0	190303	0	0	0	0	0	
190304	0	0	0	0	0	0	190304	DD	0	DD	0	0	
	0	0	0	0	0	0	190305	DD	0	DD	0	0	
190305 190401	DD	DD	DD	DD	119	DD	190401	DD	0	DD	0	171	

**Table S2-2007**. Animal Units (AU) by 6-digit HUC, Derived from the 2007 Census of Agriculture Database

	All livestoc	k types	type	vestock	tuno	vestoek
6-digit HUC	AU on Non- AFOs	AU on AFOs	AU on Non- AFOs	AU on AFOs	AU on Non- AFOs	AU on AFOs
190402	0	0	0	0	0	0
190403	DD	0	DD	0	DD	0
190404	46	DD	DD	DD	DD	DD
190405	602	585	92	292	328	239
190406	DD	0	0	0	DD	0
190407	0	0	0	0	0	0
190408	DD	0	0	0	DD	0
190501	0	0	0	0	0	0
190502	0	0	0	0	0	0
200100	89,754	DD	667	3,140	88,972	DD
200200	16,451	DD	188	DD	16,179	DD
200400	DD	0	DD	0	DD	0
200500	3,207	DD	65	DD	3,141	0
200600	5,018	4,801	230	4,197	4,787	DD
200700	9,612	DD	161	DD	9,328	DD

200800

DD

DD

 $\textbf{Table S2-2012}. \ Animal \ Units \ (AU) \ by \ 6-digit \ HUC, Derived \ from \ the \ 2012 \ Census \ of \ Agriculture \ Database$ 

	All livesto	ck types	Confined liv	estock types	Pastured live	stock types
6-digit HUC	AU on Non- AFOs	AU on AFOs	AU on Non- AFOs	AU on AFOs	AU on Non- AFOs	AU on AFOs
huc6	nonAFO_all_au	AFO_all_au	onAFO_conf_a	AFO_conf_au	onAFO_pastL_A	AFO_pastL_AU
190402	DD	0	DD	0	DD	0
190403	0	0	0	0	0	0
190404	DD	DD	DD	DD	DD	DD
190405	771	DD	143	313	410	DD
190406	0	0	0	0	0	0
190407	DD	0	DD	0	0	0
190408	DD	0	0	0	DD	0
190501	0	0	0	0	0	0
190502	0	0	0	0	0	0
200100	77,742	DD	482	DD	77,149	DD
200200	11,291	DD	221	180	11,040	DD
200400	DD	0	DD	0	DD	0
200500	DD	DD	DD	DD	1,877	DD
200600	4,751	DD	228	1,968	4,517	DD
200700	11,330	DD	50	DD	11,157	0
200800	DD	0	DD	0	DD	0
Sum of						
column National	43,031,995	50,084,152	619,439	45,983,714	42,139,266	4,941,358
total	43,067,417	51,938,722	619,685	46,851,262	42,154,317	5,073,062
of						
national	99.92%	96.43%	99.96%	98.15%	99.96%	97.40%

Notes: All AU includes specialty livestock in addition to confined and pastured livestock types.

DD

0

DD

For complete definitions of variables, see the USDA/NRCS report entitled "Estimates of Recoverable and Non-Recoverable Manure Nutrients Based on the Census of Agriculture," authored by Robert L. Kellogg, David C. Moffitt, and Noel Gollehon.

**Table S4--2007**. Quantity of Manure and Manure Nutrients Produced *as excreted* for Pastured Livestock Types by 6-digit HUC,
Derived from the 2007 Census of Agriculture Database

 $\textbf{Table S4--2012}. \ Quantity of \ Manure \ And \ Manure \ Nutrients \ Produced \ \textit{as excreted} \ \ for \ Pastured \ Livestock \ Types \ by \ 6-digit \ HUC,$ 

	Quantity of wet weigh	manure,	Quantity of dry weigh	manure,	Quantity o nitrogen,		Quantity o			Quantity of ma weight (t	nure, wet	Quantity of ma weight (to		Quantity of manu	-	Quantity of phosphorus,	
6-digit HUC	Non-AFOs	AFOs	Non- AFOs	AFOs	Non-AFOs	AFOs	Non-AFOs	AFOs	6-digit HUC	Non-AFOs	AFOs	Non-AFOs	AFOs	Non-AFOs	AFOs	Non-AFOs	AFOs
10100	27,498	9,351	5,209	1,451	337,116	112,253	120,919	46,555	huc6 70	O_pastL_wete _ 28,459	pastL_wete 7	O_pastL_drye _ 5,247	pastL_drye DD	nAFO_pastL_ne .F 349,192	FO_pastL_ne 1/ DD	AFO_pastL_pe .F 127,604	O_pastL_pe DD
10200	43,826	20,940	9,109	3,289	542,948	251,521	179,050	103,547	10200	29,694	19,125	6,246	3,019	369,239	233,138	120,060	94,363
10300 10400	71,517 46,428	39,905 18,393	14,463 8,696	6,257 2,881	884,219 574,286	480,206 221,648	298,985 205,905	197,535 91,110	10300 10400	78,138 37,878	33,569 11,054	15,748 7,801	5,224 1,715	966,266 470,984	403,305 132,958	327,581 155,985	166,842 55,035
10500	39,931	5,571	8,397	913	518,886	70,333	161,793	26,945	10500	36,672	5,773	7,782	973	476,520	73,955	147,395	27,483
10600 10700	100,187 135,634	19,402 17,146	23,281 31,945	3,532 2,851	1,257,046 1,691,458	233,141 210,825	367,656 490,317	87,696 82,163	10600 10700	106,097 125,907	9,869 12,580	24,930 30,537	1,655 2,342	1,340,867 1,575,587	119,844 156,133	384,781 440,199	47,033 56,049
10801	138,596	88,428	29,410	14,009	1,751,706		556,391	435,321	10801	133,218	69,850	27,101	11,068	1,704,520	851,735	554,967	343,947
10802	184,914	30,658	41,738	4,898	2,324,414	373,386	699,610	150,271	10802	183,513	27,669	42,166	4,477	2,305,625	346,637	681,624	134,774
10900 11000	156,692 185,637	19,674 74,965	36,714 41,480	3,500 12,193	1,947,969 2,290,112	238,169 905,982	569,621 708,952	90,340 363,661	10900 11000	133,994 230,961	18,062 64,621	32,571 52,600	3,669 10,395	1,660,456 2,843,920	223,247 779,253	467,011 865,070	75,238 315,439
11100	19,739	46,288	3,825	7,261	251,157	555,537	85,463	229,057	11100	0	0	0	0	0	0	0	0
20100 20200	247,316 562,016	290,469 294,666	50,799 118,188	45,860 46,732	3,063,688 6,997,076		1,020,675 2,273,077		20100 20200	0 591,852	0 272,231	0 127,543	0 44,240	0 7,367,292	0 3,275,814	0 2,341,262	0 1,321,117
20200	146,497	10,127	35,917	1,945	1,830,277	126,551	505,561	44,120	20200	144,899	7,076	35,160	1,254	1,806,444	87,670	506,217	32,599
20302	13,461	DD	3,868	DD	164,539	DD	36,740	DD	20302	20,728	DD	5,895	DD	252,146	DD	57,598	DD
20401 20402	296,976 378,278	87,787 170,173	63,548 89,005	13,961 28,226	3,710,425 4,694,828		1,182,629 1,368,717	431,258 816,119	20401 20402	290,955 406,534	77,318 154,794	62,865 95,111	12,534 25,679	3,636,030 5,011,091	934,516 1,871,125	1,148,360 1,479,734	375,796 742,387
20403	65,897	DD	17,864	DD	815,386	DD	198,227	DD	20403	53,084	DD	14,009	DD	666,863	DD	166,302	DD
20501	792,292	474,573	147,649	75,030	9,777,805		3,526,308		20501	798,651	395,210	149,541	62,616	9,872,211	4,751,955	3,542,774	1,945,279
20502 20503	260,035 998,433	157,980 943,341	49,260 197,508	26,599 161,815	3,218,508 12,423,712	1,902,526 11,392,996	1,143,832 4,250,223	750,918 4.433,481	20502 20503	262,225 982,521	179,667 960,085	49,787 192,160	30,357 163,221	3,223,231 12,187,009	2,166,311 11,582,401	1,151,267 4,219,464	852,215 4,536,975
20600	388,394	89,206	83,531	14,881	4,819,990	1,080,467	1,539,073	426,462	20600	304,180	52,264	67,665	8,628	3,736,359	634,184	1,166,606	251,402
20700 20801	3,579,838 1,201,879	1,226,597 161,120	616,750 204,848	192,550 25,080	43,543,939 14,527,843	14,807,439		6,068,700 800,690	20700 20801	3,423,682 1,273,491	1,188,202 112,003	585,651 219,701	185,447 17,916	41,685,962 15,394,379	14,326,670 1,353,584	16,122,618 5,963,936	5,896,821 548,487
20802		212,073	334,965	32,969	24,497,075		9,728,280		20802	2,105,008	284,158	346,916	43,935	25,455,678	3,413,407	10,134,712	1,417,122
30101	2,458,793	237,535	398,837	37,043	29,686,245		11,946,141		30101	2,355,908	245,140	381,313	38,127	28,444,863	2,948,975	11,460,517	1,218,757
30102 30201	465,039 329,819	58,694 39,771	79,987 56,347	9,315 6,441	5,657,244 4,042,625		2,182,417 1,554,734	288,715 193,384	30102 30201	373,774 356,498	48,412 27,498	66,061 59,214	7,527 4,542	4,538,743 4,335,039	582,565 331,351	1,723,838 1,708,840	240,738 132,212
30202	381,102	107,369	70,303	17,127	4,670,196		1,707,993	526,694	30202	332,007	103,947	60,565	16,356	4,051,320	1,252,587	1,499,344	513,605
30203	1 078 002	0 487,954	0	0 76,418	12 157 202	0	0	0	30203 30300	17,297	10,183	3,737	1,571	211,080	122,201	68,210	50,836
30300 30401	1,078,902 1,763,278	487,954	186,119 296,410	64,796	13,157,303 21,401,517		8,391,444		30300	1,128,005 1,738,514	455,365 345,659	194,269 288,216	70,698 53,925	13,683,518 21,042,500	5,480,900 4,158,194	5,288,893 8,341,480	2,266,118 1,715,709
30402	740,386	127,339	127,419	20,257		1,540,366		625,498	30402	617,743	116,078	110,749	18,189	7,524,480	1,400,804	2,822,591	574,858
30501 30502	2,341,749 480,484	303,466 73,571	401,925 87,237	47,507 11,686	28,394,417 5,852,658		11,003,126 2,176,753	1,503,445 361,621	30501 30502	2,019,959 384,074	243,594 56,672	354,416 73,873	38,605 9,070	24,484,534 4,710,653	2,930,377 681,137	9,359,522 1,669,887	1,198,839 277,384
30601	2,133,336	464,782	353,591	72,501	25,808,124		10,237,047		30601	1,789,542	516,261	298,788	83,813	21,656,270	6,201,755	8,550,284	2,506,644
30602	519,895	66,381	84,428	10,284	6,295,918		2,524,545	330,700	30602	424,787	57,407	69,118	8,880	5,149,583	690,051	2,060,482	286,226
30701 30702	1,919,160 461,402	296,878 97,473	323,887 76,267	46,265 15,294	23,257,513 5,604,083			482,317	30701 30702	1,691,296 425,689	249,663 96,585	284,285 70,132	38,852 15,071	20,482,995 5,160,753	2,998,404 1,159,876	8,048,725 2,050,086	1,240,822 479,322
30801	2,735,152	33,939	476,459	6,719	32,970,712	407,375	12,729,628	144,183	30801	2,768,478	48,628	481,093	9,835	33,343,810	584,254	12,904,292	203,060
30802 30901	274,646 2,575,325	DD 147,124	44,578 402,159	DD 22,766	3,308,324 30,930,545		1,333,800 12,775,545	DD 733,377	30802 30901	281,125 3,015,964	DD 139,926	46,212 470,555	DD 21,654	3,388,061 36,219,089	DD 1,679,371	1,355,367 14,968,452	DD 697,478
30902		24,657	294,567		21,610,348		8,670,177	112,388	30902	2,174,504	25,852	349,460	4,776	26,165,745	310,528	10,619,336	115,660
31001	2,098,717	59,598	329,333		25,201,983		10,383,892	297,022	31001	1,915,765	45,647	300,609	7,037	23,012,063	547,761	9,479,057	227,981
31002 31101	2,200,233 779,073	72,365 22,039	365,282 127,155	11,572 3,451	26,487,577 9,380,175		10,546,098 3,771,491	354,466 109,165	31002 31101	2,131,607 614,349	41,160 19,872	355,369 101,444	6,626 3,080	25,674,202 7,399,651	493,925 239,913	10,192,109 2,954,099	200,805 98,994
31102	1,956,380	296,664	320,085	46,213	23,630,104	3,566,732	9,458,551	1,473,652	31102	1,842,902	155,235	300,077	24,192	22,240,301	1,872,710	8,934,214	771,032
31200 31300	357,955 2,947,601	21,899 281,370	60,211 486,372	3,415 44,265	4,347,821 35,558,042		1,702,901 14,180,191	108,723	31200 31300	287,482 2,692,143	9,657 235,382	48,749 441,533	1,489 36,715	3,467,702 32,635,684	115,897 2,835,708	1,360,641 12,999,103	48,225 1,168,497
31401	542,423	DD	93,552	DD	6,560,372		2,540,726	DD	31401	473,398	19,401	81,155	3,060	5,727,671	233,790	2,225,824	95,735
31402		194,382	203,556		15,260,063			963,813	31402	1,098,982	141,858	177,804	22,020	13,224,206	1,705,136	5,346,709	705,994
31403 31501	612,484 2,880,588	125,989 386,672	99,301 484,188	20,017 61,053	7,388,833 34,814,276	1,512,093 4,647,774	2,976,540 13,707,540	619,155	31403 31501	690,635 2,801,985	118,547 379,107	110,058 464,342	18,687 59,093	8,315,157 33,824,703	1,423,869 4,554,695	3,388,711 13,445,966	585,100 1,882,505
31502	1,464,624	87,948	237,009	13,582	17,653,454	1,055,439	7,125,174	438,864	31502	1,666,742	78,171	264,183	12,104	20,055,032	939,853	8,202,235	389,546
31601 31602	3,170,877 605,774	458,122 31,375	523,068 99,667	73,451 4,898	38,234,680 7,312,162	5,504,845 376,521	15,256,581 2,919,227	2,240,119 155,665	31601 31602	3,136,843	321,728 23,966	507,843 98,926	50,999 3,740	37,785,988 7,382,078	3,866,694 287,591	15,256,019	1,583,132 118,921
31700		309,543	314,494		22,985,523				31700	612,255 1,954,214	23,966	318,446	3,740 42,617	23,559,101	3,249,911	2,981,128 9,469,374	1,336,464
31800	1,952,327	362,485	322,541	57,502	23,498,117	4,358,316	9,384,743	1,782,985	31800	1,891,628	355,446	310,577	55,697	22,754,049	4,268,658	9,125,753	1,760,021
40101 40102	2,139 85,937	0 10,255	388 16,057	0 1,640	25,719 1,038,861	0 123,530	9,688 381,477	0 50,217	40101 40102	5,565 80,143	0 6,864	1,125 13,928	0 1,083	67,136 969,742	0 82,692	23,252 373,600	0 33,872
40103	117,780	38,572	20,678	6,011	1,429,478	463,970	545,550	191,563	40103	122,792	21,003	21,264	3,290	1,483,695	253,117	573,688	104,017
40201	27,422	DD	5,139	DD	334,100	DD	121,507	DD	40201	32,032	2,439	5,698	380	390,625	29,268	147,123	12,114
40202 40203	20,251 DD	5,209 0	3,846 DD	812 0	259,380 DD	62,512 0	89,026 DD	25,863 0	40202 40203	27,292 DD	DD 0	4,653 DD	DD 0	340,545 DD	DD 0	128,892 DD	DD 0
40301	408,663	397,248	77,535	61,869	4,981,490	4,773,879	1,794,591		40301	360,258	312,358	66,373	48,525	4,389,099	3,752,933	1,615,682	1,553,852
40302 40400	329,708 73,439	394,237 66,796	63,486 16,759	63,282 10,393	4,040,187 905,996	4,750,206 802,606	1,432,279 274,516		40302 40400	318,832 72,194	291,683 49,612	62,210 15,233	47,253 7,750	3,932,580 893,552	3,515,099 595,359	1,371,448 291,057	1,418,106 246,066
40500	1,058,182	548,005	224,471	93,952	13,096,433		4,245,732		40500	1,172,666	503,472	243,462	90,000	14,513,535	6,071,780	4,795,236	2,304,132
40601	404,486	135,066	80,832	22,460	4,967,942		1,707,081	646,795	40601	374,534	115,155	73,541	18,976	4,593,177	1,387,106	1,602,822	554,394
40602 40700	1,650 192,520	1,707 48,257	350 36,021	263 7,770	21,144 2,332,063	20,483 580,743	6,633 853,850	8,534 235,422	40602 40700	DD 178,308	DD 25,697	DD 33,158	DD 4,207	DD 2,172,245	DD 308,433	DD 794,436	DD 124,176
40801	97,684	54,658	19,010	8,788	1,204,910	661,325	421,035	266,902	40801	90,709	50,188	17,453	7,925	1,113,238	604,174	394,287	247,506
40802 40803	400,720 6,893	111,759 DD	82,239 1,247	18,235 DD	4,918,174 84,669	1,342,698 DD	1,654,365 31,309	541,077 DD	40802 40803	347,451 6,345	99,526 0	69,154 1,080	16,276 0	4,265,713 78,763	1,201,631 0	1,471,119 29,995	481,296 0
40900	182,175	29,714	42,906	4,810	2,235,501	365,084	658,115	144,615	40900	171,081	28,310	38,714	5,036	2,105,689	346,960	645,014	130,055
41000	482,158	182,023	101,504	30,781	6,054,958	2,213,838	1,948,912	863,195	41000	502,614	177,307	105,481	29,588	6,245,913	2,155,815	2,036,350	847,564
41100 41201	190,798 156,090	47,396 148,490	44,199 31,895	8,388 23,293	2,341,927 1,927,032	570,799 1,784,247	701,840 646,931	218,335 734,842	41100 41201	196,784 158,502	55,328 122,343	44,291 32,691	10,505 19,075	2,417,748 1,964,908	665,138 1,471,195	745,936 651,879	242,710 607,454
	,	.,	. ,	- ,	,,	,,= . ,	,	,			,	,	.,		. ,	,	.,

Table S4--2007. Quantity of Manure and Manure Nutrients Produced as excreted for Pastured Livestock Types by 6-digit HUC,
Derived from the 2007 Census of Agriculture Database

 Table S4--2012. Quantity of Manure and Manure Nutrients Produced as excreted for Pastured Livestock Types by 6-digit HUC,

6-digit HUC Non   41202   41300	uantity of wet weigh m-AFOs  DD 258,422 75,713 323,001 48,903 DD 178,365 0 0 762,185 272,136 982,052 123,698 674,545 258,733 583,131 56,450 176,312 549,936 736,005 199,491 004,181	DD 202,226 34,558 308,552 64,381 DD 197,476 0 0 319,459 103,890 176,299 79,739 600,539 210,495 122,785 0 DD 158,605 30,088	Quantity of dry weigh Non-AFOs DD 49,715 14,395 64,962 9,089 DD 32,320 0 0 147,598 218,148 179,213 193,038 302,214 530,177 107,513 10,045 30,790 103,512	DD 31,874 5,470 49,595 10,104 DD 31,316 0 0 52,063 17,108 28,582 12,503 102,570 32,938 19,699 0	921,043 4,004,206 593,819 DD 2,182,952 0 9,344,628 15,507,420 12,016,658 13,645,813 20,606,244 39,443,837	DD 2,431,007 418,289 3,730,622 773,042 DD 2,373,529 0 0 3,845,298 1,256,521 2,126,474 959,250 7,293,643	Quantity of phosphoru Non-AFOs  DD 1,123,458 331,940 1,356,632 217,951 DD 809,288 0 3,296,818 5,981,747 4,434,237 5,277,235	DD 998,214 170,231 1,506,921 318,513 DD 971,505 0 1,547,795 500,427	41202 41300 41401 41402 41501 41502 41503 41504 41505 50100	Quantity of ma weight (t Non-AFOs D_pastL_wete_ DD 254,979 69,487 324,206 48,392 DD 166,911 268,228 20,160	ons) AFOs	weight (	AFOs	Quantity of manupound	AFOs  O_pastL_ne 1A  0 1,890,885 371,438 3,435,916 821,293 DD 1,776,614	Quantity of a phosphorus,  Non-AFOs  FO_pastL_pe.F  DD  1,097,134  302,240  1,354,191  210,912  DD  748,873  1,117,011	pounds AFOs
6-digit HUC Non   41202   41300	DD 258,422 75,713 323,001 48,903 DD 178,365 0 0 762,185 272,136 982,052 123,698 674,545 258,733 556,450 176,312 549,936 749,9405 199,491 004,181	AFOs  DD  202,226 34,558 308,552 64,381 DD  197,476 0 0 319,459 103,890 176,299 79,739 600,539 122,785 0 DD  158,605 30,088	Non-AFOs  DD 49,715 14,395 64,962 9,089 DD 32,320 0 147,598 218,148 179,213 193,038 302,214 530,177 107,513 10,045 30,790	AFOs  DD 31,874 5,470 49,595 10,104 DD 31,316 0 0 52,063 17,108 28,582 12,503 102,570 32,938 19,699 0	DD 3,173,426 921,043 4,004,206 593,819 DD 2,182,952 0 9,344,628 15,507,420 12,016,658 13,645,813 20,606,244 39,443,837	AFOs  DD 2,431,007 418,289 3,730,622 773,042 DD 2,373,529 0 3,845,298 1,256,521 2,126,474 959,250 7,293,643	DD 1,123,458 331,940 1,356,632 217,951 DD 809,288 0 0 3,296,818 5,981,747 4,434,237	AFOs  DD 998,214 170,231 1,506,921 318,513 DD 971,505 0 1,547,795 500,427	HUC huc6 34 41202 41300 41401 41402 41501 41502 41503 41504 41505 50100	Non-AFOs D_pastL_wete_ DD 254,979 69,487 324,206 48,392 DD 166,911 268,228	AFOs  pastL_wete <sup>3</sup> C  0  157,174  29,472  285,202  68,351  DD	Non-AFOs D_pastL_drye DD 49,740 13,355 65,713 9,274 DD	AFOs  _pastL_drye  A	Non-AFOs AFO_pastL_ne.F DD 3,158,113 848,497 4,108,843 588,459 DD	AFOs  O_pastL_ne 1A  0  1,890,885  371,438  3,435,916  821,293  DD  1,776,614	Non-AFOs  FO_pastL_pe.F  DD  1,097,134  302,240  1,354,191  210,912  DD  748,873	AFOs 60_pastL_pe 0 778,578 141,160 1,388,451 336,480
HUC Non  41202 41300 2 41401 3 41402 3 41501 41504 41505 50100 7, 50200 1,2 50301 9, 50302 1,1 50400 1,6 50500 3,2 50600 5, 50701 5 50702 1 50800 5, 50701 7 50800 5, 50901 7, 50901 7,	DD 258,422 75,713 323,001 48,903 DD 178,365 0 0 762,185 272,136 982,052 123,698 674,545 258,733 56,450 176,312 549,936 759,491 004,181	DD 202,226 34,558 308,552 64,381 DD 197,476 0 0 319,459 103,890 176,299 79,739 210,495 122,785 0 DD 158,605 30,088	AFOs  DD 49,715 14,395 64,962 9,089 DD 32,320 0 147,598 218,148 179,213 193,038 302,214 530,177 107,513 10,045 30,790	DD 31,874 5,470 49,595 10,104 DD 31,316 0 0 52,063 17,108 28,582 12,503 102,570 32,938 19,699 0	DD 3,173,426 921,043 4,004,206 593,819 DD 2,182,952 0 9,344,628 15,507,420 12,016,658 13,645,813 20,606,244 39,443,837	DD 2,431,007 418,289 3,730,622 773,042 DD 2,373,529 0 0 3,845,298 1,256,521 2,126,474 959,250 7,293,643	DD 1,123,458 331,940 1,356,632 217,951 DD 809,288 0 0 3,296,818 5,981,747 4,434,237	DD 998,214 170,231 1,506,921 318,513 DD 971,505 0 0 1,547,795 500,427	HUC huc6 34 41202 41300 41401 41402 41501 41502 41503 41504 41505 50100	D_pastL_wete _ DD 254,979 69,487 324,206 48,392 DD 166,911 268,228	pastL_wete <sup>3</sup> ( 0 157,174 29,472 285,202 68,351 DD	D_pastL_drye DD 49,740 13,355 65,713 9,274 DD	pastL_drye iA 0 24,612 4,912 46,093 10,826 DD	AFO_pastL_ne F DD 3,158,113 848,497 4,108,843 588,459 DD	FO_pastL_ne iA 0 1,890,885 371,438 3,435,916 821,293 DD 1,776,614	FO_pastL_pe F DD 1,097,134 302,240 1,354,191 210,912 DD 748,873	O_pastL_pe 0 778,578 141,160 1,388,451 336,480
41202 41300 2: 41401 41402 3: 41501 41502 41503 1: 41502 41503 1: 41504 41505 50100 7. 50200 1,2: 50301 9: 50302 1,1: 50400 1,6: 50500 3,2: 50600 5. 50701 1: 50800 5. 50901 7. 50800 5. 50901 7. 50902 1,1: 51001 3,0: 51002 3,6: 51100 6,4:	258,422 75,713 323,001 48,903 DD 178,365 0 0 762,185 272,136 98,052 123,698 674,545 258,733 554,450 176,312 549,936 773,936 774,936 77	202,226 34,558 308,552 64,381 DD 197,476 0 0 319,459 103,890 176,299 79,739 600,539 210,495 122,785 0 DD 158,605 30,088	DD 49,715 14,395 64,962 9,089 DD 32,320 0 0 147,598 218,148 179,213 193,038 302,214 530,177 107,513 10,045 30,790	31,874 5,470 49,595 10,104 DD 31,316 0 0 52,063 17,108 28,582 12,530 102,570 32,938 19,699 0	3,173,426 921,043 4,004,206 593,819 DD 2,182,952 0 9,344,628 15,507,420 12,016,658 13,645,813 20,606,244 39,443,837	2,431,007 418,289 3,730,622 773,042 DD 2,373,529 0 0 3,845,298 1,256,521 2,126,474 959,250 7,293,643	1,123,458 331,940 1,356,632 217,951 DD 809,288 0 0 3,296,818 5,981,747 4,434,237	998,214 170,231 1,506,921 318,513 DD 971,505 0 0 1,547,795 500,427	huc6 a 41202 41300 41401 41402 41501 41502 41503 41504 41505 50100	DD 254,979 69,487 324,206 48,392 DD 166,911 268,228	0 157,174 29,472 285,202 68,351 DD	DD 49,740 13,355 65,713 9,274 DD	0 24,612 4,912 46,093 10,826 DD	DD 3,158,113 848,497 4,108,843 588,459 DD	0 1,890,885 371,438 3,435,916 821,293 DD 1,776,614	DD 1,097,134 302,240 1,354,191 210,912 DD 748,873	0 778,578 141,160 1,388,451 336,480
41300 2, 41401 3, 41402 3, 41501 41502 41503 1, 41504 41505 50100 7, 50200 1,2 50301 9, 50302 1,1, 50400 1,6 50500 3,2 50600 5, 50701 50800 5, 50701 7, 50800 5, 50901 7, 50800 5, 50901 7, 50800 3,2 50800 5, 50901 7, 50900 5, 50901 7, 50900 5, 50901 7, 50900 5, 50901 7, 50900 5, 50901 7, 50900 5, 50901 7, 50900 5, 50901 7, 50901 7, 50900 5, 50900 5, 50900 5, 50900 5, 50900 5, 50900 5, 50900 5, 50900 5, 50900 5, 50900 5, 509	258,422 75,713 323,001 48,903 DD 178,365 0 0 762,185 272,136 98,052 123,698 674,545 258,733 56,450 176,312 549,936 773,936 774	202,226 34,558 308,552 64,381 DD 197,476 0 0 319,459 103,890 176,299 79,739 600,539 210,495 122,785 0 DD 158,605 30,088	49,715 14,395 64,962 9,089 DD 32,320 0 0 147,598 218,148 179,213 193,038 302,214 530,177 107,513 10,045 30,790	31,874 5,470 49,595 10,104 DD 31,316 0 0 52,063 17,108 28,582 12,530 102,570 32,938 19,699 0	3,173,426 921,043 4,004,206 593,819 DD 2,182,952 0 9,344,628 15,507,420 12,016,658 13,645,813 20,606,244 39,443,837	2,431,007 418,289 3,730,622 773,042 DD 2,373,529 0 0 3,845,298 1,256,521 2,126,474 959,250 7,293,643	1,123,458 331,940 1,356,632 217,951 DD 809,288 0 0 3,296,818 5,981,747 4,434,237	998,214 170,231 1,506,921 318,513 DD 971,505 0 0 1,547,795 500,427	41300 41401 41402 41501 41502 41503 41504 41505 50100	254,979 69,487 324,206 48,392 DD 166,911 268,228	157,174 29,472 285,202 68,351 DD	49,740 13,355 65,713 9,274 DD	24,612 4,912 46,093 10,826 DD	3,158,113 848,497 4,108,843 588,459 DD	1,890,885 371,438 3,435,916 821,293 DD 1,776,614	1,097,134 302,240 1,354,191 210,912 DD 748,873	778,578 141,160 1,388,451 336,480
41401 41402 3: 41501 41502 41503 1: 41504 41505 50100 7. 50200 1,2 50301 9. 50302 1,1: 50400 1,6 50500 3,2 50600 5. 50701 50800 5. 50901 7. 50800 5. 50901 7. 50800 5. 50901 7. 50902 1,1: 51001 3,0. 51002 3,6 51100 6,4	75,713 323,001 48,903 DD 178,365 0 0 762,185 272,136 982,052 123,698 674,545 2258,733 583,131 56,450 176,312 549,936 7736,005 199,491 004,181	34,558 308,552 64,381 DD 197,476 0 0 319,459 103,890 176,299 79,739 600,539 122,785 0 DD 158,605 30,088	14,395 64,962 9,089 DD 32,320 0 0 147,598 218,148 179,213 193,038 302,214 530,177 107,513 10,045 30,790	5,470 49,595 10,104 DD 31,316 0 0 52,063 17,108 28,582 12,503 102,570 32,938 19,699 0	921,043 4,004,206 593,819 DD 2,182,952 0 9,344,628 15,507,420 12,016,658 13,645,813 20,606,244 39,443,837	418,289 3,730,622 773,042 DD 2,373,529 0 3,845,298 1,256,521 2,126,474 959,250 7,293,643	331,940 1,356,632 217,951 DD 809,288 0 0 3,296,818 5,981,747 4,434,237	170,231 1,506,921 318,513 DD 971,505 0 0 1,547,795 500,427	41401 41402 41501 41502 41503 41504 41505 50100	69,487 324,206 48,392 DD 166,911 268,228	29,472 285,202 68,351 DD	13,355 65,713 9,274 DD	4,912 46,093 10,826 DD	848,497 4,108,843 588,459 DD	371,438 3,435,916 821,293 DD 1,776,614	302,240 1,354,191 210,912 DD 748,873	141,160 1,388,451 336,480
41402 3: 41501 41502 41503 1' 41504 41505 50100 7, 50200 1,2 50301 9: 50302 1,1: 50400 1,6 50500 3,2 50600 5: 50701 1: 50800 5. 50901 7, 50902 1,1: 51001 3,0: 51002 3,6 51100 6,4	323,001 48,903 DD 178,365 0 0 762,185 272,136 982,052 123,698 674,545 258,733 583,131 56,450 176,312 549,936 736,005 199,491 004,181	308,552 64,381 DD 197,476 0 0 319,459 103,890 176,299 79,739 600,539 210,495 122,785 0 DD 158,605 30,088	64,962 9,089 DD 32,320 0 0 147,598 218,148 179,213 193,038 302,214 107,513 10,045 30,790	49,595 10,104 DD 31,316 0 0 52,063 17,108 28,582 12,503 102,570 32,938 19,699 0	4,004,206 593,819 DD 2,182,952 0 9,344,628 15,507,420 12,016,658 13,645,813 20,606,244 39,443,837	3,730,622 773,042 DD 2,373,529 0 0 3,845,298 1,256,521 2,126,474 959,250 7,293,643	1,356,632 217,951 DD 809,288 0 0 3,296,818 5,981,747 4,434,237	1,506,921 318,513 DD 971,505 0 0 1,547,795 500,427	41402 41501 41502 41503 41504 41505 50100	324,206 48,392 DD 166,911 268,228	285,202 68,351 DD	65,713 9,274 DD	46,093 10,826 DD	4,108,843 588,459 DD	3,435,916 821,293 DD 1,776,614	1,354,191 210,912 DD 748,873	1,388,451 336,480
41501 41502 41503 1' 41504 41505 50100 7, 50200 1,2; 50301 9, 50302 1,1; 50400 1,6 50500 3,2 50600 5; 50701 ; 50800 5, 50702 1' 50800 5, 50901 7, 50902 1,1; 51001 3,0 51002 3,6 51100 6,4	48,903 DD 178,365 0 0 762,185 272,136 982,052 123,698 674,545 258,733 583,131 56,450 176,312 549,936 736,005 199,491	64,381 DD 197,476 0 0 319,459 103,890 176,299 600,539 210,495 122,785 0 DD 158,605 30,088	9,089 DD 32,320 0 0 147,598 218,148 179,213 193,038 302,214 530,177 107,513 10,045 30,790	10,104 DD 31,316 0 0 52,063 17,108 28,582 12,503 102,570 32,938 19,699 0	593,819 DD 2,182,952 0 9,344,628 15,507,420 12,016,658 13,645,813 20,606,244 39,443,837	773,042 DD 2,373,529 0 0 3,845,298 1,256,521 2,126,474 959,250 7,293,643	217,951 DD 809,288 0 3,296,818 5,981,747 4,434,237	318,513 DD 971,505 0 0 1,547,795 500,427	41501 41502 41503 41504 41505 50100	48,392 DD 166,911 268,228	68,351 DD	9,274 DD	10,826 DD	588,459 DD	821,293 DD 1,776,614	210,912 DD 748,873	336,480
41502 41503 1' 41504 41505 50100 7, 50200 1,2; 50301 9, 50302 1,1; 50400 1,6 50500 3,2; 50600 5, 50701 1; 50702 1' 50800 5, 50901 7, 50902 1,1; 51001 3,0; 51002 3,6; 51100 6,4	DD 178,365 0 0 762,185 272,136 982,052 123,698 674,545 258,733 583,131 56,450 176,312 549,936 736,005 199,491 004,181	DD 197,476 0 0 319,459 103,890 176,299 79,739 600,539 210,495 122,785 0 DD 158,605 30,088	DD 32,320 0 0 147,598 218,148 179,213 193,038 302,214 530,177 107,513 10,045 30,790	DD 31,316 0 0 52,063 17,108 28,582 12,503 102,570 32,938 19,699 0	DD 2,182,952 0 0 9,344,628 15,507,420 12,016,658 13,645,813 20,606,244 39,443,837	DD 2,373,529 0 0 3,845,298 1,256,521 2,126,474 959,250 7,293,643	DD 809,288 0 0 3,296,818 5,981,747 4,434,237	DD 971,505 0 0 1,547,795 500,427	41502 41503 41504 41505 50100	DD 166,911 268,228	DD	DD	DD	DD	DD 1,776,614	DD 748,873	
41503 1' 41504 41505 50100 7. 50200 1,2 50301 9. 50302 1,1: 50400 1,6 50500 3,2. 50600 5. 50701 : 50800 5. 50901 7. 50902 1,1: 51001 3,0. 51002 3,6 51100 6,4	178,365 0 0 762,185 272,136 982,052 123,698 674,545 258,733 583,131 56,450 176,312 549,936 736,005 199,491 004,181	197,476 0 0 319,459 103,890 176,299 79,739 600,539 210,495 122,785 0 DD 158,605 30,088	32,320 0 0 147,598 218,148 179,213 193,038 302,214 530,177 107,513 10,045 30,790	31,316 0 0 52,063 17,108 28,582 12,503 102,570 32,938 19,699 0	2,182,952 0 0 9,344,628 15,507,420 12,016,658 13,645,813 20,606,244 39,443,837	2,373,529 0 0 3,845,298 1,256,521 2,126,474 959,250 7,293,643	809,288 0 0 3,296,818 5,981,747 4,434,237	971,505 0 0 1,547,795 500,427	41503 41504 41505 50100	166,911 268,228					1,776,614	748,873	
41505 50100 7. 50200 1,2 50301 9. 50302 1,1: 50400 1,6 50500 3,2 50600 5. 50702 1. 50800 5. 50901 7. 50902 1,1: 51001 3,0 51002 3,6 51100 6,4	0 762,185 272,136 982,052 123,698 674,545 258,733 556,450 176,312 549,936 736,005 199,491 004,181	0 319,459 103,890 176,299 79,739 600,539 210,495 122,785 0 DD 158,605 30,088	0 147,598 218,148 179,213 193,038 302,214 530,177 107,513 10,045 30,790	0 52,063 17,108 28,582 12,503 102,570 32,938 19,699 0	0 9,344,628 15,507,420 12,016,658 13,645,813 20,606,244 39,443,837	0 3,845,298 1,256,521 2,126,474 959,250 7,293,643	0 3,296,818 5,981,747 4,434,237	0 1,547,795 500,427	41505 50100							1 117 011	717,318
50100 7/ 50200 1,2' 50301 9/ 50302 1,1: 50400 1,6' 50500 3,2 50600 5/ 50702 1' 50800 5/ 50901 7/ 50902 1,1' 51001 3,0' 51002 3,6 51100 6,4	762,185 272,136 982,052 123,698 674,545 258,733 583,131 56,450 176,312 549,936 736,005 199,491 004,181	319,459 103,890 176,299 79,739 600,539 210,495 122,785 0 DD 158,605 30,088	147,598 218,148 179,213 193,038 302,214 530,177 107,513 10,045 30,790	52,063 17,108 28,582 12,503 102,570 32,938 19,699 0	9,344,628 15,507,420 12,016,658 13,645,813 20,606,244 39,443,837	3,845,298 1,256,521 2,126,474 959,250 7,293,643	3,296,818 5,981,747 4,434,237	1,547,795 500,427	50100	20.160	272,855	54,520	42,494	3,341,875	3,284,952	1,117,011	1,355,613
50200 1,2 50301 9 50302 1,1: 50400 1,6 50500 3,2: 50600 5: 50702 1' 50800 5: 50901 7: 50902 1,1: 51001 3,0: 51002 3,6 51100 6,4	272,136 982,052 123,698 674,545 258,733 583,131 56,450 176,312 549,936 736,005 199,491 004,181	103,890 176,299 79,739 600,539 210,495 122,785 0 DD 158,605 30,088	218,148 179,213 193,038 302,214 530,177 107,513 10,045 30,790	17,108 28,582 12,503 102,570 32,938 19,699 0	15,507,420 12,016,658 13,645,813 20,606,244 39,443,837	1,256,521 2,126,474 959,250 7,293,643	5,981,747 4,434,237	500,427			42,746	3,856	6,668	258,993	517,352	88,177	212,231
50301 9. 50302 1,1: 50400 1,6 50500 3,2: 50600 5: 50701 :: 50800 5: 50901 7: 50902 1,1: 51001 3,0 51002 3,6 51100 6,4	982,052 123,698 674,545 258,733 583,131 56,450 176,312 549,936 736,005 199,491 004,181	176,299 79,739 600,539 210,495 122,785 0 DD 158,605 30,088	179,213 193,038 302,214 530,177 107,513 10,045 30,790	28,582 12,503 102,570 32,938 19,699 0	12,016,658 13,645,813 20,606,244 39,443,837	2,126,474 959,250 7,293,643	4,434,237			721,915	267,483	138,391	43,471	8,866,251	3,213,245	3,146,822	1,297,960
50302 1,1: 50400 1,6: 50500 3,2: 50600 5: 50701 1: 50800 5: 50901 7. 50902 1,1: 51001 3,0: 51002 3,6: 51100 6,4:	123,698 674,545 258,733 583,131 56,450 176,312 549,936 736,005 199,491 004,181	79,739 600,539 210,495 122,785 0 DD 158,605 30,088	193,038 302,214 530,177 107,513 10,045 30,790	12,503 102,570 32,938 19,699 0	13,645,813 20,606,244 39,443,837	959,250 7,293,643			50200	1,246,981	89,166	212,156	14,682	15,182,240	1,073,434	5,891,808	429,456
50400 1,6 50500 3,2 50600 5 50701 : 50702 1' 50800 5 50901 7 50902 1,1' 51001 3,0 51002 3,6 51100 6,4	674,545 258,733 583,131 56,450 176,312 549,936 736,005 199,491 004,181	600,539 210,495 122,785 0 DD 158,605 30,088	302,214 530,177 107,513 10,045 30,790	102,570 32,938 19,699 0	20,606,244 39,443,837	7,293,643	3,211,233	856,784 394,721	50301 50302	963,054 1,090,543	146,084 66,334	174,965 183,692	23,368 10,396	11,756,115 13,230,852	1,762,671 796,681	4,361,389 5,183,530	715,340 328,423
50500 3,2 50600 5 50701 :: 50702 1' 50800 5 50901 7 50902 1,1' 51001 3,0' 51002 3,6 51100 6,4'	258,733 583,131 56,450 176,312 549,936 736,005 199,491 004,181	210,495 122,785 0 DD 158,605 30,088	530,177 107,513 10,045 30,790	32,938 19,699 0	39,443,837		7,619,955		50400	1,671,762	575,981	299,861	101,647	20,527,464	6,985,619	7,638,237	2,658,881
50600 5: 50701 :: 50702 1: 50800 5: 50901 7: 50902 1,1: 51001 3,00 51002 3,6 51100 6,4	583,131 56,450 176,312 549,936 736,005 199,491 004,181	122,785 0 DD 158,605 30,088	107,513 10,045 30,790	19,699 0			15,807,034		50500	3,421,607	188,420	551,182	29,624	41,367,222	2,293,181	16,690,018	931,691
50702 11 50800 55 50901 77 50902 1,1 51001 3,0 51002 3,6 51100 6,4	176,312 549,936 736,005 199,491 004,181	DD 158,605 30,088	30,790			1,494,140	2,615,114	600,425	50600	542,683	106,553	100,680	17,187	6,670,624	1,290,896	2,422,722	519,400
50800 5- 50901 7: 50902 1,1' 51001 3,0' 51002 3,6 51100 6,4'	549,936 736,005 199,491 004,181	158,605 30,088			687,677	0	259,217	0	50701	42,007	0	7,211	0	508,994	0	197,350	0
50901 7: 50902 1,19 51001 3,00 51002 3,6 51100 6,4	736,005 199,491 004,181	30,088	102 512	DD	2,170,499	DD	819,860	DD	50702	150,787	DD	26,395	DD	1,844,101	DD	699,938	DD
50902 1,1° 51001 3,0° 51002 3,6 51100 6,4°	199,491 004,181			25,385	6,778,636			776,655	50800	485,936	119,416	90,986	19,368	5,970,846	1,438,066	2,155,141	580,174
51001 3,0 51002 3,6 51100 6,4	004,181		127,153 208,706	4,762 17,625	8,927,133 14,533,130		3,444,164 5,587,632	148,177 559,144	50901 50902	642,514 1,055,788	46,255 85,495	109,920 184,875	7,315 13,412	7,804,331 12,797,661	558,999 1,028,672	3,025,245 4,898,316	227,939 423,094
51002 3,6 51100 6,4		112,762 114,734	500,153	18,006	36,179,968		14,375,898	567,672	51001	2,756,290	93,532	453,137	14,599	33,196,700	1,123,382	13,287,550	464,099
51100 6,4	613,330	106,356	623,828	17,677	43,556,081		16,912,235	509,543	51001	3,480,937	119,490	589,469	19,913	41,917,509	1,484,727	16,487,907	572,068
	465,741		1,042,828	75,424	77,903,911		31,513,637		51100	5,179,399	374,745	834,805	58,582	62,452,933	4,504,395	25,254,169	1,858,005
51201 1,2	245,543	409,765	223,912	65,265	15,231,421		5,681,498		51201	1,111,052	321,859	202,273	52,494	13,594,970	3,885,192	5,024,892	1,558,882
51202 1,3	377,757	272,583	243,174	43,691	16,787,163		6,360,539		51202	1,221,183	223,155	221,260	36,155	14,895,261	2,683,862	5,540,461	1,084,793
	117,708	251,561	826,627	39,554	. , ,	- , ,	, , , , , ,	, -, -	51301	4,368,398	222,012	700,934	34,836	52,690,594	2,672,520	21,353,781	1,098,586
	810,580	117,759	629,713	19,334	46,053,090		18,316,805	568,092	51302	2,997,952	98,383	491,183	15,914	36,207,396	1,186,424	14,482,544	478,742
	273,922 209,362	286,185 150,405	543,392 199,459	44,686 23,469	39,477,656 14,599,422			746,492	51401 51402	2,964,558 1,025,755	183,604 95,758	487,931 169,977	29,061 15,017	35,759,628 12,384,286	2,209,611 1,151,645	14,282,842 4,922,511	904,234 473,966
	574,719	226,976	750,178	36,136	55,365,440		22,089,897		60101	3,886,080	152,194	632,102	23,939	47,009,866	1,843,743	18,852,114	752,270
	003,357	72,150	490,318	11,559	36,258,625		14,538,284	352,968	60102	2,729,159	70,253	441,736	11,078	32,953,957	847,660	13,276,067	346,722
	611,731	131,838	266,191	21,002	19,413,877	1,591,726	7,749,088	647,072	60200	1,292,655	117,470	211,153	18,586	15,576,412	1,428,592	6,254,914	578,852
60300 4,7	737,382	538,800	781,897	85,557	57,271,957	6,477,586	22,788,608	2,648,774	60300	4,704,303	406,215	764,389	63,828	56,785,182	4,895,593	22,833,550	2,008,642
	078,680	132,612	508,509	20,879	37,195,073		14,802,858	654,970	60400	2,790,051	94,215	456,076	14,682	33,696,237	1,132,806	13,496,005	467,914
	047,157	277,790	177,512	43,554	12,653,615				70101	869,080	243,619	145,749	38,420	10,516,603	2,933,840	4,141,408	1,202,219
	806,376	490,416	149,091	76,985					70102	852,223	386,412	150,802	60,365	10,365,037	4,662,110	3,927,557	1,916,782
	361,623 697,099	544,136 237,573	227,624 126,680	85,617 37,262	16,694,131 8,497,661	6,601,105	6,503,745 3,156,248		70200 70300	1,185,542 592,696	492,719 192,600	196,627 105,225	76,972 30,165	14,516,207 7,202,403	5,957,723 2,318,045	5,689,047 2,725,524	2,444,274 953,996
		1,149,383	243,119	181,503	16,655,932				70400	1,295,332	937,198	226,276	148,718	15,817,065	11,308,091	6,020,481	4,609,583
	708,558	553,529	126,886	87,842		6,655,994			70500	626,569	471,107	111,576	75,503	7,632,177	5,677,368	2,875,781	2,304,334
70600 1,7	712,560	1,592,160	280,668	249,092	20,776,515	19,200,896	8,272,869	7,891,466	70600	1,757,712	1,520,609	286,110	237,024	21,313,363	18,321,555	8,524,187	7,551,492
70700 1,1	175,590	876,656	211,215	140,202	14,330,381	10,545,859			70700	1,127,978	779,574	197,520	126,030	13,740,745	9,395,675	5,234,070	3,794,580
	383,043	652,767	228,820	102,826	16,848,050		6,645,246		70801	1,428,025	592,978	234,664	93,220	17,382,102	7,163,242	6,888,417	2,931,565
	306,497	837,937	219,186	134,318	15,957,693		6,226,402	,,	70802	1,402,421	717,717	231,617	113,315	17,086,459	8,698,622	6,745,366	3,540,372
	084,613 180,989	866,832 650,383	203,087 355,699	135,572 101,752	13,305,304 26,450,064				70900 71000	1,014,516 2,162,925	737,421 560,929	186,053 350,419	115,822 87,415	12,418,055 26,199,657	8,903,286 6,761,267	4,565,269 10,517,034	3,647,407 2,785,988
	072,263	568,361	492,625	90,181	37,093,715				71100	2,793,458	468,769	447,727	74,768	33,729,708	5,657,059	13,664,067	2,763,988
	461,438	196,366	96,673	32,165				948,569	71200	397,687	143,692	82,259	23,253	4,888,121	1,729,700	1,630,983	699,006
	529,201	463,644	255,248	72,553	18,503,844		7,307,621		71300	1,330,167	445,188	219,171	69,271	16,136,020	5,363,943	6,405,650	2,212,923
71401 2,9	908,388	375,749	472,569	58,619	35,046,889	4,520,059	14,115,937	1,865,073	71401	2,515,768	203,289	407,492	31,533	30,423,787	2,442,247	12,233,606	1,012,094
	473,698	150,540	82,937	23,886	5,754,347	1,810,326	2,198,067	740,380	71402	426,059	108,831	73,269	17,629	5,195,362	1,310,844	1,999,874	529,127
	61,995	4,539	11,026	701	751,723	54,470	284,735	22,650	80101	49,422	DD	8,189	DD	595,525	DD	237,173	DD
	056,652 DD	84,604 0	343,825 DD	13,423 0	24,824,308 DD	1,017,080 0	9,818,192 DD	416,114 0	80102 80201	1,565,162	82,883	260,470 867	13,583 0	18,907,247	997,024 0	7,492,340	400,275 0
80201 80202 5	585,403	41,613	97,921	6,459	7,069,732		2,793,753	207,129	80201	5,417 567,265	0 30,012	94,057	4,670	65,366 6,847,859	361,286	26,517 2,721,290	149,183
	542,073	25,572	90,375	4,111	6,539,965		2,591,957	124,860	80203	436,093	DD	72,592	DD	5,262,529	DD	2,087,164	DD
	135,715	DD	22,362	DD	1,634,936	DD	653,409	DD	80204	73,832	DD	12,297	DD	892,293	DD	353,255	DD
80301	DD	0	DD	0	DD	0	DD	0	80301	DD	0	DD	0	DD	0	DD	0
	651,103	15,897	269,584	2,496	19,864,116	190,979	7,991,030	78,625	80302	1,491,110	8,821	244,155	1,389	17,963,035	106,231	7,205,193	43,574
	139,189	234,345	183,017	36,667	13,700,699	2,812,433		1,161,280	80401	1,031,473	135,707	164,860	21,112	12,408,263	1,629,092	5,052,643	674,561
	968,941	184,000	161,561		11,677,080			901,723	80402	907,105	161,351	150,010	25,716	10,924,491	1,936,226	4,357,961	791,558
	476,062 885,089	16,454 DD	77,221 140,110	2,611 DD	5,730,073 10,635,022	197,450 DD	2,312,745 4,358,483	80,913 DD	80403 80500	446,051 600,118	13,757 DD	73,844 96,555	2,139 DD	5,372,529 7,215,001	165,078 DD	2,141,592 2,928,742	68,403 DD
	16,465	DD	2,961	DD	199,379	DD	75,066	DD	80601	30,876	0	4,988	0	372,210	0	150,350	0
	130,671	25,891	184,838	4,057	13,589,896	310,810		128,210	80602	1,071,681	22,528	176,573	3,700	12,880,171	270,340	5,159,408	108,662
	57,652	DD	9,359	DD	693,057	DD	279,943	DD	80701	32,261	DD	5,218	DD	387,192	DD	156,961	DD
	224,470	77,385	200,849	12,154	14,737,254	932,238		382,738	80702	1,198,622	49,493	195,294	7,694	14,417,337	594,662	5,808,065	246,122
	183,675	0	29,146	0	2,207,527	0	903,289	0	80703	179,724	DD	28,341	DD	2,160,464	DD	886,895	DD
	035,617	DD	170,723	DD	12,466,447	DD		DD	80801	920,806	DD	151,079	DD	11,086,904	DD	4,444,140	DD
	823,458	DD	299,506	DD	21,946,799	DD	8,794,991	DD	80802	1,671,314	DD	274,676	DD	20,117,778	DD	8,058,456	DD
80901	DD 141 333	DD 2 874	DD 25.848	DD 442	DD 1 701 904	DD 34.493	DD 636 835	DD 14 372	80901 80902	DD 1/13 037	0 DD	DD 26,075	0	1 738 902	0 DD	DD 652 887	0 DD
	141,333 313,321	2,874 DD	25,848 50,377	442 DD	1,701,904 3,767,596	34,493 DD	636,835 1,529,688	14,372 DD	80902 80903	143,937 302,545	DD	48,343	DD DD	1,738,902 3,635,249	DD	652,887 1,482,173	DD
	672,777	81,182	265,971	12,781	20,136,465	975,599	8,217,892	400,969	90100	1,530,723	106,695	243,723	16,551	18,418,703	1,280,607	7,514,152	531,155
90201 1,0		234,912	171,483	36,812	12,756,120				90201	1,048,174	161,354	168,879	25,502	12,695,914	1,949,368	5,112,616	795,397
90202 1,3		129,217	220,521	20,157	16,684,492		6,792,043	641,383	90202	1,335,186	158,227	212,666	24,478	16,081,648	1,904,164	6,553,185	788,907
90203 1,0		99,746	177,810	15,529	13,199,554		5,310,477	495,615	90203	847,525	135,631	136,881	21,022	10,233,709	1,629,614	4,127,874	675,538
90300 1	114,951	9,371	20,234	1,482	1,389,461	112,457	531,478	46,167	90300	101,123	DD	17,378	DD	1,224,204	DD	474,751	DD

Table S4--2007. Quantity of Manure and Manure Nutrients Produced as excreted for Pastured Livestock Types by 6-digit HUC,

Derived from the 2007 Census of Agriculture Database

Quantity of manure, Quantity of manure, Quantity of manure Quantity of manure

 Table S4--2012. Quantity of Manure and Manure Nutrients Produced as excreted for Pastured Livestock Types by 6-digit HUC,

Derived from the 2012 Census of Agriculture Database

Quantity of manure, wet Quantity of man

	Quantity of wet weigh		Quantity of dry weigh		Quantity of nitrogen,		Quantity o		_	Quantity of man weight (to		Quantity of mar weight (to		Quantity of manu pound		Quantity of a phosphorus,	
6-digit HUC	Non-AFOs	AFOs	Non- AFOs	AFOs	Non-AFOs	AFOs	Non-AFOs	AFOs	6-digit HUC	Non-AFOs	AFOs	Non-AFOs	AFOs	Non-AFOs	AFOs	Non-AFOs	AFOs
90400	0	0	0	0	0	0	0	0	90400	57,034	0	O_pastL_drye _p 10,256	0	692,881	0	260,053	0
100100 100200	56,353 2,633,663	0 140,174	10,278 422,096	0 21,868	678,049 31,824,986	1.687.622	254,399 12,883,094	0 695,783	100100 100200	0 2,778,907	0 88,896	0 444,342	0 14,056	33,566,005	0 1,069,591	0 13,610,970	0 438,059
100301	2,112,481	78,646	337,744	12,238	25,544,828		10,347,864	390,959	100301	1,777,610	108,482	285,477	17,095	21,492,556	1,322,886	8,685,805	535,783
100302		77,033	243,038		18,297,525		7,424,493	371,955 396,269	100302	1,231,866	81,120	198,641	12,856	14,901,287	1,006,977 DD	6,005,511	399,636 DD
100401 100402	2,236,019 1,871,630	80,467 50,773	351,954 296,726		27,123,211 22,831,034		11,048,494 9,213,424	247,576	100401 100402	2,265,087 1,790,311	DD 56,677	355,874 282,255	DD 9,180	27,407,138 21,780,704	727,645	11,202,386 8,839,240	276,157
100500		59,947	424,364		32,491,639		13,329,946	291,640	100500	2,328,876	89,639	366,807	13,925	28,068,814	1,076,136	11,500,896	445,912
100600	1,528,164	DD	241,718		18,516,720		7,530,490	DD	100600	1,221,078	23,340	193,244	3,655	14,770,668	281,125	6,015,205	115,628
100700 100800	2,385,998 3,306,080	228,883 123,617	392,137 548,579	35,557 19,920	28,864,008 40,296,670		11,506,211 15,858,134	603,431	100700 100800	2,414,832 2,499,920	320,003 141,681	395,303 418,441	49,389 23,370	29,316,754 30,530,783	3,840,487 1,825,118	11,673,418 11,930,252	1,597,324 683,249
100901	996,762	16,847	160,705	2,617	12,040,931		4,859,548	83,803	100901	1,036,879	DD	165,222	DD	12,520,109	DD	5,088,293	DD
	2,419,075	63,711	391,883		29,778,633		11,769,386	313,712	100902	2,292,503	43,065	368,017	6,687	28,023,094	517,203	11,208,256	214,286
101000 101101		208,627 69,413	482,966 178,770		36,991,613 13,529,584		15,172,201 5,532,552	1,040,206 345,644	101000 101101	3,229,685 1,000,539	115,976 27,528	507,888 159,630	17,992 4,361	38,828,355 12,018,945	1,391,972 330,337	15,961,796 4,905,753	577,333 135,501
101102		109,625	330,775		25,469,757		10,247,252	545,179	101102	2,357,534	83,776	372,038	13,069	28,657,914	1,011,716	11,633,412	415,885
101201		209,962	585,058		44,194,110		17,755,424		101201	3,556,385	194,449	569,488	30,182	43,213,733	2,333,385	17,408,273	967,707
101202 101301	1,768,129 5,072,630	74,398 477,757	288,467 799,385	11,662 73,946	21,787,983 61,036,977		8,567,996 25,042,047	368,386	101202 101301	1,836,962 5,015,914	115,202 529,754	297,228 794,312	17,856 81,798	22,574,006 60,304,654	1,385,111 6,357,235	8,942,794 24,695,585	573,794 2,643,705
101301		278,241	552,250	43,087	42,344,324		17,365,378		101301	3,487,131	281,495	547,215	43,639	41,959,475	3,396,050	17,254,349	1,402,061
101303	3,074,280	245,371	489,500	38,247	37,583,056		15,098,864		101303	3,123,250	245,543	494,907	38,153	38,027,134	2,957,508	15,378,054	1,221,430
101401	3,232,467	744,824	507,964	115,260	39,008,002	-,,	15,983,624	- ,- ,	101401	3,342,993	696,882	524,791	107,720	40,214,768	8,370,584	16,537,696	3,475,875
101402 101500	3,349,520 5,751,110	314,661 669,218	528,746 897,090	49,295 104,148	40,224,165 69,145,732		28,547,729		101402 101500	3,250,457 5,221,602	346,761 715,750	512,706 813,113	53,928 110,610	39,045,168 62,729,618	4,166,794 8,595,782	16,037,609 25,942,208	1,724,004 3,570,422
101600		1,719,596		266,159	85,825,554				101600	6,816,037	1,354,713	1,065,017	209,686	82,212,061	16,310,688	33,806,441	6,752,661
101701	1,844,475	929,399	291,484	144,285	22,327,885				101701	1,876,748	663,419	296,943	102,719	22,780,865	7,992,717	9,247,279	3,306,358
101702 101800	1,898,287 5,733,919	1,083,771 667,108	306,864 914,393	168,689 103,845	23,115,923 69,375,534		9,243,439		101702 101800	2,084,111 5,276,062	870,633 718,391	335,351 840,538	135,675 112,503	25,355,310 63,686,704	10,519,734 8,779,891	10,174,410 25,894,094	4,324,619 3,560,299
101900	3,663,899	721,966	621,873	114,874	44,341,823		17,333,242		101900	3,626,845	644,176	613,205	103,739	43,833,629	8,095,276	17,197,677	3,146,722
102001	2,153,767	387,239	339,151		25,956,692				102001	1,772,381	396,732	278,433	61,569	21,309,425	4,769,718	8,764,352	1,974,698
102002 102100	563,272 7,057,671	178,508 1,410,725	91,906	27,712 218,964	6,803,373 84,804,528	2,144,678		888,331	102002 102100	576,903 6,596,709	141,604 1,057,331	95,062 1,027,925	22,257 163,848	6,971,617 79,269,204	1,702,261 12,696,793	2,777,719 32,762,766	700,030 5,266,646
102100		993,913	370,799	153,864	28,405,104				102100	2,352,095	734,879	368,924	113,579	28,318,931	8,836,455	11,641,412	3,665,758
102300	1,101,429	596,827	179,952	93,862	13,371,679				102300	1,210,764	561,370	196,053	87,693	14,654,380	6,773,783	5,888,858	2,784,718
102400		791,990	594,088		45,024,443				102400	3,360,584	615,826	534,908	95,519	40,515,842	7,401,980	16,500,607	3,066,068
102500 102600	6,362,075 5,397,442	1,152,338 869,005	994,084 845,542	178,953 134,568	76,539,819 64,947,743				102500 102600	5,993,603 4,709,639	1,036,642 593,053	936,520 737,224	160,261 91,705	72,088,643 56,757,163	12,445,328 7,117,557	29,724,461 23,335,663	5,170,041 2,957,332
102701	2,494,175	320,189	401,054		30,012,058				102701	1,939,544	268,008	309,789	41,388	23,362,449	3,218,197	9,504,751	1,337,419
102702		632,648	397,999	98,624	30,438,051				102702	2,230,942	545,822	352,397	84,694	26,906,173	6,585,541	11,000,214	2,717,298
102801 102802	4,292,892 1,681,269	514,716 161,501	676,203 266,115	80,422 25,089	51,677,438 20,236,532		21,198,212 8.280,124	2,552,696 803,417	102801 102802	3,456,275 1,370,943	375,602 116,972	546,724 216,957	58,569 18,080	41,640,430 16,521,128	4,515,025 1,404,726	17,028,243 6,752,702	1,864,754 583,445
	10,048,548		1,601,262		120,943,042				102901	9,077,249	769,166	1,440,153	121,780	109,268,395	9,439,203	44,647,236	3,789,868
	2,001,961	221,262	319,246		24,111,171				102902	1,886,999	168,493	299,548	26,518	22,724,510	2,026,723	9,278,664	832,380
103001 103002	4,672,704 430,728	694,508 86,708	749,380 70,418	108,621 13,360	56,248,464 5,189,720		22,846,323	3,442,483 433,186	103001 103002	3,848,065 351,145	356,394 87,941	614,544 57,078	55,803 13,855	46,384,985 4,234,477	4,288,223 1,060,589	18,859,267 1,703,953	1,765,552 434,231
110100	9,880,827		1,583,179		119,046,416				110100	8,678,393	1,002,460	1,386,865	156,266	104,626,016	12,056,100	42,517,311	4,977,881
110200	3,361,269	278,743	548,610		40,528,850				110200	3,007,128	143,359	486,567	26,038	36,180,106	1,738,358	14,629,290	649,207
110300 110400	5,360,682 1,704,630	927,650 272,618	848,589 266,731	144,369 42,405	64,606,190 20,477,481				110300 110400	4,314,762 1,491,356	838,392 117,554	684,650 234,282	130,572 18,337	51,937,835 17,923,741	10,065,174 1,411,043	21,220,971 7,374,659	4,164,957 583,492
110500	4,294,806	216,726	678,995		51,737,921		21,165,725		110500	3,441,120	167,921	545,469	26,258	41,454,796	2,019,328	16,934,082	832,436
110600	4,333,055	187,107	681,387		52,174,286			929,972	110600	3,514,663	92,994	553,063	14,428	42,281,972	1,115,929	17,364,439	462,906
	4,906,492 8,967,541	362,680 1 100 727	792,290 1 423 685		59,075,081 107,976,637				110701 110702	4,324,023 7,937,261	230,565 903,110	708,268 1,258,647	35,812 140,857	52,015,898 95,471,831	2,768,348 10,850,204	20,888,857 39,050,047	1,147,040 4,483,061
	1,424,160	DD	226,626		17,115,974		6,992,994	DD	110800	1,092,689	DD	173,336	DD	13,126,557	DD	5,374,566	DD
	2,093,231	302,671	330,959		25,137,194				110901	1,716,695	129,465	271,181	20,241	20,608,470	1,553,615	8,463,108	641,809
	3,416,937 1,977,582	180,929 114,977	549,144 311,479		41,160,311 23,752,345			896,862 567,822	110902 111001	2,837,499 1,325,770	67,519 129,978	459,031 209,186	10,668 20,228	34,179,835 15,927,728	810,239 1,559,733	13,806,118 6,540,167	332,820 645,956
	1,352,817	DD	211,439		16,244,873		6,707,793	DD	111001	1,016,240	DD	159,305	DD	12,202,336	DD	5,030,873	DD
	3,808,651	93,881	615,563		45,882,174			463,677	111003	3,060,132	135,572	496,936	21,423	36,871,750	1,631,439	14,857,307	668,283
	4,540,546 2,872,397	545,253 570,014	733,899 463,025		54,712,656 34,569,417		22,103,562 14,003,627		111101 111102	4,100,277 2,647,244	355,321 402,812	662,565 425,688	55,478 63,165	49,369,886 31,852,510	4,267,154 4,837,209	19,962,751 12,923,626	1,762,798 1,993,760
	2,462,542	299,385	387,406				12,167,782		111102	1,468,776	222,995	235,305	34,605	17,664,926	2,675,938	7,185,331	1,109,903
111202	682,864	9,437	107,174	1,557	8,202,330	118,994	3,378,353	45,469	111202	504,113	DD	79,615	DD	6,065,381	DD	2,485,711	DD
	1,907,450 1,580,532	56,992	299,051		22,928,602		9,442,438	282,851	111203	1,462,633	52,251	230,308	8,131	17,591,705	627,020	7,223,632	259,689
	6,084,374	20,072 181,799	247,749 965,739		19,013,816 73,201,605		7,825,103 29,918,830	100,015 898,415	111301 111302	1,104,067 4,938,588	DD 83,696	174,184 788,993	DD 12,995	13,270,339 59,411,328	DD 1,009,442	5,446,906 24,197,387	DD 416,520
	5,679,826	204,688	897,696		68,413,009		27,995,818		111303	4,308,783	153,698	688,125	23,876	51,844,364	1,845,905	21,115,944	764,596
	6,803,960	648,429	1,090,499		81,929,671				111401	5,637,327	468,217	903,791	72,839	67,870,594	5,623,797	27,567,723	2,327,428
	1,758,310 3,800,932	210,601 392,391	285,337 616,450		21,142,302 45,773,958		8,539,570 18,467,037		111402 111403	1,731,177 3,473,949	119,665 333,572	283,893 563,047	18,711 51,895	20,807,227 41,827,003	1,437,014 4,007,341	8,357,278 16,884,592	593,216 1,658,102
	3,450,725	332,620	568,582		41,581,621				120100	3,060,899	262,705	507,387	41,060	36,942,849	3,161,752	14,685,977	1,302,689
	3,302,941	353,625	540,484		39,767,282				120200	2,730,717	244,961	448,548	38,414	32,891,174	2,942,062	13,170,857	1,212,440
	6,518,977 3,902,697	258,992 193,826	1,094,082 624,237		78,798,777 46,986,576			1,262,222 957,853	120301 120302	5,837,119 3,325,896	158,405 71,550	980,692 531,709	25,462 11,263	70,607,000 40,005,282	1,914,248 858,698	27,784,896 16,289,530	773,597 353,414
	1,453,100	73,414	246,864		17,516,834		6,869,542	349,452	120302	1,318,644	71,550 DD	222,633	DD	15,912,421	DD	6,257,757	DD
	1,236,527	DD	202,096		14,894,596		5,981,357	DD	120402	1,179,639	47,665	192,056	7,520	14,214,245	571,984	5,718,891	235,141
	2,521,067 2,560,224	446,049 185,483	399,261 407,058		30,412,379 30,922,959				120500 120601	1,817,687 2,013,615	569,341 58,745	288,431 319,645	87,740 9,339	21,885,009 24,268,801	6,834,453 710,512	8,939,726 9,901,550	2,844,188 288,672
	4,073,886	261,812	669,626		49,412,452				120602	3,681,978	148,463	606,950	24,253	44,650,908	1,785,050	17,726,365	718,295

Table S4--2007. Quantity of Manure and Manure Nutrients Produced as excreted for Pastured Livestock Types by 6-digit HUC,

Derived from the 2007 Census of Agriculture Database

Quantity of manure, Quantity of manure, Quantity of manure Quantity of manure

 
 Table S4--2012. Quantity of Manure and Manure Nutrients Produced as excreted for Pastured Livestock Types by 6-digit
 HUC,

			Agriculture		Ouganite	monres	Onontitu	of manus	Derived ire			Overtity of me	nuro des	Oventity of	ro nitro	Ouantitus of	manurra
	Quantity of wet weigh		Quantity of dry weigh		Quantity of nitrogen,		Quantity of phosphoru			Quantity of ma weight (t		Quantity of ma weight (to		Quantity of manu pounds	-	Quantity of a phosphorus,	
digit UC	Non-AFOs	AFOs	Non- AFOs	AFOs	Non-AFOs	AFOs	Non-AFOs	AFOs	6-digit HUC	Non-AFOs	AFOs	Non-AFOs	AFOs	Non-AFOs	AFOs	Non-AFOs	AFO
									huc6	-				AFO_pastL_ne .Fo			
20701	8,085,578	296,726	1,286,198	46,450	97,266,716	- , ,	39,711,224	, ,	120701	6,424,719	141,822	1,030,979	22,234	77,299,847	1,706,110	31,401,384	702,09
20702	4,921,169	251,052	796,593	39,562	60,378,629		23,950,632		120702	3,557,988	191,676	578,426	30,321	43,828,250	2,339,335	17,276,071	944,72
20800	1,863,631	105,540	302,126	16,423 14,168	22,925,488		9,063,003	524,536	120800 120901	1,302,526 2,997,323	103,154 129,849	211,759 501,053	15,956 20,151	15,976,747 38,765,030	1,238,203 1,566,697	6,323,517 14,343,270	514,31 646,39
20901	4,073,904 2,714,836	90,735 46,490	685,076 453,624	7,813	53,424,373 34,898,298		19,435,692 12,992,202	450,199 222,035	120901	1,972,437	24,211	330,547	3,887	25,326,776	305,912	9,422,440	118,48
	2,581,445	103,325	408,988	16,188	31,057,543		12,706,574	511,680	120902	1,980,808	11,136	315,559	1,751	23,861,059	136,547	9,720,967	55,08
20904	1,196,800	66,855	189,827	10,539	14.410.528		5,887,497	329,970	120904	994,564	DD	157,506	DD	11,958,342	DD	4,896,556	D D
21001	2,040,472	57,538	319,109	8,881	24,521,206		10,114,433	287,204	121001	1,599,879	22,416	250,427	3,467	19,228,442	269,775	7,926,685	111,78
	3,911,492	254,035	627,976	39,355	47,604,096		19,119,827	1,265,572	121002	3,106,689	247,357	501,242	38,398	37,923,228	2,970,738	15,145,204	1,230,97
21003		DD	360,802	DD	27,138,939	DD	10,880,634	DD	121003	1,812,674	DD	294,470	DD	22,007,234	DD	8,801,070	D
21004	2,391,328	69,369	375,734	10,726	28,758,061	832,426	11,823,968	345,924	121004	1,666,434	22,397	263,120	3,481	20,046,365	268,759	8,217,918	111,37
21101	4,028,681	174,944	645,876	27,426	49,418,065	2,107,203	19,713,312	866,110	121101	3,417,514	56,993	548,516	9,096	41,785,470	701,942	16,710,362	279,61
21102		46,684	426,250	7,345	32,313,350		13,185,252	230,672	121102	2,187,298	52,985	347,475	8,255	26,373,275	636,870	10,751,340	263,18
80100	820,834	15,287	135,598	2,544	10,085,175		3,948,587	73,180	130100	760,150	DD	123,427	DD	9,239,554	DD	3,691,913	D
30201	276,933	DD	47,865	DD	3,343,488	DD	1,295,344	DD	130201	279,743	6,002	47,836	932	3,379,089	72,028	1,317,285	29,86
30202	1,089,170	85,537	178,962	13,622	13,190,707	1,029,060		419,840	130202	1,026,913	70,705	171,451	11,493	12,447,041	849,775	4,906,876	343,0:
0301	241,488	DD 52.294	39,660	DD	2,906,059	DD		DD	130301	217,968	DD	37,652	DD	2,626,892	DD	1,019,834	I
0302	382,479	53,384	60,545	8,240	4,591,295	640,612		266,462	130302	393,834	DD 0	62,600	DD	4,733,724	DD 0	1,935,033	Е
0401 0402	73,284 476,980	DD DD	12,572 81,541	DD DD	917,084 6,334,035	DD DD	344,820 2,253,940	DD DD	130401 130402	62,241 394,208	0	10,710 65,671	0	763,415 5,035,515	0	292,090 1,889,478	
0402	508,923	DD	97,373	DD	7,925,228	DD		DD	130402	394,208	0	58,033	0	4,697,419	0	1,368,517	
0500	731,095	22,714	118,003	3,616	8,896,827		3,562,964	111,504	130500	701,608	DD	112,184	DD	8,487,909	DD	3,436,658	I
0600	1,997,599	118,828	319,825	18,397	24,392,527	1,426,517		592,165	130600	1,642,713	143,503	261,731	22,115	19,990,608	1,722,036	8,063,824	716,8
0700	1,503,593	74,831	253,547	11,665	19,730,556	898,070		371,555	130700	1,198,849	DD	199,511	DD	15,433,431	DD	5,751,262	I
0800	724,658	28,193	118,792	4,541	9,113,042	359,677		137,778	130800	663,374	22,092	108,851	3,418	8,336,936	265,106	3,206,101	110,1
900	292,798	DD	46,685	DD	3,529,938	DD	1,436,294	DD	130900	278,008	DD	44,153	DD	3,362,428	DD	1,366,838	1
0100	749,544	16,684	130,758	2,820	9,176,570	200,255	3,487,084	79,109	140100	847,689	28,696	145,777	5,175	10,426,705	383,308	3,980,115	131,0
200	749,183	52,117	127,252	8,396	9,228,179	651,826	3,544,778	254,504	140200	722,125	46,735	122,665	7,492	8,921,949	566,049	3,416,944	228,
0300	342,532	48,332	57,681	7,760	4,211,354	580,092	, ,	236,127	140300	403,898	48,437	65,980	7,630	4,869,508	593,395	1,954,356	239,3
0401	1,336,949	68,425	223,302	12,393	16,809,277		6,394,731	312,493	140401	1,343,483	8,649	222,771	1,373	16,915,525	103,788	6,453,939	42,
402	77,091	DD	12,389	DD	926,166	DD	376,472	DD	140402	93,401	0	14,962	0	1,132,894	0	457,081	
500		37,113	203,325	6,460	15,282,245		5,680,632	173,624	140500	1,192,995	DD	199,107	DD	15,079,983	DD	5,709,828	
600	1,151,315	134,583	192,911	21,520	14,139,099	1,640,814		659,377	140600	1,153,089	80,797	194,004	12,775	14,278,926	980,923	5,488,409	398,
0700	436,210	41,333	71,119	6,435	5,295,975		2,113,561	205,368	140700	434,422	DD	70,775	DD	5,299,650	DD	2,106,125	
0801	608,159	DD	109,573	DD	7,540,579	DD		DD	140801	829,384	33,404	147,625	5,234	10,305,909	401,625	3,810,455	165,4
0802	236,908	7,778	41,473	1,294	2,869,781		1,099,298	37,252	140802	298,703	DD	55,314	DD 2 240	3,815,214	DD 224 701	1,337,125	0.4
0100	313,860 637,065	33,192 DD	53,186 112,955	5,225 DD	3,782,444 7,827,720	398,589 DD	1,486,051 2,933,182	163,948 DD	150100 150200	500,897 861,043	18,339 39,896	82,509 158,827	3,240 6,718	6,070,774 10,989,186	224,701 493,600	2,412,490 3,864,886	84,6 189,7
0301	50,817	DD	8,562	DD	620,580	DD	241,563	DD	150301	87,361	DD	14,189	0,718 DD	1,085,959	493,000 DD	424,550	109,
0302	130,698	DD	21,547	DD	1,570,453	DD	628,993	DD	150301	166,632	DD	26,676	DD	2,000,437	DD	815,453	
0400	563,465	21,006	90,957	3,291	6,777,752	252,071		104,015	150400	645,953	DD	103,651	DD	7,789,693	DD	3,157,475	
0501	135,225	DD	24,639	DD	1,722,323	DD	612,103	DD	150501	125,073	DD	22,148	DD	1,516,608	DD	576,086	
0502	277,034	DD	45,950	DD	3,341,347	DD		DD	150502	274,397	DD	44,819	DD	3,327,242	DD	1,328,094	
0503	351,491	42,770	63,567	6,767	4,323,577	516,286	1,597,187	210,697	150503	372,653	DD	64,382	DD	4,486,812	DD	1,743,381	
0601	183,169	DD	34,950	1,616	2,203,258	DD	800,596	DD	150601	121,927	DD	25,500	DD	1,493,397	DD	495,198	
0602	264,541	12,187	45,223	2,065	3,293,471	146,240	1,247,201	57,702	150602	286,583	DD	48,359	DD	3,538,589	DD	1,361,502	
0701	107,292	38,433	20,456	6,177	1,300,317	461,719	469,357	187,673	150701	140,068	7,752	26,429	1,245	1,702,649	93,067	617,516	37,
0702	9,180	DD	2,218	DD	111,367	DD	32,189	DD	150702	4,824	DD	1,245	DD	62,547	DD	15,611	
0801	DD	0	2,095	0	DD	0	DD	0	150801	8,914	DD	1,544	DD	107,494	DD	41,641	
0802	4,492	0	741	0	53,907	0	21,610	0	150802	5,665	0	894	0	67,981	0	27,946	
0803	95,694	DD	16,052	DD	1,152,565	DD	455,880	DD	150803	115,432	0	18,914	0	1,391,033	0	557,564	
0101	506,997	71,988	81,305	11,669	6,137,781	903,925		350,353	160101	545,332	DD	86,823	DD 24 820	6,637,600	DD 1 972 210	2,678,063	761
102 201	764,390 376,354	164,625 77,690	128,800 69,129	26,232 13,069	9,507,294 4,851,970	1,987,569	3,635,565 1,694,935	807,880 370,686	160102 160201	931,685 374,850	155,449 13,337	156,991 68,118	24,829 2,160	11,452,128 4,750,077	1,873,219 163,826	4,429,423 1,699,592	761, 64,
201	442,405	117,099	82,196	18,798	5,543,592	1,027,947		572,190	160201	457,510	58,797	85,278	10,086	5,761,256	738,518	2,037,470	276,
	1,276,710	102,358	207,207	16,296	15,599,613	1,228,743		502,463	160202	1,021,984	91,359	165,257	14,407	12,576,446	1,097,446	4,977,280	450,
300		263,832	236,915	41,555	17,933,659	3,184,589		1,302,955	160300	1,261,091	314,209	209,390	49,891	15,866,949	3,910,962	6,053,191	1,546,
401	1,126,515	45,530	178,129	7,141	13,612,721	546,926		225,332	160401	1,124,864	DD	179,077	DD	13,600,645	DD	5,523,109	1,5 10
402	534,951	DD	85,368	DD	6,488,289	DD		DD	160402	362,710	DD	57,241	DD	4,392,668	DD	1,789,560	
501	68,558	17,384	12,019	2,821	825,894	217,683	317,764	84,543	160501	97,835	DD	16,538	DD	1,184,546	DD	463,988	
502	215,722	DD	35,270	DD	2,598,862	DD		DD	160502	269,819	56,924	45,474	10,922	3,373,209	691,426	1,283,371	247,
503	215,359	DD	36,629	DD	2,802,563	DD	1,020,104	DD	160503	251,387	DD	43,439	DD	3,282,184	DD	1,179,274	
600	796,463	DD	127,740	DD	9,697,815	DD	3,895,463	177,552	160600	717,622	15,577	116,480	2,572	8,871,059	192,185	3,488,027	74,
101	81,405	DD	14,901	DD	991,720	DD	366,725	DD	170101	77,756	DD	13,966	DD	943,587	DD	354,795	
	2,114,216	115,390	357,389	18,254	25,488,860		10,025,495	568,500	170102	1,794,934	99,183	302,094	15,705	21,645,378	1,192,378	8,534,085	488
103	322,525	20,206	60,931	3,226	3,914,642		1,420,554	99,034	170103	284,064	11,961	53,305	1,879	3,451,223	143,538	1,257,314	59
200	1,627,042	262,455	273,169	41,079	19,649,748	3,150,593			170200	1,206,955	200,777	202,272	31,223	14,594,968	2,410,726	5,753,744	998
300	725,160	116,403	125,891	18,040	8,845,840	1,397,537		579,783	170300	574,945	83,165	98,695	12,870	7,012,575	998,349	2,701,768	414
401	314,314	36,678	55,496	6,034	3,788,005		1,450,172	177,104	170401	376,560	15,103	72,441	2,468	4,541,983	181,340	1,635,999	73,
	3,534,069		590,198	189,116	43,631,834				170402	3,411,614	805,797	566,624	125,342	42,287,884	9,718,532	16,364,498	4,006,
501	3,525,939	612,953	575,060	96,059	42,571,696		17,077,742		170501	3,480,723	430,319	561,448	68,087	41,973,674	5,271,960	16,964,295	2,120
502	866,051	74,616	138,458	11,715	10,541,605		4,243,320	369,070	170502	761,520	DD 06 672	121,340	DD 15.099	9,253,350	DD 1 162 272	3,737,871	470
	1,132,291	106,355	185,341	16,720	13,678,800		5,472,879	525,701	170601	955,323	96,672 53,052	155,559	15,088	11,579,010	1,163,372	4,631,884	479, 263
602	698,027	33,995	112,507	5,340	8,399,439		3,403,272	168,109	170602	665,148	53,052	106,550	8,294	8,005,653	636,624	3,254,179	263,
603 701	371,604	30,367	62,515	4,828	4,488,198		1,767,362	149,166 584,074	170603	366,495 854 111	30,808	60,391	4,769	4,462,040	369,698	1,765,075	153,
701	1,057,548 712,838	118,681 47,165	177,202 113,696	18,832 7,383	12,898,510 8,592,693		5,043,469 3,496,083	584,074 233,668	170701 170702	854,111 695,217	113,083 82,346	143,279 111,300	17,952 12,810	10,419,491 8,406,660	1,381,513 988,154	4,070,486 3,402,939	556, 409,
102	974,088	113,347	167,734	17,771	11,786,473		4,567,292	561,100	170702	951,464	82,346	165,658	12,810	11,465,115	1,042,161	4,429,591	409,
703							4.001.474	201.100		/J1,TUT	05,710	100,000	13,040	11,700,110			

 $\textbf{Table S4--2007}. \ Quantity of Manure \ and \ Manure \ Nutrients \ Produced \ \textit{as excreted} \ \ for \ Pastured \ Livestock \ Types \ by \ 6-digit \ HUC,$ 

 Table S4--2012. Quantity of Manure and Manure Nutrients Produced as excreted for Pastured Livestock Types by 6-digit

_	Quantity of		Quantity of		Quantity o		Quantity o			Quantity of ma		- •		Quantity of mar		Quantity of	
-digit	wet weigh		dry weigh Non-	t (tons)	nitrogen,	pounds	phosphorus	s, pounds	6-digit	weight (t	ons)	weight (	tons)	poun	ds	phosphorus	, pounds
UC	Non-AFOs	AFOs	AFOs	AFOs	Non-AFOs	AFOs	Non-AFOs	AFOs	HUC	Non-AFOs	AFOs	Non-AFOs	AFOs	Non-AFOs	AFOs	Non-AFOs	AFO
														ıAFO_pastL_ne			
70900		117,940	206,766	18,931	13,694,209		4,573,104	576,552	170900	897,141	100,140	170,375	15,990		1,226,897	3,946,621	491,09
71001	243,052	18,121	43,288	2,796	2,949,729	217,470		90,458	171001	179,433	19,370	31,919	2,995		232,441	824,160	96,59
71002	205,192	68,558	35,533	10,696	2,517,957	824,175	959,168	340,278	171002	193,479 997,712	70,144	32,553 167,665	10,886 7,902		843,349	920,537	349,13 253,27
71003 71100	1,125,284 901,026	108,335 186,212	193,420 178,100	16,834 29,328	14,126,232 11,033,745		5,288,852 3,835,610	538,849 919,488	171003 171100	660,399	50,894 142,491	129,323	22,301	12,474,155 8,097,217	612,601 1,711,072	4,753,782 2,832,086	706,00
71200		66,210	273,568	10,300	20,889,694		8,587,360	329,112	171100	1,620,579	DD	255,029	DD	19,484,986	DD	8,006,161	700,00 D
80101	756,518	176,991	129,980	27,677	9,409,353	2,131,654		877,437	180101	657,483	203,976	112,432	31,894	8,226,649	2,466,159	3,099,694	1,011,38
80102	1,286,278	127,027	207,527	19,717	15,540,149	1,524,385		632,172	180102	964,007	127,419	154,270	19,845	11,643,752	1,540,326	4,719,507	633,12
80200	696,212	71,482	111,291	11,037	8,463,333		3,411,266	356,739	180200	666,711	DD	106,238	DD	8,161,196	DD	3,273,197	D
80201	2,354,994	173,163	408,887	27,614	29,294,825		10,995,195	849,983	180201	2,359,279	240,184	404,024	38,103	29,458,514	2,961,555	11,112,145	1,182,33
80300	1,688,911	728,068	291,830	112,804	22,090,844	8,760,109	7,923,498	3,627,125	180300	1,605,122	697,685	276,640	109,229	21,210,153	8,511,030	7,545,353	3,458,00
80400	3,076,980	866,651	511,746	135,231	37,570,000	10,418,405	14,739,967	4,301,134	180400	2,449,144	577,711	408,244	90,841	30,171,535	6,935,847	11,720,279	2,855,17
80500	763,299	87,838	130,684	14,580	9,364,529	1,120,907	3,593,445	421,914	180500	749,909	82,527	127,598	13,302	9,384,718	1,002,029	3,546,352	402,47
80600		99,193	279,615	16,657	20,096,011	1,306,788		473,707	180600	1,613,531	67,450	267,135	11,478		817,993	7,748,765	318,60
80701	122,132	8,021	26,504	2,154	1,489,017	96,246	479,576	24,428	180701	81,111	DD	16,462	DD		DD	337,887	D
80702	89,107	89,274	21,985	14,183	1,239,768		306,807	438,739	180702	65,492	64,261	16,034	10,535		799,084	228,945	310,62
80703	167,535	21,599	39,464	3,833	2,042,886	259,655	604,958	99,317	180703	78,321	17,313	16,997	3,386	977,338	207,901	307,829	74,25
80800	331,051	DD 0	53,184	DD	3,985,335	DD	1,617,050	DD	180800	323,508	DD 0	51,719 12,034	DD 0	3,948,701	DD 0	1,585,220	D
80901 80902	83,267 185,996	13,464	13,387 32,741	0 2,171	999,613 2,243,463	0 162,032	406,512 859,855	0 65,639	180901 180902	75,804 168,450	19,384	28,048	2,989		232,887	372,700 806,058	96,81
81001	18,955	13,404	3,558	2,171	230,162	102,032	DD	05,059	181001	DD	DD	20,046 DD	2,969 DD		DD	DD	90,81 D
81002	66,378	16,000	14,389	3,210	1,005,442	264,274	263,485	68,190	181002	30,006	DD	5,996	DD		DD	126,877	D
90101	0	0	0	0	0	0	0	0	190101	0	0	0,,,,0	0	0	0	0	
90102	0	0	0	0	0	0	0	0	190102	DD	0	DD	0	DD	0	DD	
90103	DD	0	DD	0	DD	0	DD	0	190103	DD	0	DD	0	DD	0	DD	
90104	0	0	0	0	0	0	0	0	190104	0	0	0	0	0	0	0	
90201	DD	DD	124	DD	DD	DD	DD	DD	190201	DD	DD	DD	DD	DD	DD	DD	D
90202	DD	0	DD	0	DD	0	DD	0	190202	0	0	0	0	0	0	0	
90203	5,987	DD	1,358	DD	72,624	DD	22,506	DD	190203	6,536	DD	1,318	DD		DD	27,378	D
90204	1,151	0	324	0	14,025	0	3,255	0	190204	1,547	DD	366	DD	19,202	DD	5,571	D
90205	7,075	DD	1,460	DD	88,994	DD	29,110	DD	190205	7,380	DD	1,454	DD		DD	31,536	D
90206	DD	0	DD	0	DD	0	DD	0	190206	DD	0	DD	0	DD	0	DD	
90207	DD	DD	DD	DD	DD	DD	DD	DD	190207	DD	0	DD	0	DD	0	DD	
90301 90302	DD 0	0	DD 0	0	DD 0	0	DD 0	0	190301 190302	DD 0	0	DD 0	0	DD 0	0 0	DD 0	
90302	0	0	0	0	0	0	0	0	190302	0	0	0	0	0	0	0	
90304	0	0	0	0	0	0	0	0	190303	0	0	0	0	0	0	0	
190305	0	0	0	0	0	0	0	0	190305	0	0	0	0	0	0	0	
90401	1,189	DD	273	DD	14,449	DD	4,413	DD	190401	1,851	0	346	0	22,581	0	8,213	
90402	0	0	0	0	0	0	0	0	190402	DD	0	DD	0		0	DD	
90403	DD	0	DD	0	DD	0	DD	0	190403	0	0	0	0	0	0	0	
90404	DD	DD	DD	DD	DD	DD	1,151	DD	190404	DD	DD	DD	DD	DD	DD	DD	D
90405	3,232	DD	756	DD	39,451	DD	11,755	DD	190405	4,292	DD	849	DD	53,765	DD	18,286	D
90406	DD	0	DD	0	DD	0	DD	0	190406	0	0	0	0	0	0	0	
90407	0	0	0	0	0	0	0	0	190407	0	0	0	0	0	0	0	
90408	DD	0	DD	0	DD	0	DD	0	190408	DD	0	DD	0		0	DD	
90501	0	0	0	0	0	0	0	0	190501	0	0	0	0	0	0	0	
90502	0	0	0	0	0	0	0	0	190502	0	0	0	0	10.756.019	0	4 276 842	
00100		DD DD	162,944 29,896	DD DD	12,400,084	DD DD	5,052,146 902,378	DD DD	200100 200200	889,992 124,408	DD DD	141,274	DD DD	10,756,018	DD DD	4,376,842 604,111	D D
00200	185,194	מט		מט	2,247,479	00		מט				20,238					ь
00400	35,596	0	5,951	0	429,673	0	169,925	0	200400 200500	20,771	DD DD	3,643	DD DD		DD DD	96,298	D
00600	53,157	DD	9,284	DD	648,016	DD		DD	200500	50,302	DD	8,737	DD		DD	234,623	D
00700	105,923	DD	17,335	DD	1,294,081	DD		DD	200700	127,655	0	20,584	0		0	622,445	D
00800	DD	0	DD	0	DD	0	DD	0	200800	DD	0	DD	0		0	DD	
									Sum of column	480,212,189	57,148,918	78,603,207	9,023,081	5,821,854,645	689,664,736	2,321,374,046	281,862,14
									National total Percent	480,372,790	58,667,953	78,631,357	9,263,886	5,823,934,916	708,049,163	2,322,120,433	289,338,3

For complete definitions of variables, see the USDA/NRCS report entitled "Estimates of Recoverable and Non-Recoverable Manure Nutrients Based on the Census of Agriculture," authored by Robert L. Kellogg,

of national total

99.97%

97.41%

99.96%

97.40%

99.96%

97.40%

99.97%

97.42%

 $\textbf{Table S3--2007}. \ Quantity of \ Manure \ and \ Manure \ Nutrients \ Produced \ \textit{as excreted} \ \ for \ Confined \ Livestock \ Types \ by \ 6-digit \ HUC,$ 

**Table S3--2012.** Quantity of Manure and Manure Nutrients Produced *as excreted* for Confined Livestock Types by 6-digit HUC,

Types by 6-	digit HUC,	,							digit HUC,		,						-717
Derived fro	m the 2007	Census of A	griculture l	Database					Derived from	the 2012 (		riculture Data					
	Quantity o		Quantity of		- •	of manure	Quantity o			-		Quantity of n		Quantity of		Quantity of	
6-digit	wet weig		dry weig Non-		Non-	ı, pounds	phosphoru Non-		6-digit	Non-	ght (tons)	weight		nitrogen		phosphoru	
HUC	AFOs	AFOs	AFOs	AFOs	AFOs	AFOs	AFOs	AFOs	HUC	AFOs		Non-AFOs		Non-AFOs		Non-AFOs	AFOs
10100	1.000	41.760	224	5 110	22.920	490.257	4.015	05.162							AFO_conf_ne r		
10100 10200	1,802 3,348	41,760 240,592	234 451	5,118 31,270	22,829 45,735	480,357 3,064,828	4,915 9,538	85,162 542,230	10100 10200	3,073 5,374	DD 245,453	417 783	32,093	41,319 71,613	3,078,159	8,250 15,427	DD 541,277
10300	8,614	430,213	1,132	56,262	102,373	5,483,052	19,918	976,715	10300	11,567	540,785	1,577	76,744	143,424	8,045,735	30,265	1,692,440
10400	6,393	305,600	780	58,908	75,625	7,591,560	14,187	2,169,215	10400	6,976	DD	928	DD	85,561	DD	17,467	DD
10500	4,778	61,138	686	8,795	67,363	877,987	14,608	193,409	10500	5,827	51,000	876	6,840	89,355	677,618	20,831	130,102
10600 10700	13,737 13,848	122,423 151,192	1,954 2,087	16,003 20,564	171,813 172,665	1,528,798 1,979,138	35,395 36,130	275,569 375,656	10600 10700	17,880 18,652	107,975 151,347	2,537 2,758	14,037 20,369	239,711 248,002	1,337,557 1,905,823	49,178 54,320	238,046 344,779
10801	14,609	959,476	1,970	125,589	178,317	12,365,853	36,286	2,228,653	10801	17,068	879,811	2,369	115,538	227,441	11,262,349	48,251	2,035,248
10802	20,778	360,457	2,880	47,284	265,184	4,583,173	56,815	838,250	10802	21,776	276,290	3,162	36,588	295,604	3,567,503	64,130	658,230
10900	19,414	160,290	2,793	21,236	236,546	1,995,346	50,018	376,909	10900	19,621	138,163	3,026	18,532	283,338	1,762,393	62,030	334,350
11000 11100	20,284 1,008	781,694 496,076	2,828 137	116,346 64,485	262,610 12,440	12,782,665 6,360,860		2,894,234 1,129,054	11000 11100	24,858 0	684,008 0	3,569 0	100,755 0	322,517 0	10,899,741 0	68,434 0	2,428,674 0
20100	15,380	3,495,672	2,127	460,358	203,287	45,730,821	41,660	8,372,358	20100	0	0	0	0	0	0	0	0
20200	35,752	2,890,652	4,848	376,386	455,802	37,137,911		6,675,471	20200	32,723	2,809,164	4,702	366,977	436,708	35,787,339	93,738	6,452,990
20301	8,391	50,603	1,214	6,810	105,891	654,174	21,918	122,875	20301	8,371	40,530	1,298	5,458	116,300	447,197	26,261	84,352
20302	2,387	30,182	397	6,867	31,548	511,147	7,209	162,849	20302	2,001	30,083	330	7,128	27,544	559,730	6,632	176,976
20401 20402	25,429 29,676	848,012 2,279,270	3,305 3,852	124,742 353,694	320,194 364,967	13,144,039 35,765,363		2,851,385 7,969,561	20401 20402	22,141 31,510	791,431 2,275,764	3,060 4,413	127,329 355,380	275,932 377,283	14,108,376 35,824,588	58,457 79,279	3,314,430 8,116,188
20403	5,242	21,047	804	3,404	65,721	DD	14,111	DD	20403	5,718	510,884	916	130,470	75,216	11,169,237	16,620	3,207,471
20501	51,882	4,371,473	6,443	561,505	611,030	55,464,772	114,423	9,919,265	20501	46,615	3,903,707	6,214	505,516	562,314	49,602,828	117,321	8,928,416
20502		1,438,382	2,881	194,931	285,846	19,552,762		3,767,274	20502	19,376	1,482,215	2,498	200,986	210,708	19,948,188	42,984	3,937,097
20503		12,248,135	13,129	1,796,045 1,092,180		189,334,066 93,529,545		40,645,634	20503 20600	98,462 17,531	12,596,830 1,256,150	13,165 2,431	1,859,813 255,743	1,157,835 197,855	195,007,713 22,252,257	237,725 41,614	42,358,716 5,737,270
20600 20700		4,574,006 7,770,661	2,421 9,560			146,158,686		26,050,969 36,487,924	20700	80,017	7,108,952	10,538	1,287,635	925,475	127,897,704	190,066	31,463,125
20801	21,198	661,756	2,735	114,469	247,746	10,382,500		2,490,959	20801	23,987	3,055,450	3,281	737,187	297,851	62,799,058	63,971	17,623,466
20802	25,178	954,895	3,145	172,623	283,847	16,132,673		4,038,250	20802	25,467	843,346	3,495	153,567	319,564	14,701,952	67,497	3,684,233
30101	34,094	1,281,726	4,220	176,381	343,594	17,684,818		3,633,281	30101	31,112	1,109,410	4,083	155,568	365,658	15,997,196	74,042	3,336,193
30102 30201	11,409 4,636	1,266,182 1,185,064	1,476 665	208,699 173,900	141,797 54,325	22,101,024 21,480,420		5,082,450 5,063,732	30102 30201	9,137 3,602	911,500 842,462	1,324 526	175,328 144,295	116,741 46,900	16,902,233 16,632,553	24,569 10,258	4,284,714 4,435,915
30202	9,730	4,171,769	1,464	633,271		80,612,751		17,745,740	30202	9,367	3,672,742	1,341	530,223	114,962	67,367,107	25,327	14,310,080
30203	0	0	0	0	0	0	0	0	30203	1,284	421,788	186	69,740	14,506	8,665,693	3,269	1,973,486
30300		12,137,303	2,883	1,934,759		232,634,015		52,685,079	30300	22,005	10,052,023	3,130	1,599,454	266,111	191,543,497	57,382	43,165,502
30401 30402	26,616 20,568	3,481,427 3,763,946	3,758 2,848	774,791 716,839	288,180 236,561	74,157,273 76,671,305		20,507,626 19,767,874	30401 30402	32,606 22,404	3,042,338 3,487,748	4,471 3,182	667,364 671,527	338,897 258,286	63,882,046 72,306,380	74,044 54,773	17,587,691 18,478,463
30501	39,169	2,122,026	5,390	454,947	431,220	46,500,417		12,808,546	30501	38,806	2,257,448	5,640	507,670	443,054	48,746,334	97,393	13,514,850
30502	13,497	805,887	1,876	172,429	166,736	15,598,037		4,195,232	30502	15,663	808,846	2,312	170,064	190,245	15,624,367	40,881	4,146,397
30601	22,920	3,519,396	2,961	845,752	252,804	75,773,965		21,654,275	30601	25,607	3,895,180	3,675	931,670	289,075	82,037,729	65,076	23,235,152
30602	6,746	531,289	901	92,593	77,241	8,440,874		2,031,324	30602	5,500	556,669	815	91,310	71,676	8,511,581	15,751	1,926,171
30701 30702	28,606 13,933	2,549,001 892,580	3,920 1,812	563,091 185,711	333,081 151,973	52,276,349 17,225,189		14,526,445 4,713,507	30701 30702	21,220 11,275	2,361,149 906,019	3,161 1,586	522,329 193,985	250,399 121,181	48,606,526 17,986,080	53,171 25,123	13,475,100 4,998,304
30801	33,041	248,556	4,295	32,216	348,030	2,846,161	71,907	524,511	30801	33,660	289,259	4,770	37,966	371,639	3,287,262	79,582	620,728
30802	3,654	DD	493	DD	34,780	DD	7,213	DD	30802	2,183	DD	308	DD	24,877	DD	5,758	DD
30901	4,246	1,179,918	532	165,411	44,826	16,997,284		3,739,882	30901	5,738	1,356,960	800	181,536	60,340	16,729,501	12,810	3,465,599
30902 31001	22,237 7,447	269,546 536,047	3,192 924	35,102 68,424	249,878 79,695	3,030,129 6,226,057	52,332 15,769	571,929 1,139,516	30902 31001	26,443 10,759	473,054 527,311	3,931 1,407	60,157 67,987	286,213 106,465	4,449,839 6,499,631	59,440 22,814	884,426 1,169,987
31001	24,877	583,359	3,259	89,076	257,828	9,726,625		2,341,405	31001	33,107	497,652	4,524	79,139	331,230	8,830,536	72,372	2,243,605
31101	5,115	317,923	695	52,457	60,866	4,698,144		1,070,861	31101	7,322	442,177	1,007	61,126	74,011	5,728,451	15,648	1,110,475
31102	24,946	2,706,701	3,348	490,207	275,502	46,698,663		11,777,514	31102	23,824	2,248,599	3,424	396,588	267,959	37,981,944	58,106	9,326,041
31200	5,607	470,906	752	94,384	63,075	8,114,050		2,100,058	31200 31300	4,569 23,651	277,245	672 3,443	61,919 569,536	52,433 286,494	5,197,016	11,295 63,230	1,467,084
31300 31401	31,164 8,810	2,947,741	4,270 1,219	625,121 44,262	98,350	55,348,960 4,147,352		14,886,502 1,154,304	31401	7,871	2,708,356 201,962	1,193	39,993	95,249	50,291,032 3,652,378	21,090	13,494,041 1,059,820
31402	11,235	1,417,674	1,490	334,659	113,177	28,480,556		8,091,664	31402	8,781	1,451,690	1,299	349,818	100,098	30,021,620	21,577	8,594,604
31403	5,594	702,353	821	171,813	62,176	14,776,925		4,262,495	31403	4,400	655,741	666	164,428	53,815	14,247,792	12,343	4,124,792
31501	33,434	4,223,976		1,053,912	352,895	91,024,283		26,263,851	31501	29,527	4,376,865	4,345	1,106,534	341,567	94,832,511	79,297	27,408,351
31502 31601	9,922 27,963	326,619 3,442,593	1,372 3,903	66,619 732,467	99,395 281,019	5,576,249 66,156,194		1,488,274 17,864,152	31502 31601	8,993 23,175	378,404 2,841,203	1,270 3,325	78,089 629,039	98,191 245,340	6,114,125 57,826,023	20,953 54,258	1,690,000 15,752,706
31602	6,955	188,027	935	32,960	67,429	2,941,991	14,844	765,632	31602	5,744	116,812	822	20,016	65,134	1,930,378	14,544	479,231
31700	18,770	2,846,775	2,719	699,026	214,315	59,831,604		17,191,497	31700	18,589	2,582,631	2,614	635,119	195,703	53,883,058	44,188	15,454,822
31800	14,898	3,912,361	2,082	916,594	148,907	79,245,529		22,142,513	31800	19,038	3,514,862	2,696	836,129	191,435	72,472,015	41,000	20,441,741
40101 40102	248 3,436	52,656	DD 395	6,782	2,416 42,168	0 658,188	545 7,273	0 118,777	40101 40102	230 1,788	DD 62,854	38 236	8,004	3,386 25,377	DD 744,393	824 5,263	DD 133,544
40102	3,747	132,735	491	17,028	40,467	1,654,703	8,100	294,520	40103	2,714	132,411	364	17,020	33,023	1,599,314	7,132	283,743
40201	1,642	21,618	200	2,748	19,086	266,194	3,696	47,153	40201	1,257	17,728	181	2,303	15,697	200,275	3,401	37,250
40202	2,089	33,554	244	4,332	23,180	414,887	4,474	74,208	40202	1,262	11,604	188	1,466	17,328	128,744	3,859	23,155
40203	DD	0	DD	0	DD	0 05 420 560	DD	0	40203	DD 25.741	0 210 220	DD	1.000.052	DD	00 022 124	DD 70.619	0
40301 40302	47,046 49,174	7,014,985 6,099,329	5,509 5,761	901,279 780,606	485,143 520,747	85,420,568 74,794,926		15,024,674 13,124,375	40301 40302	35,741 40,182	8,310,238 6,441,611	4,606 5,091	1,069,952 821,679	353,779 396,536	99,923,124 77,145,960	70,618 77,883	17,468,790 13,489,858
40400	11,829	960,594	1,398	122,982		11,827,660		2,072,776	40400	11,251	1,080,476	1,449	137,650	108,844	12,836,804	21,400	2,258,239
40500		9,173,088	17,247			133,114,319	281,680	26,305,695	40500	116,419	10,586,488	15,603	1,466,107	1,274,679	156,580,518	258,177	31,802,129
40601	40,442	1,958,867	4,889	255,433	459,309	26,670,883		4,880,075	40601	36,038	2,030,195	4,801	258,748	409,528	25,542,337	82,174	4,565,575
40602	DD 15.010	DD 258 000	1 770	DD 45 030	4,514	DD 4 400 656	929	DD 776 861	40602	10.026	DD 206 507	1 259	29 297	112 126	2 597 922	52 22 500	DD 638 070
40700 40801	15,010 15,115	358,999 1,861,070	1,770 1,734	45,939 224,724	168,331 153,580	4,409,656 22,647,272	30,242 26,720	776,861 3,872,483	40700 40801	10,026 10,241	296,507 2,397,852	1,358 1,283	38,387 288,531	112,136 102,475	3,587,832 28,796,640	23,590 20,088	638,970 4,928,688
40802	55,142	2,011,746	6,547	251,232	597,119	24,478,177	107,393	4,265,856	40802	44,811	2,013,651	5,877	254,243	471,912	24,175,201	94,744	4,231,271
40803	427	DD	55	DD	4,487	DD	777	DD	40803	DD	0	DD	0	DD	0	DD	0
40900	20,330	447,897	2,602	55,317	235,317	5,279,309	44,010	897,296	40900	22,088	509,671	2,922	61,991	235,614	6,013,177	48,118	1,012,994
41000 41100	134,826 25,190	5,249,678 529,567	16,185 3,228	681,322 67,137	1,452,522 296,066	76,381,461 6,523,134		15,020,534 1,138,768	41000 41100	116,871 19,655	5,480,747 502,666	15,397 2,708	719,841 64,450	1,211,056 228,810	79,098,786 6,217,793	237,955 47,533	15,920,088 1,105,752
41100	23,170	527,507	3,220	07,137	270,000	0,023,134	54,333	1,150,700	71100	17,033	502,000	2,700	G-F, <del>-1</del> 50	220,010	0,211,173	71,555	1,100,102

 $\textbf{Table S3--2007}. \ Quantity of \ Manure \ and \ Manure \ Nutrients \ Produced \ \textit{as excreted} \ \ for \ Confined \ Livestock \ Types \ by \ 6-digit \ HUC,$ 

**Table S3--2012.** Quantity of Manure and Manure Nutrients Produced *as excreted* for Confined Livestock Types by 6-digit HUC,

Derived from the 2012 Census of Agriculture Database

Quantity of manure, Quantity of manure, dry Quantity of manure

	Quantity o wet weig		Quantity of dry weig			of manure 1, pounds		of manure is, pounds			of manure, ght (tons)	Quantity of n weight			of manure n, pounds		of manure rus, pounds
6-digit HUC	Non- AFOs	AFOs	Non- AFOs	AFOs	Non- AFOs	AFOs	Non- AFOs	AFOs	6-digit HUC	Non- AFOs		Non-AFOs		Non-AFOs	_	Non-AFOs	AFOs
									huc6	FO_conf					AFO_conf_ne		
41201 41202	14,531 DD	1,638,525 DD	1,836 DD	216,934 DD	167,735 DD	21,465,403 DD	30,899 DD	4,023,583 DD	41201 41202	11,793 DD	1,632,692 0	1,593 DD	212,875 0	142,936 DD	20,674,759 0	29,012 DD	3,740,126 0
41300		2,842,155	2,196	370,224	210,539	35,590,340	37,464	6,392,731	41300	14,705	2,912,198	2,014	380,222	167,775	36,236,536	34,692	6,471,624
41401	5,185	422,230	662	55,357	63,814	5,410,544	12,441	979,053	41401	3,661	559,936	494	76,536	45,700	7,920,290	8,982	1,572,100
41402 41501	24,356 3,399	4,002,780 919,048	3,115 428	518,551 119,629	292,867 39,242	50,398,175 11,570,689	56,280 7,395	9,065,127 2,042,569	41402 41501	19,459 3,464	4,059,904 993,366	2,669 452	529,190 129,210	254,370 40,606	50,819,308 12,433,203	53,052 8,061	9,116,503 2,193,250
41502	5,599 DD	919,048 DD	DD	DD	DD	DD	7,393 DD	2,042,309 DD	41502	DD	DD	DD	DD	DD	DD	DD	DD
41503	11,785	1,881,638	1,468	244,342	144,981	23,900,040	27,094	4,244,266	41503	9,815	1,854,529	1,272	241,332	117,909	23,350,990	24,577	4,113,394
41504 41505	0	0	0	0	0	0	0	0	41504 41505	22,613 1,095	3,488,762 510,250	3,100 159	461,509 66,328	288,256 13,633	45,643,238 6,559,733	60,417 2,818	8,444,977 1,166,112
50100	61,184	2,537,892	7,049	327,626	719,006	32,463,673		5,890,269	50100	43,385	2,339,990	5,586	305,029	505,971	29,741,515	101,438	5,480,297
50200	34,242	759,384	4,010	96,970	396,086	9,437,704	74,063	1,679,828	50200	25,563	590,520	3,350	75,313	302,868	7,283,974	61,012	1,298,364
50301 50302	53,829 27,109	1,463,214 364,240	6,021 3,213	187,718 45,009	613,952 304,733	18,518,573 4,603,154	106,976 56,685	3,319,130	50301 50302	39,968	1,261,728 278,559	4,962 3,440	166,834 33,684	471,436 306,578	16,094,611	91,047 62,644	2,949,401 582,232
50400	87,512	4,448,331	10,174	618,765	1,011,811	63,285,835		800,477 12,795,808	50400	26,588 78,677	4,597,843	10,243	651,181	913,708	3,346,267 65,990,224	181,546	
50500	33,417	584,201	4,181	76,128	383,285	7,332,012	73,347	1,419,027	50500	34,791	541,116	4,402	75,714	415,283	7,540,311	82,086	1,555,520
50600	44,469	1,299,456	5,315	157,413	502,898	17,028,756		3,080,237	50600 50701	34,509 653	1,489,844 DD	4,486 91	185,560 DD	379,913 8,680	19,495,960 DD	75,994 1,839	3,600,808 DD
50701 50702	1,458 4,407	DD 6,341	199 584	DD 764	16,007 49,624	DD 51,446	3,407 10,026	DD 9,849	50702	3,838	5,355	529	659	46,886	41,382	10,375	8,488
50800	61,089	2,722,317	7,177	389,459	666,551	46,236,150	116,967	10,517,217	50800	51,822	2,626,792	6,692	367,889	537,928	43,984,237	106,333	9,762,672
50901	18,635	83,743	2,342	10,423	205,670	902,757	39,028	167,938 1,560,673	50901	16,108	94,264	2,107	13,358	179,566	1,350,772 7,213,328	37,263	313,966
50902 51001	41,747 33,165	657,896 356,296	4,979 4,021	79,334 44,259	464,616 344,931	8,639,391 3,767,322	83,399 63,421	696,710	50902 51001	34,272 26,199	592,041 261,549	4,464 3,437	72,184 31,249	370,269 286,198	2,623,905	76,177 57,517	1,289,023 481,701
51002	34,348	386,734	4,287	47,391	367,591	3,851,701	67,475	730,711	51002	33,952	351,381	4,496	43,112	371,148	3,207,202	74,814	621,310
51100	75,875	2,793,030	9,252	467,772	818,028	43,179,062		10,089,835	51100	69,142	2,544,830	8,732	441,206	708,094	39,372,892	139,690	9,505,769
51201 51202		9,210,748 4,125,686	15,801 11,335	1,250,394		155,910,503 77,919,430		33,009,782 18,134,017	51201 51202	123,736 85,269	9,573,527 3,673,599	16,103 10,965	1,306,753 562,334	1,312,637 887,722	164,910,990 70,425,511	260,669 173,851	35,195,763 16,251,311
51301		1,186,712	6,672	201,243	533,099	17,246,676		4,150,503	51301	44,751	869,995	5,861	143,594	463,343	12,501,022	95,691	2,979,212
51302	37,496	871,220	5,193	126,793		12,747,737		3,006,283	51302	34,490	745,668	4,794	109,537	388,118	10,784,681	82,329	2,521,365
51401 51402		1,073,913 1,009,673	5,901 3,305	155,931 168,774	521,112 295,157	14,037,455 16,754,457	94,549 52,470	2,990,676 3,946,498	51401 51402	43,866 21,925	890,371 1,036,734	5,630 2,887	131,737 162,695	446,468 219,945	11,514,079 17,283,723	89,446 44,228	2,541,730 3,867,789
60101		1,126,859	7,038	174,559		15,312,870		3,457,706	60101	43,012	860,688	5,767	138,528	452,086	12,633,991	94,547	2,931,610
60102	29,441	486,774	3,844	65,252	310,751	5,549,281		1,101,596	60102	27,747	340,355	3,639	47,204	306,306	4,118,026	63,604	837,253
60200 60300		1,059,414 3,237,252	2,509 7,396	218,722 743,860	195,165 552,593	19,627,119 64,963,612		5,280,906 18,300,185	60200 60300	15,867 42,741	956,899 2,773,001	2,155 6,063	206,541 652,922	165,806 493,501	18,711,449 56,809,972	35,922 108,365	5,104,762 16,189,263
60400		1,000,937	3,828	187,949	305,490	16,087,861		4,110,460	60400	26,102	848,805	3,667	161,365	298,403	14,272,611	63,469	3,599,071
70101		1,637,964	3,285	234,078		24,314,177		5,089,280	70101	19,501	1,826,102	2,355	278,715	223,433	29,051,593	42,882	6,509,791
70102 70200		7,145,612 15,026,628	8,268 10,570	1,086,183 1,843,484		116,336,495 226,252,255		25,784,111 41,858,788	70102 70200	59,566 71,094	7,249,733 14,893,119	7,174 9,081	1,061,680 1,870,112	615,449 714,820	112,101,337 221,530,675	114,943 134,255	24,100,894 41,721,690
70300		1,681,852	3,943	226,256		22,996,188		4,404,116	70300	20,163	1,550,309	2,609	211,688	230,612	21,432,477	45,409	4,180,242
70400		10,454,711		1,380,840		143,384,631		26,820,509	70400	75,631	10,835,032	9,321	1,436,191	774,838	146,547,216	148,082	27,672,727
70500 70600		5,116,896 10,953,459	4,727 8,444	703,629 1,263,752		71,504,729 141,818,766		13,902,838 24,004,848	70500 70600	32,919 60,824	5,158,586 11,037,039	4,071 7,231	707,625 1,285,452	342,405 632,184	70,788,529 140,613,358	65,635 113,786	13,702,720 24,190,021
70700		7,365,720	8,696	942,104		93,082,427		16,494,490	70700	56,092	7,295,847	7,231	932,846	610,527	90,539,524	119,179	15,949,123
70801	80,208	7,280,593	9,392	849,730	849,140	105,374,429	143,068	18,634,611	70801	53,320	7,150,780	6,944	842,164	565,000	104,413,752	106,377	18,339,569
70802 70900		12,863,309 10,542,724	12,715		,,	190,613,227 136,669,706		34,029,617 24,339,520	70802 70900	82,314 85,380	13,377,448 10,270,241	10,371 10,877	1,590,038 1,269,388	853,588 896,992	202,954,845 131,464,167	158,159 171,965	35,854,146 23,471,099
71000		13,699,315		1,731,896		223,251,345		45,313,811	71000		12,385,167	8,201	1,582,990	662,196	204,654,242	125,165	41,347,094
71100	44,012	2,170,114	5,391	257,658	497,944	29,883,542	90,715	5,497,499	71100	41,639	2,196,286	5,297	257,811	466,775	31,097,664	89,215	5,673,694
71200 71300		3,905,049	7,473 10,032	510,725 482,921	644,806	56,703,331		11,208,826 10,347,668	71200 71300	45,889 63,880	3,779,947 3,915,370	6,102 8,078	475,768 447,985	492,946 663,927	51,186,724 55,131,085	97,341 127,877	9,526,354 9,842,240
71401	55,768	4,200,611 954,281	6,497			56,698,994 11,027,683		2,056,956	71401	41,375	798,180	5,333	97,931	442,926	9,951,126	88,244	
71402		2,099,998	4,704	259,664		27,827,063	72,967	5,182,425	71402	31,427	2,040,964	3,978	255,162	307,480	26,721,735	59,241	4,981,044
80101 80102	1,388 27,179	47,308 1,370,962	196 3,735	9,791 274,498	15,022 288,495	830,724 23,980,963	2,724 58,161	223,345 6,318,693	80101 80102	1,178	47,949 1,350,561	181 3,403	10,500 278,625	13,027	910,287 25,001,799	2,572 54,788	245,350 6,594,728
80201	106	DD	3,733	DD	1,072	23,980,903 DD	220	0,516,095 DD	80201	24,318 DD	1,330,301		0	263,247 DD	23,001,799	DD	0,394,728
80202	16,747	457,902	2,232	90,620	174,380	7,640,807	34,457	2,032,273	80202	13,751	414,357	1,816	88,468	141,036	7,754,168	28,317	2,087,692
80203	11,258	224,309 DD	1,592	33,560	117,154	2,476,122	23,560	608,754	80203 80204	8,194 1,319	123,548 49,533	1,106 178	15,734 11,495	75,062 12,678	1,121,352 962,343	16,263 2,906	237,992 272,620
80204 80301	3,301 DD	DD	447 DD	DD DD	30,304 DD	DD DD	6,347 1,052	DD DD	80301	1,519 DD	49,333 DD	DD	11,493 DD	12,678 DD	902,343 DD	2,906 DD	DD
80302	14,360	252,888	2,005	33,250	148,590	2,532,826	31,050	553,267	80302	12,453	211,549	1,778	27,395	124,110	2,030,602	26,585	416,462
80401	7,735	717,944	1,050	158,378	76,380	14,817,796	17,310		80401	7,437	587,551	1,041	139,299	76,163	13,320,272	16,916	
80402 80403	11,539 3,459	1,994,778 229,296	1,580 455	501,700 51,650	125,487 36,532	43,152,800 4,291,858	7,813	12,476,270 1,223,081	80402 80403	9,405 4,045	1,232,678 159,637	1,395 557	308,191 36,381	105,922 46,844	26,751,232 3,172,159	22,879 9,965	7,778,940 911,238
80500	7,506	143,652	1,022	17,440	68,131	957,321	14,298	216,920	80500	5,532	55,275	764	9,544	51,601	719,438	11,012	
80601	250	DD	34	DD	3,330	DD	639	DD	80601	DD	DD 402 618	DD	DD	DD	DD	DD	DD 2222 200
80602 80701	7,810 420	448,129 43,110	1,103 59	85,945 5,232	82,391 4,038	8,559,396 293,336	17,231 796	2,275,932 64,433	80602 80701	9,348 522	403,618 DD	1,323 64	77,089 DD	90,525 4,355	8,067,769 DD	19,114 926	2,238,200 DD
80702	9,854	806,721	1,329	130,086	100,825	12,216,564	21,694	2,792,583	80702	11,533	538,180	1,561	92,687	116,259	8,632,138	25,852	2,084,159
80703	1,495	18,892	218	2,333	15,072	137,227	3,101	30,251	80703	1,202	3,635	167	426	10,993	23,800	2,388	5,170
80801 80802	12,460 15,244	114,748 144,329	1,681 2,105	13,970 18,259	121,958 157,946	827,423 1,141,291	26,093 33,748	180,913 256,160	80801 80802	13,508 17,931	70,262 107,430	1,900 2,528	8,615 13,125	131,182 181,142	528,003 803,548	28,130 39,586	112,607 173,781
80901	13,244	DD	2,103	18,239 DD	137,940	1,141,291 DD	33,748	230,100 DD	80901	17,931 DD	107,430 DD	2,328 DD	15,125 DD	DD	003,346 DD	39,380 DD	DD
80902	2,247	53,706	318	6,885	25,472	622,920	5,261	114,561	80902	2,878	25,937	404	3,433	28,879	289,223	6,625	53,673
80903	2,812	DD 220 454	375	DD 27.663	26,470	DD 2 262 105	5,560	DD 462 083	80903 90100	2,472 7,559	18,081 227,104	355 967	2,191 27,028	25,323 78,730	127,441 2,032,192	5,349 14,918	28,140 432,419
90100 90201	8,056 23,458	239,454 2,085,461	943 2,747	27,663 308,974	81,465 245,176	2,363,105 34,029,622	14,455 42,003	462,983 7,542,316	90100	18,071	2,086,573	2,300	312,205	193,676	33,733,314	36,530	7,465,531
90202	9,860	387,920	1,228	48,714	107,545	4,836,435		1,012,735	90202	6,632	544,363	869	67,767	68,470	5,606,930	13,326	

 $\textbf{Table S3--2007}. \ Quantity of Manure \ and Manure \ Nutrients \ Produced \ \textit{as excreted} \ \ for \ Confined \ Livestock \ Types \ by \ 6-digit \ HUC,$ 

**Table S3--2012.** Quantity of Manure and Manure Nutrients Produced *as excreted* for Confined Livestock Types by 6-digit HUC,

Derived from the 2012 Census of Agriculture Database

Quantity of manure, Quantity of manure, dry

Derived fro	m the 2007	Census of A	griculture l	Database					Derived from			riculture Datal					
	Quantity o	of manure,	Quantity of	of manure,	Quantity	of manure	- •	of manure		-		Quantity of n		Quantity	of manure	Quantity of	of manure
<del>-</del>	wet weig	ht (tons)	dry weig	ht (tons)		ı, pounds	phosphoru	ıs, pounds	<del>-</del>		ght (tons)	weight (	(tons)	nitroger	n, pounds	phosphoru	ıs, pounds
6-digit HUC	Non- AFOs	AFOs	Non- AFOs	AFOs	Non- AFOs	AFOs	Non- AFOs	AFOs	6-digit <u>HUC</u>	Non- AFOs	AFOs	Non-AFOs	AFOs	Non-AFOs	AFOs	Non-AFOs	AFOs
пос	AFUS		Arus		AFUS		AFUS				FO conf we	AFO_conf_cF	O conf dr	nAFO conf	AFO_conf_ne	nAFO conf	AFO conf pe
90203	14,229	588,926	1,713	79,592	152,389	7,950,571	27,845	1,731,160	90203	11,436	561,223	1,464	74,063	123,071	7,197,754	24,068	1,554,582
90300	3,066	20,922	407	2,571	39,069	226,126	7,482	41,516	90300	1,864	27,999	239	3,485	22,359	301,276	4,678	54,804
90400	0	0	0	0	0	0		0	90400	DD	5,548	DD	632	DD	38,405	DD	8,590
100100	DD	DD	DD	DD	DD	DD	DD	DD	100100								
100200	9,195	370,759	1,230	45,992	99,483	3,472,985	18,512	670,284	100200	7,860	321,278	1,091	39,855	86,688	2,867,043	17,178	561,487
100301	9,280	314,795	1,227	36,856	95,740	3,632,144	17,771	669,463	100301	13,763	324,338	1,973	39,672	137,958	3,719,979	27,047	719,801
100302	4,001	417,327	511	52,289	42,598	5,520,275	7,778	1,032,863	100302	7,869	491,056 323,640	1,029 557	58,828 34,285	75,069	6,050,394	14,136 8,790	1,120,523
100401 100402	4,102 2,850	139,068 75,590	495 377	16,170 9,503	49,192 31,322	1,124,511 898,413	8,894 6,115	221,186 177,169	100401 100402	4,245 4,044	84,133	518	10,098	44,135 43,935	2,899,446 1,062,833	8,363	494,583 199,002
100402	7,323	193,744	946	23,967	80,911	1,838,030	14,948	370,090	100500	5,727	255,988	773	30,895	60,303	2,150,043	11,548	455,399
100500	3,220	105,090	412	12,489	35,996	708,258	6,598	160,066	100600	2,963	145,904	333	17,291	33,205	1,063,668	5,789	239,165
100700	12,985	635,774	1,722	66,386	140,043	5,572,235	26,773	925,938	100700	17,534	645,607	2,379	72,081	183,335	4,764,974	34,831	885,021
100800	11,821	332,224	1,597	39,758	130,869	2,764,756	25,802	535,613	100800	13,911	407,771	1,881	49,068	138,938	2,835,493	27,827	581,460
100901	2,342	DD	287	DD	23,734	286,981	4,561	63,621	100901	3,640	41,428	497	4,973	38,066	298,925	7,605	64,621
100902	4,388	32,196	596	3,632	53,160	248,156	9,865	47,792	100902	4,070	96,042	572	11,385	44,098	717,011	8,741	147,825
101000	4,252	472,344	510	55,513	48,375	3,425,768	8,768	715,583	101000	6,435	331,215	813	38,173	65,204	2,375,407	12,054	486,041
101101	4,067	78,352	526	8,956	48,532	719,583	8,657	132,097	101101	4,035	126,892	478	14,985	39,094	958,018	7,413	200,715
101102	4,109	95,400	465	9,360	46,687	963,771	7,730	146,532	101102	2,919	103,066	362	11,392	29,412	836,751	5,886	152,653
101201	8,625	DD	1,121	DD	92,646	DD	17,806	DD	101201	11,117	DD	1,497	DD	127,137	DD	24,314	DD
101202	3,728	192,421	458	23,065	43,295	1,531,665	7,812	310,038	101202	6,815	127,094	897	14,226	79,148	1,031,462	15,877	192,806
101301 101302	11,356 9,701	854,157 470,993	1,365 1,106	94,713 56,516	129,919 107,788	8,529,634 5,110,579	22,659 18,449	1,472,732 911,985	101301 101302	12,772 12,147	909,630 424,159	1,532 1,503	101,582 49,919	134,409 122,207	8,582,020 4,194,681	24,511 22,415	1,577,093 762,042
101302	3,969	317,875	436	32,321	49,519	2,995,781	8,023	505,377	101302	6,296	334,647	781	35,390	71,810	3,010,821	13,286	531,793
101303	9,420	1,148,914	1,091	124,421	106,772	14,530,119	17,938	2,537,510	101303	9,349	1,126,468	1,169	124,110	115,668	13,076,666	20,468	2,386,226
101402	3,627	450,993	431	44,377	41,951	5,658,819	7,382	830,793	101402	5,149	595,410	647	61,626	58,475	5,265,478	11,182	889,262
101500	7,144	2,077,664	843	196,267	80,136	22,159,668	14,712	3,245,471	101500	12,095	2,308,655	1,454	217,580	125,961	24,219,796	24,066	3,619,765
101600	24,859	4,483,859	2,996	509,464	273,267	59,051,729	47,835	10,640,207	101600	27,768	4,077,152	3,533	477,544	286,659	52,322,655	53,126	9,937,380
101701	20,523	3,330,498	2,439	368,012	243,986	43,541,742	41,397	7,890,860	101701	21,747	3,128,404	2,754	345,538	238,491	39,463,739	44,316	7,190,258
101702		11,366,700	5,220	1,266,566		151,002,730		25,780,559	101702	39,561	12,544,045	5,199	1,402,118	416,699	163,359,646	77,596	27,953,760
101800		3,703,530	1,835	331,698		39,195,964		5,408,634	101800	19,819	3,727,963	2,690	331,360	204,389	39,220,271	40,822	5,386,776
101900		11,578,975	8,995			139,405,014		22,433,739	101900	69,720	10,599,102	9,736	1,126,740	738,966	123,274,284	149,899	19,437,065
102001		5,212,077	1,689	459,564		57,144,860		7,720,875	102001	12,888	5,753,109	1,751	511,984	129,111	61,472,921	25,236	8,408,156
102002		2,327,112	1,919	236,286		29,561,282		4,907,329	102002	23,875	1,921,746	3,226	188,750	253,498	21,905,191	51,242	3,494,224
102100 102200		6,042,707 9,236,007	2,231 2,754	568,825 879,507		71,565,955 108,956,591		10,551,458 16,673,693	102100 102200	24,342 27,224	6,164,609 9,047,171	3,095 3,444	590,901 872,103	240,442 289,693	75,046,164 104,838,985	46,722 53,713	11,248,069 16,077,466
102200		12,965,935	6,061	1,461,858		175,426,284		30,490,362	102200		11,925,875	5,376	1,399,575	439,199	166,296,366	81,439	30,315,715
102400		4,924,434	7,152	562,332		65,399,402		12,069,523	102400	46,722	4,513,548	5,971	529,907	480,042	61,421,652	92,270	11,557,627
102500		10,188,995	2,628	935,109		118,611,356		17,082,663	102500	29,730	10,899,785	3,858	1,010,105	295,487	127,417,995	59,708	18,459,168
102600		5,649,623	3,248	510,149		61,058,558		8,395,506	102600	20,155	5,475,110	2,711	493,216	210,490	59,250,834	42,731	8,098,211
102701	31,230	980,296	3,865	105,973	343,242	11,362,786	63,607	1,895,629	102701	28,322	758,338	3,739	87,154	302,259	9,620,799	62,956	1,675,188
102702	29,012	5,510,315	3,671	566,791	337,162	68,497,024	60,511	11,126,732	102702	30,499	4,930,133	4,110	510,390	320,590	58,398,480	63,095	9,544,645
102801	30,492	3,391,738	3,701	396,087	337,714	51,836,794	61,272	9,254,843	102801	33,729	3,526,907	4,318	406,881	372,123	53,944,773	71,388	9,469,160
102802	13,276	369,710	1,628	42,077	140,874	4,151,678	26,011	767,513	102802	11,498	DD	1,496	DD	125,008	DD	24,453	DD
102901		2,704,595	10,644	385,410	915,020	41,348,485		9,353,664	102901	81,123	2,239,170	10,438	324,054	868,306	34,614,252	171,327	7,953,821
102902	18,462	723,612	2,236	97,805	213,787	9,979,099		1,972,851	102902	17,937	544,303	2,246	73,048	200,450	7,304,050	38,764	1,446,868
103001		2,345,115	6,503	368,251	588,019	38,321,767	108,981	9,165,883	103001	45,059	2,076,238	5,882	333,383	485,272	33,647,776	97,903	8,316,650
103002	9,375	223,906	1,086	26,595	107,874	3,172,286	18,728	569,633	103002 110100	5,829 62,747	184,602 3,917,668	755 8,274	21,943 887,036	67,235 665,386	2,542,103 85,971,255	12,784 138,837	445,132 24,215,997
110100 110200		4,674,661 2,336,865	9,346 4,427	1,037,479 216,200	750,204 345,685	99,960,810 24,781,680		27,910,220 3,708,810	110100	34,612	2,235,953	4,777	200,991	351,923	24,412,801	71,216	3,519,309
110200		18,096,623		1,637,448		200,360,790		27,628,657	110300		15,934,492	5,274	1,476,436	400,231	176,458,293	81,478	24,881,914
110400		9,806,102	806			113,342,152		16,071,432	110400	6,280	10,719,741	803	1,026,596	58,821	126,766,640	11,911	18,458,017
110500	19,542	2,024,935	2,484	212,856	215,986	25,950,846	42,365		110500	22,099	1,343,634	2,928	142,766	227,791	16,710,677	46,446	2,991,839
110600	16,128	569,686	2,051	62,468	179,966	5,028,409	34,895	913,129	110600	16,021	443,468	2,144	46,791	171,081	3,934,724	34,095	673,697
110701	32,319	572,952	4,180	67,872	340,088	5,912,803	66,545	1,128,306	110701	30,320	449,464	4,096	57,300	325,812	5,360,622	65,352	1,056,477
110702	67,991	4,617,802	8,497	873,217	727,233	84,122,784		21,774,539	110702	57,191	4,283,842	7,395	836,462	587,413	79,559,635	118,628	21,020,334
110800	4,968	34,659	679	4,027	51,729	255,721	10,189	51,540	110800	7,912	DD	956	DD	71,997	DD	13,385	DD
110901		4,621,479	435	423,097		51,652,822		7,034,779	110901	4,805	4,613,475	682	456,222	49,486	51,942,138	10,069	7,572,186
110902	30,344	DD	3,955	DD	331,981	DD		1,515,024	110902	30,733	780,486	4,147	95,808	322,553	9,832,930	67,129	1,918,119
111001		10,795,132	550	993,349		134,236,128		19,116,770	111001	4,558	11,286,384	613	1,043,394	45,479	139,506,703	8,966	19,836,404 6,343,006
111002	34,472	2,974,442 479,722	316 4,425	301,940 55,669	27,407 373,599	42,013,829 5,844,053	5,609	6,814,744 1,110,055	111002	2,389 33,133	2,741,164 608,284	299 4,418	279,124 63,809	23,148 349,807	38,766,716 7,388,656	4,687 73,469	1,316,040
111003 111101		2,799,977	5,891	638,604	459,406	58,503,570		1,110,033	111003 111101	42,866	2,318,046	5,780	552,863	445,625	49,923,342	92,246	14,311,617
111101		3,151,458	3,523	729,336		66,662,855		18,858,684	111101	19,769	2,767,909	2,682	654,848	187,427	59,904,757	41,232	17,152,099
111201		11,683,748	816			129,512,574		17,346,361	111201	9,408	9,924,012	1,263	870,550	90,388	109,814,802	18,168	14,525,449
111202	1,336	DD	185	38,460	14,209	DD	2,779	637,829	111202	3,477	DD	453	DD	32,030	DD	6,627	DD
111203		1,481,372	785	126,738	67,073	16,279,112	12,872		111203	5,772	1,087,483	749	94,840	54,663	12,064,896	11,273	1,586,051
111301	4,045	153,806	508	18,869	45,192	1,388,909	8,612	276,240	111301	4,778	78,861	595	9,547	46,025	785,762	8,966	147,816
111302	24,398	635,655	3,038	79,225	250,963	7,236,112	49,137		111302	28,517	659,021	3,761	83,609	283,579	7,331,191	58,649	1,341,350
111303	25,448	1,065,135	3,277	111,625	288,032	12,082,726		1,993,873	111303	23,410	733,685	2,997	79,842	247,722	9,086,604	48,619	1,775,729
111401		2,416,219	5,871	509,931	461,076	43,882,186		12,088,087	111401	48,344	1,895,454	6,347	394,425	490,504	34,519,453	99,543	9,341,133
111402	9,763	955,702	1,309	224,343	97,037	19,082,590		5,476,873	111402	10,167	720,968	1,443	171,979	106,755	14,633,298	22,206	4,197,329
111403			4,719	485,140	346,910	43,322,133		10,951,631	111403	41,443	1,987,264	5,584	373,642	385,580	33,128,558	81,022	8,353,304
120100		2,287,920	6,975	482,711		42,146,365		11,267,845	120100	64,176	2,161,674	8,643	471,603	609,770	41,035,451	128,252	11,132,501
120200	44,027	1,668,442	5,716	374,055	449,006	32,322,342		8,958,828	120200 120301	44,345 137,347	1,617,635 892,603	6,040 18,764	351,834 132,453	436,762 1,322,442	29,976,416 12,775,272	93,365 276,020	8,262,819 3,092,263
120301 120302	118,303 28,458	950,490 340,279	15,853 3,634	54,754	1,141,572 285,970	12,119,740 4,628,130	56,673	2,788,442 1,122,979	120301	30,172	532,582	3,962	93,880	285,327	7,085,593	59,244	1,897,220
120302	24,801	145,783	3,352	20,693	248,112	1,576,016	49,928	373,821	120302	31,589	114,567	4,289	14,550	301,362	1,181,465	63,569	252,804
120401	16,034	76,316	2,136	9,265	163,283	535,547	33,814	114,610	120401	21,289	110,369	2,941	14,078	203,114	1,020,287	43,631	237,226
120402	10,034	70,510	2,130	7,203	100,400	JJJ,J41	33,014	117,010	120402	21,207	110,309	۷,7≒1	17,078	203,114	1,020,207	₹5,051	22,1,220

 $\textbf{Table S3--2007}. \ Quantity \ of \ Manure \ and \ Manure \ Nutrients \ Produced \ \textit{as excreted} \ \ for \ Confined \ Livestock \ Types \ by \ 6-digit \ HUC,$ 

**Table S3--2012.** Quantity of Manure and Manure Nutrients Produced *as excreted* for Confined Livestock Types by 6-digit HUC,

Derived from the 2012 Census of Agriculture Database

Quantity of manure, Quantity of manure, dry

Derived from	m the 2007	Census of A	Agriculture I	Database					Derived from	n the 2012 (	Census of Ag	riculture Data	ıbase				
	Quantity of		Quantity o		- •	of manure	Quantity of			- •		Quantity of 1		- •	of manure	- •	of manure
6 dinis	wet weig	tht (tons)	dry weig	ht (tons)		i, pounds	phosphoru	s, pounds	6 diais		ght (tons)	weight	(tons)	nitroger	n, pounds	phosphoru	is, pounds
6-digit HUC	Non- AFOs	AFOs	Non- AFOs	AFOs	Non- AFOs	AFOs	Non- AFOs	AFOs	6-digit <u>HUC</u>	Non- AFOs	AFOs	Non-AFOs	AFOs	Non-AFOs	AFOs	Non-AFOs	AFOs
1100	111 00		111 00		711 05		111 00				FO_conf_we	AFO_conf_c	FO_conf_dr	nAFO_conf_	AFO_conf_ne	nAFO_conf_ A	
120500		14,819,490		1,551,266		170,282,699		25,823,218	120500		16,412,202	3,032	1,761,599	222,275	192,393,314	44,286	29,959,898
120601	10,032	428,912	1,327	46,194	106,857	3,528,376	20,605	623,938	120601	14,652	120,287	2,006	12,697	146,060	1,026,729	30,039	177,589
120602 120701	45,785 43,082	2,004,624 877,881	6,027 5,562	272,899 150,963	470,383 422,823	26,622,048 12,624,414	91,274 84,101	5,258,311 3,298,493	120602 120701	50,052 58,604	1,555,428 859,756	6,933 7,701	216,029 154,673	498,654 553,044	20,482,512 12,891,386	101,870 116,288	4,147,398 3,450,498
120701	32,161	1,475,903	4,313	216,046		21,697,158	66,813	4,585,777	120702	39,528	1,177,424	5,687	176,893	424,893	18,036,013	88,715	3,926,554
120800	16,435	939,854	2,368	112,849	179,993	10,528,519	35,083	1,828,232	120800	23,052	1,381,685	3,322	172,913	229,956	16,351,593	46,060	2,828,606
120901	14,973	827,225	2,211	95,158	188,090	9,710,817	34,932	1,611,595	120901	21,203	700,198	3,217	84,144	265,109	8,145,308	50,171	1,402,978
120902	15,197	109,442	2,176	14,666		1,227,469	36,006	211,231	120902	22,234	88,712	3,159	9,863	250,220	842,753	50,584	145,126
120903	18,696	142,813	2,399	17,804	186,170	1,491,775	37,573	321,006	120903	17,601	104,390	2,308	15,418	173,127	1,441,912	37,388	379,888
120904 121001	7,994 10,742	DD 226,857	1,071 1,304	DD 39,911	76,617 105,754	DD 4,044,979	15,659 19,868	1,158,089	120904 121001	8,137 11,998	DD 146,374	1,087 1,473	DD 21,502	80,056 107,311	DD 1,852,693	17,082 22,119	DD 484,885
121001	23,777	1,078,542	3,201	225,193	258,872	22,692,110	52,609	6,364,143	121001	35,600	1,251,731	4,759	269,846	357,307	27,345,226	75,424	7,829,692
121003	25,701	246,221	3,348	27,499		2,389,329	51,890	429,224	121003	35,308	DD	4,857	DD	351,265	DD	73,464	DD
121004	9,010	186,657	1,161	19,252	89,477	1,603,082	18,042	269,026	121004	13,339	109,225	1,701	11,585	127,068	1,002,801	25,135	170,487
121101	21,964	717,809	2,975	68,575		7,370,242	44,463	1,081,057	121101	31,892	573,939	4,405	54,058	330,655	5,821,546	66,446	838,821
121102	22,153	466,806	2,967	41,796		4,787,216	43,506	656,904	121102	35,613	550,170	4,825	50,130	340,272	5,463,174	69,582	758,656
130100 130201	7,896 10,825	176,842 50,933	1,058 1,493	21,802 6,250		1,392,573 370,955	15,803 19,988	294,983 81,602	130100 130201	7,977 22,416	117,584 65,016	1,129 3,007	13,740 7,893	85,716 209,569	860,794 466,115	16,619 43,192	167,008 101,698
130201	50,699	814,516	7,579	104,208		9,418,518	99,941	1,692,900	130201	59,929	863,452	8,257	110,710	518,830	9,956,533	105,459	1,791,575
130301	8,111	DD	1,217	DD	83,267	14,449,749	16,370	DD	130301	12,276	DD	1,736	DD	112,746	DD	22,665	DD
130302	1,739	668,794	241	85,782	17,682	8,009,955	3,518	1,406,492	130302	3,888	464,274	531	59,406	34,761	5,675,161	7,099	1,008,277
130401	4,536	DD	694	DD	48,601	DD	9,300	DD	130401	4,325	DD	740	DD	54,107	DD	9,863	DD
130402	1,776	DD	242	1,321	18,955	DD	3,816	DD	130402	1,612	21,818	233	2,627	18,040	153,535	3,470	34,446
130403 130500	832 5,804	2,303 244,147	134 878	349 34,456	12,289 65,673	25,454 3,578,352	2,176 12,648	4,747 759,985	130403 130500	1,124 8,228	DD 193,534	162 1,200	DD 24,803	12,782 84,789	DD 2,279,723	2,469 16,518	DD 406,748
130600	8,466		1,188	375,054	85,183	36,235,169	17,199	6,375,888	130600	14,411	2,728,185	1,200	354,799	138,657	33,569,985	27,135	5,930,767
130700	3,358	239,637	502	30,731	37,140	2,851,683	7,266	515,510	130700	6,171	211,136	866	26,061	57,558	2,423,010	11,166	423,929
130800	3,706	DD	487	DD	39,596	DD	7,411	DD	130800	8,202	DD	1,156	DD	84,957	DD	16,492	DD
130900	2,723	DD	336	DD	23,076	DD	4,914	DD	130900	5,771	DD	750	DD	50,606	DD	10,972	DD
140100	18,233	182,250	2,437	24,766		1,967,527	33,992	DD	140100	22,501	146,400	3,158	21,774	219,420	1,843,632	44,289	447,649
140200	15,051	235,265	1,986	30,957	147,864	2,488,915	29,218	566,149	140200 140300	17,762 7,279	341,998 59,303	2,409 1,027	43,474 7,546	179,930 80,341	3,553,852 495,391	35,348 15,579	738,214 92,995
140300 140401	9,583 4,139	146,271 35,308	1,345 523	17,452 4,103		1,117,484 323,131	19,619 8,077	221,508 55,504	140300	4,802	43,365	661	5,273	51,669	320,154	9,961	68,052
140401	758	3,245	104	325	7,915	29,543	1,444	4,747	140402	DD	DD	DD	DD	DD	DD	DD	DD
140500	5,548	72,711	761	9,446		626,745	12,110	124,134	140500	7,548	89,094	1,038	10,792	77,679	743,374	15,155	144,036
140600	18,326	245,195	2,340	32,764	187,940	2,858,492	34,327	585,310	140600	19,901	268,928	2,667	35,834	195,247	3,063,877	38,490	620,996
140700	9,085	141,621	1,283	21,284	92,036	1,826,727	17,768	DD	140700	5,007	101,919	750	12,961	54,446	843,895	10,365	169,784
140801 140802	72,354 76,016	338,298 170,303	11,082 12,433	41,316 22,788		2,746,034 1,453,886	146,406 161,685	541,042 296,521	140801 140802	47,698 77,644	179,952 159,373	6,953 13,000	21,746 21,276	478,410 943,628	1,309,818 1,331,851	92,505 170,385	263,790 271,898
150100	22,577	227,941	3,297	27,781	226,344	1,783,675	43,369	371,606	150100	22,904	157,263	3,384	19,906		1,217,596	44,397	251,853
150200	213,189	872,215	33,768		2,372,710	DD	440,271	DD	150200	162,614	941,803	26,712	120,023	1,864,783	10,387,075	337,803	1,962,179
150301	4,922	71,847	696	10,895	49,441	DD	9,769	145,488	150301	4,249	DD	651	DD	46,034	DD	8,749	DD
150302	2,579	50,716	325	6,156		329,991	4,546	73,076	150302	1,544	19,982	229	2,277	15,347	128,828	3,262	27,689
150400	9,376	159,713	1,344	19,446		1,192,577	18,014	255,763	150400	8,972	117,623	1,288	14,470	94,017	920,332	19,261	192,850
150501 150502	8,835 6,678	1,648,237 DD	1,255 937	212,687 DD	87,096 68,201	19,291,770 DD	17,112 13,621	3,407,761 DD	150501 150502	11,644 7,806	1,509,484 DD	1,753 1,198	196,247 DD	122,051 96,124	18,285,160 DD	24,868 20,939	3,157,494 DD
150502	9,106		1,330	331,064	94,967	36,836,371	18,509	5,436,790	150502	13,733	DD	2,047	DD	143,636	DD	28,435	DD
150601	24,976	286,360	3,788	37,508		3,231,270	49,419	588,375	150601	18,364	268,675	3,019	35,642	212,752	2,905,053	38,876	531,801
150602	11,284	76,377	1,656	9,621	111,631	540,497	21,786	115,198	150602	11,928	100,502	1,824	13,194	123,557	785,130	24,445	164,892
150701	10,393		1,520	308,158	97,067	29,857,826	19,081	5,623,945	150701	20,454	2,475,542	3,065	337,770	198,015	33,154,599	38,492	6,379,027
150702	1,446	DD	207	DD		DD	2,970	DD	150702	3,723	DD	586	DD	39,596	DD	7,332	DD
150801	347	DD	61	DD		DD	804	DD	150801	1,483	12,576	196	1,555	12,498	83,187	2,703	18,272
150802 150803	0 2,257	6,369	0 310	0 778		0 50,248	5,074	9,618	150802 150803	0 995	0 DD	0 153	0 DD	0 14,607	0 DD	0 3,426	0 DD
160101	1,983	69,630	227	8,305	19,156	516,698	3,349	102,132	160101	1,336	39,350	175	4,479	14,147	327,407	2,533	58,156
160102	19,894	1,261,354	2,460	166,681	190,859	15,947,332	34,280	3,084,470	160102	19,473	1,304,368	2,641	173,348	183,698	16,603,639	36,652	3,249,406
160201	13,830	250,327	1,836	31,397	130,051	2,875,877	24,284	505,065	160201	16,132	237,719	2,249	31,020	156,931	2,708,154	31,894	486,039
160202	27,020	598,370	3,642	80,906		8,201,775	50,900	1,656,047	160202	36,537	663,222	5,102	92,166	349,513	8,920,870	68,517	1,820,920
160203	14,364	628,029	1,900	78,656		8,102,674	28,062	1,545,593	160203	11,694	643,016	1,637	84,654	124,484	7,984,634	24,333	1,570,011
160300 160401	17,908 3,017	2,684,040 162,919	2,417 433	356,782 17,787	177,131 32,226	43,496,246 1,294,785	33,809 6,191	8,694,444 236,222	160300 160401	20,844 3,400	DD DD	2,842 537	DD DD	201,512 39,550	DD DD	40,313 8,095	DD DD
160401	2,376	162,919 DD	335	17,787 DD	25,895	1,294,785 DD	4,955	230,222 DD	160401	4,511	53,598	633	6,950	43,304	415,560	8,095 8,866	87,050
160501	3,426	61,432	507	7,469	34,051	544,331	6,562	101,427	160501	5,021	57,069	739	7,347	50,200	531,315	10,320	102,366
160502	4,162	410,654	590	53,231	38,660	4,718,431	7,670	834,189	160502	8,346	371,980	1,241	48,089	86,980	4,297,281	17,450	754,172
160503	3,043	DD	442	DD	31,006	1,068,248	5,938	DD	160503	2,876	DD	475	DD	35,793	DD	7,248	DD
160600	8,502	318,816	1,244	40,059	86,019	2,859,763	16,302	560,962	160600	9,242	338,486	1,426	42,327	95,354	2,981,378	18,553	576,753
170101	2,933	13,850	381	1,748		127,572	6,490 58 571	24,588	170101	4,585	13,957	616 4 620	1,830	48,475	138,736	9,642	26,699
170102 170103	29,411 15,516	234,166 91,240	3,900 2,075	29,055 11,474		2,246,248 948,424	58,571 33,358	426,101 173,755	170102 170103	33,509 17,339	247,350 72,070	4,620 2,456	30,197 8,961	348,882 187,096	2,064,488 674,511	69,706 38,338	414,797 131,605
170103	27,096		3,538	335,693	293,085	35,021,281	55,717	6,184,105	170103	21,918	3,562,979	2,456	430,160	225,916	44,334,196	45,819	8,102,570
170300	19,459	2,899,704	2,660	370,011	203,671	35,080,956	40,251	6,093,126	170300	23,606	4,022,398	3,269	479,176	237,669	48,499,896	48,467	7,974,443
170401	3,856	81,789	524	9,976		858,546	7,072	156,017	170401	4,897	86,710	604	10,889	51,375	805,532	8,984	157,440
170402		15,181,353		1,887,438		179,351,572		31,041,742	170402	52,437		7,045	2,094,148	500,992	197,841,632	101,319	34,285,246
170501	52,599		6,860	744,587	527,651	71,306,482		11,826,754	170501	46,148	6,827,635	6,348	815,399	478,140	73,899,431	96,330	12,283,779
170502	5,083	69,971	619	7,784	48,014	637,189	9,020	112,836	170502	4,120	86,255	590	9,676	44,721	664,946	9,014	127,324
170601	13,134	242,915	1,686	28,295		2,359,279	25,706	427,638	170601	14,955	245,908	2,064	27,301	156,296	2,167,496	31,306	389,690
170602 170603	3,813 5,486	56,031 39,530	506 703	6,754	37,773 54.485	465,131	7,111 10,199	91,448	170602 170603	3,035 5,620	74,551 81,087	399 763	8,905 9,675	30,892	662,130	5,824 12,664	127,417
1 /0003	3,480	39,530	/03	4,455	54,485	320,003	10,199	59,627	1 / 0003	3,020	01,08/	763	9,675	64,621	596,923	12,004	126,682

 $\textbf{Table S3--2007}. \ Quantity \ of \ Manure \ and \ Manure \ Nutrients \ Produced \ \textit{as excreted} \ \ for \ Confined \ Livestock \ Types \ by \ 6-digit \ HUC,$ 

 $\textbf{Table S3--2012}. \ \ Quantity of \ \ Manure \ \ Manure \ \ \ Nutrients \ \ Produced \ \ \textit{as excreted} \ \ \text{for Confined Livestock Types by 6-digit HUC},$ 

Derived from the 2012 Census of Agriculture Database

Quantity of manure, Quantity of manure, dry

		of manure,	Quantity of			of manure	-	of manure	_		of manure,	Quantity of r			of manure	Quantity of	
		ght (tons)	dry weig	ht (tons)		n, pounds		ıs, pounds			ght (tons)	weight	(tons)	nitroger	, pounds	phosphoru	ıs, pounds
6-digit <u>HUC</u>	Non- AFOs	AFOs	Non- AFOs	AFOs	Non- AFOs	AFOs	Non- AFOs	AFOs	6-digit HUC	Non- AFOs	AFOs	Non-AFOs	AFOs	Non-AFOs	AFOs	Non-AFOs	AFOs
пис	AFOS		Arus		AFUS		AFUS				FO conf we	AFO conf d	O conf dr	nAFO conf	AFO conf ne	nAFO_conf_	AFO conf pe
170701	20,090	2,481,332	2,642	269,854	209,739	27,754,236	40,806	4,355,576	170701	16,907	2,533,746	2,324	291,080	173,752	28,458,351	35,255	4,635,591
170702	3,323	69,022	409	7,374	37,565	581,089	6,672	101,757	170702	3,008	53,278	403	5,659	32,739	416,852	6,840	71,838
170703	16,993	168,184	2,191	19,212	164,638	1,422,622	31,157	270,342	170703	15,526	158,106	2,152	19,157	158,095	1,253,583	32,109	251,565
170800	15,505	576,380	1,995	99,321	173,223	8,905,205	34,928	2,050,781	170800	23,247	554,039	3,178	97,375	250,212	8,643,109	53,675	2,026,929
170900	68,647		9,019	248,280	739,498	24,275,845	144,757	5,260,313	170900	64,558	1,626,830	9,010	243,511	728,246	23,547,640	156,140	5,021,303
171001	8,526	352,678	1,129	54,635	99,816	5,835,378	21,000	1,379,185	171001	9,906	334,898	1,375	51,810	109,022	5,603,502	23,114	1,309,425
171002	6,867	824,789	927	106,965	84,037	10,446,742	17,120	1,861,659	171002	7,239	746,784	987	96,929	84,462	9,357,888	17,793	1,661,553
171003	27,181	216,151	3,688	28,104	291,093	2,534,703	56,867	502,975	171003 171100	26,219 42,591	209,590 2,691,729	3,652 5,997	27,631 359,041	277,037 489,314	2,574,985 34,859,159	57,999	501,833
171100 171200	44,763 4,438	2,829,673 125,558	5,944 565	377,482 15,064	523,251 42,424	36,719,557 879,975	105,653 7,754	6,849,859 189,987	171100	42,391	66,823	587	7,596	43,943	504,993	105,728 8,406	6,533,252 97,577
180101	16,533		2,377	222,835	185,618	22,063,550	37,827	4,454,380	180101	15,020	1,712,888	2,232	245,875	182,675	24,243,350	38,890	4,892,618
180102	11,068	352,055	1,463	42,094	114,961	3,633,142	21,882	661,130	180102	11,837	323,921	1,600	38,307	120,146	3,503,912	24,435	616,454
180200	4,563	DD	590	DD	49,880	255,601	9,415	53,853	180200	4,415	23,936	615	2,757	48,617	235,873	9,618	40,516
180201	56,137	1,783,809	8,115	230,593	639,850		125,609		180201	64,061	1,659,308	9,451	214,904	725,989	19,915,970	149,040	3,539,085
180300	30,248	32,271,556	4,319	4,244,762	302,396	403,539,455	60,295	72,922,294	180300	32,490	33,744,851	4,686	4,445,644	335,054	415,284,904	68,230	74,196,162
180400	44,972	22,907,159	6,496		481,025	312,581,903	93,224	61,344,387	180400	58,096	23,025,935	8,303	3,226,951	594,300	306,832,606	119,865	59,205,924
180500	11,663	451,837	1,768	60,825	137,274	5,762,445	27,900	1,085,069	180500	14,748	590,320	2,215	78,132	169,443	7,360,814	35,865	1,367,227
180600	21,935	384,845	3,166	51,596	232,099	4,713,107	46,829	947,140	180600	22,971	285,786	3,322	39,782	246,482	3,501,808	51,008	722,583
180701	22,705	106,821	3,417	15,639	229,289	1,162,922	44,494	224,276	180701	15,618	43,743	2,395	6,431	164,055	396,844	32,397	77,157
180702	26,682		4,030	594,710	271,010			11,496,707	180702	19,493	3,021,662		418,383	208,542	41,298,188	41,825	8,249,486
180703 180800	28,229 4,413	592,008 DD	4,281 607	90,826 DD	293,465 43,602	9,514,115 116,143	58,699 8,414	2,231,131 23,670	180703 180800	22,597 3,789	604,685 21,807	3,439 571	92,505 2,692	238,628 39,028	9,696,357 188,197	47,344 7,793	2,246,269 36,531
180901	670	DD	87	DD	5,627	DD	1,178	23,670 DD	180901	951	21,607 DD	130	2,692 DD	8,605	188,197 DD	1,783	50,551 DD
180901	12,061	1,116,492	1,850	150,349	128,785	14,494,598	25,608	2,657,068	180902	15,039	1,281,493	2,228	174,396	153,368	17,014,390	30,864	3,201,981
181001	3,130	DD	468	DD	32,720	DD	6,257	DD	181001	1,927	DD	298	DD	20,263	DD	4,056	DD
181002	5,223		802	335,275	61,510	40,580,996	12,663	5,491,266	181002	6,206	3,050,121	953	276,287	66,854	33,687,382	13,111	4,511,817
190101	0	0	0	0	0	0	0	0	190101	0	0	0	0	0	0	0	0
190102	DD	0	DD	0	DD	0	DD	0	190102	DD	0	DD	0	DD	0	DD	0
190103	DD	0	DD	0	DD	0	DD	0	190103	144	0	23	0	1,878	0	401	0
190104	0		0	0	0	0	0	0	190104	0	0	0	0	0	0	0	0
190201	DD	DD	DD	DD	DD	DD	DD	DD	190201	79	DD	13	DD	1,510	DD		DD
190202	DD	0	DD	0	DD	0	DD	0	190202	DD	0		0	DD	0		0
190203	883	944	110	108	11,193	10,335	2,035	1,622	190203 190204	876 743	DD DD	127 104	DD DD	10,070 8,597	DD DD	2,067 1,778	DD DD
190204 190205	296 920	DD 11,651	43 129	DD 1,591	3,357 10,707	DD 151,830	692 2,363	DD 28,999	190204	879	9,437	104	1,245	11,122	122,764	2,391	22,503
190205	DD	11,051	DD	1,391	DD	131,630	2,303 DD	20,999	190205	DD	9,437		0	DD	122,704		22,303
190207	DD	DD	DD	DD	DD	DD	DD	DD	190207	DD	0		0	DD	0		0
190301	0		0	0	0	0	0	0	190301	0	0	0	0	0	0	0	0
190302	0	0	0	0	0	0	0	0	190302	DD	0		0	DD	0	DD	0
190303	0	0	0	0	0	0	0	0	190303	0	0	0	0	0	0	0	0
190304	0	-	0	0	0	0	0	0	190304	DD	0		0	DD	0	DD	0
190305	0		0	0	0	0	0	0	190305	DD	0		0	DD	0		0
190401	DD	DD	DD	DD	237	DD	DD	DD	190401	DD	0		0		0		0
190402	0		0	0	0	0	0	0	190402	DD	0		0	DD	0		0
190403 190404	DD 166	0 DD	DD DD	0 DD	DD 2,095	0 DD	DD 402	0 DD	190403 190404	0 DD	0 DD	DD DD	0 DD	DD DD	0 DD	0 DD	0 DD
190404	986	4,896	132	612	12,031	55,564	2,381	10,135	190404	1,715	4,474	242	536	20,210	49,833	4,210	8,764
190405	0		0	0	12,031	0,504	2,361	0,133	190405	1,713	4,474	0	0	20,210	45,633	4,210	0,704
190406	0	0	0	0	0	0	0	0	190400	DD	0		0	DD	0		0
190407	0	-	0	0	0	0	0	0	190408	0	0	0	0	0	0	0	0
190501	0		0	0	0	0	0	0	190501	0	0	0	0	0	0	0	0
190502	0	0	0	0	0	0	0	0	190502	0	0	0	0	0	0	0	0
200100	6,728	60,564	916	7,888	84,188	735,771	17,181	140,542	200100	5,279	DD	794	DD	65,805	DD	14,547	DD
200200	1,787	DD	246	DD	25,067	DD	4,956	DD	200200	2,025	1,842	275	224	29,226	29,071	6,715	5,238
200400	DD	0	DD	0	DD	0	DD	0	200400	DD	0		0	DD	0		0
200500	701	DD	87	DD	9,189	DD	1,714	DD	200500	DD	DD	DD	DD	DD	DD	DD	DD
200600	2,089	49,716	293	7,915	28,088	1,010,457	5,514	DD	200600	2,238	19,889	309	3,815	28,951	540,085	6,168	155,446
200700	1,777	DD	218	DD	18,272	DD	3,490	DD	200700	395	DD 0	64 DD	DD	7,058	DD	1,734	DD 0
200800	0	DD	0	DD	0	DD	0	DD	200800	DD	0	DD	0	DD	0	DD	0

Sum of column	7,555,569 6	571,163,890	1,025,971	90,295,894	80,977,698	9,392,534,527	16,351,582	##############
National total Percent of	7,558,327	583,464,814	1,026,336	91,774,282	81,010,866	9,554,739,521	16,358,651	###############
national	99.96%	98.20%	99.96%	98.39%	99.96%	98.30%	99.96%	98.44%

For complete definitions of variables, see the USDA/NRCS report entitled "Estimates of Recoverable and Non-Recoverable Manure Nutrients Based on the Census of Agriculture," authored by Robert L. Kellogg, David C. Moffitt, and Noel Gollehon.

Table S5--2007. Quantity of Recoverable and Non-Recoverable Manure and Manure Nutrients Produced on AFOs, by 6-digit HUC,

Table S5--2012. Quantity of Recoverable and Non-Recoverable Manure and Manure Nutrients Produced on AFOs, by 6-digit HUC,

	HUC,	7 £ A	:lt D.t.l.							4- 2012 C-		book Database				on AFOs, by 6-0	_
Jerived 1	Quantity of	Quantity of		Recoverable	Non-	Manure	Recoverabl	Non-	Derived from	Quantity of	nsus of Agricul  Quantity of	Manure	Recoverable	Non-	Manure	Recoverable	No
i-digit	recoverable	recoverable manure, dry	nitrogen as	manure	recoverable manure	as as	e manure	recoverable manure	6-digit	recoverable manure, wet	recoverable	nitrogen as	manure	recoverable manure pl	nosphorus as	manure	recoverab manu
HUC	manure, wet weight (tons)	weight (tons)	(pounds)	nitrogen (pounds)	nitrogen (pounds)	excreted (pounds)	phosphorus (pounds)	phosphorus (pounds)	HUC	weight	manure, dry weight (tons)	excreted (pounds)	nitrogen (pounds)	nitrogen (pounds)	(pounds)	phosphorus (pounds)	phosphor (pound
10100	27,445	3,357	592,610	116,527	476,083	131,717	51,819	79,898	huc6 10100	brd_r_wete DD	brd_r_drye DD	brd_ne DD	brd_r_n DD	difference DD	brd_pe DD	brd_r_p DD	differen D
10200		19,852	3,316,349	770,341	2,546,008	645,777	325,330	320,447	10200	169,290	22,156	3,311,296	832,539	2,478,757	635,641	351,712	283,92
10300		35,811	5,963,258	1,384,981	4,578,276	1,174,250	588,404	585,846	10300	383,068	55,710	8,449,040	2,876,514	5,572,526	1,859,283	1,176,548	682,73
10400 10500		47,930 5,975	7,813,209 948,320	3,979,369 257,223	3,833,840 691,097	2,260,325 220,354	1,615,376 132,347	644,949 88,007	10400 10500	DD 33,344	DD 4,530	DD 751,573	DD 187,230	DD 564,343	DD 157,585	DD 83,416	74,1
10600		10,280	1,761,938	383,928	1,378,011	363,265	166,435	196,829	10600	73,134	9,519	1,457,401	348,986	1,108,415	285,079	151,037	134,0
10700		13,522	2,189,963	520,411	1,669,553	457,818	234,331	223,487	10700	104,347	14,127	2,061,956	510,010	1,551,947	400,828	224,203	176,6
10801 10802	607,617 230,300	79,795 30,349	13,431,823 4,956,559	3,183,309 1,188,573	10,248,514 3,767,986	2,663,974 988,521	1,344,301 509,359	1,319,673 479,162	10801 10802	603,596 187,190	79,552 24,931	12,114,084 3,914,140	3,134,389 986,867	8,979,695 2,927,273	2,379,195 793,004	1,327,205 425,192	1,051,9 367,8
10900		14,001	2,233,515	515,772	1,717,743	467,248	232,220	235,029	10900	96,357	13,051	1,985,641	485,898	1,499,743	409,588	219,826	189,7
11000		82,195	13,688,648	4,806,064	8,882,583	3,257,895	1,978,629	1,279,266	11000	495,402	75,291	11,678,994	4,216,116	7,462,879	2,744,113	1,734,117	1,009,9
11100 20100		40,991 296,499	6,916,397 49,223,408	1,609,793 12,241,326	5,306,604 36,982,082	1,358,111 9,804,818	680,121 5,141,640	677,990 4,663,179	11100 20100	0	0	0	0	0	0	0	
20200		239,589	40,693,786	9,543,924	31,149,861	8,125,239	4,029,968	4,095,271	20200	1,920,678	251,726	39,063,152	9,928,465	29,134,687	7,774,107	4,186,277	3,587,
20301	33,990	4,596	780,725	166,839	613,886	166,995	77,144	89,851	20301	29,786	4,027	534,867	119,953	414,914	116,951	56,882	60,0
20302 20401	23,254 564,223	5,333 86,142	DD 14,203,872	186,443 4,439,350	DD 9,764,522	DD 3,282,642	119,872 1,926,129	DD 1,356,513	20302 20401	DD 574,217	DD 96,803	DD 15,042,892	DD 5,449,623	DD 9,593,269	DD 3,690,226	DD 2,468,691	1,221,
20402		260,382		12,675,747	25,138,446	8,785,680	5,667,035	3,118,644	20402	1,708,185	278,154	37,695,712	13,747,492	23,948,220	8,858,575	6,097,873	2,760,
20403		DD	DD	DD	DD	DD	DD	DD	20403	DD	DD	DD	DD	DD	DD	DD	
20501 20502	2,799,007 965,144	359,250 132,934	61,175,027 21,455,288	14,021,672 5,526,462	47,153,354 15,928,826	, ,	6,016,601 2,467,355	6,241,351 2,050,837	20501 20502	2,666,019 1,066,851	345,318 147,113	54,354,783 22,114,498	13,351,989 6,150,866	41,002,794 15,963,633	10,873,695 4,789,312	5,780,862 2,756,032	5,092, 2,033,
20503			200,727,062		137,479,030	, , .		16,719,642	20503	9,295,784	1,420,887	206,590,114	70,400,178	136,189,936	46,895,691	31,116,448	15,779,
20600		931,008			48,167,629			5,284,630	20600	1,048,052	222,526	22,886,442	10,559,025	12,327,417	5,988,672	4,813,677	1,174,
20700 20801	5,737,366 480,808	1,102,570 87,504	160,966,125 12,321,190	58,927,685 3,987,308	102,038,441 8,333,882	42,556,623 3,291,648	27,429,126 1,850,101	15,127,497 1,441,547	20700 20801	5,526,134 2,734,376	1,053,361 671,669	142,224,374 64,152,642	53,739,943 33,449,548	88,484,431 30,703,094	37,359,946 18,171,953	25,009,711 15,327,879	12,350, 2,844,
20802		137,825	18,687,070	6,565,293	12,121,777	5,092,905	3,093,338	1,999,567	20802	676,035	128,825	18,115,359	6,357,058	11,758,301	5,101,355	2,972,068	2,129,
30101	922,629	129,253		5,197,106	. , ,	, , , ,	,,	2,257,628	30101	832,555	119,251	18,946,171	5,053,103	13,893,068	4,554,950	2,462,441	2,092,
30102 30201	1,114,558 1,057,977	185,211	22,812,404 21,959,471	8,038,176 7,349,624	14,774,229 14,609,847		4,212,153	1,159,011 1,192,033	30102 30201	837,601 769,922	163,001 132,503	17,484,797 16,963,904	7,571,739 7,283,795	9,913,058 9,680,109	4,525,452 4,568,127	3,745,796 3,679,065	779, 889,
30201		558,608	81,917,181	25,520,065				3,895,126	30201	3,418,163	491,810	68,619,694	21,176,278	47,443,415	14,823,685	12,169,698	2,653,
30203	0	0	0	0	0	0	0	0	30203	391,128	64,255	8,787,894	3,087,979	5,699,916	2,024,323	1,681,265	343,
30300			238,509,618		160,037,196			12,128,249	30300	9,283,414	1,476,012	197,024,397	67,553,272	129,471,125	45,431,620	36,813,183	8,618,
30401 30402	2,907,509 3,332,081	666,975 634,851			43,249,493 46,657,838			5,874,231 4,102,306	30401 30402	2,634,428 3,225,709	597,646 622,249	68,040,241 73,707,184	32,239,582 31,296,117	35,800,658 42,411,067	19,303,400 19,053,321	14,904,333 15,940,956	4,399, 3,112,
30501	1,706,360			21,123,764	29,023,841			4,137,385	30501	1,963,682	455,437	51,676,712	24,464,731	27,211,981	14,713,689	11,525,375	3,188,
30502		149,459	16,482,123	7,484,706		4,556,852	3,450,835	1,106,017	30502	707,020	153,414	16,305,504	7,679,019	8,626,485	4,423,781	3,548,844	874,
30601 30602	3,089,799 409,469	753,694 74,730			41,497,836		18,122,348 1,579,725	5,838,992	30601 30602	3,555,407	865,057	88,239,484	44,731,662	43,507,822	25,741,796	20,380,478	5,361,
30701	2,116,218	484,613	9,238,625 55,844,593	3,357,357 26,276,469	29,568,124	2,362,024 16,000,837		782,299 4,255,301	30701	437,027 2,052,834	74,891 470,425	9,201,631 51,604,930	3,260,227 25,546,208	5,941,404 26,058,721	2,212,397 14,715,922	1,525,305 11,411,967	687, 3,303,
30702		156,803	18,397,029	8,256,511	10,140,518		3,764,482	1,431,342	30702	778,802	173,199	19,145,956	9,247,304	9,898,652	5,477,626	4,207,314	1,270,
30801	159,893	20,724	3,253,537	679,246	2,574,291	668,695	312,462	356,232	30801	197,879	26,051	3,871,516	853,046	3,018,470	823,788	394,160	429,
30802 30901	DD 777,691	DD 111,732	DD 18,762,771	DD DD	DD DD	DD 4,473,259	DD DD	DD DD	30802 30901	DD 941,576	DD 127,652	DD 18,408,871	DD 5,245,760	DD 13,163,112	DD 4,163,076	DD 2,301,941	1,861,
30902		23,023	3,329,761	735,092	2,594,670	684,317	347,891	336,426	30902	342,432	43,506	4,760,367	1,086,050	3,674,317	1,000,086	580,739	419,
31001	339,863	43,252	6,941,228	1,503,025	5,438,203	1,436,537	672,170	764,367	31001	343,455	44,221	7,047,391	1,656,882	5,390,509	1,397,967	716,643	681,
31002 31101	395,662 225,140	62,919	10,604,098 4,962,619	3,813,137 1,733,496	6,790,961 3,229,122	2,695,871 1,180,027	1,573,630 785,469	1,122,240 394,558	31002 31101	366,519 299,357	60,886 42,436	9,324,461 5,968,363	3,946,924 1,675,723	5,377,537 4,292,640	2,444,410 1,209,468	1,622,879 740,311	821,: 469,
31101		39,451 388,006	50,265,396	20,076,755	30,188,640		8,904,006	4,347,160	31101	1,720,070	322,193	39,854,654	16,606,686	23,247,968	10,097,072	7,277,857	2,819,
31200	371,798	78,589	8,376,935	3,687,448		2,208,781	1,693,324	515,457	31200	247,940	56,862	5,312,913	2,762,104	2,550,809	1,515,309	1,282,408	232,
31300		536,358	58,736,665	26,515,264	32,221,401			4,085,338	31300	2,287,911	503,761	53,126,740	25,056,478	28,070,262	14,662,538	11,431,523	3,231,
31401 31402	178,911 1,235,136	37,839 297,386	DD 30,815,522	2,082,921 14,860,026	DD 15,955,496	DD 9,055,476	918,047 6,831,810	DD 2,223,667	31401 31402	172,269 1,331,092	35,373 325,958	3,886,168 31,726,756	1,915,199 16,556,536	1,970,969 15,170,220	1,155,555 9,300,598	872,297 7,589,171	283, 1,711,
31403		154,087	16,289,018	7,894,279	8,394,739	4,881,649	3,610,607	1,271,042	31403	612,280	154,697	15,671,661	8,033,483	7,638,177	4,709,893	3,660,504	1,049,
31501	3,777,334		95,672,057	48,799,682	46,872,375			5,811,549	31501	4,105,828	1,043,919	99,387,206	53,480,157	45,907,049	29,290,856	24,463,050	4,827,
31502 31601		58,047	6,631,688 71,661,039	2,653,449	3,978,239 39,907,716	1,927,138	1,242,908	684,231 5,156,587	31502 31601	330,427 2,617,194	70,615 586,600	7,053,978 61,692,716	3,139,124 29,532,544	3,914,854 32,160,172	2,079,546 17,335,838	1,473,477 13,810,313	606, 3,525,
31602		26,702	3,318,512	1,262,185	2,056,327	921,297	588,133	333,164	31602	98,958	17,434	2,217,969	828,888	1,389,081	598,152	390,329	207,
31700	2,521,642	626,843	63,547,308	31,962,639	31,584,669	18,716,502	14,591,541	4,124,961	31700	2,393,186	595,518	57,132,969	30,006,920	27,126,049	16,791,286	13,754,628	3,036,
31800 40101	3,371,537 0	809,262 0	83,603,845 0	40,606,758 0	42,997,087 0	23,925,498	18,617,021 0	5,308,477 0	31800 40101	3,207,439 DD	776,872 DD	76,740,674 DD	39,294,038 DD	37,446,636 DD	22,201,762 DD	18,022,480 DD	4,179,
40101		4,296	781,718	163,139	618,579	168,994	70,837	98,157	40101	42,198	5,361	827,085	190,840	636,244	167,417	83,408	84,
40103	83,352	10,681	2,118,672	408,157	1,710,516	486,083	174,113	311,971	40103	90,336	11,604	1,852,431	421,080	1,431,351	387,760	180,954	206,
40201		1,725	DD	66,571	DD	DD	27,726	DD	40201	12,285	1,599	229,543	52,558	176,985	49,365	23,893	25,
40202 40203		2,773 0	477,399 0	103,014	374,385 0	100,071	44,693 0	55,378 0	40202 40203	DD 0	DD 0	DD 0	DD 0	DD 0	DD 0	DD 0	
40301		581,634		21,447,293				7,906,442	40301	5,842,231	751,556	103,676,057	27,168,906	76,507,151	19,022,642	11,487,210	7,535,
40302			79,545,132		60,824,234		7,911,604	7,139,421	40302	4,503,095	573,441	80,661,059	20,812,444	59,848,614	14,907,963	8,804,600	6,103
40400			12,630,266	2,959,679	9,670,586 100,423,627	2,404,774	1,251,850	1,152,925	40400 40500	758,430 8,049,057	96,445 1,129,956	13,432,163 162,652,298	3,443,927 50,751,370	9,988,236 111,900,928	2,504,305 34,106,261	1,478,033 23,373,909	1,026, 10,732,
40500 40601		176,500	139,749,063 28,298,941				3,233,448	10,803,544 2,293,421	40601	1,478,737	187,921	26,929,443	6,769,997	20,159,446	5,119,969	3,131,017	1,988,
40602	DD	DD	DD	DD	DD	DD	DD	DD	40602	DD	DD	DD	DD	DD	DD	DD	
40700		29,409	4,990,399	1,099,415	3,890,984		466,998	545,285	40700	204,766	26,508	3,896,265	957,646	2,938,619	763,146	413,246	349,
40801 40802		151,022 166,020	23,308,597 25,820,875	6,001,295 6,217,552	17,307,302 19,603,323	4,139,385 4,806,934	2,436,461 2,639,398	1,702,923 2,167,536	40801 40802	1,738,434 1,439,148	208,834 181,472	29,400,814 25,376,831	8,225,860 6,606,688	21,174,954 18,770,143	5,176,194 4,712,568	3,332,548 2,825,261	1,843, 1,887,
40803		DD	DD	0,217,552 DD	DD	DD	DD	DD	40802	0	0	0	0	0	4,712,308	0	1,507,
40900		36,155	5,644,393	1,309,436	4,334,957	1,041,910	542,891	499,020	40900	360,517	43,686	6,360,137	1,614,235	4,745,902	1,143,049	661,733	481,
41100		498,247		22,569,025	56,026,274			5,477,684	41000	4,235,918	562,918	81,254,601	25,578,042	55,676,559	16,767,651	11,677,107	5,090,
41100 41201		42,746 142,080	7,093,933 23,249,650	1,608,230 5,968,244	5,485,704 17,281,406	1,357,103 4,758,425	680,168 2,514,606	676,935 2,243,818	41100 41201	340,589 1,140,036	43,583 149,144	6,882,930 22,145,954	1,596,279 5,880,004	5,286,651 16,265,950	1,348,462 4,347,580	702,573 2,475,317	645, 1,872,
41202		DD	DD	DD	DD	4,738,423 DD	DD	DD	41202	0	0	0	0,880,004	0	4,547,580	2,473,317	1,072,
41300	1,846,959	241,138	38,021,347	9,253,291	28,768,056	7,390,945	3,931,226	3,459,719	41300	2,058,247	269,162	38,127,421	10,164,301	27,963,120	7,250,202	4,317,823	2,932,
41401		35,908	5,828,833	1,413,725	4,415,109	1,149,285	601,868	547,417	41401	398,034	55,367	8,291,728	2,639,979	5,651,749	1,713,260	1,083,655	629,
41402 41501	2,594,127 585,365	76,239	54,128,796 12,343,731	12,929,365 2,905,862	41,199,431 9,437,869	2,361,082	5,576,706 1,226,914	4,995,343 1,134,167	41402 41501	2,822,182 677,825	368,756 88,200	54,255,224 13,254,496	14,055,667 3,334,209	40,199,557 9,920,287	10,504,955 2,529,729	5,997,590 1,410,069	4,507,3 1,119,6
		. 0,200	-,- ,-,, , , , 1	_,, 55,002	.,,	-,,2	-,	-, ,,-0,			,		. , , = /				
41502	DD	DD	DD	DD	DD	DD	DD	DD	41502	DD	DD	DD	DD	DD	DD	DD	]

Table S5--2007. Quantity of Recoverable and Non-Recoverable Manure and Manure Nutrients Produced on AFOs, by 6-digit HUC,
Derived from the 2007 Census of Agriculture Database

 $\textbf{Table S5--2012}. \ Quantity of \ Recoverable \ and \ Non-Recoverable \ Manure \ Manure \ Nutrients \ Produced \ on \ AFOs, \ by \ 6-digit \ HUC,$ 

6-digit r n wo	Quantity of recoverable manure, wet veight (tons)  0 0 1,611,050 479,185 933,861 241,817 3,025,962 378,338 947,154 DD 4,584 2,051,008 54,673 461,891 233,012 260,172 2,103,124 7,352,304 3,313,673 871,875 617,659 762,182 810,298 790,051 322,910 849,045 2,798,817 800,195 1,107,955 5,019,135 11,709,722 1,092,087 7,135,995 3,305,159 7,756,952 4,707,114 5,766,827 10,334,838	513,203 156,680 92,934 114,315 139,983 128,755 44,078 183,890 657,480 157,027 162,931 791,371 1,445,363 149,168 953,584 463,270 892,862 601,791	nitrogen as excreted (pounds)  0 0 36,308,971 10,694,224 20,645,047 5,562,404 70,579,479 9,866,904 18,522,896 DD DD 48,168,668 1,264,263 9,997,034 48,955,969 160,853,697 81,198,292 20,275,502 14,162,946 17,484,444 18,566,144 18,556,144 18,556	27,498,109 6,789,917 4,609,880 4,423,070 6,273,634 5,431,984 1,493,813 9,360,593 33,263,964 7,002,480 7,485,793 39,267,468 59,383,430 6,478,090 39,145,076	50,899,460 7,916,937 14,449,351 DD DD 31,536,969 1,050,817 7,710,734 4,249,153 32,453,833 112,040,893 53,700,183 13,485,585 9,553,066 13,061,387 12,618,850 4,923,486 11,858,252 38,177,233 10,678,826 20,174,341 82,969,920 173,469,920	as excreted (pounds)  0 0 7,438,064 2,180,255 4,175,914 1,195,198 15,626,267 2,462,184 3,680,662 DD 11,293,872 316,114 2,119,818 1,264,382 1,240,255 12,465,920 35,021,065 19,467,151 5,393,917 3,574,375 4,410,575 4,402,589 4,472,047 1,454,655 5,927,977 20,948,959 4,752,047 1,454,655 5,927,977 20,948,959 4,765,430 6,464,474 28,210,235	e manure phosphorus (pounds)  0 0 0 4 995,440 2,012,672 496,831 8,625,361 893,246 2,117,625 DD 6,416 7,655,479 100,503 1,034,069 415,405 446,273 7,704,917 24,712,232 13,317,186 2,111,839 2,107,753 3,113,956 2,468,879 702,427 4,229,845 15,305,416 3,305,975 3,480,854	Non-recoverable manure phosphorus (pounds)  0 0 3.875.790 0 0 1,184.815 2,163.242 698.367 7,000.905 1,568.939 1,563.037 DD DD 3,638.392 215.611 1.085.749 848.976 793.982 4,761.003 10.308.833 5,651.339 2,256,731 1,462.536 2,302.822 1,579.033 2,103.668 752.138 1,698.133 5,643.543 1,459.455 2,983.620	6-digit HUC  huc6  41504 41505 50100 50200 50301 50302 50400 50500 50701 50702 50800 50901 51002 51100 51201 51202 51301 51302 51401 51402 60101 60102 60200 60300	brd_r_wete   2,422,906   350,929   1,589,021   395,249   865,180   198,136   3,331,922   372,574   1,131,926   DD   DD   2,110,018   67,593   449,751   184,076   254,961   2,015,643   8,097,894   3,136,346   664,658   543,846   664,658   543,846   674,265   895,797   638,840   238,165   818,239	Quantity of recoverable manure, dry weight (tons)  brd_r_drye 322_504 45,629 207_944 50_290 115,684 23_840 486,092 53_502 140,681 DD 301,173 9,909 54,650 21_888 31,226 367_989 1,114,909 485_934 115_801 82_721 103_433 143_249 108_655 33_973 184,151	Manure nitrogen as excreted (pounds) 48,928,190 7,077,085 32,954,760 8,357,407 17,857,282 4,142,948 72,975,844 9,833,492 20,786,856 DD 45,422,303 1,909,771 8,242,000 3,747,287 4,691,929 43,877,287 168,796,182 73,109,373 15,173,542 11,971,105 13,723,690 18,435,368 14,477,733 4,965,686 10,40,041	Recoverable manure nitrogen (pounds)  brd_r_n 13,337,999 1,798,008 8,336,382 1,896,293 4,542,554 847,645 21,954,529 2,316,576 5,087,583 DD 16,135,509 508,698 1,789,229 655,553 781,541 16,585,109 55,076,652 25,771,674 4,096,342 4,018,995 6,251,068 4,940,745 1,263,504	nitrogen (pounds) difference 35,590,191 5,279,077 24,618,377 24,618,377 6,461,114 13,314,728 3,295,303 51,021,315 7,516,916 15,699,273 6,452,771 3,091,733 3,910,388 27,292,178 113,719,531 147,337,698 10,158,949 7,874,764 9,704,695 12,184,300 9,536,988 3,702,182 10,526,580	Manure phosphorus as excreted (pounds) brd_pe 9,800,590 1,378,342 6,778,257 1,727,820 3,664,741 910,656 16,234,869 2,487,211 4,120,208 DD 10,342,847 541,905 1,712,116 945,800 1,193,378 11,363,774 36,754,645 17,336,104 4,077,799 3,000,107 3,445,964 4,341,755 3,683,879 1,183,974	Recoverable manure phosphorus (pounds)  brd_r_p 5,614,195 760,814 3,541,701 815,426 1,944,127 382,887 9,759,255 1,081,387 2,581,903 DD 7,425,109 222,449 907,492 307,312 406,607 7,654,688 27,618,148 13,044,654 1,919,885 3,208,495 2,225,273 575,087	Non-recoverable manure phosphorus (pounds) difference 4,186,395 617,528 3,236,556 912,394 1,720,614 527,769 6,475,614 1,405,824 1,538,305 DD DD 2,917,738 319,456 804,624 638,488 786,771 3,709,086 9,136,498 4,291,450 1,749,098 1,181,265 1,526,079 1,133,260 608,887
6-digit r n wo	recoverable manure, wet veight (tons)  0 0 1.611,050 479,185 933,861 241,817 3,025,962 378,338 947,154 DD 4,584 2,051,008 54,673 461,891 233,012 260,172 2,103,124 7,352,304 3,313,673 871,875 617,659 762,182 810,298 790,051 322,910 849,045 2,798,817 800,195 1,107,9	manure, dry weight (tons)  0 0 208,625 61,102 120,087 29,765 432,503 49,804 114,622 DD 555,783 28,839 31,788 369,893 12,009,135 513,203 156,680 92,934 114,315 139,938 128,755 44,078 183,890 657,480 157,027 162,931 791,371 1,445,63 149,168 953,584 463,270 892,862 601,791	nitrogen as excreted (pounds)  0 0 36,308,971 10,694,224 20,645,047 5,562,404 70,579,479 9,866,904 18,522,896 DD DD 48,168,668 1,264,263 9,997,034 48,955,969 160,853,697 81,198,292 20,275,502 14,162,946 17,484,444 18,566,144 18,556,144 18,556	manure nitrogen (pounds)  0 0 8.443,209 2.312,197 4.722,668 1,117,147 19,680,019 1,949,967 4,073,545 0,11,952 16,631,699 213,446 2.286,300 876,028 880,638 16,502,136 48,812,803 27,498,109 6,778,917 4,609,880 4,422,707 4,609,880 4,423,703 33,263,964 7,002,480 7,485,793 33,263,964 7,002,480 7,485,793 39,267,468 59,383,430 6,478,809 39,145,076	manure nitrogen (pounds)  0 0 27,865,768 8,382,027 15,922,379 4,445,257 50,899,460 7,916,937 14,449,351 DD DD 31,536,969 1,050,817 7,710,734 4,271,825 32,453,833 112,040,893 53,700,183 13,485,585 9,553,066 13,061,384 12,292,510 12,618,850 4,923,486 11,858,252 38,177,233 10,678,826 20,174,341 82,969,920 173,469,920 19,374,815	as excreted (pounds)  0 0 7,438,064 2,180,255 4,175,914 1,195,198 15,626,267 2,462,184 3,680,662 DD 11,293,872 316,114 2,119,818 1,264,382 1,240,255 12,465,920 35,021,065 19,467,151 5,393,917 3,574,375 4,410,575 4,402,589 4,472,047 1,454,655 5,927,977 20,948,959 4,752,047 1,454,655 5,927,977 20,948,959 4,765,430 6,464,474 28,210,235	e manure phosphorus (pounds)  0 0 3.562,274 995,440 2.012,672 496,831 8,625,361 893,246 7,655,479 100,503 1,034,069 415,405 446,273 7,704,917 24,712,232 13,815,812 3,137,186 2,111,839 2,111,839 2,111,839 2,112,112,113,113,113,113,113,113,113,11	manure phosphorus (pounds)  0 0 3,875,790 1,184,815 2,163,242 698,367 7,000,905 1,568,939 1,563,037 DD DD 36,3638,392 215,611 1,085,749 848,976 793,982 4,761,003 10,308,833 5,651,339 2,256,731 1,462,536 2,302,822 1,579,033 2,103,668 752,138 1,698,133 5,643,543 1,459,455	HUC  huc6  41504 41505 50100 50200 50301 50302 50400 50500 50600 50701 50702 50800 50901 51001 51201 51201 51202 51301 51302 51401 51402 60101 60102 60200 60300	manure, wet weight (tons) brd_r_wete 2,422,906 350,929 1,589,021 395,249 865,180 198,136 3,331,992 372,574 1,131,926 DD 2,110,018 67,593 449,751 184,076 2,54,961 2,015,643 8,097,894 3,136,346 664,658 543,846 674,265 895,797 638,840 238,165 818,239	recoverable manure, dry weight (tons) brd_r_drye 322_504 45,629 207,944 50,290 115,684 23,840 486,092 140,681 DD 301,173 9,909 54,650 21,888 31,226 367,989 1,114,909 485,934 115,801 82,721 103,433 143,249 108,655 33,973	nitrogen as excreted (pounds)  brd_ne 48,928,190 7,077,085 32,954,760 8,357,407 17,857,282 4,142,948 72,975,844 72,975,844 9,833,492 20,786,856 DD DD 45,422,303 1,999,771 8,242,000 3,747,287 4,691,929 43,877,287 4,691,929 43,877,287 15,173,542 173,193,373 15,173,542 173,193,373 15,173,542 173,194,97,195 13,723,690 18,435,368 14,477,733 4,965,686	manure nitrogen (pounds)  brd_r_n (pounds)  brd_r_n (pounds)  log (pound	manure I nitrogen (pounds) difference 35,590,191 5,279,077 6,461,114 13,314,728 3,295,303 51,021,315 7,516,916 15,699,273 DD DD 29,286,794 1,401,073 6,452,771 3,091,733 3,910,388 27,292,178 113,719,531 147,337,698 10,158,949 7,874,764 9,704,695 12,184,300 9,536,988 3,702,182 10,526,580	bhosphorus as excreted (pounds)  brd_pe   9,800,590   1,378,342   6,778,257   1,727,820   3,664,741   910,656   16,234,869   DD   DD   10,342,847   541,905   1,712,116   7,945,800   1,193,378   11,363,774   36,754,645   17,336,104   4,077,799   1,43,974   1,83,974	manure phosphorus (pounds)  brd_r_p 5,614,195 760,814 3,541,701 815,426 1,944,127 382,887 9,759,255 1,081,387 2,581,903 DD 7,425,109 222,449 907,492 307,312 406,607 7,654,688 27,618,148 13,044,654 2,328,700 1,818,842 1,919,885 3,208,495 2,225,273 575,087	manure phosphorus (pounds) difference 4,186,395 617,528 3,236,556 912,394 1,720,614 1,405,824 1,538,305 DD DD 2,917,738 319,456 804,624 638,488 786,771 3,709,086 9,136,498 4,291,450 1,749,098 1,181,265 1,526,079 1,133,260 1,458,606 608,887
41504 41504 41505 50100 50200 503001 503002 50400 50500 50701 50702 50800 50901 50902 51001 51002 51100 51202 51301 51302 51401 51402 601001 60102 60200 60300 60400 70101 70102 70200 70400 70500 70400 70500 70700 70800 70900 711000 711000 711200 71300 71400 71200 71300 71400	veight (tons)  0 0 1,611,050 479,185 933,861 241,817 3,025,962 378,338 947,154 DD 4,584 2,051,008 54,673 461,891 233,012 2260,172 2,103,124 7,352,304 3,313,673 871,875 617,659 762,182 810,298 810,298 810,298 810,298 1,107,595 1,107,972 1,092,087 7,135,995 3,305,159 7,756,952 4,707,114 5,766,827	weight (tons)  0 0 208,625 61,102 120,087 29,765 432,503 49,804 114,622 DD 55,783 28,839 31,789,135 513,203 128,755 44,078 183,890 657,480 157,027 162,931 791,371 1,445,363 149,168 953,584 463,270 892,862 601,791	(pounds)  0 36,308,971 10,694,224 20,645,047 5,552,404 70,579,479 9,866,904 18,522,896 DD DD 48,168,668 1,264,263 9,997,034 5,147,854 5,139,791 148,955,969 141,62,946 17,484,444 18,566,14	(pounds)  0  8,443,202  2,312,197  4,722,668  1,117,147  19,680,019  1,949,967  4,073,545  DD  61,952  16,502,136  48,812,803  27,498,109  4,423,070  6,789,917  4,609,880  4,423,070  6,789,917  4,609,880  4,423,070  33,263,964  7,002,480  7,485,793  33,263,964  7,002,480  7,485,793  39,267,468  59,383,430  6,478,090  39,145,076	nitrogen (pounds)  0 0 27,865,768 8,382,027 15,922,379 4,445,257 50,899,460 7,916,937 14,449,351 DD 31,536,969 1,050,817 7,710,734 4,271,825 4,249,153 32,453,833 13,485,855 9,453,836 11,2040,839 112,040,839 112,040,839 112,618,850 112,618,850 11,678,826 11,858,252 38,177,233 10,678,826 20,174,341 82,969,920 174,341 82,969,920	00 07,438,064 2,180,255 4,175,914 1,195,198 15,626,267 2,462,184 3,680,662 DD 11,293,872 316,114 2,119,818 1,244,255 1,240,255 19,467,151 5,393,917 5,393,917 5,393,917 4,410,575 4,410,57	(pounds)  0 0 3.562.274 995,440 2.012.672 496,831 8,625,361 893,246 2,117,625 DD 6,416 7,655,479 1,034,069 415,405 446,273 7,704,917 24,712,232 13,317,186 2,111,839 2,107,753 3,113,956 2,468,379 702,427 4,229,845 15,305,416 3,305,975 3,480,854	phosphorus (pounds) 0 0 3,875,790 1,184,815 2,163,242 698,367 7,000,905 1,568,939 1,563,037 DD 3,638,392 215,611 1,085,749 848,976 793,982 4,761,003 10,308,833 5,651,339 2,256,731 1,462,536 2,302,822 1,579,033 2,103,668 752,138 1,698,133 5,643,543 1,459,455	huc6 41504 41505 50100 50200 50301 50302 50400 50500 50600 50701 50702 50800 50901 51002 51100 51201 51202 51301 51302 51401 51402 60101 60102 60200 60300	weight (tons) brd_r_wete 2,422,906 350,929 1,589,021 395,249 865,180 198,136 3,331,992 372,574 1,131,926 DD 2,110,018 67,593 449,751 184,076 254,961 2,015,643 8,097,894 3,136,346 664,658 543,846 664,658 543,846 674,265 895,797 638,840 238,165 818,239	weight (tons)  brd_r_drye 322,504 45,629 207,944 50,290 115,684 23,840 486,092 53,502 140,681 DD DD 301,173 9,909 54,650 21,888 31,226 367,989 1,114,909 485,934 115,801 82,721 103,433 143,249 108,655 33,973	(pounds)  brd_ne 48,928,190 7,077,085 32,954,760 8,357,407 17,857,282 4,142,948 72,975,844 9,833,492 20,786,856 DD DD 45,422,303 1,909,771 8,242,000 3,747,287 4,691,929 43,877,287 4,691,929 43,877,287 15,173,542 11,173,542 11,173,542 11,173,542 14,477,733 4,965,686	(pounds)  brd_r_n 13,337,999 1,798,008 8,336,382 1,896,293 4,542,554 847,645 21,954,529 2,316,576 5,087,583 DD 16,135,509 508,698 1,789,229 655,553 781,541 16,585,109 55,076,652 25,771,674 5,014,592 4,096,342 4,018,995 6,251,068 4,940,745 1,263,504	nitrogen (pounds) difference 35,590,191 5,279,077 24,618,377 24,618,377 6,461,114 13,314,728 3,295,303 51,021,315 7,516,916 15,699,273 6,452,771 3,091,733 3,910,388 27,292,178 113,719,531 147,337,698 10,158,949 7,874,764 9,704,695 12,184,300 9,536,988 3,702,182 10,526,580	brd_pe 9,800,590 1,378,342 6,778,257 1,727,820 3,664,741 910,656 16,234,869 2,487,211 4,120,208 DD 10,342,847 541,905 1,712,116 945,800 1,193,378 11,363,774 36,754,645 17,336,104 4,077,799 3,000,107 3,445,964 4,341,755 1,183,974	(pounds)  brd_r_p 5,614,195 760,814 815,426 1,944,127 382,887 9,759,255 1,081,387 2,581,903 DD DD 222,449 907,492 307,312 406,607 7,654,688 27,618,148 13,044,654 2,328,700 1,818,842 1,919,885 3,208,495 2,225,273 575,087	phosphorus (pounds) difference 4,186,395 617,528 3,236,556 912,394 1,720,614 527,769 6,475,614 1,405,824 1,538,305 DD 2,917,738 319,456 804,624 638,488 786,771 379,086 9,136,498 4,291,450 1,749,098 1,181,265 1,526,079 1,133,260 1,458,606 608,887
41504 41505 50100 50200 50301 50302 50400 50500 50600 50701 50701 50901 50902 51000 51201 51201 51201 51302 51301 51302 51401 60102 60200 60300 60400 70101 70102 70200 70400 70500 70600 70700 70802 70900 711000 71200 71300 71400 71200 71300 71400 71200 71300 71400 71200 71300 71400 71200 71300 71400 71200 71300 71400 71200 71300 71400 71300 71400 71300 71400 71400 71300 71400 71300 71400 71300 71400 71300 71400 71300 71400	0 0 1,611,050 479,185 933,861 241,817 3,025,962 378,338 947,154 DD 4,584 2,051,008 54,673 461,891 233,012 260,172 2,103,124 7,352,304 3,313,673 871,875 617,659 762,182 810,298 790,051 3,2910 849,045 2,798,817 800,195 1,107,955 5,019,135 11,709,722 1,092,087 7,135,995 3,305,159 7,7135,995 3,305,159 7,7135,995 3,715,995	0 0 208,625 61,102 120,087 29,765 432,503 49,804 114,622 DD 55,783 28,839 31,788 369,893 1,009,135 513,203 156,680 92,934 114,315 139,983 128,755 44,078 183,890 657,480 157,027 162,931 1791,371 1,445,363 149,168 953,584 463,270 892,862 601,791	0 0 36,308,971 10,694,224 20,645,047 5,562,404 70,579,479 9,866,904 18,522,896 DD DD 48,168,668 1,264,263 9,997,034 5,147,854 5,139,791 48,198,292 20,275,502 14,162,946 17,484,444 18,566,144 18,566,144 18,656,144 18,650,834 6,417,299 21,218,845 71,441,190 27,660,134 122,237,388 2322,833,389 25,852,905 157,229,766	0 0 8,443,202 2,312,197 4,722,668 1,117,147 19,680,019 1,949,967 4,073,545 16,631,699 213,446 2,286,300 876,028 890,638 16,502,136 48,812,803 27,498,109 6,789,917 4,609,880 4,422,07 4,609,880 4,423,07 3,360,593 33,263,964 7,002,480 7,485,793 39,267,468 59,383,430 6,478,090 39,145,076	0 27,865,768 8,382,027 15,922,379 4,445,257 50,899,460 7,916,937 14,449,351 DD 31,536,969 1,050,817 7,710,734 4,271,825 4,249,153 32,453,833 112,040,893 53,700,183 13,485,585 9,553,066 13,061,384 12,618,850 4,923,486 11,858,252 38,177,233 10,678,826 20,174,341 82,969,920 173,469,929	0 0 0 7,438,064 2,180,255 4,175,914 1,195,198 15,626,267 2,462,184 3,680,662 DD 11,293,872 316,114 2,119,818 1,264,382 1,240,255 19,467,151 5,393,917 3,574,375 4,410,575 4,692,989 4,752,047 1,454,565 5,927,977 20,948,959 4,765,430 6,464,474 28,210,235 44,547,979	0 0 3,562,274 995,440 2,012,672 496,831 8,625,361 893,246 2,117,625 DD 6,416 7,655,479 100,503 1,034,069 415,405 446,273 7,704,917 24,712,232 13,815,812 2,111,839 2,111,839 2,111,839 2,111,839 2,117,753 3,113,956 2,468,379 702,427 4,229,845 15,305,416 3,305,975 3,480,854	0 0 3,875,790 1,184,815 2,163,242 698,367 7,000,905 1,568,939 1,563,037 DD 3,638,392 215,611 1,085,749 848,976 793,982 4,761,003 10,308,833 5,651,339 2,256,731 1,462,536 2,302,822 1,579,033 2,103,668 752,138 1,698,133 5,643,543 1,459,455	41504 41505 50100 50200 50301 50302 50400 50500 50600 50701 50702 50800 50901 51002 51100 51201 51202 51301 51302 51401 51402 60101 60102 60200 60300	brd_r_wete   2,422,906   350,929   1,589,021   395,249   865,180   198,136   3,331,922   372,574   1,131,926   DD   DD   2,110,018   67,593   449,751   184,076   254,961   2,015,643   8,097,894   3,136,346   664,658   543,846   664,658   543,846   674,265   895,797   638,840   238,165   818,239	brd_r_drye 322.504 45,629 207,944 50,290 115,684 23,840 486,092 140,681 DD 301,173 9,909 54,650 21,888 31,226 367,989 1,114,909 485,934 115,801 82,721 103,433 143,249 108,655 33,973	brd_ne 48,928,190 7,077,085 32,954,760 8,357,407 17,857,282 4,142,948 72,975,844 72,975,844 9,833,492 20,786,856 DD 45,422,303 1,999,771 8,242,000 3,747,287 4,691,929 43,877,287 4,691,929 43,877,287 15,173,542 173,109,373 15,173,542 1,971,105 13,723,690 18,435,368 14,477,733 4,965,686	brd_r_n 13,337,999 1,798,008 8,336,382 1,896,293 4,542,554 847,645 21,954,529 2,316,576 5,087,583 DD 16,135,509 508,698 1,789,229 655,553 781,541 16,585,109 55,076,652 25,771,674 5,014,592 4,096,342 4,018,995 6,251,068 4,940,745 1,263,504	difference 35,590,191 5,279,077 6,461,114 13,314,728 3,295,303 51,021,315 7,516,916 15,699,273 DD DD 29,286,794 1,401,073 6,452,771 3,091,733 3,910,388 27,292,178 113,719,531 47,337,698 10,158,949 7,874,764 9,704,695 12,184,300 9,536,988 3,702,182 10,526,580	brd_pe 9,800,590 1,378,342 6,778,257 1,727,820 3,664,741 910,656 16,234,869 2,487,211 4,120,208 DD 10,342,847 541,905 1,712,116 945,800 1,193,378 11,363,774 36,754,645 17,336,104 4,077,799 3,000,107 3,445,964 4,341,755 1,183,974	brd_r_p 5.614,195 760.814 3.541,701 815,426 1,944,127 382,887 9,759,255 1,081,387 2,581,903 DD DD 7,425,109 222,449 907,492 307,312 406,607 7,654,688 27,618,148 13,044,654 2,328,700 1,818,842 1,919,885 3,208,495 2,225,273 575,087	difference 4,186,395 617,528 3,236,556 912,394 1,720,614 1,405,824 1,538,305 DD DD 2,917,738 319,456 804,624 638,488 786,771 3,709,086 9,136,498 4,291,450 1,749,098 1,181,265 1,526,079 1,133,260 1,458,606 608,887
41505 50100 50200 50301 503002 50400 50500 50600 50701 50702 50800 50901 51001 51201 51201 51201 51302 51401 60102 60200 60300 60400 70101 70102 70200 70800 70800 70800 70800 70800 70800 70800 70800 71100 71200 71300 71401 71402	0 1,611,050 479,185 933,861 241,817 3,025,962 378,338 947,154 DD 4,584 2,051,008 54,673 461,891 233,012 260,172 2,103,124 7,352,304 3,313,673 871,875 617,659 762,182 810,298 790,051 322,910 849,045 2,798,817 800,195 1,107,955 5,019,135 11,709,722 1,092,087 7,135,995 3,305,159 7,756,952 4,707,114 5,766,827	0 208.625 61,102 120,087 29,765 432,503 49,804 114,622 DD 55,783 28,839 31,009,135 513,203 156,680 92,934 114,315 139,983 128,755 44,078 183,890 657,480 157,027 162,931 791,371 1,445,363 149,168 953,584 463,270 892,862 601,791	0 36,308,971 10,694,224 20,645,047 5,562,404 70,579,479 9,866,904 18,522,896 DD DD 48,168,668 1,264,263 9,997,034 5,147,854 5,139,791 48,198,292 20,275,502 14,162,946 17,484,444 18,566,144 18,566,144 18,566,144 18,566,144 18,566,144 18,566,144 18,566,144 17,481,902 21,218,845 71,441,197 21,218,845 71,441,197 21,218,845 71,441,197 21,218,845 71,441,197 21,218,845 71,441,902 71,441,902 71,441,90	0 8,443,202 2,312,197 4,722,668 1,117,147 19,680,019 11,949,967 11,952 16,631,699 213,446 2,2286,300 876,028 890,638 16,502,136 48,812,803 27,498,109 6,789,917 4,609,880 4,423,070 6,273,634 5,431,984 1,493,813 9,300,533 33,263,964 7,002,480 7,485,793 39,267,468 59,383,430 6,478,690 39,145,076	0 27,865,768 8,382,027 15,922,379 4,445,257 50,899,460 7,916,937 14,449,351 DD DD 31,536,969 1,050,817 7,710,734 4,271,825 4,249,153 32,453,833 112,404,893 53,700,183 13,485,585 9,553,066 13,061,374 12,292,510 12,618,850 11,658,856 20,174,341 82,969,920 17,3469,920 17,3469,920 19,374,815	7,438,064 2,180,255 4,175,198 15,626,267 2,462,184 3,680,662 DD 11,293,872 316,114 2,119,818 1,246,382 1,240,255 19,467,151 5,393,917 3,574,375 4,410,575 4,	3,562,274 995,440 2,012,672 496,831 8,625,361 893,246 2,117,625 DD 6,416 7,655,479 100,503 1,034,069 415,405 446,273 7,704,917 24,712,232 13,815,812 3,137,186 2,111,839 2,111,839 2,111,839 2,111,839 2,111,839 2,111,839 1,139,56 2,468,379 702,427 4,229,845 15,305,416 3,305,975 3,480,854	0 3,875,790 1,184,815 2,163,242 698,367 7,000,905 1,568,939 1,563,037 DD 3,638,392 215,611 1,085,749 848,976 793,982 4,761,003 10,308,833 5,651,339 2,256,731 1,462,536 2,302,822 1,579,033 2,103,668 752,138 1,698,133 5,643,543 1,459,455	41504 41505 50100 50200 50301 50302 50400 50500 50600 50701 50702 50800 50901 51002 51100 51201 51202 51301 51302 51401 51402 60101 60102 60200 60300	2,422,906 350,929 1,589,021 395,249 865,180 198,136 3,331,922 372,574 1,131,920 DD 2,110,018 67,593 449,751 184,076 254,961 2,015,643 8,097,894 3,136,346 664,658 543,846 674,265 895,797 638,840 238,165 818,239	322,504 45,629 207,944 50,290 115,684 23,840 486,092 53,502 140,681 DD DD 301,173 9,909 54,650 21,888 31,226 367,989 1,114,909 485,934 115,801 82,721 103,433 143,249 108,655 33,973	48,928,190 7,077,085 32,954,760 8,357,407 17,857,282 4,142,948 72,975,844 9,833,492 20,786,856 DD DD 45,422,303 1,909,771 8,242,000 3,747,287 4,691,929 43,877,287 151,773,542 11,173,542 11,173,542 11,173,542 11,173,542 11,173,543 13,723,690 18,435,368 14,477,733 4,965,686	13,337,999 1,798,008 8,336,382 1,896,293 4,542,554 847,645 21,954,529 2,316,576 5,087,583 DD DD 16,135,509 508,698 1,789,229 655,553 781,541 16,585,109 55,076,652 25,771,674 5,014,592 4,096,342 4,018,995 6,251,068 4,940,745 1,263,504	35,590,191 5,279,077 6,461,114 13,314,728 3,394,5303 51,021,315 7,516,916 15,699,273 DD DD 29,286,794 1,401,073 6,452,771 3,091,733 3,910,388 27,292,178 113,719,531 47,337,698 10,158,949 7,874,764 9,704,695 12,184,300 9,536,988 3,702,182 10,526,580	9,800,590 1,378,342 6,778,257 1,727,820 3,664,741 910,656 16,234,869 2,487,211 4,120,208 DD DD 10,342,847 541,905 1,712,116 945,800 1,193,378 11,363,774 4,077,799 3,000,107 3,445,964 4,341,755 3,683,879 1,183,974	5,614,195 760,814 3,541,701 815,426 1,944,127 382,887 9,759,255 1,081,387 2,581,903 DD DD 222,449 907,492 307,312 406,607 7,654,688 2,618,148 13,044,654 2,328,700 1,818,842 1,919,885 3,208,495 2,225,273 575,087	4,186,395 617,528 3,236,556 912,394 1,720,614 527,769 6,475,614 1,405,824 1,538,305 DD DD 2,917,738 319,456 804,624 638,488 786,771 3,709,086 9,136,498 4,291,450 1,749,098 1,181,265 1,526,079 1,133,260 1,458,606 608,887
41505 50100 50200 50301 503002 50400 50500 50600 50701 50702 50800 50901 51001 51201 51201 51201 51302 51401 60102 60200 60300 60400 70101 70102 70200 70800 70800 70800 70800 70800 70800 70800 70800 71100 71200 71300 71401 71402	0 1,611,050 479,185 933,861 241,817 3,025,962 378,338 947,154 DD 4,584 2,051,008 54,673 461,891 233,012 260,172 2,103,124 7,352,304 3,313,673 871,875 617,659 762,182 810,298 790,051 322,910 849,045 2,798,817 800,195 1,107,955 5,019,135 11,709,722 1,092,087 7,135,995 3,305,159 7,756,952 4,707,114 5,766,827	0 208.625 61,102 120,087 29,765 432,503 49,804 114,622 DD 55,783 28,839 31,009,135 513,203 156,680 92,934 114,315 139,983 128,755 44,078 183,890 657,480 157,027 162,931 791,371 1,445,363 149,168 953,584 463,270 892,862 601,791	0 36,308,971 10,694,224 20,645,047 5,562,404 70,579,479 9,866,904 18,522,896 DD DD 48,168,668 1,264,263 9,997,034 5,147,854 5,139,791 48,198,292 20,275,502 14,162,946 17,484,444 18,566,144 18,566,144 18,566,144 18,566,144 18,566,144 18,566,144 18,566,144 17,481,902 21,218,845 71,441,197 21,218,845 71,441,197 21,218,845 71,441,197 21,218,845 71,441,197 21,218,845 71,441,902 71,441,902 71,441,90	0 8,443,202 2,312,197 4,722,668 1,117,147 19,680,019 11,949,967 11,952 16,631,699 213,446 2,2286,300 876,028 890,638 16,502,136 48,812,803 27,498,109 6,789,917 4,609,880 4,423,070 6,273,634 5,431,984 1,493,813 9,300,533 33,263,964 7,002,480 7,485,793 39,267,468 59,383,430 6,478,690 39,145,076	0 27,865,768 8,382,027 15,922,379 4,445,257 50,899,460 7,916,937 14,449,351 DD DD 31,536,969 1,050,817 7,710,734 4,271,825 4,249,153 32,453,833 112,404,893 53,700,183 13,485,585 9,553,066 13,061,374 12,292,510 12,618,850 11,658,856 20,174,341 82,969,920 17,3469,920 17,3469,920 19,374,815	7,438,064 2,180,255 4,175,198 15,626,267 2,462,184 3,680,662 DD 11,293,872 316,114 2,119,818 1,246,382 1,240,255 19,467,151 5,393,917 3,574,375 4,410,575 4,	3,562,274 995,440 2,012,672 496,831 8,625,361 893,246 2,117,625 DD 6,416 7,655,479 100,503 1,034,069 415,405 446,273 7,704,917 24,712,232 13,815,812 3,137,186 2,111,839 2,111,839 2,111,839 2,111,839 2,111,839 2,111,839 1,139,56 2,468,379 702,427 4,229,845 15,305,416 3,305,975 3,480,854	0 3,875,790 1,184,815 2,163,242 698,367 7,000,905 1,568,939 1,563,037 DD 3,638,392 215,611 1,085,749 848,976 793,982 4,761,003 10,308,833 5,651,339 2,256,731 1,462,536 2,302,822 1,579,033 2,103,668 752,138 1,698,133 5,643,543 1,459,455	41505 50100 50200 50301 50302 50400 50500 50600 50701 50702 50800 50901 51001 51201 51201 51202 51301 51302 51401 51402 60101 60102 60200	350,929 1,589,021 395,249 865,180 198,136 3,31,922 372,574 1,131,926 DD 2,110,018 67,593 449,751 184,076 254,961 2,015,643 8,097,894 3,136,346 664,658 543,846 674,265 895,797 638,840 238,165 818,239	45,629 207,944 50,290 115,684 23,840 486,092 53,502 140,681 DD 301,173 9,909 54,650 21,888 31,226 367,989 1,114,909 485,934 115,801 82,721 103,433 143,249 108,655 33,973	7,077,085 32,954,760 17,857,282 4,142,948 47,975,844 9,833,492 20,786,856 DD 45,422,303 1,909,771 8,242,000 3,747,287 4,691,929 43,877,287 4,691,929 13,713,542 108,796,182 73,109,373 15,173,542 11,971,105 13,723,690 18,435,368 14,477,733 4,965,686	1,798,008 8,336,382 1,896,293 4,542,554 847,645 21,954,529 2,316,576 5,087,583 DD 16,135,509 508,698 1,789,229 655,553 781,541 16,585,109 55,076,652 25,771,674 5,014,592 4,096,342 4,018,995 6,251,068 4,940,745 1,263,504	5,279,077 24,618,377 24,618,377 6,461,114 13,314,728 3,295,303 51,021,315 7,516,916 15,699,273 DD DD 29,286,794 1,401,073 6,452,771 3,091,733 3,910,388 27,292,178 113,719,531 47,337,698 10,158,949 7,874,764 9,704,695 12,184,300 9,536,988 3,702,182 10,526,580	1,378,342 6,778,257 1,727,820 3,664,741 910,656 16,234,869 2,487,211 4,120,208 DD 10,342,847 541,905 1,712,116 945,800 1,193,378 11,363,774 36,754,645 17,336,104 4,077,799 3,000,107 3,445,964 4,341,755 1,183,974	760,814 3,541,701 815,426 1,944,127 382,887 9,759,255 1,081,387 2,581,903 DD 7,425,109 222,449 907,492 307,312 406,607 7,654,688 27,618,148 13,044,654 2,328,700 1,818,842 1,919,885 3,208,495 2,225,273 575,087	617,528 3,236,556 912,394 1,720,614 527,769 6,475,614 1,405,824 1,538,305 DD 2,917,738 319,456 804,624 638,488 786,771 3,709,086 9,136,498 4,291,450 1,749,098 1,181,265 1,526,079 1,133,260 1,458,606 608,887
50200 50301 50302 50400 50500 50600 50600 50701 50702 50800 50901 50902 51001 51002 51100 51202 51301 51402 60101 60102 60200 60300 60400 70101 70102 70200 70400 70500 70600 70700 70801 70802 70900 711000 711000 711200 71300 71401 71402	479,185 933,861 241,817 3,025,962 378,338 947,154 DD 4,584 2,051,008 54,673 461,891 233,012 260,172 2,103,124 7,352,304 3,313,673 617,659 762,182 810,298 790,051 322,910 849,045 2,798,817 800,195 51,107,955 5,019,135 11,709,722 1,092,087 7,135,995 3,305,159 7,756,952 4,707,114 5,766,827	61,102 120,087 29,765 432,503 49,804 114,622 DD 55,783 28,839 31,788 369,893 1,009,135 513,203 156,680 92,934 114,315 139,983 128,755 44,078 183,890 657,480 157,027 162,931 791,371 1,445,563 149,168 953,584 463,270 892,862 601,791	10,694,224 20,645,047 5,552,404 70,579,479 9,866,904 18,522,896 DD DD 48,168,668 1,264,263 9,997,034 5,147,854 5,139,791 18,955,969 14,162,946 17,484,444 18,566,144 18,566,144 18,568,384 6,417,299 21,218,845 71,441,197 17,681,306 27,660,134 122,237,388 322,853,359 25,852,905 157,229,766	2,312,197 4,722,668 1,117,147 19,680,019 1,949,967 4,073,545 DD 11,952 13,346 2,286,300 876,028 890,638 16,502,136 48,812,803 27,498,109 6,789,917 4,609,880 4,423,070 6,273,634 5,431,984 1,493,81 9,360,593 33,263,964 7,002,480 7,485,793 39,267,468 59,383,430 6,478,090 39,145,076	8,382,027 15,922,379 4,445,257 50,899,460 7,916,937 14,449,351 DD DD 31,536,999 1,050,817 7,710,734 4,271,825 4,249,153 32,453,833 112,040,893 53,700,813 13,485,585 9,553,066 13,061,334 12,292,510 12,618,850 4,923,486 11,858,252 38,177,233 10,678,826 20,174,341 82,969,920 173,469,929	2,180,255 4,175,914 1,195,198 15,626,267 2,462,184 3,680,662 DD 11,293,872 316,114 2,119,818 1,264,382 1,240,255 12,465,920 35,021,065 19,467,151 5,393,917 3,574,375 4,410,575 4,692,989 4,752,047 1,454,565 5,927,977 20,948,959 4,765,430 6,464,474 28,210,235 44,547,979	995,440 2,012,672 496,831 8,625,361 893,246 2,117,625,479 100,503 1,034,069 415,405 446,273 7,704,917 24,712,232 13,815,812 3,137,186 2,111,839 2,107,753 3,113,956 2,468,379 702,427 4,229,845 15,305,416 3,305,975 3,480,854	1,184,815 2,163,242 698,367 7,000,905 1,568,939 1,563,037 DD DD 3,638,392 215,611 1,085,749 848,976 4,761,003 10,308,833 5,651,339 2,256,731 1,462,536 2,302,822 1,579,033 2,103,668 752,138 1,698,133 5,643,543 1,459,455	50200 50301 50302 50400 50500 50600 50701 50702 50800 50901 51002 51100 51201 51202 51301 51302 51401 51402 60101 60102 60200 60300	395,249 865,180 198,136 3,331,992 372,574 1,31,2574 DD DD 2,110,018 67,593 449,751 184,076 254,961 2,015,643 8,097,894 3,136,346 664,658 543,846 674,265 895,797 638,840 238,165 818,239	50,290 115,684 23,840 486,092 53,502 140,681 DD 301,173 9,909 54,650 21,888 31,226 367,989 1,114,909 485,934 115,801 82,721 103,433 143,249 108,655 33,973	8,357,407 17,857,282 4,142,948 72,975,844 9,833,492 20,786,856 DD DD 45,422,303 1,909,771 8,242,000 3,747,287 4,691,929 43,877,287 15,173,542 11,971,402 11,971,402 11,971,402 11,971,403 13,723,690 18,435,368 14,477,733 4,965,686	1,896,293 4,542,554 847,645 21,954,529 2,316,576 5,087,583 DD 16,135,509 508,698 1,789,229 655,553 781,541 16,585,109 55,076,652 25,771,674 5,014,592 4,096,342 4,018,995 6,251,068 4,940,745 1,263,504	6,461,114 13,314,728 3,295,303 51,021,315 7,516,916 15,699,273 DD DD 29,286,794 1,401,073 6,452,771 3,091,733 3,910,388 27,292,178 113,719,531 47,337,698 10,158,949 7,874,764 9,704,695 12,184,300 9,536,988 3,702,182 10,526,580	1,727,820 3,664,741 910,656 16,234,869 2,487,211 4,120,208 DD DD 10,342,847 541,905 1,712,116 945,800 1,193,378 11,363,774 4,077,799 3,000,107 3,445,964 4,341,755 3,683,879 1,183,974	815,426 1,944,127 382,887 9,759,255 1,081,387 2,581,903 DD DD 7,425,109 222,449 907,492 307,312 406,607 7,654,688 27,618,148 13,044,654 2,328,700 1,818,842 1,919,885 3,208,495 2,225,273 575,087	912,394 1,720,614 1,270,614 1,405,824 1,538,305 DD DD 2,917,738 319,456 804,624 638,488 786,771 3,709,086 9,136,498 4,291,450 1,749,098 1,181,265 1,526,079 1,133,260 1,458,606 608,887
50301 50302 50400 50500 50600 50701 50701 50702 50800 50901 51002 51100 51201 51201 51201 51302 51401 60102 60200 60300 60400 70101 70102 70200 70400 70500 70600 70700 70801 70802 70900 711000 711000 711000 71300 71401 71401	933,861 241,817 3,025,962 378,338 947,154 DD 4,584 2,051,008 54,673 461,891 233,012 260,172 2,103,124 7,352,304 3,313,673 871,875 617,659 762,182 810,298 810,298 810,298 810,998 1,107,95 1,107,95 1,107,95 1,107,95 1,107,95 1,107,95 1,107,95 1,107,95 1,107,95 1,107,95 1,107,95 3,305,159 7,756,952 4,707,114 5,766,827	120,087 29,765 432,503 49,804 114,622 DD 55,4 301,471 6,790 55,783 28,839 31,009,135 513,203 156,680 92,934 114,315 139,983 128,755 44,078 183,890 657,480 157,027 162,931 791,371 1,445,363 149,168 953,584 463,270 892,862 8	20,645,047 5,562,404 70,579,479 9,866,904 18,522,896 DD DD 48,168,668 1,264,263 9,997,034 5,147,854 5,139,791 48,955,999 160,853,697 81,198,292 20,275,502 14,162,946 17,484,444 18,566,144 18,566,144 18,566,144 18,566,144 18,566,144 18,566,144 18,566,144 18,566,144 18,566,144 18,568,144 18,568,144 18,568,144 18,568,144 18,568,144 18,568,144 18,568,144 18,568,144 18,568,144 18,568,144 18,568,144 18,568,144 18,568,144 18,568,144 18,568,144 18,568,144 18,568,144 18,568,144 18,558,144 18,588,144 18,	4,722,668 1,117,147 19,680,019 1,949,967 4,073,545 10,521 16,631,699 213,446 2,286,300 876,028 880,638 16,502,136 48,812,803 27,498,109 4,629,7498,109 4,629,736,344 5,431,984 1,493,813 9,360,593 33,263,964 7,002,480 7,485,793 39,267,468 59,383,430 6,478,690 39,145,076	15,922,379 4,445,257 50,899,460 7,916,937 14,449,351 DD 31,536,969 1,050,817 7,710,734 4,271,825 4,249,153 33,2453,833 112,040,893 53,700,183 13,485,586 9,553,066 13,061,374 12,292,510 12,618,386 11,858,252 38,172,386 11,858,252 38,172,386 20,174,341 82,969,920 173,469,929 19,374,815	4,175,914 1,195,198 15,626,267 2,462,184 3,680,662 DD 11,293,872 316,114 2,119,818 1,264,382 1,240,255 12,465,290 35,021,065 19,467,151 5,393,917 3,574,375 4,410,575 4,692,989 4,752,047 1,454,565 5,927,977 20,948,959 4,765,430 6,464,474 28,210,235	2,012,672 496,831 8,625,361 893,246 2,117,625 DD 6,416 7,655,479 100,503 1,034,069 415,405 446,273 7,704,917 24,712,232 13,815,812 3,137,186 2,111,839 2,107,753 3,113,956 2,468,379 702,427 4,229,845 15,305,416 3,305,975 3,480,854	2,163,242 698,367 7,000,905 1,568,939 1,563,037 DD 3,638,392 215,611 1,085,749 848,976 793,982 4,761,003 10,308,833 5,651,339 2,256,731 1,462,536 2,302,822 1,579,033 2,103,668 752,138 1,698,133 5,643,543 1,459,455	50301 50302 50400 50500 50600 50701 50702 50800 50901 50902 51001 51201 51201 51202 51301 51302 51401 60101 60102 60200 60300	865,180 198,136 3,331,992 372,574 1,131,926 DD 2,110,018 67,593 449,751 184,076 254,961 2,015,643 8,097,894 3,136,346 664,658 543,846 674,265 895,797 638,840 238,165 818,239	115,684 23,840 486,092 53,502 140,681 DD 301,173 9,909 54,650 21,888 31,226 367,989 1,114,909 485,934 115,801 82,721 103,433 143,249 108,655 33,973	17,857,282 4,142,948 72,975,844 9,833,492 20,786,856 DD 45,422,303 1,909,771 8,242,000 3,747,287 4,691,929 43,877,287 15,173,542 11,971,105 13,723,690 18,435,368 14,477,733 4,965,686	4,542,554 847,645 21,954,529 2,316,576 5,087,583 DD 16,135,509 508,698 1,789,229 655,553 781,541 16,585,109 55,076,652 25,771,674 5,014,592 4,096,342 4,018,995 6,251,068 4,940,745 1,263,504	13,314,728 3,295,303 51,021,315 7,516,916 15,699,273 DD DD 29,286,794 1,401,073 6,452,771 3,091,733 3,910,388 27,292,178 113,719,531 47,337,698 10,158,949 7,874,764 9,704,695 12,184,300 9,536,988 3,702,182 10,526,580	3,664,741 910,656 16,234,869 2,487,211 4,120,208 DD 10,342,847 541,905 1,712,116 945,800 1,193,378 11,363,774 36,754,645 17,336,104 4,077,799 3,000,107 3,445,964 4,341,755 1,683,879 1,183,974	1,944,127 382,887 9,759,255 1,081,387 2,581,903 DD 7,425,109 222,449 907,492 307,312 406,607 7,654,688 27,618,148 13,044,654 2,328,700 1,818,842 1,919,885 3,208,495 2,225,273 575,087	1,720,614 527,769 6,475,614 1,405,824 1,538,305 DD 2,917,738 319,456 804,624 638,488 786,771 3,709,086 9,136,498 4,291,450 1,749,098 1,181,265 1,526,079 1,133,260 1,458,606 608,887
50302 50400 50500 50500 50701 50702 51800 50901 51002 511001 51202 51300 51202 51401 51402 60101 60102 60200 60300 70400 70500 70500 70700 70700 70800 70800 70900 71100 71200 71300 71401 71401	241,817 3,025,962 378,338 947,154 DD 4,584 2,051,008 54,673 461,891 233,012 260,172 2,103,124 7,352,304 3,313,673 871,875 617,659 762,182 810,298 790,051 322,910 849,045 2,798,817 800,195 1,107,955 5,019,135 11,709,722 1,092,087 7,135,995 3,305,159 7,756,952 4,707,114 5,766,827	29,765 432,503 49,804 114,622 DD 554 301,471 6,790 55,783 369,893 1,009,135 513,203 156,680 92,934 114,315 139,983 128,755 44,078 183,890 657,480 157,027 162,931 791,371 1,445,68 149,168 953,584 463,270 892,862 892,862 892,862 892,862	5,562,404 70,579,479 9,866,904 18,522,896 DD DD 48,168,668 1,264,263 9,997,034 5,147,884 5,139,791 48,955,969 160,883,697 81,198,292 20,275,502 14,162,946 17,484,444 18,556,144 18,556,144 18,556,144 18,556,144 18,556,144 18,556,144 17,681,306 27,660,134 122,237,388 232,833,389 25,852,905 157,229,766	1,117,147 19,680,019 1,949,967 4,073,545 DD 11,952 16,631,699 213,446 2,286,300 876,028 890,638 16,502,136 48,812,803 27,498,109 6,789,917 4,609,880 4,423,070 6,273,634 5,431,984 1,493,813 33,263,964 7,002,489 7,485,79 39,267,468 59,383,430 6,478,090 39,145,076	4,445,257 50,899,460 7,916,937 14,449,351 DD DD 31,536,969 1,050,817 7,710,734 4,271,825 4,249,153 32,453,833 13,485,585 9,553,006 112,618,850 4,923,486 11,858,252 38,177,233 10,678,826 20,174,341 82,969,920 173,469,929 173,469,929	1,195,198 15,626,267 2,462,184 3,680,662 DD DD 11,293,872 316,114 2,119,818 1,246,382 1,240,255 19,467,151 5,393,917 3,574,375 4,410,575 4,692,989 4,572,047 1,454,565 5,927,977 20,948,959 4,765,430 6,4474 4,547,979 4,765,430 6,4474 4,447,235	496,831 8,625,361 893,246 2,117,625 DD 6,416 7,655,479 100,503 1,034,069 415,405 446,273 7,704,917 24,712,232 13,815,812 3,137,186 2,111,839 2,111,839 2,116,379 702,427 4,229,845 15,305,416 3,305,975 3,480,854	698,367 7,000,905 1,568,939 1,563,037 DD 3,638,392 215,611 1,085,749 848,976 793,982 4,761,003 10,308,833 5,651,339 2,256,731 1,462,536 2,302,822 1,579,033 2,103,668 752,138 1,698,133 5,643,543 1,459,455	50302 50400 50500 50600 50701 50702 50800 50901 50902 51001 51002 51301 51202 51301 51302 51401 60101 60102 60200 60300	198,136 3,331,992 372,574 1,131,926 DD DD 2,110,018 67,593 449,751 184,076 254,961 2,015,643 8,097,894 3,136,346 664,658 543,846 674,265 895,797 638,840 238,165 818,239	23,840 486,092 53,502 140,681 DD 301,173 9,909 54,650 21,888 31,226 367,989 1,114,909 485,934 115,801 103,433 143,249 108,655 33,973	4,142,948 72,975,844 72,975,844 9,833,492 20,786,856 DD DD 45,422,303 1,909,771 8,242,000 3,747,287 4,691,929 43,877,287 15,173,542 11,971,105 11,723,690 18,435,368 14,477,733 4,965,686	847,645 21,954,529 2,316,576 5,087,583 DD 16,135,509 508,698 1,789,229 655,553 781,541 16,585,109 55,076,652 25,771,674 5,014,592 4,096,342 4,018,995 6,251,068 4,940,745 1,263,504	3,295,303 51,021,315 7,516,916 15,699,273 DD DD 29,286,794 1,401,073 6,452,771 3,091,733 3,910,388 27,292,178 113,719,531 47,373,698 10,158,949 7,874,764 9,704,695 12,184,300 9,536,988 3,702,182 10,526,580	910,656 16,234,869 2,487,211 4,120,208 DD 10,342,847 541,905 1,712,116 945,800 1,193,378 11,363,774 4,077,799 3,000,107 3,445,964 4,341,755 4,683,879 1,183,974	382,887 9,759,255 1,081,387 2,581,903 DD DD 7,425,109 222,449 907,492 307,312 406,607 7,654,688 27,618,148 13,044,654 2,328,700 1,818,842 1,919,885 3,208,495 2,225,273 575,087	527,769 6,475,614 1,405,824 1,538,305 DD 2,917,738 319,456 804,624 638,488 786,771 3,709,086 9,136,498 4,291,450 1,749,098 1,181,265 1,526,079 1,133,260 1,458,606 608,887
50400 50500 50500 50600 50701 50702 50800 50901 50902 51001 51002 51100 51202 51301 51402 60101 60102 60200 60300 60400 70101 70102 70200 70400 70500 70700 70801 70802 70900 711000 711000 71100 71200 71300 71401 71401	3,025,962 378,338 947,154 DD 4,584 2,051,008 54,673 461,891 233,012 260,172 2,103,124 7,352,304 3,313,673 871,875 617,659 762,182 810,298 790,051 322,910 849,045 2,798,817 800,195 5,019,135 11,709,722 1,092,087 7,135,995 3,305,159 7,756,952 4,707,114 5,766,827	432,503 49,804 114,622 DD 554 301,471 6,790 55,783 28,839 31,788 369,893 1,009,135 513,203 156,680 92,934 114,315 139,983 128,755 44,078 183,890 657,480 157,027 162,931 791,371 1,445,363 149,168 953,584 463,270 892,862 601,791	70,579,479 9,866,504 18,522,896 DD DD 48,168,668 1,264,263 9,997,034 5,147,854 5,139,791 48,955,969 160,853,697 81,198,292 20,275,502 14,162,946 17,484,444 18,556,144 18,050,834 6,417,299 21,218,845 71,441,197 17,681,306 27,660,134 122,237,388 232,853,359 25,852,905 157,229,766	19,680,019 1,949,967 4,073,545 DD 11,952 16,631,699 213,446 2,286,300 876,028 890,638 16,502,136 48,812,803 27,498,109 6,789,917 4,609,880 4,423,070 6,273,634 5,431,984 1,493,813 9,360,593 33,263,964 7,002,480 7,485,793 39,267,468 59,383,430 6,478,090 39,145,076	50,899,460 7,916,937 14,449,351 DD DD 31,536,969 1,050,817 7,710,734 4,271,825 4,249,153 32,453,833 112,040,893 13,485,585 9,553,064 11,858,252 38,177,233 10,678,826 20,174,341 82,969,920 17,4349,3469,920 19,374,815	15,626,267 2,462,184 3,680,6DD DD 11,293,872 316,114 2,119,818 1,264,382 1,240,255 12,465,920 35,021,065 19,467,151 5,393,917 3,574,375 4,410,575 4,410,575 4,410,575 4,410,575 4,410,575 4,410,575 4,410,575 4,410,575 4,410,575 4,692,989 4,752,047 1,454,565 5,993,917 20,948,959 4,765,430 6,464,474 28,210,235 44,547,979	8,625,361 893,246 2,117,625 DD 6,416 7,655,479 100,503 1,034,069 415,405 446,273 7,704,917 24,712,232 13,815,812 3,137,186 2,111,839 2,107,753 3,113,956 2,468,379 702,427 4,229,845 15,305,416 3,305,975 3,480,854	7,000,905 1,568,939 1,563,037 DD 3,638,392 215,611 1,085,749 848,976 793,982 4,761,003 10,308,833 5,651,339 2,256,731 1,462,536 2,302,822 1,579,033 2,103,668 752,138 1,698,133 5,643,543 1,459,455	50400 50500 50600 50701 50702 50800 50901 50902 51001 51002 51201 51202 51301 51302 51401 51402 60101 60102 60200 60300	3,331,992 372,574 1,131,926 DD DD 2,110,018 67,593 449,751 184,076 254,961 2,015,643 8,097,894 3,136,346 664,658 543,846 674,265 895,797 638,840 238,165 818,239	486,092 53,502 140,681 DD DD 301,173 9,909 54,650 21,888 31,226 367,989 1,114,909 485,934 115,801 82,721 103,433 143,249 108,655 33,973	72,975,844 9,833,492 20,786,856 DD 45,422,303 1,909,771 8,242,000 3,747,287 4,691,929 43,877,287 15,173,542 11,971,405 11,971,405 11,971,405 11,971,405 14,477,733 4,965,686	21,954,529 2,316,576 5,087,583 DD 16,135,509 508,698 1,789,229 655,553 781,541 16,585,109 55,076,652 25,771,674 5,014,592 4,096,342 4,018,995 6,251,068 4,940,745 1,263,504	51,021,315 7,516,916 15,699,273 DD DD 29,286,794 1,401,073 6,452,771 3,091,733 3,910,388 27,292,178 113,719,531 47,337,698 10,158,949 7,874,764 9,704,695 12,184,300 9,536,988 3,702,182 10,526,580	16,234,869 2,487,211 4,120,208 DD 10,342,847 541,905 1,712,116 945,800 1,193,378 11,363,774 4,077,799 3,000,107 3,445,964 4,341,755 3,683,879 1,183,974	9,759,255 1,081,387 2,581,903 DD DD 7,425,109 222,449 907,492 307,312 406,607 7,654,688 27,618,148 13,044,654 2,328,700 1,818,842 1,919,885 3,208,495 2,225,273 575,087	6,475,614 1,405,824 1,538,305 DD DD 2,917,738 319,456 804,624 38,488 786,771 3,709,086 9,136,498 4,291,450 1,749,098 1,181,265 1,526,079 1,133,260 1,458,606 608,887
50600 50701 50702 50800 50901 50902 51001 51002 51100 51201 51202 51301 51302 51401 51402 60101 60102 60200 60300 70101 70102 70200 70300 70400 70500 70600 70700 70801 70802 70900 71100 711200 71300 71401 71401 71402	947,154 DD 4,584 2,051,008 54,673 461,891 233,012 260,172 2,103,124 7,352,304 3,313,673 871,765 762,182 810,298 790,051 322,910 849,045 1,107,955 5,019,135 11,709,722 1,092,087 7,135,995 3,305,159 7,756,952 4,707,114	114,622 DD 554 301,471 6,790 55,783 31,788 369,893 1,009,135 513,203 156,680 92,934 114,315 139,983 128,755 44,078 183,890 657,480 157,027 162,931 791,371 1,445,363 149,168 953,584 463,270 892,862 601,791	18,522,896 DD DDD 48,168,668 1,264,263 9,997,034 5,147,854 5,139,791 48,955,969 160,853,697 81,198,292 20,275,502 14,162,946 17,484,444 18,566,144 18,656,144 18,650,834 6,417,299 21,218,845 71,441,197 17,441,197 17,441,197 17,441,197 17,441,197 17,441,197 17,441,197 17,441,197 17,441,197 17,441,197 17,441,197 18,232,237,388 232,233,389 25,852,905 157,229,766 78,160,723 161,019,662	4,073,545 DD 11,952 16,631,699 213,446 2,286,300 876,028 890,638 16,502,136 48,812,803 27,498,109 6,789,917 4,609,880 6,273,634 5,431,984 1,493,813 9,360,593 33,263,944 7,002,480 59,383,430 6,478,090 39,145,076	14,449,351 DD 31,536,969 1,050,817 7,710,734 4,271,825 4,249,153 32,453,833 112,404,833 53,700,183 13,485,585 9,553,066 13,061,374 12,292,510 12,618,850 11,858,252 38,177,233 10,678,826 20,174,341 82,969,920 173,469,920 19,374,815	3,680,662 DD DD 11,293,872 316,114 2,119,818 1,264,382 1,240,255 19,467,151 5,393,917 3,574,375 4,410,575 4,410,575 4,410,575 4,452,047 1,454,565 5,927,977 20,948,959 4,765,430 6,464,474 28,210,235 44,547,979	2,117,625 DD 6,416 7,655,479 100,503 1,034,069 415,405 446,273 7,704,917 24,712,23 13,815,812 3,137,186 2,111,839 2,117,53 3,113,956 2,468,379 702,427 4,229,845 15,305,416 3,305,975 3,480,854	1,563,037 DD 3,638,392 215,611 1,085,749 848,976 793,982 4,761,003 10,308,833 5,651,339 2,256,731 1,462,536 2,302,822 1,579,033 2,103,668 752,138 1,698,133 5,643,543 1,459,455	50600 50701 50702 50800 50901 50902 51001 51002 51100 51201 51202 51301 51302 51401 51402 60101 60200 60300	1,131,926 DD 2,110,018 67,593 449,751 184,076 254,961 2,015,643 8,097,894 3,136,346 664,658 543,846 674,265 895,797 638,840 238,165 818,239	140,681 DD DD 301,173 9,909 54,650 21,888 31,226 367,989 1,114,909 485,934 115,801 82,721 103,433 143,249 108,655 33,973	20,786,856 DD DD 45,422,303 1,909,771 8,242,000 3,747,287 4,691,929 43,877,287 15,173,542 11,971,105 13,723,690 18,435,368 14,477,733 4,965,686	5,087,583 DD DD 16,135,509 508,698 1,789,229 655,553 781,541 16,585,109 55,076,652 25,771,674 5,014,592 4,096,342 4,018,995 6,251,068 4,940,745 1,263,504	15,699,273 DD DD 29,286,794 1,401,073 6,452,771 3,091,733 3,910,388 27,292,178 113,719,531 47,337,698 10,158,949 7,874,764 9,704,695 12,184,300 9,536,988 3,702,182 10,526,580	4,120,208 DD D10,342,847 541,905 1,712,116 945,800 1,193,378 11,363,774 36,754,645 17,336,104 4,077,799 3,000,107 3,445,964 4,341,755 3,683,879 1,183,974	2,581,903 DD 7,425,109 222,449 907,492 307,312 406,607 7,654,688 27,618,148 13,044,654 2,328,700 1,818,842 1,919,885 3,208,495 2,225,273 575,087	1,538,305 DD 2,917,738 319,456 804,624 638,488 786,771 3,709,086 9,136,498 4,291,450 1,749,098 1,181,265 1,526,079 1,133,260 1,458,606 608,887
50701 50702 50800 50901 50902 51001 51002 51100 51201 51202 51301 51302 51401 51402 60101 60102 60200 60300 70101 70102 70200 70300 70400 70500 70700 70801 70802 70900 711000 711000 71200 71300 71401 71401	DD 4,584 2,051,008 54,673 461,891 233,012 260,172 2,103,124 7,352,304 3,313,673 871,875 617,659 762,182 810,298 790,051 322,910 849,045 2,798,817 800,195 5,019,135 11,709,722 1,092,087 7,135,995 3,305,159 7,756,952 4,707,114 5,766,827	DD 554 301.471 6,790 55,783 28,839 31,788 369,893 1,009,135 513,203 156,680 92,934 114,315 139,983 128,755 44,078 48,755 44,078 157,027 162,931 791,371 1,445,363 149,168 953,584 463,270 892,862 601,791	DD DD 48,168,668 1,264,263 9,997,034 5,147,854 5,139,791 48,955,969 160,853,697 81,198,292 20,275,502 41,4162,946 17,484,444 18,566,144 18,566,144 11,7681,306 27,660,134 122,237,388 232,853,359 25,852,905 157,229,766	DD 11,952 16,631,699 213,446 2,286,300 876,028 890,638 16,502,136 48,812,803 27,498,109 6,789,917 4,609,880 4,423,070 6,273,634 5,431,984 1,493,813 9,360,593 33,263,964 7,002,480 7,485,793 39,267,468 59,383,430 6,478,000 39,145,076	DD DD 31,536,969 1,050,817 7,710,734 4,271,825 4,249,153 32,453,833 112,040,893 13,485,585 9,553,066 13,061,387 12,612,850 12,618,850 4,923,486 11,858,252 38,177,233 10,678,826 20,174,341 82,969,920 173,469,929 19,374,815	DD DD 11,293,872 316,114 2,119,818 1,264,382 1,240,255 12,465,920 35,021,065 19,467,151 5,393,917 3,574,375 4,410,575 4,692,989 4,4572,047 1,454,565 5,927,977 20,948,859 4,765,430 6,464,474 28,210,235	DD 6,416 7,655,479 100,503 1,034,069 415,405 446,273 7,704,917 24,712,232 13,137,186 2,111,3815,812 2,107,733 3,113,956 2,468,379 702,427 4,229,845 15,305,416 3,305,975 3,480,854	DD DD 3,638,392 215,611 1,085,749 848,976 793,982 4,761,003 10,308,833 5,651,339 2,256,731 1,462,536 2,302,822 1,579,033 2,103,668 752,138 1,698,133 1,643,543 1,459,455	50701 50702 50800 50901 50902 51001 51002 51201 51202 51301 51302 51401 60101 60102 60200 60300	DD DD 2,110,018 67,593 449,751 184,076 254,961 2,015,643 8,097,894 664,658 543,846 674,265 895,797 638,840 238,165 818,239	DD DD 301,173 9,909 54,650 21,888 31,226 367,989 1,114,909 485,934 115,801 82,721 103,433 143,249 108,655 33,973	DD 45,422,303 1,909,771 8,242,000 3,744,287 4,691,929 43,877,287 15,173,542 11,971,40 11,971,40 11,971,40 11,477,733 4,965,686	DD DD 16,135,509 508,698 1,789,229 655,553 781,541 16,585,109 55,076,652 25,771,674 5,014,592 4,096,342 4,018,995 6,251,068 4,940,745 1,263,504	DD 29,286,794 1,401,073 6,452,771 3,910,388 27,292,178 113,719,531 47,337,698 10,158,949 7,874,764 9,704,695 12,184,300 9,536,988 3,702,182 10,526,580	DD DD 10,342,847 541,905 1,712,116 945,800 1,193,378 11,363,774 4,077,799 3,000,107 3,445,964 4,341,755 3,683,879 1,183,974	DD 7,425,109 222,449 907,492 307,312 406,607 7,654,688 13,044,654 2,328,700 1,818,842 1,919,885 3,208,495 2,225,273 575,087	DD DD 2,917,738 319,456 804,624 638,488 786,771 3,709,086 9,136,498 4,291,450 1,749,098 1,181,265 1,526,079 1,133,260 1,458,606 608,887
50702 50800 50901 50902 51001 51002 51100 51202 51301 51302 51401 51402 60101 60102 70200 70400 70500 70600 70700 70801 70802 70900 71100 71200 71300 71400 71200 71300 71401	4,584 2,051,008 54,673 461,891 233,012 260,172 2,103,124 7,352,304 3,313,673 871,875 617,659 762,182 810,298 790,051 322,910 849,045 2,798,817 800,195 1,107,955 5,019,135 11,709,722 1,092,087 7,135,995 3,305,159 7,756,952 4,707,114 5,766,827	554 301,471 6,790 55,783 28,839 31,788 369,893 1,009,135 513,203 156,680 92,934 114,315 139,983 128,755 44,078 167,027 162,931 791,371 1,445,363 149,168 953,584 463,270 892,862 601,791	DD 48,168,668 1,264,263 9,997,034 5,147,854 5,139,791 48,955,969 160,853,697 81,198,292 20,275,502 14,162,946 17,484,444 18,050,834 6,417,299 21,218,845 71,441,197 17,681,306 27,660,134 122,237,388 323,2853,359 25,852,905 157,229,766 78,160,766	11,952 16,631,699 213,446 2,286,300 876,028 890,638 16,502,136 48,812,803 27,498,109 4,6789,917 4,609,880 4,423,070 6,273,634 5,431,984 1,493,813 9,360,593 33,263,964 7,002,480 7,485,793 39,267,468 59,383,430 6,478,090 39,145,076	DD 31,536,969 1,050,817 7,710,734 4,271,825 4,249,153 32,453,833 112,040,893 53,700,183 13,485,585 9,553,066 13,061,374 12,292,510 4,923,486 11,888,252 38,177,233 10,678,826 20,174,341 82,969,920 173,469,920 19,374,815	DD 316,114 2,119,818 1,264,382 1,246,592 35,021,065 19,467,151 5,393,917 3,574,375 4,410,575 4,692,989 4,752,047 1,454,565 5,927,977 20,948,959 4,765,430 6,464,474 28,210,235 44,547,979	6,416 7,655,479 100,503 1,034,069 415,405 446,273 7,704,917 24,712,232 13,815,812 3,137,186 2,111,839 2,107,753 3,113,956 2,468,379 702,427 4,229,845 15,305,416 3,305,975 3,480,854	DD 3,638,392 215,611 1,085,749 848,976 793,982 4,761,003 10,308,833 5,651,339 2,256,731 1,462,536 2,302,822 1,579,033 2,103,668 752,138 1,698,133 5,643,543 1,459,455	50702 50800 50901 50902 51001 51002 51201 51202 51301 51302 51401 51402 60101 60200 60300	DD 2,110,018 67,593 449,751 184,076 254,961 2,015,643 8,097,894 3,136,346 664,658 543,846 674,265 895,797 638,840 238,165 818,239	DD 301,173 9,909 54,650 21,888 31,226 367,989 1,114,909 485,934 115,801 82,721 103,433 143,249 108,655 33,973	DD 45,422,303 1,909,771 8,242,000 3,747,287 4,691,929 43,877,287 168,796,182 73,109,373 15,173,542 11,971,105 13,723,690 18,435,368 4,477,733 4,965,686	DD 16,135,509 508,698 1,789,229 655,553 781,541 16,585,109 55,076,652 25,771,674 5,014,592 4,096,342 4,018,995 6,251,068 4,940,745 1,263,504	DD 29,286,794 1,401,073 6,452,771 3,091,733 3,910,388 27,292,178 113,719,531 47,337,698 10,158,949 7,874,764 9,704,695 12,184,300 9,536,988 3,702,182 10,526,580	DD 10,342,847 541,905 1,712,116 945,800 1,193,378 11,363,774 36,754,645 17,336,104 4,077,799 3,000,107 3,445,964 4,341,755 3,683,879 1,183,974	DD 7,425,109 222,449 907,492 307,312 406,607 7,654,688 27,618,148 13,044,654 2,328,700 1,818,842 1,919,885 3,208,495 2,225,273 575,087	DD 2,917,738 319,456 804,624 638,488 786,771 3,709,086 9,136,498 4,291,450 1,749,098 1,181,265 1,526,079 1,133,260 1,458,606 608,887
50901 50902 51000 51001 51002 51100 51202 51301 51302 51401 51402 60101 60200 60300 70101 70102 70200 70300 70400 70500 70700 70802 70900 711000 71100 71200 71300 71401 71401	54,673 461,891 233,012 260,172 2,103,124 7,352,304 3,313,673 871,875 617,659 762,182 810,298 790,051 322,910 849,045 2,798,817 800,195 1,107,955 5,019,135 11,709,722 1,092,087 7,135,995 3,305,159 7,756,952 4,707,114 5,766,827	6,790 55,783 28,839 31,788 369,893 1,009,135 513,203 156,680 92,934 114,315 143,915 44,078 183,890 657,480 157,027 162,931 791,371 1,445,363 149,168 953,584 463,270 892,862 601,791	1,264,263 9,997,034 5,147,884 5,139,791 48,955,969 160,853,697 81,198,292 20,275,502 41,162,946 17,484,444 18,556,144 18,050,834 6,417,299 21,218,845 71,441,197 17,681,306 27,660,134 122,237,388 232,283,359 25,852,905 157,229,766 78,160,723 161,019,662	213,446 2,286,300 876,028 890,638 16,502,136 48,812,803 27,498,109 6,789,917 4,609,880 4,423,070 6,273,634 5,431,984 1,493,813 9,360,593 33,263,964 7,002,480 7,485,793 39,267,468 59,383,430 6,478,090 39,145,076	1,050,817 7,710,734 4,271,825 4,249,153 32,453,833 112,404,893 53,700,183 13,485,585 9,553,066 13,061,374 12,292,510 12,618,850 4,923,486 11,858,252 38,177,233 10,678,826 20,174,341 82,969,920 173,469,929 19,374,815	316,114 2,119,818 1,264,382 1,240,255 12,465,920 35,021,065 19,467,151 5,393,917 3,574,375 4,410,575 4,410,575 5,927,977 20,948,959 4,765,430 6,464,474 28,210,235 44,547,979	100,503 1,034,069 415,405 446,273 7,704,917 24,712,232 13,815,812 3,137,186 2,111,839 2,107,753 3,113,956 2,468,379 702,427 4,229,845 15,305,416 3,305,975 3,480,854	215,611 1,085,749 848,976 793,982 4,761,003 10,308,833 5,651,339 2,256,731 1,462,536 2,302,822 1,579,033 2,103,668 752,138 1,698,133 5,643,543 1,459,455	50901 50902 51001 51002 51100 51201 51202 51301 51302 51401 60101 60102 60200 60300	67,593 449,751 184,076 254,961 2,015,643 8,097,894 3,136,346 664,658 543,846 674,265 895,797 638,840 238,165 818,239	9,909 54,650 21,888 31,226 367,989 1,114,909 485,934 115,801 82,721 103,433 143,249 108,655 33,973	1,909,771 8,242,000 3,747,287 4,691,929 43,877,287 168,796,182 73,109,373 15,173,542 11,971,105 13,723,690 18,435,368 14,477,733 4,965,686	508,698 1,789,229 655,553 781,541 16,585,109 55,076,652 25,771,674 5,014,592 4,096,342 4,018,995 6,251,068 4,940,745 1,263,504	1,401,073 6,452,771 3,091,733 3,910,388 27,292,178 113,719,531 47,337,698 10,158,949 7,874,764 9,704,695 12,184,300 9,536,988 3,702,182 10,526,580	541,905 1,712,116 945,800 1,193,378 11,363,774 36,754,645 17,336,104 4,077,799 3,000,107 3,445,964 4,341,755 3,683,879 1,183,974	222,449 907,492 307,312 406,607 7,654,688 27,618,148 13,044,654 2,328,700 1,818,842 1,919,885 3,208,495 2,225,273 575,087	319,456 804,624 638,488 786,771 3,709,086 9,136,498 4,291,450 1,749,098 1,181,265 1,526,079 1,133,260 1,458,606 608,887
50902 51001 51002 51100 51201 51201 51302 51301 51302 51401 60101 60102 60200 60300 60400 70101 70102 70200 70400 70500 70600 70700 70801 70802 70900 711000 711000 71200 71300 71401 71401	461,891 233,012 260,172 2,103,124 7,352,304 3,313,673 617,659 762,182 810,298 790,051 322,910 849,045 2,798,817 800,195 1,107,955 5,019,135 11,709,722 1,092,087 7,135,995 3,305,159 7,756,952 4,707,114 5,766,827	55,783 28,839 31,788 369,893 1,009,135 513,203 156,680 92,934 114,315 139,983 128,755 44,078 183,890 657,480 157,027 162,931 791,371 1,445,363 149,168 953,584 463,270 892,862 601,791	9,997,034 5,147,854 5,139,791 48,955,969 160,853,697 81,198,292 20,275,502 14,162,946 17,484,444 18,050,834 6,417,299 21,218,845 71,441,197 17,681,306 27,660,134 122,237,388 232,853,359 25,852,905 157,229,766 78,160,723 161,019,662	2,286,300 876,028 890,638 16,502,136 48,812,803 27,498,109 4,6789,917 4,609,880 4,423,070 6,273,634 5,431,984 1,493,81 9,360,593 33,263,964 7,002,480 7,485,793 39,267,468 59,383,430 6,478,090 39,145,076	7,710,734 4,271,825 4,249,153 32,453,833 112,040,893 53,700,183 13,485,855 9,553,066 13,061,374 12,292,510 4,923,486 11,858,252 38,177,233 10,678,826 20,174,341 82,969,920 173,469,920 19,374,815	2,119,818 1,264,382 1,240,255 12,465,203 35,021,065 19,467,151 5,393,317 4,410,575 4,692,989 4,572,047 1,454,565 5,927,977 20,948,959 4,765,430 6,464,474 28,210,235 44,547,979	1,034,069 415,405 446,273 7,704,917 24,712,232 13,815,812 3,137,186 2,111,839 2,107,753 3,113,956 2,468,379 702,427 4,229,845 15,305,416 3,305,975 3,480,854	1,085,749 848,976 793,982 4,761,003 10,308,833 5,651,339 2,256,731 1,462,536 2,302,822 1,579,033 2,103,668 752,138 1,698,133 5,643,543 1,459,455	50902 51001 51002 51100 51201 51202 51301 51302 51401 51402 60101 60102 60200 60300	449,751 184,076 254,961 2,015,643 8,097,894 3,136,346 664,658 543,846 674,265 895,797 638,840 238,165 818,239	54,650 21,888 31,226 367,989 1,114,909 485,934 115,801 82,721 103,433 143,249 108,655 33,973	8,242,000 3,747,287 4,691,929 43,877,287 168,796,182 73,109,373 15,173,542 11,971,105 13,723,690 18,435,368 14,477,733 4,965,686	1,789,229 655,553 781,541 16,585,109 55,076,652 25,771,674 5,014,592 4,096,342 4,018,995 6,251,068 4,940,745 1,263,504	6,452,771 3,091,733 3,910,388 27,292,178 113,719,531 47,337,698 10,158,949 7,874,764 9,704,695 12,184,300 9,536,988 3,702,182 10,526,580	1,712,116 945,800 1,193,378 11,363,774 36,754,645 17,336,104 4,077,799 3,000,107 3,445,964 4,341,755 3,683,879 1,183,974	907,492 307,312 406,607 7,654,688 27,618,148 13,044,654 2,328,700 1,818,842 1,919,885 3,208,495 2,225,273 575,087	804,624 638,488 786,771 3,709,086 9,136,498 4,291,450 1,749,098 1,181,265 1,526,079 1,133,260 1,458,606 608,887
51001 51002 51100 51201 51202 51301 51302 51401 51402 601001 60102 60200 60300 70101 70102 70200 70300 70400 70500 70600 70700 70801 70802 70900 71100 71100 71200 71300 71401 71401	233,012 260,172 2,103,124 7,352,304 3,313,673 871,875 617,659 762,182 810,298 790,051 322,910 849,045 2,798,817 800,195 1,107,95 5,019,135 11,709,722 1,092,087 7,135,995 3,305,159 7,756,952 4,707,114 5,766,827	28,839 31,788 369,893 1,009,135 513,203 156,680 92,934 114,315 139,983 128,755 44,078 183,890 657,480 157,027 162,931 791,371 1,445,263 149,168 953,584 463,270 892,862 601,791	5,147,854 5,139,791 48,955,969 160,853,697 81,198,292 20,275,502 14,162,946 17,484,444 18,566,144 18,650,834 6,417,299 21,218,845 71,441,197 17,681,306 27,660,134 122,237,388 322,853,359 25,852,905 157,229,766 78,160,723 161,019,662	876,028 890,638 16,502,136 48,812,803 27,498,109 6,789,917 4,609,880 4,423,070 6,273,634 5,431,984 1,493,813 9,360,593 33,263,964 7,002,480 7,485,793 39,267,468 59,383,430 6,478,090 39,145,076	4,271,825 4,224,153 32,453,833 112,040,893 53,700,183 13,485,585 9,553,066 13,061,374 12,292,510 12,618,850 4,923,486 11,858,252 38,176,283 620,174,341 82,969,920 173,469,920 19,374,815	1,264,382 1,240,255 1,2465,920 35,021,065 19,467,151 5,393,917 3,574,375 4,410,575 4,692,989 4,572,047 1,454,565 5,927,977 20,948,959 4,765,430 6,464,474 28,210,235 44,547,979	415,405 446,273 7,704,917 24,712,232 13,815,812 3,137,186 2,111,839 2,107,753 3,113,956 2,468,379 702,427 4,229,845 15,305,416 3,305,975 3,480,854	848,976 793,982 4,761,003 10,308,833 5,651,339 2,256,731 1,462,536 2,302,822 1,579,033 2,103,668 752,138 1,698,133 5,643,543 1,459,455	51001 51002 51100 51201 51202 51301 51302 51401 51402 60101 60102 60200	184,076 254,961 2,015,643 8,097,894 3,136,346 664,658 543,846 674,265 895,797 638,840 238,165 818,239	21,888 31,226 367,989 1,114,909 485,934 115,801 82,721 103,433 143,249 108,655 33,973	3,747,287 4,691,929 43,877,287 168,796,182 73,109,373 15,173,542 11,971,105 13,723,690 18,435,368 14,477,733 4,965,686	655,553 781,541 16,585,109 55,076,652 25,771,674 5,014,592 4,096,342 4,018,995 6,251,068 4,940,745 1,263,504	3,091,733 3,910,388 27,292,178 113,719,531 47,337,698 10,158,949 7,874,764 9,704,695 12,184,300 9,536,988 3,702,182 10,526,580	945,800 1,193,378 11,363,774 36,754,645 17,336,104 4,077,799 3,000,107 3,445,964 4,341,755 3,683,879 1,183,974	307,312 406,607 7,654,688 27,618,148 13,044,654 2,328,700 1,818,842 1,919,885 3,208,495 2,225,273 575,087	638,488 786,771 3,709,086 9,136,498 4,291,450 1,749,098 1,181,265 1,526,079 1,133,260 1,458,606 608,887
51100 51201 51202 51301 51302 51301 51402 601001 60102 60200 60300 60400 70100 70100 70400 70500 70600 70700 70801 70802 70900 71100 71100 71200 71300 71402	2,103,124 7,352,304 3,313,673 871,875 617,659 762,182 810,298 790,051 322,910 849,045 2,798,817 800,195 1,107,955 5,019,135 11,709,722 1,092,087 7,135,995 3,305,159 7,756,952 4,707,114 5,766,827	369,893 1,009,135 513,203 156,680 92,934 114,315 139,983 128,755 44,078 157,027 162,931 791,371 1,445,363 149,168 953,584 463,270 892,862 601,791	48,955,969 160,853,697 81,198,292 02,275,502 14,162,946 17,484,444 18,050,834 6,417,299 21,218,845 71,441,197 17,681,306 27,660,134 122,237,388 222,853,359 25,852,905 157,229,766 78,160,723 161,019,662	16,502,136 48,812,803 27,498,109 6,789,917 4,609,880 4,423,070 6,273,634 5,431,984 1,493,813 9,360,593 33,263,964 7,002,480 7,485,793 39,267,468 59,383,430 6,478,090 39,145,076	32,453,833 112,040,893 53,700,183 13,485,585 9,553,066 13,061,374 12,292,510 12,618,850 4,923,486 11,858,252 38,177,233 10,678,826 20,174,341 82,969,920 173,469,929 19,374,815	12,465,920 35,021,065 19,467,151 5,393,917 3,574,375 4,692,989 4,572,047 1,454,565 5,927,977 20,948,959 4,765,430 4,765,430 4,410,435 4,765,430 4,765,430 4,765,430 4,765,430 4,765,430 4,765,430 4,765,430 4,765,430 4,765,430 4,765,430 4,765,430 4,765,430	7,704,917 24,712,232 13,815,812 3,137,186 2,111,839 2,107,753 3,113,956 2,468,379 702,427 4,229,845 15,305,416 3,305,975 3,480,854	4,761,003 10,308,833 5,651,339 2,256,731 1,462,536 2,302,822 1,579,033 2,103,668 752,138 1,698,133 5,643,543 1,459,455	51100 51201 51202 51301 51302 51401 51402 60101 60102 60200 60300	2,015,643 8,097,894 3,136,346 664,658 543,846 674,265 895,797 638,840 238,165 818,239	367,989 1,114,909 485,934 115,801 82,721 103,433 143,249 108,655 33,973	43,877,287 168,796,182 73,109,373 15,173,542 11,971,105 13,723,690 18,435,368 14,477,733 4,965,686	16,585,109 55,076,652 25,771,674 5,014,592 4,096,342 4,018,995 6,251,068 4,940,745 1,263,504	27,292,178 113,719,531 47,337,698 10,158,949 7,874,764 9,704,695 12,184,300 9,536,988 3,702,182 10,526,580	11,363,774 36,754,645 17,336,104 4,077,799 3,000,107 3,445,964 4,341,755 3,683,879 1,183,974	7,654,688 27,618,148 13,044,654 2,328,700 1,818,842 1,919,885 3,208,495 2,225,273 575,087	3,709,086 9,136,498 4,291,450 1,749,098 1,181,265 1,526,079 1,133,260 1,458,606 608,887
51201 51202 51302 51302 51401 51402 60101 60102 60200 60300 60400 70101 70102 70200 70300 70500 70600 70700 70802 70900 71000 71100 71200 71200 71401 71401 71401	7,352,304 3,313,673 871,875 617,659 762,182 810,298 8790,051 322,910 849,045 2,798,817 800,195 1,107,95 1,107,95 1,107,95 3,305,159 7,756,952 4,707,114 5,766,827	1,009,135 513,203 156,680 92,934 114,315 139,983 128,755 44,078 183,890 657,480 157,027 162,931 791,371 1,445,363 953,584 463,270 892,862 601,791	160,853,697 81,198,292 20,275,502 14,162,946 17,484,444 18,050,834 6,417,299 21,218,845 71,441,197 17,681,306 27,660,134 122,237,388 232,853,359 25,852,905 157,229,766 78,160,723 161,019,662	48,812,803 27,498,109 6,789,917 4,609,880 4,423,070 6,273,634 5,431,984 1,493,813 9,360,593 33,263,964 7,002,480 7,485,793 39,267,468 59,383,430 6,478,090 39,145,076	112,040,893 53,700,183 13,485,585 9,553,066 13,061,374 12,292,510 12,618,850 4,923,486 11,858,252 38,177,233 10,678,826 20,174,341 82,969,920 173,469,929 19,374,815	35,021,065 19,467,151 5,393,917 3,574,375 4,410,575 4,692,989 4,572,047 1,454,565 5,927,977 20,948,959 4,765,430 6,464,474 28,210,235 44,547,979	24,712,232 13,815,812 3,137,186 2,111,839 2,107,753 3,113,956 2,468,379 702,427 4,229,845 15,305,416 3,305,975 3,480,854	10,308,833 5,651,339 2,256,731 1,462,536 2,302,822 1,579,033 2,103,668 752,138 1,698,133 5,643,543 1,459,455	51201 51202 51301 51302 51401 51402 60101 60102 60200 60300	8,097,894 3,136,346 664,658 543,846 674,265 895,797 638,840 238,165 818,239	1,114,909 485,934 115,801 82,721 103,433 143,249 108,655 33,973	168,796,182 73,109,373 15,173,542 11,971,105 13,723,690 18,435,368 14,477,733 4,965,686	55,076,652 25,771,674 5,014,592 4,096,342 4,018,995 6,251,068 4,940,745 1,263,504	113,719,531 47,337,698 10,158,949 7,874,764 9,704,695 12,184,300 9,536,988 3,702,182 10,526,580	36,754,645 17,336,104 4,077,799 3,000,107 3,445,964 4,341,755 3,683,879 1,183,974	27,618,148 13,044,654 2,328,700 1,818,842 1,919,885 3,208,495 2,225,273 575,087	9,136,498 4,291,450 1,749,098 1,181,265 1,526,079 1,133,260 1,458,606 608,887
51202 51301 51302 51401 51402 60101 60102 60200 60300 70101 70102 70200 70300 70400 70500 70600 70700 70801 70802 70900 71100 71200 71300 71401 71401	3,313,673 871,875 617,659 762,182 810,298 790,051 322,910 849,045 2,798,817 800,195 1,107,955 5,019,135 11,709,722 1,092,087 7,135,995 3,305,159 7,756,952 4,707,114 5,766,827	513,203 156,680 92,934 114,315 139,983 128,755 44,078 183,890 657,480 157,027 162,931 791,371 1,445,363 149,168 953,584 463,270 892,862 601,791	81,198,292 20,275,502 41,4162,946 17,484,444 18,566,144 18,050,834 6,417,299 21,218,845 71,441,197 17,681,306 27,660,134 122,237,388 232,853,359 25,852,905 157,229,766 178,160,723 161,019,662	27,498,109 6,789,917 4,609,880 4,423,070 6,273,634 5,431,984 1,493,813 9,360,593 33,263,964 7,002,480 7,485,793 39,267,468 59,383,430 6,478,090 39,145,076	53,700,183 13,485,585 9,553,066 13,061,374 12,292,510 12,618,850 4,923,486 11,858,252 38,177,233 10,678,826 20,174,341 82,969,920 173,469,929 19,374,815	19,467,151 5,393,917 3,574,375 4,410,575 4,692,989 4,572,047 1,454,565 5,927,977 20,948,959 4,765,430 6,464,474 28,210,235 44,547,979	13,815,812 3,137,186 2,111,839 2,107,753 3,113,956 2,468,379 702,427 4,229,845 15,305,416 3,305,975 3,480,854	5,651,339 2,256,731 1,462,536 2,302,822 1,579,033 2,103,668 752,138 1,698,133 5,643,543 1,459,455	51202 51301 51302 51401 51402 60101 60102 60200 60300	3,136,346 664,658 543,846 674,265 895,797 638,840 238,165 818,239	485,934 115,801 82,721 103,433 143,249 108,655 33,973	73,109,373 15,173,542 11,971,105 13,723,690 18,435,368 14,477,733 4,965,686	25,771,674 5,014,592 4,096,342 4,018,995 6,251,068 4,940,745 1,263,504	47,337,698 10,158,949 7,874,764 9,704,695 12,184,300 9,536,988 3,702,182 10,526,580	17,336,104 4,077,799 3,000,107 3,445,964 4,341,755 3,683,879 1,183,974	13,044,654 2,328,700 1,818,842 1,919,885 3,208,495 2,225,273 575,087	4,291,450 1,749,098 1,181,265 1,526,079 1,133,260 1,458,606 608,887
51301 51302 51402 60101 60102 60200 60300 60400 70101 70102 70200 70300 70400 70500 70700 70801 70802 70900 711000 71100 71200 71300 71401	871,875 617,659 762,182 810,298 790,051 322,910 849,045 2,798,817 800,195 1,107,955 5,019,135 11,709,722 1,092,087 7,135,995 3,305,159 7,756,952 4,707,114 5,766,827	92,934 114,315 139,983 128,755 44,078 183,890 657,480 157,027 162,931 791,371 1,445,363 149,168 953,584 463,270 892,862 601,791	14,162,946 17,484,444 18,566,144 18,050,834 6,417,299 21,218,845 71,441,197 17,681,306 27,660,134 122,237,388 232,853,359 25,852,905 78,160,723 161,019,662	4,609,880 4,423,070 6,273,634 5,431,984 1,493,813 9,360,593 33,263,964 7,002,480 7,485,793 39,267,468 59,383,430 6,478,090 39,145,076	13,485,585 9,553,066 13,061,374 12,292,510 12,618,850 4,923,486 11,858,252 38,177,233 10,678,826 20,174,341 82,969,920 173,469,929 19,374,815	5,393,917 3,574,375 4,410,575 4,692,989 4,572,047 1,454,565 5,927,977 20,948,959 4,765,430 6,464,474 28,210,235 44,547,979	3,137,186 2,111,839 2,107,753 3,113,956 2,468,379 702,427 4,229,845 15,305,416 3,305,975 3,480,854	2,256,731 1,462,536 2,302,822 1,579,033 2,103,668 752,138 1,698,133 5,643,543 1,459,455	51302 51401 51402 60101 60102 60200 60300	543,846 674,265 895,797 638,840 238,165 818,239	82,721 103,433 143,249 108,655 33,973	15,173,542 11,971,105 13,723,690 18,435,368 14,477,733 4,965,686	4,096,342 4,018,995 6,251,068 4,940,745 1,263,504	7,874,764 9,704,695 12,184,300 9,536,988 3,702,182 10,526,580	3,000,107 3,445,964 4,341,755 3,683,879 1,183,974	1,818,842 1,919,885 3,208,495 2,225,273 575,087	1,181,265 1,526,079 1,133,260 1,458,606 608,887
51401 51402 60101 60101 60102 60200 60300 70101 70102 70200 70300 70400 70500 70600 70700 70801 70802 70900 71100 71200 71300 71401	762,182 810,298 790,051 322,910 849,045 2,798,817 800,195 1,107,955 5,019,135 11,709,722 1,092,087 7,135,995 3,305,159 7,756,952 4,707,114 5,766,827	114,315 139,983 128,755 44,078 183,890 657,480 157,027 162,931 791,371 1,445,363 149,168 953,584 463,270 892,862 601,791	17,484,444 18,566,144 18,050,834 6,417,299 21,218,845 71,441,197 17,681,306 27,660,134 122,237,388 232,853,359 25,852,905 157,229,766 78,160,723 161,019,662	4,423,070 6,273,634 5,431,984 1,493,813 9,360,593 33,263,964 7,002,480 7,485,793 39,267,468 59,383,430 6,478,090 39,145,076	13,061,374 12,292,510 12,618,850 4,923,486 11,858,252 38,177,233 10,678,826 20,174,341 82,969,920 173,469,929 19,374,815	4,410,575 4,692,989 4,572,047 1,454,565 5,927,977 20,948,959 4,765,430 6,464,474 28,210,235 44,547,979	2,107,753 3,113,956 2,468,379 702,427 4,229,845 15,305,416 3,305,975 3,480,854	2,302,822 1,579,033 2,103,668 752,138 1,698,133 5,643,543 1,459,455	51401 51402 60101 60102 60200 60300	674,265 895,797 638,840 238,165 818,239	103,433 143,249 108,655 33,973	13,723,690 18,435,368 14,477,733 4,965,686	4,018,995 6,251,068 4,940,745 1,263,504	9,704,695 12,184,300 9,536,988 3,702,182 10,526,580	3,445,964 4,341,755 3,683,879 1,183,974	1,919,885 3,208,495 2,225,273 575,087	1,526,079 1,133,260 1,458,606 608,887
51402 601101 60200 60300 60300 70101 70102 70200 70400 70500 70700 70801 70802 70900 711000 711200 71300 71401 71401	810,298 790,051 322,910 849,045 2,798,817 800,195 1,107,955 5,019,135 11,709,722 1,092,087 7,135,995 3,305,159 7,756,952 4,707,114 5,766,827	139,983 128,755 44,078 183,890 657,480 157,027 162,931 791,371 1,445,363 149,168 953,584 463,270 892,862 601,791	18,566,144 18,050,834 6,417,299 21,218,845 71,441,197 17,681,306 27,660,134 122,237,388 232,853,359 25,852,905 157,229,766 78,160,723 161,019,662	6,273,634 5,431,984 1,493,813 9,360,593 33,263,964 7,002,480 39,267,468 59,383,430 6,478,090 39,145,076	12,292,510 12,618,850 4,923,486 11,858,252 38,177,233 10,678,826 20,174,341 82,969,920 173,469,929 19,374,815	4,692,989 4,572,047 1,454,565 5,927,977 20,948,959 4,765,430 6,464,474 28,210,235 44,547,979	3,113,956 2,468,379 702,427 4,229,845 15,305,416 3,305,975 3,480,854	1,579,033 2,103,668 752,138 1,698,133 5,643,543 1,459,455	51402 60101 60102 60200 60300	895,797 638,840 238,165 818,239	143,249 108,655 33,973	18,435,368 14,477,733 4,965,686	6,251,068 4,940,745 1,263,504	12,184,300 9,536,988 3,702,182 10,526,580	4,341,755 3,683,879 1,183,974	3,208,495 2,225,273 575,087	1,133,260 1,458,606 608,887
60101 60102 60200 60300 60400 70101 70102 70200 70300 70500 70600 70500 70801 70802 70900 71100 71200 71300 71401 71401	790,051 322,910 849,045 2,798,817 800,195 1,107,955 5,019,135 11,709,722 1,092,087 7,135,995 3,305,159 7,756,952 4,707,114 5,766,827	128,755 44,078 183,890 657,480 157,027 162,931 791,371 1,445,363 149,168 953,584 463,270 892,862 601,791	18,050,834 6,417,299 21,218,845 71,441,197 17,681,306 27,660,134 122,237,388 222,853,359 25,852,905 157,229,766 78,160,723 161,019,662	5,431,984 1,493,813 9,360,593 33,263,964 7,002,480 7,485,793 39,267,468 59,383,430 6,478,090 39,145,076	12,618,850 4,923,486 11,858,252 38,177,233 10,678,826 20,174,341 82,969,920 173,469,929 19,374,815	4,572,047 1,454,565 5,927,977 20,948,959 4,765,430 6,464,474 28,210,235 44,547,979	2,468,379 702,427 4,229,845 15,305,416 3,305,975 3,480,854	2,103,668 752,138 1,698,133 5,643,543 1,459,455	60101 60102 60200 60300	638,840 238,165 818,239	108,655 33,973	14,477,733 4,965,686	4,940,745 1,263,504	9,536,988 3,702,182 10,526,580	3,683,879 1,183,974	2,225,273 575,087	1,458,606 608,887
60200 60300 603400 70101 701002 70200 70300 70400 70500 70700 70801 70802 70900 711000 71100 71200 71300 71401 71401	849,045 2,798,817 800,195 1,107,955 5,019,135 11,709,722 1,092,087 7,135,995 3,305,159 7,756,952 4,707,114 5,766,827	183,890 657,480 157,027 162,931 791,371 1,445,363 149,168 953,584 463,270 892,862 601,791	21,218,845 71,441,197 17,681,306 27,660,134 122,237,388 232,853,359 25,852,905 157,229,766 78,160,723 161,019,662	9,360,593 33,263,964 7,002,480 7,485,793 39,267,468 59,383,430 6,478,090 39,145,076	11,858,252 38,177,233 10,678,826 20,174,341 82,969,920 173,469,929 19,374,815	5,927,977 20,948,959 4,765,430 6,464,474 28,210,235 44,547,979	4,229,845 15,305,416 3,305,975 3,480,854	1,698,133 5,643,543 1,459,455	60200 60300	818,239				10,526,580			
60300 60400 70101 70102 70200 70400 70500 70600 70700 70801 70802 70900 71100 71200 71300 71401 71401	2,798,817 800,195 1,107,955 5,019,135 11,709,722 1,092,087 7,135,995 3,305,159 7,756,952 4,707,114 5,766,827	657,480 157,027 162,931 791,371 1,445,363 149,168 953,584 463,270 892,862 601,791	71,441,197 17,681,306 27,660,134 122,237,388 232,853,359 25,852,905 157,229,766 78,160,723 161,019,662	33,263,964 7,002,480 7,485,793 39,267,468 59,383,430 6,478,090 39,145,076	38,177,233 10,678,826 20,174,341 82,969,920 173,469,929 19,374,815	20,948,959 4,765,430 6,464,474 28,210,235 44,547,979	15,305,416 3,305,975 3,480,854	5,643,543 1,459,455	60300			20,140,041	9,013,461		2.083.01/	4,517,260	
60400 70101 70102 70200 70300 70400 70500 70600 70700 70801 70802 70900 71100 71200 71300 71401 71401	800,195 1,107,955 5,019,135 11,709,722 1,092,087 7,135,995 3,305,159 7,756,952 4,707,114 5,766,827	157,027 162,931 791,371 1,445,363 149,168 953,584 463,270 892,862 601,791	17,681,306 27,660,134 122,237,388 232,853,359 25,852,905 157,229,766 78,160,723 161,019,662	7,002,480 7,485,793 39,267,468 59,383,430 6,478,090 39,145,076	10,678,826 20,174,341 82,969,920 173,469,929 19,374,815	4,765,430 6,464,474 28,210,235 44,547,979	3,305,975 3,480,854	1,459,455		2,523,129	605,517	61,705,565	30,913,800	30,791,765	18,197,905	14,195,079	1,366,354 4,002,825
70102 70200 70300 70400 70500 70600 70700 70801 70802 70900 71100 71100 71200 71300 71401 71402	5,019,135 11,709,722 1,092,087 7,135,995 3,305,159 7,756,952 4,707,114 5,766,827	791,371 1,445,363 149,168 953,584 463,270 892,862 601,791	122,237,388 232,853,359 25,852,905 157,229,766 78,160,723 161,019,662	39,267,468 59,383,430 6,478,090 39,145,076	82,969,920 173,469,929 19,374,815	28,210,235 44,547,979	., ,	2,983,620		720,919	142,442	15,405,417	6,490,923	8,914,494	4,066,985	3,046,300	1,020,685
70200 70300 70400 70500 70600 70700 70801 70802 70900 71100 71200 71300 71401 71402	11,709,722 1,092,087 7,135,995 3,305,159 7,756,952 4,707,114 5,766,827	1,445,363 149,168 953,584 463,270 892,862 601,791	232,853,359 25,852,905 157,229,766 78,160,723 161,019,662	59,383,430 6,478,090 39,145,076	173,469,929 19,374,815	44,547,979	18.428 903	0.00.	70101	1,341,970	212,407	31,985,433	10,158,365	21,827,069	7,712,010	4,898,415	2,813,595
70300 70400 70500 70600 70700 70801 70802 70900 71100 71200 71300 71401 71402	1,092,087 7,135,995 3,305,159 7,756,952 4,707,114 5,766,827	149,168 953,584 463,270 892,862 601,791	25,852,905 157,229,766 78,160,723 161,019,662	6,478,090 39,145,076	19,374,815	, ,		9,781,331 13,869,122	70102 70200	5,374,129 12,221,660	811,888 1,543,022	116,763,447 227,488,398	38,923,839 61,820,747	77,839,608 165,667,651	26,017,676 44,165,963	17,973,488 32,252,441	8,044,188 11,913,522
70500 70600 70700 70801 70802 70900 71000 71100 71200 71300 71401 71402	3,305,159 7,756,952 4,707,114 5,766,827	463,270 892,862 601,791	78,160,723 161,019,662		118.084 690	5,579,934	, ,	2,767,467	70200	1,083,899	150,539	23,750,522	6,617,628	17,132,895	5,134,238	2,877,975	2,256,263
70600 70700 70801 70802 70900 71000 71100 71200 71300 71401 71402	7,756,952 4,707,114 5,766,827	892,862 601,791	161,019,662	20 071 404				14,693,886	70400	7,962,253	1,066,961	157,855,307	42,633,081	115,222,226	32,282,310	19,699,332	12,582,978
70700 70801 70802 70900 71000 71100 71200 71300 71401 71402	4,707,114 5,766,827	601,791			58,089,226 125,647,414			7,670,033 16,004,362	70500 70600	3,580,721 8,341,707	499,744 970,510	76,465,897 158,934,913	21,143,332 37,476,890	55,322,566 121,458,023	16,007,053 31,741,513	9,420,501 17,068,349	6,586,552 14,673,164
70801 70802 70900 71000 71100 71200 71300 71401 71402	5,766,827		103,628,286		80,221,810			10,830,314	70700	5,001,942	638,853	99,935,199	24,249,128	75,686,071	19,743,703	10,277,934	9,465,768
70900 71000 71100 71200 71300 71401 71402	10,334,583		113,287,539	25,204,492	88,083,047			8,130,409	70801	6,063,298	718,131	111,576,994	26,158,469	85,418,525	21,271,133	14,401,597	6,869,536
71000 71100 71200 71300 71401 71402			200,795,923		152,198,485			12,842,955	70802	11,492,033	1,374,314	211,653,468	53,252,286	158,401,182	39,394,518	28,221,717	11,172,800
71100 71200 71300 71401 71402	7,207,363 11,234,088		147,112,937 231,085,546		110,637,663 160,587,967			12,870,491 14,203,815	70900 71000	7,498,570 10,709,849	927,394 1,385,438	140,367,453 211,415,509	37,363,097 66,397,540	103,004,356 145,017,969	27,118,507 44,133,082	16,157,677 32,715,665	10,960,830 11,417,416
71300 71401 71402	1,664,817		36,755,322				3,926,328	4,366,961	71100	1,807,439	212,485	36,754,723	8,068,120	28,686,602	7,972,827	4,330,058	3,642,769
71401 71402	2,805,964			17,089,788	41,973,071			4,414,095	71200	2,857,756	360,606	52,916,423	15,093,725	37,822,698	10,225,361	6,823,489	3,401,872
71402	3,340,444 682,541	384,410 81,805	62,274,917 15,547,742	12,774,291 2,701,421	49,500,626 12,846,321	3,922,029		5,017,362 2,549,168	71300 71401	3,339,937 614,867	383,298 75,645	60,495,028 12,393,373	13,349,179 2,698,201	47,145,849 9,695,171	12,055,163 2,909,903	7,738,588 1,380,181	4,316,576 1,529,722
80101	1,521,053		29,637,389		22,433,090	5,922,805		2,382,514	71402	1,576,332	197,341	28,032,579	7,448,714	20,583,865	5,510,171	3,608,106	1,902,064
	39,080	8,411	885,194	398,043	487,151	245,994	183,900	62,095	80101	DD	DD	DD	DD	DD	DD	DD	DD
80102 80201	1,155,198 DD	238,260 DD	24,998,043 DD	11,068,312 DD	13,929,731 DD	6,734,807 DD	5,228,673 DD	1,506,135 DD	80102 80201	1,216,676 0	256,360 0	25,998,823 0	12,150,645 0	13,848,177 0	6,995,003 0	5,755,116 0	1,239,886
80202	374,270	76,056	8,142,204	3,430,523	4,711,681	2,239,402		610,729	80202	364,212	79,818	8,115,454	3,883,194	4,232,260	2,236,875	1,793,924	442,951
80203	167,638	26,024	2,783,223	892,264	1,890,959	733,614	451,177	282,436	80203	DD	DD	DD	DD	DD	DD	DD	DD
80204 80301	DD DD	DD DD	DD DD	DD DD	DD DD	DD DD	DD DD	DD DD	80204 80301	DD DD	DD DD	DD DD	DD DD	DD DD	DD DD	DD DD	DD DD
80302	185,339	24,708	2,723,804	718,807	2,004,997	631,892	385,988	245,903	80302	155,879	20,307	2,136,833	534,142	1,602,691	460,037	284,227	175,810
80401	616,510	138,798	17,630,229	7,605,953				1,974,332	80401	539,039	129,258	14,949,364	7,389,571	7,559,793	4,634,798	3,387,123	1,247,675
80402 80403	1,786,238	452,373 45,692	45,363,118 4,489,308	23,239,191	22,123,927			2,748,453	80402 80403	1,150,741	289,822	28,687,459	15,043,994	13,643,464	8,570,498 979,641	6,892,124	1,678,374
80500	198,151 104,792	12,734	4,469,506 DD	2,227,101 221,509	2,202,207 DD	1,303,994 DD	142,890	276,205 DD	80500	144,416 DD	33,602 DD	3,337,237 DD	1,748,153 DD	1,589,084 DD	979,041 DD	788,962 DD	190,678 DD
80601	DD	DD	DD	DD	DD	DD	DD	DD	80601	DD	DD	DD	DD	DD	DD	DD	DD
80602 80701	363,279	72,092	8,870,207	3,925,205	4,945,001 DD	2,404,142 DD	1,777,168	626,974 DD	80602 80701	361,242 DD	70,107 DD	8,338,110 DD	3,898,449 DD	4,439,660 DD	2,346,863 DD	1,864,967 DD	481,895 DD
80701 80702	31,166 561,092	3,780 95,904	DD 13,148,801	64,718 4,536,954	8,611,847	3,175,321	41,850 1,994,891	1,180,430	80701	409,133	74,727	9,226,800	3,670,248	5,556,552	2,330,281	1,616,335	713,946
80703	13,791	1,703	137,227	30,108	107,119	30,251	19,878	10,373	80703	DD	DD	DD	DD	DD	DD	DD	DD
80801 80802	82,697	10,061	DD	182,052	DD DD	DD	117,003	DD	80801	DD DD	DD DD	DD DD	DD DD	DD	DD DD	DD DD	DD
80802 80901	104,959 DD	13,399 DD	DD DD	289,730 DD	DD	DD DD	172,985 DD	DD DD	80802 80901	DD	DD	DD	DD	DD DD	DD	DD	DD DD
80902	34,138	4,368	657,413	149,214	508,198	128,933	67,663	61,270	80902	DD	DD	DD	DD	DD	DD	DD	DD
80903	DD	DD	DD	DD	DD	DD	DD	DD	80903	DD	DD	DD	DD	DD	DD	DD	DD
90100 90201	171,859 1,503,165	19,827 229,421	3,338,704 36,861,050	597,825 11,408,575	2,740,879 25,452,474	863,951 8,705,603	309,838 5,467,535	554,113 3,238,068	90100 90201	175,768 1,593,352	20,934 244,881	3,312,798 35,682,682	533,658 11,836,489	2,779,140 23,846,193	963,574 8,260,928	311,243 5,705,030	652,331 2,555,899
90202	290,213	36,690	6,388,894	1,320,020	5,068,873	1,654,117	726,553	927,564	90202	431,666	54,112	7,511,094	1,607,773	5,903,321	1,999,223	914,864	1,084,359
90203	424,758	58,199	9,148,143	2,369,320	6,778,823	2,226,775		1,002,365	90203	436,972	58,227	8,827,368	2,207,560	6,619,808	2,230,120	1,168,035	1,062,086
90300	13,834	1,695	338,582	54,616	283,966	87,683 0	25,219	62,464	90300	DD 4 225	DD	DD 29,405	DD 0.102	DD 20 212	DD 8,590	DD	DD 2.550
90400 100100	0 DD	0 DD	0 DD	0 DD	0 DD	DD DD	0 DD	0 DD	90400 100100	4,325 0	488 0	38,405 0	9,192 0	29,213 0	8,590	6,039 0	2,550 0
100200	260,884	32,315	5,160,607	858,590	4,302,016	1,366,067	432,764	933,303	100200	238,959	29,607	3,936,634	739,585	3,197,048	999,546	381,244	618,302
100301	238,780	28,003	4,582,851	926,428	3,656,423	1,060,422	470,319	590,104	100301	256,658	31,422	5,042,865	980,566	4,062,299	1,255,584	527,422	728,163
100302 100401	326,006 100,079	40,744 11,628	6,471,886 2 108 355	1,349,916 270,962	5,121,969 1,837,393	1,404,818 617,454	746,488 143,685	658,330 473,769	100302 100401	392,705 DD	47,156 DD	7,057,371 DD	1,631,466 DD	5,425,904 DD	1,520,159 DD	829,754 DD	690,405 DD
100401	56,012	7,040	2,108,355 1,535,033	270,962	1,837,393	424,745	121,830	302,915	100401	67,332	8,099	1,790,478	287,539	1,502,939	475,159	147,334	327,825
100500	144,868	17,907	2,598,593	423,649	2,174,944	661,730	253,810	407,920	100500	199,422	24,050	3,226,179	516,345	2,709,834	901,311	324,447	576,864
100600	77,800	9,234	DD 9 227 521	156,577	DD	DD	108,936	DD	100600	113,182	13,398	1,344,793	249,069	1,095,725	354,793	169,213	185,580
100700 100800	460,992 240,549	48,129 28,816	8,327,531 4,302,312	1,449,945 651,962	6,877,586 3,650,350	2,064,606 1,139,044	606,231 350,038	1,458,376 789,005	100700 100800	494,444 312,343	55,263 37,594	8,605,461 4,660,611	1,244,473 690,122	7,360,988 3,970,489	2,482,345 1,264,709	612,245 401,381	1,870,100 863,328
100901		DD	489,249	63,034	426,214	147,425	41,728	105,697	100901	DD	DD	DD	DD	DD	DD	DD	DD
100902	DD	2,622	1,014,537	58,021	956,516	361,504	30,872	330,631	100902	73,625	8,738	1,234,215	172,338	1,061,877	362,111	101,947	260,163
101000		40,334	5,933,164	786,947	5,146,216	1,755,789	468,635	1,287,154	101000	254,388	29,332	3,767,378	582,266	3,185,113	1,063,374	336,120	727,253

 Table S5--2007. Quantity of Recoverable and Non-Recoverable Manure and Manure Nutrients Produced on AFOs,

 by 6-digit HUC,

Table S5--2012. Quantity of Recoverable and Non-Recoverable Manure and Manure Nutrients Produced on AFOs, by 6-digit HUC,

Derived f	rom the 2007 C	Census of Agri	iculture Datab	oase					Derived from	m the 2012 Ce	nsus of Agricul	ture Database					
	Quantity of	Quantity of	Manure	Recoverable	Non-	Manure	Recoverabl	Non-		Quantity of	Quantity of	Manure	Recoverable	Non-	Manure	Recoverable	Non-
6-digit	recoverable	recoverable manure, dry	nitrogen as	manure	recoverable manure	as	e manure	recoverable manure	6-digit	recoverable manure, wet	recoverable	nitrogen as	manure	recoverable manure I	phosphorus as	manure	recoverable manure
HUC	manure, wet weight (tons)	weight	excreted (pounds)	nitrogen (pounds)	nitrogen	excreted	phosphorus (pounds)	phosphorus	HUC	weight	manure, dry weight (tons)	excreted (pounds)	nitrogen (pounds)	nitrogen	excreted (pounds)	phosphorus (pounds)	phosphorus
		(tons)			(pounds)	(pounds)		(pounds)	huc6	(tons)	had a dans	hl	had a a	(pounds)	hl	1-1	(pounds)
101101	54,817	6,264	1,552,995	172,090	1,380,905	477,741	83,378	394,363	101101	brd_r_wete 97,845	brd_r_drye 11,563	brd_ne 1,288,356	brd_r_n 231,260	difference 1,057,096	brd_pe 336,217	brd_r_p 139,111	difference 197,105
101102	67,753	6,633	2,289,405	254,778	2,034,627	691,711	93,809	597,903	101102	78,655	8,708	1,848,467	215,776	1,632,691	568,538	104,709	463,829
101201 101202	DD 136,903	DD 16,393	DD 2,429,482	DD 357,742	DD 2,071,739	DD 678,424	DD 199,103	DD 479,321	101201 101202	DD 97,600	DD 10,947	DD 2,416,573	DD 264,801	DD 2,151,772	DD 766,599	DD 133,363	DD 633,236
101301	596,626	65,929	14,265,876	2,116,253	12,149,623	3,853,982	933,555	2,920,427	101301	703,538	78,547	14,939,255	2,203,087	12,736,168	4,220,799	1,118,943	3,101,855
101302 101303	316,395 233,106	37,772 23,718	8,452,089 5,969,187	1,267,011 772,944	7,185,078 5,196,243	2,298,440 1,724,140	561,487 338,227	1,736,952 1,385,913	101302 101303	311,318 258,440	36,505 27,387	7,590,731 5,968,328	1,104,405 799,045	6,486,327 5,169,284	2,164,103 1,753,224	508,749 373,202	1,655,354 1,380,022
101401	869,351	95,470	23,485,798		19,655,210			4,426,953	101401	887,997	99,108	21,447,250	3,876,458	17,570,792	5,862,101	1,778,740	4,083,361
101402	344,951	34,570	9,440,407	1,406,613	8,033,795	2,389,096	DD	DD	101402 101500	459,693 1,774,575	47,770 168,081	9,432,272 32,815,578	1,406,237 6,781,915	8,026,035 26,033,663	2,613,266 7,190,187	624,175 2,554,959	1,989,092 4,635,228
101500 101600	1,485,176 3,365,528	140,953 387,501	30,226,607 79,758,572	5,805,422 16,181,534				4,449,957 11,594,821	101500	3,269,172	387,675	68,633,343	15,410,630	53,222,713	16,690,041	7,585,766	9,104,275
101701	2,431,223	273,856	54,770,452	13,227,102	41,543,350		5,482,850	7,033,852	101701	2,443,276	274,246	47,456,457	12,654,786	34,801,671	10,496,616	5,304,009	5,192,606
101702 101800	8,588,237 2,655,500	964,687 239,057	164,103,727 47,219,521	40,003,099 10,613,719	124,100,628 36,605,803	31,167,374 8,723,754		12,939,395 5,190,314	101702 101800	10,036,844 2,836,844	1,129,781 253,052	173,879,380 48,000,163	45,170,785 11,363,519	128,708,595 36,636,643	32,278,379 8,947,075	20,830,982 3,722,816	11,447,397 5,224,259
101900	8,135,049		148,321,558		108,711,827			11,408,511	101900	7,890,377	839,683	131,369,560	36,821,469	94,548,092	22,583,787	13,372,982	9,210,804
102001 102002	3,697,427 1,764,005	327,639 182,102	61,800,644				4,999,427 3,521,698	4,647,574 2,273,962	102001 102002	4,370,024 1,516,058	390,463 150,399	66,242,639 23,607,452	17,781,704 5,941,126	48,460,935 17,666,326	10,382,854 4,194,254	5,809,515 2,566,639	4,573,339 1,627,615
102002	4,474,289	427,290	31,705,960 88,507,175		69,903,160			10,258,715	102100	4,940,269	480,295	87,742,957	20,182,119	67,560,838	16,514,715	8,415,673	8,099,042
102200	6,672,364		120,896,670					10,367,759	102200	6,976,893	680,622	113,675,439	31,450,081	82,225,358	19,743,224	11,504,213	8,239,011
102300 102400	10,114,992 3,782,615	1,154,208 436,790	182,672,702 74,924,310		136,646,928 57,026,382			11,218,936 7,305,239	102300 102400	9,788,233 3,694,575	1,162,098 439,182	173,070,149 68,823,632	47,892,810 18,230,670	125,177,340 50,592,962	33,100,433 14,623,694	23,233,595 8,831,795	9,866,838 5,791,899
102500	7,445,477	691,053	132,494,848	31,297,654	101,197,194	22,816,644	11,644,025	11,172,619	102500	8,527,390	798,318	139,863,322	35,442,942	104,420,381	23,629,209	13,427,252	10,201,957
102600 102701	3,993,762 713,342	361,539 77,329	71,506,197 15,208,518		55,082,289 12,400,590		5,396,134 1,279,190	7,329,758 2,213,258	102600 102701	4,146,133 615,578	374,485 70,874	66,368,390 12,838,996	17,125,789 2,413,650	49,242,601 10,425,345	11,055,543 3,012,607	5,574,723 1,263,047	5,480,821 1,749,560
102702	4,060,493	423,530	76,151,363		57,571,679		7,729,770	6,538,989	102702	3,834,270	400,102	64,984,021	16,569,201	48,414,820	12,261,944	6,926,455	5,335,489
102801	2,860,793	335,075	58,025,195		45,887,967			4,643,746	102801	3,138,319	362,968	58,459,798	12,755,424	45,704,374 DD	11,333,914	7,712,296 DD	3,621,618
102802 102901	282,394 2,025,458	32,145 296,382	6,092,926 53,031,603	945,669 13,218,110		1,570,930 14,160,109	543,998 7,026,578	1,026,931 7,133,530	102802 102901	DD 1,792,386	DD 266,678	DD 44,053,455	DD 12,011,302	32,042,154	DD 11,743,689	6,376,442	DD 5,367,247
102902	485,579	66,796	12,639,719	2,765,944	9,873,776	3,069,835	1,316,394	1,753,440	102902	385,676	52,535	9,330,773	2,117,513	7,213,260	2,279,248	1,014,085	1,265,163
103001 103002	1,852,726 171,301	299,642 20,262	46,667,681 4,212,835	14,096,269 708,843	32,571,412 3,503,992	12,608,366 1,002,818	7,120,356 404,530	5,488,009 598,288	103001 103002	1,738,019 146,983	287,767 17,416	37,935,999 3,602,692	13,599,707 615,209	24,336,293 2,987,484	10,082,202 879,362	6,836,331 329,224	3,245,871 550,138
110100	3,910,642		112,888,938		64,623,580			10,260,210	110100	3,481,291	809,507	98,027,355	44,214,218	53,813,136	29,193,878	21,035,053	8,158,825
110200	1,675,116	155,624	28,136,644					2,636,577	110200	1,708,707 12,092,254	154,149 1,124,871	26,151,160 186,523,467	7,007,440	19,143,719 135,106,622	4,168,516	2,481,209 17,272,562	1,687,307
110300 110400	12,840,214 7,016,704		211,512,856 116,613,594		156,860,624 86,433,693			14,294,107 6,781,387	110300 110400	8,290,240	797,804	128,177,682	51,416,845 35,465,107	92,712,575	29,046,871 19,041,509	13,240,657	11,774,309 5,800,852
110500	1,588,066	168,705	28,554,552	6,340,378	22,214,174	5,421,791	3,202,722	2,219,069	110500	1,115,709	119,302	18,730,005	4,242,351	14,487,654	3,824,275	2,329,284	1,494,991
110600 110701	409,359 420,922	44,963 50,336	7,277,098 10,265,939	1,216,740 1,515,526	6,060,359 8,750,413	1,843,101 2,934,822	595,119 778,659	1,247,982 2,156,163	110600 110701	336,644 359,153	35,563 46,956	5,050,653 8,128,970	1,050,498 1,697,237	4,000,155 6,431,734	1,136,603 2,203,517	460,857 817,617	675,746 1,385,901
110702	3,666,791	726,524	97,348,694		59,634,897			9,894,381	110702	3,640,349	741,125	90,409,839	38,752,774	51,657,065	25,503,396	17,732,094	7,771,302
110800 110901	25,106 3,225,972	2,922 294,944	DD 55,285,088	59,098 14,270,570	DD 41,014,518	DD 8,540,236	33,597 4,471,834	DD 4,068,402	110800 110901	68,501 3,414,153	6,471 336,150	1,150,427 53,495,753	244,487 15,094,531	905,940 38,401,222	244,081 8,213,995	85,431 5,121,426	158,651 3,092,570
110901	456,639	57,112	DD	14,270,370 DD	41,014,518 DD	2,411,886	1,040,869	1,371,018	110901	615,951	75,156	10,643,169	2,562,451	8,080,718	2,250,940	1,424,204	826,736
111001	8,125,583		135,616,842		100,848,812			6,146,887	111001	8,941,008	838,336	141,066,436	38,509,876	102,556,560	20,482,360	14,673,849	5,808,512
111002 111003	2,393,020 371,632	247,383 43,097	DD 6,975,624	10,269,730 1,389,485	DD 5,586,139	DD 1,573,732	5,160,565 802,648	DD 771,085	111002 111003	DD 495,147	DD 52,257	DD 9,020,095	DD 1,914,870	DD 7,105,225	DD 1,984,322	DD 1,005,376	DD 978,947
111101	2,408,278	562,056	65,065,898	29,563,640	35,502,258	19,273,008	13,777,714	5,495,293	111101	2,120,008	513,963	54,190,496	27,106,492	27,084,004	16,074,415	12,559,703	3,514,712
111102 111201	2,742,724 8,167,569	646,466 732,696	73,506,721 133,109,815	33,430,680 35,806,233	40,076,041 97,303,582			5,801,163 7,822,820	111102 111201	2,539,308 7,417,144	609,936 648,039	64,741,966 112,490,740	31,950,950 32,532,317	32,791,016 79,958,423	19,145,859 15,635,352	15,163,373 9,835,296	3,982,486 5,800,055
111201	DD	26,841	DD	DD	DD	683,298	405,412	277,886	111201	7,417,144 DD	DD	DD	DD	DD	DD	9,833,290 DD	DD
111203	1,037,333	88,755	16,966,525		12,454,829	2,390,455		1,056,107	111203 111301	812,889 DD	70,758 DD	12,691,916 DD	3,567,281 DD	9,124,635 DD	1,845,740 DD	1,074,198 DD	771,542 DD
111301 111302	109,141 432,419	13,376 53,817	1,629,773 9,417,830	338,721 1,866,135	1,291,052 7,551,695	376,255 2,196,112	178,859 820,979	197,396 1,375,133	111301	475,592	60,272	8,340,633	1,978,146	6,362,487	1,757,870	899,408	858,462
111303	778,673	81,863	14,540,539	3,053,859	11,486,680	3,011,924	1,360,375	1,651,549	111303	574,463	63,285	10,932,509	2,974,301	7,958,208	2,540,325	1,311,885	1,228,440
111401 111402	2,044,972 834,546	444,676 199,546	51,670,966 21,610,545		30,316,634 11,591,763			5,258,997 1,907,174	111401 111402	1,689,111 663,023	360,641 160,500	40,143,251 16,070,312	17,205,357 8,080,775	22,937,894 7,989,537	11,668,561 4,790,544	8,119,187 3,707,107	3,549,374 1,083,437
111403	2,013,364	402,865	48,036,389		, ,	.,,.	8,739,554	4,158,077	111403		322,409	37,135,899	15,320,661	21,815,238	10,011,406	6,924,505	3,086,901
120100	1,883,706	413,522		20,275,500				3,669,798	120100		426,236	44,197,204	21,045,339	23,151,864	12,435,190	9,621,040	2,814,150
120200 120301	1,425,605 689,598	328,381 98,904	36,566,322 15,231,966			4,050,664	7,481,142 1,973,365	3,234,326 2,077,299	120200 120301	1,442,685 685,859	322,263 104,698	32,918,478 14,689,520	15,523,993 5,145,412	17,394,485 9,544,109	9,475,260 3,865,860	7,208,776 2,308,166	2,266,484 1,557,694
120302	273,258	45,620	6,954,121	1,833,523	5,120,598	2,080,832	892,228	1,188,604	120302	448,790	82,265	7,944,291	3,252,937	4,691,354	2,250,634	1,597,727	652,907
120401 120402	109,372 55,629	15,942 6,758	2,468,215 DD	531,603 118,995	1,936,612 DD	723,273 DD	270,835 75,204	452,438 DD	120401 120402	DD 86,833	DD 11,151	DD 1,592,271	DD 310,902	DD 1,281,370	DD 472,367	DD 171,493	DD 300,874
120500	10,292,183	1,075,339	175,639,476	46,626,092	129,013,384	28,042,164	16,549,471	11,492,693	120500	12,082,431	1,291,716	199,227,767	56,257,788	142,969,979	32,804,086	20,398,432	12,405,654
120601	307,906	33,254	5,755,727	879,892	4,875,836	1,548,346	404,191	1,144,154	120601	91,307	9,653	1,737,241	271,431	1,465,810	466,261	121,197	345,064
120602 120701	1,404,326 692,039	194,316 124,561	29,766,671 16,192,042		21,716,574 10,598,072			2,923,644 2,178,808	120602 120701	1,147,163 717,540	162,475 134,503	22,267,562 14,597,496	6,613,927 6,046,313	15,653,635 8,551,183	4,865,693 4,152,594	3,022,976 2,866,927	1,842,717 1,285,668
120702	1,055,520	159,146	24,775,701	7,121,722	17,653,978	5,825,924	3,325,522	2,500,402	120702	885,633	137,610	20,375,348	6,485,840	13,889,508	4,871,276	3,002,375	1,868,901
120800 120901	653,989	78,452 65,684	11,795,750					1,171,477	120800 120901	999,724 509,908	124,952 61,130	17,589,797 9,712,005	4,568,552 2,275,922	13,021,245 7,436,084	3,342,925 2,049,376	1,912,141 949,192	1,430,784 1,100,185
120901	572,063 78,465	10,568	10,805,132 1,849,289	289,388	8,186,955 1,559,902	433,266	1,037,128 137,035	1,024,667 296,231	120901	67,196	7,490	1,148,665	227,830	920,835	263,613	99,670	163,943
120903	102,855	12,959	2,733,608		2,275,970	832,686	214,532	618,153	120903	81,543	12,363	1,578,460	629,162	949,297	434,970	279,350	155,620
120904 121001	DD 177,779	DD 32,525	DD 4,735,862	DD 1,964,589	DD 2,771,273	DD 1,445,293	DD 865,749	DD 579,544	120904 121001	DD 115,522	DD 17,443	DD 2,122,468	DD 789,957	DD 1,332,510	DD 596,668	DD 362,740	DD 233,928
121001	907,959	196,543	25,743,899	11,867,072	13,876,827	7,629,715		2,529,468	121002	1,114,008	247,069	30,315,963	15,224,025	15,091,939	9,060,670	6,540,678	2,519,992
121003	175,612	19,704	DD	637,664	DD	DD	279,998	DD	121003	DD 81.750	DD 8 663	DD 1 271 561	DD 267 830	DD 1 003 730	DD 281 860	DD	DD 167 040
121004 121101	133,802 505,917	13,857 48,415	2,435,508 9,477,445		2,030,850 7,502,467	614,950 1,947,168	173,764 690,161	441,186 1,257,007	121004 121101	81,759 431,246	8,663 40,630	1,271,561 6,523,488	267,830 1,656,608	1,003,730 4,866,880	281,860 1,118,433	114,820 567,963	167,040 550,470
121102	329,395	29,579	5,349,598	1,291,835	4,057,763	887,576	417,588	469,988	121102	415,279	37,930	6,100,043	1,573,252	4,526,791	1,021,838	515,362	506,476
130100 130201	126,883 37,122	15,631 4,553	1,577,350 DD	312,495 81,711	1,264,855 DD	368,163 DD	190,622 53,381	177,540 DD	130100 130201	DD 49,352	DD 5,985	DD 538,143	DD 107,368	DD 430,776	DD 131,561	DD 69,057	DD 62,504
130201	565,167	72,267	10,447,577		7,969,150	2,112,741	1,096,705	1,016,036	130201		80,043	10,806,308	2,739,615	8,066,692	2,134,627	1,209,833	924,795
130301	DD	DD	DD	3,856,611	DD	DD	DD	DD	130301	DD	DD	DD	DD	DD	DD	DD	DD
130302 130401	459,924 DD	58,977 DD	8,650,567 DD	2,146,846 DD	6,503,721 DD	1,672,953 DD	909,327 DD	763,626 DD	130302 130401	DD DD	DD DD	DD DD	DD DD	DD DD	DD DD	DD DD	DD DD
130402	DD	964	DD	DD	DD	DD	DD	DD	130402	16,800	2,023	153,535	35,466	118,068	34,446	23,871	10,575
130403	1,640	250	DD	5,516	DD	DD	3,042	DD	130403	DD	DD	DD	DD	DD	DD	DD	DD

Table S5--2007. Quantity of Recoverable and Non-Recoverable Manure and Manure Nutrients Produced on AFOs, by 6-digit HUC,

Table S5--2012. Quantity of Recoverable and Non-Recoverable Manure and Manure Nutrients Produced on AFOs, by 6-digit HUC,

y 6-digit			:lt D.t.l.													•	digit HUC,
Jerived Ii	om the 2007 C	Quantity of			Non-	Manure	Danasaki	Non-	Derived from	Quantity of	nsus of Agricul		Danamakla	Non-	M	Danamakla	No
-digit	Quantity of recoverable	recoverable manure, dry	nitrogen as	Recoverable manure	recoverable manure	pnospnorus	Recoverabl e manure	recoverable manure	6-digit	recoverable manure, wet	Quantity of recoverable	Manure nitrogen as	Recoverable manure	recoverable p	Manure hosphorus as	Recoverable manure	recoveral manu
IUC	manure, wet weight (tons)	weight (tons)	excreted (pounds)	nitrogen (pounds)	nitrogen (pounds)	excreted (pounds)	phosphorus (pounds)	phosphorus (pounds)	HUC	weight	manure, dry weight (tons)	excreted (pounds)	nitrogen (pounds)	nitrogen (pounds)	excreted (pounds)	phosphorus (pounds)	phosphor (pound
		(tons)			(pounds)	(pounds)		(pounds)	huc6	brd_r_wete	brd_r_drye	brd_ne	brd_r_n	difference	brd_pe	brd_r_p	differen
130500 130600	171,154 1,967,312	24,592 256,392	3,851,772 37,661,686	1,239,022 9,772,808	2,612,749 27,888,878	871,489 6,968,053	512,871 4,120,194	358,618 2,847,859	130500 130600	DD 1,954,655	DD 254,216	DD 35,292,020	DD 9,425,013	DD 25,867,007	DD 6,647,638	DD 4,006,566	2,641,0
130700	164,828	21,126	3,749,753	760,859	2,988,894	887,065	333,284	553,781	130700	DD	DD	DD	DD	DD	DD	DD	I
130800 130900	DD DD	DD DD	DD DD	DD DD	DD DD	DD DD	DD DD	DD DD	130800 130900	DD DD	DD DD	DD DD	DD DD	DD DD	DD DD	DD DD	I I
140100	134,361	18,552	2,167,782	DD	DD	DD	DD	DD	140100	113,626	17,187	2,226,941	708,264	1,518,676	578,691	324,081	254,6
140200 140300	170,609 105,024	22,748 12,539	3,140,740 1,697,576	DD 263,322	DD 1,434,254	820,653 457,634	383,896 143,598	436,757 314,037	140200 140300	257,651 44,751	32,985 5,696	4,119,901 1,088,786	1,100,681 125,923	3,019,220 962,863	966,815 332,304	517,877 63,714	448,9 268,5
140401	25,262	2,945	1,307,910	78,571	1,229,339	367,996	35,751	332,246	140401	33,291	4,051	423,943	75,408	348,535	110,572	47,035	63,5
140402 140500	2,309 52,728	233 6,856	DD 1,135,668	7,544 140,351	DD 995,317	DD 297,758	3,047 81,102	DD 216,656	140402 140500	DD DD	DD DD	DD DD	DD DD	DD DD	DD DD	DD DD	I I
140600	170,279	22,698	4,499,306	774,599	3,724,707	1,244,687	373,498	871,189	140600	198,411	26,328	4,044,799	877,166	3,167,633	1,019,261	418,637	600,6
140700 140801	99,617 244,817	14,862 29,946	2,322,725 DD	DD 629,119	DD DD	DD DD	DD 352,382	DD DD	140700 140801	DD 137,759	DD 16,643	DD 1,711,443	DD 315,512	DD 1,395,931	DD 429,212	DD 181,504	247,7
140802 150100	123,693 166,055	16,556 20,251	1,549,100 2,182,264	318,929 400,847	1,230,171 1,781,417	333,773 535,554	193,692 244,362	140,080 291,192	140802 150100	DD 120,244	DD 15,217	DD 1,442,297	DD 286,773	DD	DD 336,485	DD 173,732	162,7
150200	684,765	86,255	2,162,204 DD	400,847 DD	1,781,417 DD	DD	DD	291,192 DD	150200	775,336	98,290	10,880,675	2,409,581	1,155,524 8,471,094	2,151,975	1,494,423	657,5
150301 150302	52,454 37,000	7,954 4,492	DD DD	DD 72,401	DD DD	DD DD	95,573 47,982	DD DD	150301 150302	DD 15,516	DD 1,756	DD 255,468	DD 31,373	DD 224,095	DD 79,837	DD 19,410	60,4
150400	115,701	14,081	1,444,649	273,612	1,171,036	359,777	167,659	192,118	150400	DD	DD	DD	DD	DD	DD	DD	I
150501 150502	1,139,544 DD	146,932 DD	DD DD	5,114,673 DD	DD DD	DD DD	2,207,298 DD	DD DD	150501 150502	DD DD	DD DD	DD DD	DD DD	DD DD	DD DD	DD DD	I I
150503	2,238,961	229,699	37,352,656	10,076,488	27,276,169	5,647,487	3,478,156	2,169,331	150503	DD	DD	DD	DD	DD	DD	DD	1
150601 150602	199,339 55,676	26,114 7,015	DD 686,737	841,758 118,784	DD 567,953	DD 172,900	381,712 75,560	DD 97,340	150601 150602	DD DD	DD DD	DD DD	DD DD	DD DD	DD DD	DD DD	I I
150701	1,598,506	215,033	30,319,544	8,842,969	21,476,575	5,811,618	3,711,812	2,099,806	150701	1,804,567	248,883	33,247,666	10,762,503	22,485,164	6,416,890	4,450,115	1,966,7
150702 150801	DD DD	DD DD	DD DD	DD DD	DD DD	DD DD	DD DD	DD DD	150702 150801	DD DD	DD DD	DD DD	DD DD	DD DD	DD DD	DD DD	I I
150802	0	0	0	0	0	0	0	0	150802	0	0	0	0	0	0	0	
150803 160101	4,619 49,278	565 5,872	DD 1,420,623	11,699 120,307	DD 1,300,316	DD 452,485	6,282 64,829	DD 387,656	150803 160101	DD DD	DD DD	DD DD	DD DD	DD DD	DD DD	DD DD	]
160102	861,471	114,693	17,934,900	4,664,603	13,270,297	3,892,350	2,001,079	1,891,271	160102	943,093	126,485	18,476,858	5,185,184	13,291,674	4,011,190	2,241,788	1,769,4
160201 160202	170,368 416,021	21,347 56,757	3,903,823 9,609,163	746,168 2,578,897	3,157,656 7,030,267	875,751 2,228,237	319,579 1,091,669	556,172 1,136,568	160201 160202	171,960 486,320	22,446 68,250	2,871,980 9,659,388	735,290 2,943,652	2,136,690 6,715,735	550,931 2,097,610	326,715 1,267,401	224,: 830,:
160203	437,865	55,455	9,331,417	2,549,242	6,782,175	2,048,055	1,023,179	1,024,876	160203	475,757	63,320	9,082,080	2,655,991	6,426,089	2,020,838	1,100,951	919,8
160300 160401	2,143,884 117,508	280,586 12,869	46,680,835 1,841,711	11,731,709 315,719	34,949,126 1,525,992	9,997,399 461,554	6,310,935 153,475	3,686,465 308,079	160300 160401	DD 82,303	DD 8,815	DD 1,141,938	DD 237,152	DD 904,787	DD 255,447	DD 106,300	149,
160402	DD	DD	DD	DD	DD	DD	DD	DD	160402	DD	DD	DD	DD	DD	DD	DD	1
160501 160502	43,487 283,553	5,286 36,763	762,015 DD	133,576 1,252,252	628,438 DD	185,970 DD	65,239 539,287	120,731 DD	160501 160502	DD 269,815	DD 34,888	DD 4,988,707	DD 1,189,115	DD 3,799,592	DD 1,002,033	DD 510,593	I 491,4
160503	DD	DD	DD DD	257,670	DD DD	DD	DD 365,799	DD	160503 160600	DD 254,059	DD 31,742	DD 3,173,563	DD 764,069	DD 2,409,495	DD 651,720	DD 204 862	256,8
160600 170101	227,597 9,615	28,584 1,212	DD	697,168 29,858	DD DD	738,513 DD	15,468	372,714 DD	170101	254,059 DD	31,742 DD	3,173,363 DD	764,069 DD	2,409,495 DD	051,720 DD	394,863 DD	230,8 L
170102 170103	163,872 62,831	20,314 7,896	3,638,720 1,190,894	558,313 229,078	3,080,408 961,816	994,601 272,788	273,518 109,540	721,083 163,248	170102 170103	185,680 53,183	22,653 6,603	3,256,866 818,048	521,484 169,459	2,735,382 648,589	903,142 190,744	282,539 88,377	620,6 102,3
170103	2,038,177	237,586	38,171,874	10,554,679	27,617,195	7,484,447	4,081,316	3,403,131	170103	2,636,213	320,904	46,744,922	14,439,011	32,305,912	9,100,784	5,664,705	3,436,0
170300 170401	1,993,842 55,141	254,236 6,708	36,478,494 1,328,098	9,400,696 206,925	27,077,797 1,121,172	6,672,908 333,121	3,937,014 96,078	2,735,894 237,042	170300 170401	2,913,945 62,520	345,940 7,835	49,498,245 986,873	13,793,726 199,971	35,704,519 786,902	8,388,987 230,505	5,387,907 103,013	3,001,0 127,4
170401	10,469,016		193,997,201		145,999,120		20,046,465	17,012,025	170402	12,205,666	1,515,178	207,560,163	55,349,944	152,210,219	38,291,491	23,230,160	15,061,3
170501 170502	4,452,118 49,676	516,781 5,533	78,697,654 1,532,576	18,971,325 159,084	59,726,330 1,373,492	14,862,033 481,906	7,611,188 72,584	7,250,845 409,322	170501 170502	5,016,146 DD	597,489 DD	79,171,391 DD	20,441,145 DD	58,730,246 DD	14,404,710 DD	8,321,073 DD	6,083,6 I
170601	174,775	20,367	3,637,289	575,478	3,061,811	953,339	281,932	671,407	170601	188,480	20,956	3,330,868	555,803	2,775,066	869,427	271,449	597,9
170602 170603	39,586 28,344	4,770 3,200	873,631 684,404	109,456 76,792	764,175 607,612	259,557 208,792	58,339 38,484	201,218 170,309	170602 170603	55,711 62,434	6,648 7,456	1,298,754 966,621	169,760 140,857	1,128,994 825,764	390,434 280,217	86,449 87,996	303,9 192,2
170701	1,732,590	188,399	29,212,242	7,592,020	21,620,222	4,939,649	2,807,162	2,132,487	170701	1,861,599	213,378	29,839,864	8,106,725	21,733,139	5,191,876	3,145,757	2,046,1
170702 170703	49,630 120,692	5,322 13,804	1,147,106 2,785,484	143,988 338,762	1,003,117 2,446,722	335,426 831,442	65,935 175,617	269,490 655,825	170702 170703	40,610 119,273	4,324 14,443	1,405,006 2,295,744	110,732 306,195	1,294,274 1,989,549	481,165 655,446	49,274 171,089	431,8 484,3
170800	425,999	76,691	9,501,598	3,428,579	6,073,019	2,296,972	1,533,307	763,665	170800	438,601	80,683	9,190,961	3,621,721	5,569,240	2,252,944	1,627,147	625,7
170900 171001	1,173,771 250,085	182,759 40,041	25,709,875 6,052,848	8,567,546 2,301,510	17,142,329 3,751,338	5,836,865 1,469,643	3,692,973 951,187	2,143,892 518,457	170900 171001	1,216,303 249,990	187,488 40,002	24,774,537 5,835,943	8,601,252 2,319,303	16,173,284 3,516,640	5,512,397 1,406,022	3,695,659 954,336	1,816,7 451,6
171002	552,904	71,700	11,270,916	2,774,393	8,496,523	2,201,938	1,181,446	1,020,492	171002	529,278	68,703	10,201,237	2,627,823	7,573,414	2,010,685	1,113,941	896,7
171003 171100	149,394 1,933,871	19,556 259,692	3,835,896 38,955,318	726,940 10,583,935	3,108,957 28,371,383	1,041,824 7,769,347	327,751 4,471,074	714,072 3,298,273	171003 171100	151,362 1,935,238	20,095 259,883	3,187,587 36,570,232	772,901 10,637,870	2,414,686 25,932,362	755,105 7,239,255	343,364 4,478,087	411,7 2,761,1
171200	91,287	10,960	1,674,494	195,573	1,478,920	519,098	124,219	394,879	171200	DD	DD	DD	DD	DD	DD	DD	1
180101 180102	1,084,825 246,050	158,159 29,384	24,195,204 5,157,527	7,079,471 933,726	17,115,733 4,223,801	5,331,818 1,293,302	3,029,600 425,634	2,302,217 867,668	180101 180102	1,252,275 237,787	184,316 28,050	26,709,508 5,044,238	8,197,478 967,360	18,512,030 4,076,879	5,904,004 1,249,580	3,526,282 417,826	2,377,7
180200	DD	DD	1,113,389	57,287	1,056,103	410,592	35,130	375,462	180200	DD	DD	DD	DD	DD	DD	DD	2 221
180201 180300	1,226,281 22,485,389		23,332,002 412,299,563	5,639,288 114,629,062	17,692,715 297,670,501		2,443,380 48,522,789	2,191,106 28,026,630	180201 180300	1,198,248 24,638,391	155,300 3,266,599	22,877,525 423,795,934	5,563,356 122,649,881	17,314,169 301,146,053	4,721,425 77,654,168	2,400,309 51,625,438	2,321, 26,028,
180400	16,038,997		323,000,308					23,771,142	180400	16,883,005	2,404,155	313,768,453	98,246,734	215,521,719	62,061,096	42,227,381	19,833,
180500 180600	311,366 270,435	42,189 36,580	6,883,352 6,019,895	1,612,210 1,366,792		1,506,982 1,420,847	714,262 636,766	792,720 784,082	180500 180600	424,709 213,198	56,444 30,001	8,362,843 4,319,801	2,111,145 1,093,695	6,251,698 3,226,106	1,769,701 1,041,189	933,273 513,192	836,4 527,9
180701	77,212	11,415	1,259,168	309,122	950,047	248,704	151,831	96,873	180701	DD 2 216 680	DD 310 800	DD 42 007 272	DD	DD 28 203 035	DD 8 560 110	DD 5 708 862	2.761.7
180702 180703	3,041,435 426,590	419,841 67,165	59,659,266 9,773,770	18,462,007 3,671,657	41,197,259 6,102,114	11,935,446 2,330,449	7,681,687 1,550,355	4,253,759 780,094	180702 180703	2,216,680 455,337	310,809 71,539	42,097,272 9,904,258	13,894,237 3,910,192	28,203,035 5,994,066	8,560,110 2,320,523	5,798,862 1,633,327	2,761,2 687,
180800	DD	DD	DD	25,406	DD	DD	DD	DD	180800	DD	DD	DD	DD	DD	DD	DD	1
180901 180902	DD 766,924	DD 103,773	DD 14,656,630	DD 4,023,807	DD 10,632,823	DD 2,722,706	DD 1,745,509	DD 977,197	180901 180902	DD 924,753	DD 126,859	DD 17,247,277	DD 5,188,742	DD 12,058,535	DD 3,298,795	DD 2,216,571	1,082,
181001	DD	DD	DD	DD	DD	DD	DD	DD	181001	DD	DD	DD	DD	DD	DD	DD	
181002 190101	2,560,384 0	235,544 0	40,845,270 0	11,170,936 0	29,674,334 0	5,559,456 0	3,498,301 0	2,061,155 0	181002 190101	DD 0	DD 0	DD 0	DD 0	DD 0	DD 0	DD 0	
190102	0	0	0	0	0	0	0	0	190102	0	0	0	0	0	0	0	
190103 190104	0	0	0	0	0	0	0	0	190103 190104	0	0	0	0	0	0	0	
190201	DD	DD	DD	DD	DD	DD	DD										т
190201	0	0	0	0	0	0	DD 0	DD 0	190201 190202	DD 0	DD 0	DD 0	DD 0	DD 0	DD 0	DD 0	Γ

Table S5--2007. Quantity of Recoverable and Non-Recoverable Manure and Manure Nutrients Produced on AFOs, by 6-digit HUC,

manure

nitrogen

(pounds)

DD

DD

DD

0

0

0

0

0

0

0

0

207,774

DD

DD

DD

DD

DD

DD

12,494

DD

40.072

Manure Recoverable

nitrogen as

excreted

(pounds)

DD

DD

DD

DD

0

0

0

0

0

0

DD

DD

0

0

0

DD

DD

DD

DD

DD

DD

DD

Manure

(pounds)

as

DD

DD

DD

DD

0

0

0

0

0

0

DD

DD

0

0

0

DD

DD

DD

DD

DD

DD

DD

recoverable phosphorus

manure

nitrogen

(pounds)

DD

DD DD

0

0

0

0

0

0

0

DD

DD

0

0

0

DD

DD

DD

DD

DD

DD

DD

DD

Recoverabl

phosphorus

e manure

(pounds)

948

DD

DD

0

0

0

0

0

0

0

0

0

92,194

DD

DD

DD

DD

DD

DD

5,899

18.265

Non-

manure

recoverable

phosphorus

(pounds)

DD

DD DD

DD

0

0

0

0

0

0

DD

DD

0

0

0

DD

DD

DD

DD

DD

DD

DD

Derived from the 2007 Census of Agriculture Database Quantity of

recoverable

manure, dry

weight

(tons)

DD

DD

DD

0

0

0

0

0

0

DD

388

0

0

0

5,495

DD

DD

6.254

DD

DD

DD

1.050

Quantity of

recoverable

manure, wet

weight (tons)

DD

DD

DD

0

0

0

0

0

0

0

0

0

0

0

42,030

DD

DD

DD

DD

38,438

DD

3,112

DD

7,610

6-digit

HUC

190203

190204

190205

190206

190207

190301

190302

190303

190304

190305

190401

190402

190403

190404

190405

190406

190407

190408

190501

190502 200100

200200

200400 200500

200600

200700

200800

Table S5--2012. Quantity of Recoverable and Non-Recoverable Manure and Manure Nutrients Produced on AFOs, by 6-digit HUC, Derived from the 2012 Census of Agriculture Database

6-di HU		Quantity of recoverable manure, wet weight (tons)	Quantity of recoverable manure, dry weight (tons)	Manure nitrogen as excreted (pounds)	Recoverable manure nitrogen (pounds)	Non- recoverable manure nitrogen (pounds)	Manure phosphorus as excreted (pounds)	Recoverable manure phosphorus (pounds)	Non- recoverable manure phosphorus (pounds)
huc	:6	brd_r_wete	brd_r_drye	brd_ne	brd_r_n	difference	brd_pe	brd_r_p	difference
	190203	DD	DD	DD	DD	DD	DD	DD	DD
	190204	DD	DD	DD	DD	DD	DD	DD	DD
	190205	DD	DD	DD	DD	DD	DD	DD	DD
	190206	0	0	0	0	0	0	0	0
	190207	0	0	0	0	0	0	0	0
	190301	0	0	0	0	0	0	0	0
	190302	0	0	0	0	0	0	0	0
	190303	0	0	0	0	0	0	0	0
	190304	0	0	0	0	0	0	0	0
	190305	0	0	0	0	0	0	0	0
	190401	0	0	0	0	0	0	0	0
	190402	0	0	0	0	0	0	0	0
	190403	0	0	0	0	0	0	0	0
	190404	DD	DD	DD	DD	DD	DD	DD	DD
	190405	DD	DD	DD	DD	DD	DD	DD	DD
	190406	0	0	0	0	0	0	0	0
	190407	0	0	0	0	0	0	0	0
	190408	0	0	0	0	0	0	0	0
	190501	0	0	0	0	0	0	0	0
	190502	0	0	0	0	0	0	0	0
	200100	DD	DD	DD	DD	DD	DD	DD	DD
	200200	DD	DD	DD	DD	DD	DD	DD	DD
	200400	0	0	0	0	0	0	0	0
	200500	DD	DD	DD	DD	DD	DD	DD	DD
	200600	DD	DD	DD	DD	DD	DD	DD	DD

Sum of column National	514,031,823	71,067,816	9,939,983,337	3,130,632,937	6,809,350,400	2,125,048,925	1,404,887,472	720,161,453
total national	532,088,930	73,237,187	10,262,788,683	3,220,197,752	7,042,590,931	2,188,915,535	1,443,883,156	745,032,379
total	96.61%	97.04%	96.85%	97.22%	96.69%	97.08%	97.30%	96.66%

DD

DD

DD

DD

DD

DD

Notes: Non-recoverable manure nitrogen includes nitrogen volatilized and nitrogen lost during on-farm collection, handling, and treatment. Non-recoverable manure phosphorus includes phosphorus lost during on-farm collection, handling, and treatment.

200700

200800

DD

DD

For complete definitions of variables, see the USDA/NRCS report entitled "Estimates of Recoverable and Non-Recoverable Manure Nutrients Based on the Census of Agriculture," authored by Robert L. Kellogg, David C. Moffitt, and Noel Gollehon.

 ${\bf Table~86\text{--}2012}. \ {\bf Farm-level~Excess~Manure~Nutrients~and~Related~Results~from~the~Land~Application~Simulation~Model~on~\underline{AFOs},~by~6\text{--digit~HUC},$ 

Derived from the 2012 Census of Agriculture Database Cropland and

	Cropland and						Cropland and astureland acres		Manure		
	pastureland acres		Manure			r	receiving on-		phosphorus		
	receiving on-farm	Manure nitrogen	phosphorus		Farm-level excess			Manure nitrogen	applied	Farm-level	Farm-level
	manure	applied (pounds)	applied (pounds)	Farm-level excess	manure			applied (pounds)	(pounds) in	excess manure	excess manure
6-digit	applications in the	in the model	in the model	manure nitrogen	phosphorus	6-digit	the model	in the model	the model	nitrogen	phosphorus
HUC	model simulation	simulation	simulation	(pounds)	(pounds)	HUC	simulation	simulation	simulation	(pounds)	(pounds)
						huc6	all_aa	all_na	all_pa	fex_n	fex_p
10100		116,527	51,819	0	0	10100	DD 4.720	DD 726 244	DD 206 597	DD	DD 45 126
10200 10300		709,762	299,591 566,204	DD 40,995	DD DD	10200 10300	4,729	726,344	306,587	106,196	45,126
10300		1,343,986 411,151	186,679	3,568,217	1,428,697	10400	10,457 DD	1,593,205 DD	673,425 DD	1,283,309 DD	503,123 DD
10500		180,939	76,484	3,308,217 DD	1,428,097 DD	10500	1,703	146,765	62,590	40,465	20,826
10600		334,104	143,437	49,824	22,998	10600	2,193	327,565	140,630	21,421	10,407
10700		404,207	174,812	116,204	59,519	10700	2,280	445,066	189,065	64,943	35,138
10801		2,958,511	1,251,973	DD	DD	10801	16,759	2,870,597	1,216,704	263,791	110,501
10802		1,001,434	429,385	187,140	79,974	10802	4,977	843,196	362,602	143,670	62,590
10900		399,779	174,311	115,994	57,909	10900	1,989	329,566	145,373	156,332	74,454
11000	8,829	2,048,557	867,980	DD	DD	11000	8,365	1,934,844	816,803	2,281,272	917,315
11100	8,922	1,551,795	655,600	57,998	24,521	11100	0	0	0	0	0
20100	60,105	11,313,585	4,764,757	927,741	376,883	20100	0	0	0	0	0
20200		9,036,153	3,814,894	507,772	215,074	20200	53,380	9,207,468	3,877,417	720,997	308,861
20301		144,053	64,945	22,786	12,199	20301	568	77,351	33,198	42,602	23,684
20302		3,940	2,312	182,503	117,560	20302	DD	DD	DD	DD	DD
20401		2,779,944	1,236,335	DD	DD	20401	23,587	3,501,643	1,632,162	1,947,980	836,529
20402		7,251,959	3,256,262	5,423,789	2,410,773	20402	37,774	7,268,612	3,235,443	6,478,880	2,862,430
20403		42,653	20,126	DD	DD	20403	DD	DD	DD	DD	DD
20501	86,151	13,067,436	5,550,050	954,236	466,551	20501	81,823	12,419,985	5,283,198	932,004	497,664
20502 20503		4,233,637	1,851,116 16,605,698	1,292,825	616,239	20502	25,553 200,923	4,494,200 41,418,950	1,990,400 18,219,275	1,656,666 28,981,228	765,632
20600		37,593,330 11,943,002	5,438,581	25,654,702 34,499,381	11,753,776 15,754,220	20503 20600	33,209	4,503,364	2,040,891	6,055,660	12,897,172 2,772,786
20700		22,061,173	9,984,351	36,866,512	17,444,775	20700	141,658	22,895,810	10,319,151	30,844,133	14,690,560
20801		1,827,699	838,384	2,159,610	1,011,718	20801	58,002	8,471,681	3,876,475	24,977,867	11,451,405
20802		2,380,180	1,152,533	4,185,113	1,940,805	20802	19,201	2,163,667	1,020,498	4,193,391	1,951,570
30101		2,769,672	1,288,748	2,427,434	1,266,119	30101	22,007	2,812,235	1,240,884	2,240,868	1,221,557
30102		2,214,152	1,137,979	5,824,024	3,074,174	30102	18,504	2,043,991	1,034,788	5,527,749	2,711,008
30201		1,406,845	830,020	5,942,779	3,235,063	30201	13,489	1,280,768	724,929	6,003,027	2,954,136
30202		7,073,507	4,078,217	18,446,559	10,299,091	30202	66,076	8,056,163	4,646,899	13,120,116	7,522,800
30203	0	0	0	0	0	30203	7,868	926,552	510,089	2,161,427	1,171,176
30300	168,197	16,871,316	9,625,015	61,601,106	33,348,882	30300	129,507	16,905,333	9,324,030	50,647,940	27,489,153
30401		8,082,985	3,769,689	27,799,268	12,913,193	30401	77,464	10,445,121	4,872,499	21,794,462	10,031,834
30402		7,029,817	3,724,341	24,524,016	12,566,725	30402	56,443	7,337,492	3,751,651	23,958,625	12,189,304
30501		3,902,161	1,835,807	17,221,602	8,338,799	30501	37,736	4,534,842	2,131,872	19,929,889	9,393,503
30502		2,125,794	997,055	5,358,912	2,453,780	30502	16,421	2,171,532	1,004,617	5,507,486	2,544,227
30601	56,054	4,707,908	2,157,125	35,154,692	15,965,223	30601	63,280	6,511,616	2,990,347	38,220,046	17,390,131
30602		1,319,810	631,055	2,037,547	948,670	30602	9,455	1,379,680	635,420	1,880,547	889,885
30701	44,407	3,863,629	1,764,520	22,412,840	9,981,016	30701	42,358	4,607,139	2,118,787	20,939,069	9,293,180
30702		2,093,516	996,235	6,162,995	2,768,247	30702	19,680	2,859,578	1,333,154	6,387,726	2,874,161
30801 30802	3,336 DD	DD DD	DD DD	237,536 DD	116,205 7,074	30801 30802	2,928 DD	613,311 DD	266,902 DD	239,735 DD	127,259 DD
30802	10,170	2,242,329	947,779	DD	7,074 DD	30901	10,048	2,425,479	1,028,404	2,820,280	1,273,537
30901		316,121	142,413	418,971	205,478	30902	2,337	340,375	151,264	745,675	429,475
31001		618,858	270,557	DD	401,613	31001	4,245	862,962	370,756	793,920	345,888
31001		739,219	326,980	DD	DD	31002	5,703	845,365	365,996	3,101,559	1,256,883
31101		616,062	272,605	1,117,435	512,864	31101	5,630	880,573	381,762	795,150	358,549
31102		4,746,495	2,181,097	15,330,261	6,722,909	31102	32,380	4,991,218	2,213,271	11,615,468	5,064,586
31200		703,478	334,888	2,983,970	1,358,436	31200	6,304	871,699	414,372	1,890,405	868,036
31300	47,821	5,558,108	2,638,700	20,957,156	9,552,822	31300	34,605	5,143,253	2,356,388	19,913,224	9,075,135
31401	4,202	334,205	159,108	1,748,717	758,939	31401	2,389	246,393	131,709	1,668,806	740,588
31402	35,460	3,165,049	1,496,279	11,694,977	5,335,530	31402	27,154	2,880,277	1,343,838	13,676,259	6,245,332
31403		1,500,999	696,569	6,393,279	2,914,038	31403	13,275	1,697,857	787,321	6,335,626	2,873,183
31501		3,980,412	1,885,589	44,819,270	20,473,521	31501	52,983	4,954,321	2,316,453	48,525,835	22,146,597
31502		502,435	244,111	2,151,014	998,797	31502	5,563	554,964	280,781	2,584,160	1,192,697
31601		5,171,710	2,454,109	26,581,613	12,493,575	31601	44,951	5,314,620	2,505,706	24,217,924	11,304,607
31602		459,002	224,401	803,183	363,732	31602	2,393	354,778	178,421	474,110	211,908
31700		4,417,908	2,074,345	27,544,731	12,517,196	31700	35,799	3,682,859	1,717,560	26,324,061	12,037,068
31800 40101		6,579,794 0	3,044,026 0	34,026,963 0	15,572,995 0	31800 40101	47,859 DD	6,035,424 DD	2,816,804 DD	33,258,614 DD	15,205,676 DD
40101		161,878	69,982	DD	DD	40102	1,836	187,979	81,455	2,861	1,953
40102		380,763	161,880	DD	DD	40102	3,554	412,741	175,773	8,339	5,181
40201		66,451	27,656	DD	DD	40201	653	52,041	23,596	517	297
40201		103,014	44,693	0	0	40202	DD	DD	DD	DD	DD
40203		0	0	0		40203	0	0	0	0	0
40301		19,270,757	8,141,325	2,176,536	950,398	40301	115,092	23,900,518	10,076,429	3,268,388	1,410,781
40302		17,097,499	7,201,879	1,623,399	709,725	40302	107,032	18,746,306	7,905,405	2,066,139	899,195
40400		2,868,379	1,208,565	91,300	43,285	40400	19,358	3,172,149	1,362,517	271,778	115,516
40500		23,704,507	10,873,240	15,620,930	7,205,454	40500	157,773	27,558,272	12,541,395	23,193,097	10,832,513
40601		5,273,530	2,335,949	1,653,955	897,500	40601	35,129	6,118,210	2,737,191	651,787	393,825
40602		33,193	13,842	DD	DD	40602	DD	DD	DD	DD	DD
40700		1,044,033	443,621	DD	DD	40700	7,058	887,877	382,843	69,769	30,403
40801		3,691,909	1,466,571	2,309,386	969,891	40801	24,125	4,642,874	1,833,160	3,582,986	1,499,388
40802		4,917,532	2,092,892	1,300,020	546,506	40802	25,805	4,732,338	2,029,465	1,874,350	795,796
40803		DD	DD	0		40803	0	0	0	0	52.701
40900		1,257,435	518,806	52,001	24,085	40900	8,317	1,502,575	608,951	111,660	52,781
41000		12,426,315	5,924,631	10,142,710	4,481,414	41000	78,679	12,176,578	5,803,610	13,401,463	5,873,497
41100	9,211	1,494,541	626,678	DD	DD	41100	8,795	1,446,321	635,800	149,958	66,773

 ${\bf Table~86\text{--}2012}. \ {\bf Farm-level~Excess~Manure~Nutrients~and~Related~Results~from~the~Land~Application~Simulation~Model~on~\underline{AFOs},~by~6\text{--digit~HUC},$ 

Derived fro	om the 2007 Census	of Agriculture Datal	base			Derived from	the 2012 Census	of Agriculture Data	base		
							Cropland and				
	Cropland and					J	pastureland acres		Manure		
	pastureland acres		Manure				receiving on-		phosphorus		
	receiving on-farm	Manure nitrogen	phosphorus		Farm-level excess			Manure nitrogen	applied	Farm-level	Farm-level
	manure	applied (pounds)		Farm-level excess	manure	e 41 1.		applied (pounds)	(pounds) in	excess manure	
6-digit HUC	applications in the model simulation	in the model simulation	in the model simulation	manure nitrogen	phosphorus	6-digit HUC	the model simulation	in the model simulation	the model simulation	nitrogen (pounds)	phosphorus (pounds)
пис	model simulation	simulation	Simulation	(pounds)	(pounds)					4 ,	(pounds)
41201	26.710	4.046.952	2,104,017	DD	DD	huc6	all_aa	all_na	all_pa 2,201,825	fex_n	fex_p
41201 41202	26,718 DD	4,946,852 DD	2,104,017 DD	0	DD 0	41201 41202	28,955 0	5,197,207 0	2,201,823	682,797 0	273,492 0
41300		8,307,281	3,522,981	946,010	408,245	41300	42,548	9,021,677	3,819,130	1,142,624	498,693
41401	6,717	1,301,216	551,945	DD	49,922	41401	9,311	1,665,510	700,178	974,468	383,477
41402		11,597,274	4,933,192	1,332,090	643,514	41402	67,235	12,780,809	5,457,977	1,274,859	539,613
41501	15,411	2,789,986	1,178,693	DD	DD	41501	18,835	3,205,798	1,355,744	128,410	54,325
41502		DD	DD	0	0	41502	DD	DD	DD	DD	DD
41503	34,596	5,932,528	2,513,110	72,908	31,402	41503	39,545	6,157,416	2,596,002	118,098	51,104
41504	0	0	0	0	0	41504	64,846	12,651,666	5,322,870	686,332	291,325
41505		0	0	0	0	41505	8,601	1,738,754	735,577	59,254	25,237
50100		7,456,382	3,148,154	DD	DD	50100	37,785	7,300,062	3,107,244	1,036,320	434,457
50200		2,235,567	954,882	76,631	40,558	50200	10,953	1,831,185	781,332	65,108	34,094
50301	24,163	4,327,552	1,836,392	DD	DD	50301	22,751	4,036,306	1,710,966	506,248	233,160
50302 50400		1,023,200 12,097,479	457,506 5,276,196	DD 7,582,540	DD 3,349,166	50302 50400	6,099 82,107	770,961 13,011,703	351,428 5,680,862	76,684 8,942,826	31,459 4,078,393
50500		1,418,799	624,866	7,382,340 DD	5,349,100 DD	50500	10,526	1,424,179	630,931	892,397	450,456
50600		2,961,228	1,457,408	1,112,317	660,217	50600	18,803	3,060,724	1,509,059	2,026,859	1,072,844
50701	DD	DD	DD	0	0	50701	DD	DD	DD	DD	DD
50702		7,861	3,922	4,091	2,494	50702	DD	DD	DD	DD	DD
50800		6,754,242	3,325,653	9,877,457	4,329,826	50800	49,007	6,588,350	3,237,025	9,547,159	4,188,084
50901	1,742	187,148	86,041	26,298	14,462	50901	2,084	208,680	97,869	300,018	124,580
50902	10,541	1,391,617	692,281	894,683	341,787	50902	8,481	1,278,085	653,358	511,144	254,134
51001	9,825	723,057	343,177	152,971	72,228	51001	7,938	600,678	278,702	54,876	28,611
51002		782,167	382,350	108,471	63,923	51002	7,811	634,127	311,548	147,413	95,059
51100		7,196,705	3,418,607	9,305,431	4,286,310	51100	65,024	7,043,041	3,320,559	9,542,068	4,334,128
51201	126,909	25,647,001	13,202,923	23,165,802	11,509,308	51201	201,832	24,074,744	12,487,359	31,001,908	15,130,788
51202		11,542,602	6,217,294	15,955,507	7,598,519	51202	88,720	9,415,399	5,053,887	16,356,276	7,990,767
51301 51302	27,175 17,594	2,569,869 1,914,794	1,193,018 939,603	4,220,048 DD	1,944,168 DD	51301	21,519 12,553	2,489,157	1,150,915 780,442	2,525,435 2,425,890	1,177,785 1,038,400
51401	24,985	2,736,884	1,303,334	1,686,186	804,420	51302 51401	22,880	1,670,452 2,273,528	1,096,373	1,745,467	823,511
51401		2,150,726	1,137,830	4,122,908	1,976,126	51402	18,095	1,775,791	916,433	4,475,277	2,292,062
60101		2,667,442	1,219,822	2,764,542	1,248,557	60101	15,231	2,329,137	1,047,735	2,611,608	1,177,538
60102		1,044,197	486,205	449,616	216,222	60102	7,050	838,968	375,320	424,536	199,767
60200		1,764,682	809,545	7,595,912	3,420,299	60200	15,570	2,087,940	952,648	7,525,521	3,364,612
60300		6,739,648	3,217,857	26,524,315	12,087,559	60300	56,539	6,022,221	2,861,558	24,891,579	11,333,521
60400	22,389	2,084,395	1,024,996	4,918,084	2,280,979	60400	18,646	1,815,541	860,147	4,675,382	2,186,153
70101	42,090	4,079,340	1,770,476	3,406,453	1,710,378	70101	32,663	4,582,361	1,995,657	5,576,003	2,902,758
70102	158,146	18,474,325	8,091,025	20,793,144	10,337,878	70102	113,438	21,365,814	9,356,567	17,558,025	8,616,920
70200		31,818,963	15,819,558	27,564,467	14,859,299	70200	157,914	32,928,952	16,818,765	28,891,795	15,433,677
70300		4,860,231	2,058,450	1,617,860	754,017	70300	27,202	4,955,866	2,110,736	1,661,761	767,239
70400		29,605,410	12,932,250	9,539,666	4,862,358	70400	157,410	31,980,881	14,109,287	10,652,200	5,590,045
70500		14,639,428	6,169,307	DD	DD	70500	91,502	15,349,518	6,478,745	5,793,814	2,941,756
70600 70700		30,331,515	13,334,630	5,040,733	2,557,323	70600 70700	202,616 154,158	31,152,194 22,481,129	13,772,694 9,487,449	6,324,697 1,767,999	3,295,654 790,485
70700	128,801 80,257	21,146,191 18,007,145	8,901,979 9,500,476	2,260,285 7,197,347	1,055,010 4,227,716	70801	105,675	17,706,210	9,348,435	8,452,260	5,053,162
70802		27,828,490	14,315,373	20,768,948	10,970,584	70802	158,187	27,794,307	14,639,015	25,457,979	13,582,702
70902		29,639,309	12,605,984	6,835,965	3,160,044	70900	206,574	29,466,476	12,471,729	7,896,621	3,685,949
71000		24,803,290	12,396,899	45,694,289	21,936,563	71000	147,660	24,232,178	12,321,420	42,165,362	20,394,246
71100		4,958,817	2,578,614	2,373,135	1,347,714	71100	59,731	4,553,833	2,211,295	3,514,287	2,118,763
71200	35,658	8,160,881	3,689,410	8,928,906	4,053,891	71200	46,409	7,198,538	3,135,658	7,895,187	3,687,831
71300	40,046	8,747,259	4,878,806	4,027,032	2,749,048	71300	61,961	7,658,170	4,046,840	5,691,009	3,691,748
71401		2,252,550	1,122,346	448,870	250,516	71401	23,926	1,709,915	803,849	988,287	576,332
71402		5,411,958	2,707,542	1,792,341	832,750	71402	60,732	4,616,930	2,239,250	2,831,784	1,368,857
80101		90,523	43,248	307,519	140,652	80101	DD 20.706	DD 2 020 762	DD	DD	4 229 210
80102		2,797,480	1,393,440	8,270,832	3,835,232	80102	29,796	3,030,763	1,526,906	9,119,882	4,228,210
80201 80202		DD 442,826	DD 236 568	0 2,987,697	0 1,392,104	80201 80202	0 6,964	661,072	0 301,603	3,222,121	0 1,492,321
80202 80203		543,896	236,568 292,456	348,369	1,392,104	80203	0,964 DD	DD	501,605 DD	5,222,121 DD	1,492,321 DD
80203		34,562	17,652	DD	DD	80204	DD	DD	DD	DD	DD
80301		DD	DD	0	0	80301	DD	DD	DD	DD	DD
80302		438,744	245,035	280,064	140,954	80302	2,847	309,531	166,622	224,611	117,605
80401	24,046	2,483,515	1,199,544	5,122,438	2,323,870	80401	19,602	1,373,086	666,585	6,016,485	2,720,538
80402	26,077	3,002,580	1,391,968	20,236,611	9,237,572	80402	19,023	1,633,142	771,915	13,410,853	6,120,209
80403		318,527	158,963	1,908,574	868,826	80403	2,536	217,550	104,666	1,530,603	684,296
80500		195,695	DD	25,814	14,773	80500	DD	DD	DD	DD	DD
80601	48	7,269	4,864	DD	DD	80601	DD	DD	DD	DD	DD
80602		618,715	294,781	3,306,491	1,482,387	80602	4,620	531,565	265,270	3,366,884	1,599,698
80701		DD	DD	11,035	7,062	80701	DD	DD	DD	DD	DD
80702		1,589,939	704,741	2,947,015	1,290,149	80702	8,378	961,641	415,777	2,708,608	1,200,558
80703		22,994	15,308	7,114	4,571	80703	DD	DD	DD	DD	DD
80801 80802	1,759	156,029	100,378	26,023	16,626	80801 80802	DD	DD DD	DD DD	DD DD	DD DD
80802 80901	1,660 DD	183,537 DD	111,041 DD	106,193 0	61,943 0	80802	DD DD	DD DD	DD	DD	DD
80902		135,580	61,521	DD	DD	80902	DD	DD	DD	DD	DD
80902		DD	DD	4,382	DD	80903	DD	DD	DD	DD	DD
90100		467,553	215,448	130,272	DD	90100	3,101	343,290	174,582	190,369	136,661
90201	32,595	4,306,214	2,012,485	7,102,361	3,455,050	90201	30,130	4,937,209	2,312,887	6,899,280	3,392,143
90202		866,528	444,239	453,492	282,315	90202	8,557	1,076,421	573,017	531,352	341,847

 ${\bf Table~86\text{--}2012}. \ {\bf Farm-level~Excess~Manure~Nutrients~and~Related~Results~from~the~Land~Application~Simulation~Model~on~\underline{AFOs},~by~6\text{--digit~HUC},$ 

Derived fro	om the 2007 Census	of Agriculture Datat	ase			Derived from	the 2012 Census	of Agriculture Data	base		
6-digit HUC	Cropland and pastureland acres receiving on-farm manure applications in the model simulation	Manure nitrogen applied (pounds) in the model simulation	Manure phosphorus applied (pounds) in the model simulation	Farm-level excess manure nitrogen (pounds)	Farm-level excess manure phosphorus (pounds)	6-digit HUC		Manure nitrogen applied (pounds) in the model simulation	Manure phosphorus applied (pounds) in the model simulation	Farm-level excess manure nitrogen (pounds)	Farm-level excess manure phosphorus (pounds)
пос	model simulation	Siliulation	Siliulation	(poullus)	(poulius)						
						huc6	all_aa	all_na	all_pa	fex_n	fex_p
90203	9,488	1,173,380	578,990	1,195,940	645,420	90203	10,582	1,160,103	611,435	1,047,458	556,600
90300	790	49,899	22,041	DD	DD	90300	DD	DD	DD	DD	DD
90400	0	0	0	0	0	90400	16	841	577	8,351	5,462
100100	DD	DD	DD	DD	DD	100100	0	0	0	0	0
100200	4,268	699,402	334,582	159,189	98,182	100200	2,945	533,461	250,890	206,124	130,354
				DD	DD	100200	10,279	793,185	403,377	187,381	124,045
100301	7,785	721,372	369,613								
100302	20,438	1,204,347	653,056	145,569	93,431	100302	17,132	1,306,418	678,055	325,048	151,699
100401	2,924	162,567	91,501	DD	DD	100401	DD	DD	DD	DD	DD
100402	1,941	207,698	106,642	23,189	15,188	100402	4,363	255,219	125,607	32,320	21,728
100500	5,199	373,008	220,606	50,641	33,204	100500	5,092	375,407	230,754	140,938	93,693
100600	2,710	140,552	98,175	16,025	10,761	100600	3,297	210,618	143,294	38,451	25,919
100700	5,313	1,082,132	455,251	367,814	DD	100700	6,606	967,523	463,179	276,950	149,066
100800	3,454	597,910	314,547	DD	DD	100800	3,376	470,200	267,046	219,922	134,335
100901	463	DD	DD	DD	DD	100901	DD	DD	DD	DD	DD
100902	604	36,797	16,601	21,225	14,271	100902	646	23,504	10,533	148,834	91,414
101000	4,338	628,752	372,066	158,195	96,569	101000	3,000	402,805	217,321	179,460	118,800
101101	1,930	132,811	64,024	DD	DD	101101	3,272	199,807	119,096	31,454	20,015
101102		244,863	87,279	DD	DD	101102	3,011	139,432	54,427	76,344	50,282
101102	5,529	502,110	207,531	DD	DD	101201	DD	DD	DD	DD	DD
								200,406			
101202		308,025	173,381	49,718	25,722	101202	3,063		90,721	64,395	42,643
101301	15,827	1,567,598	721,627	548,655	211,928	101301	14,890	1,513,118	711,358	689,969	407,585
101302		1,002,740	433,680	264,271	DD	101302	11,970	945,521	424,650	158,883	84,099
101303		361,502	212,262	DD	125,965	101303	5,600	389,214	188,353	409,831	184,849
101401	27,355	3,195,136	1,416,668	635,451	406,795	101401	38,789	2,896,063	1,282,757	980,395	495,983
101402	6,360	410,808	150,216	DD	DD	101402	10,439	621,785	263,209	784,452	360,966
101500	20,921	3,517,356	1,265,644	DD	856,142	101500	27,029	3,619,705	1,270,850	3,162,209	1,284,109
101600	88,156	12,829,446	5,994,770	3,352,087	1,622,183	101600	115,181	12,198,545	5,981,140	3,212,085	1,604,626
101701	49,850	7,740,847	3,177,788	DD	DD	101701	85,928	6,874,860	2,880,129	5,779,926	2,423,880
101702	122,095	24,860,316	11,185,538	15,142,783	7,042,442	101702	148,239	25,933,998	11,948,526	19,236,787	8,882,456
101800	30,424	5,267,343	1,699,082	5,346,376	1,834,358	101800	38,999	5,207,357	1,643,301	6,156,162	2,079,514
101900	53,124	9,412,028	3,814,083	30,197,703	10,759,528	101900	50,635	8,783,165	3,666,986	28,038,303	9,705,997
102001	28,742	6,757,722	2,253,318	8,749,996	2,746,109	102001	26,285	5,815,689	1,960,698	11,966,015	3,848,817
102001	21,538	4,222,273	1,715,864		1,805,834	102001	25,731	3,662,331	1,673,562	2,278,795	893,077
				3,513,361							
102100	40,893	8,671,411	2,989,707	9,932,604	4,323,970	102100	56,301	9,573,134	3,205,875	10,608,985	5,209,798
102200	88,346	18,002,285	6,469,521	12,748,177	4,789,895	102200	118,883	15,131,283	5,508,357	16,318,798	5,995,856
102300	130,752	28,008,147	13,191,681	18,017,627	9,030,199	102300	146,792	26,065,754	12,854,550	21,827,055	10,379,045
102400	53,963	9,765,275	4,551,447	8,132,653	4,149,581	102400	71,302	9,064,645	4,408,326	9,166,025	4,423,469
102500	49,713	8,850,389	3,100,974	22,447,265	8,543,051	102500	60,173	6,893,294	2,564,139	28,549,648	10,863,112
102600	31,007	3,666,353	1,590,968	12,757,555	3,805,166	102600	41,818	2,947,637	1,231,534	14,178,152	4,343,188
102701	14,626	1,957,417	855,135	850,512	DD	102701	15,121	1,308,459	587,464	1,105,191	675,583
102702	47,904	9,531,032	4,023,268	9,048,653	3,706,502	102702	48,317	8,003,459	3,334,073	8,565,742	3,592,382
102801	24,373	3,024,097	1,504,830	9,113,130	5,658,962	102801	29,388	2,207,195	1,121,234	10,548,229	6,591,062
102802	6,075	710,648	369,692	235,021	174,306	102802	DD	DD	DD	DD	DD
102901	64,152	6,544,851	3,514,428	6,673,259	3,512,150	102901	68,497	5,469,903	2,939,794	6,541,399	3,436,648
102902	23,999	1,861,118	864,721	904,826	451,673	102902	23,239	1,314,155	606,124	803,358	407,961
103001	38,735	4,912,870	2,611,707	9,183,398	4,508,649	103001	50,265	3,972,343	2,103,951	9,627,364	4,732,380
103002	4,975	644,777	359,311	64,067	DD	103002	6,504	521,187	267,975	94,021	61,249
110100	118,938	9,938,660	4,742,463	38,326,698	18,222,571	110100	111,881	6,377,343	3,027,679	37,836,876	18,007,375
110200	10,960	1,248,114	585,259	5,365,821	1,871,112	110200	6,972	589,843	267,585	6,417,597	2,213,624
						110200	97,301	11,583,351	4,575,591	39,833,494	12,696,971
110300		11,582,025	4,370,197	43,070,207	13,574,699				-=		
110400	18,678	3,370,197	1,250,256	26,809,705	9,394,973	110400	15,139	1,597,291	670,808	33,867,817	12,569,849
110500	18,780	1,231,952	575,807	5,108,426	2,626,915	110500	15,837	861,007	418,271	3,381,344	1,911,013
110600		884,210	444,201	DD	150,918	110600	12,690	573,673	305,059	476,826	155,798
110701	13,217	1,109,690	562,741	405,836	215,918	110701	18,418	956,375	472,331	740,862	345,286
110702		9,266,771	4,301,315	28,447,027	13,046,775	110702	90,195	6,678,511	3,070,013	32,074,264	14,662,081
110800		42,023	22,357	17,075	11,241	110800	493	63,232	20,776	181,255	64,655
110901	15,559	2,790,285	951,253	11,480,285	3,520,581	110901	13,381	2,467,460	970,058	12,627,072	4,151,368
110902	16,848	DD	DD	408,224	291,226	110902	11,520	1,568,176	714,457	994,275	709,747
111001	28,133	3,846,768	1,542,143	30,921,262	11,995,562	111001	14,455	1,948,091	788,855	36,561,785	13,884,993
111002	6,257	653,063	311,396	9,616,668	DD	111002	DD	DD	DD	DD	DD
111003		756,017	417,760	633,468	384,888	111003	6,870	433,650	230,233	1,481,220	775,142
111101	60,865	5,982,254	2,841,304	23,581,386	10,936,411	111101	51,274	3,280,331	1,561,421	23,826,161	10,998,282
111102		8,352,050	4,021,701	25,078,630	11,857,517	111102	73,235	5,054,346	2,434,716	26,896,604	12,728,657
111201	25,469	4,473,090	1,793,540	31,333,143	9,220,062	111201	28,659	4,362,190	1,782,390	28,170,128	8,052,906
111201		136,345	58,718	DD	DD	111201	DD	4,302,190 DD	DD	DD	DD
111202		1,051,255	372,181	3,460,441	962,167	111202	7,998	852,557	306,004	2,714,724	768,195
								032,337 DD	500,004 DD	2,714,724 DD	708,193 DD
111301	2,760	228,355	115,952	110,366	DD	111301	DD				
111302		1,341,758	585,952	524,377	235,028	111302	15,165	1,196,161	532,565	781,985	366,843
111303		1,129,791	527,319	DD	833,057	111303	9,168	568,823	276,915	2,405,478	1,034,970
111401	57,858	6,132,103	2,978,512	15,222,228	7,061,175	111401	50,338	3,508,420	1,717,985	13,696,936	6,401,202
111402		2,238,077	1,073,391	7,780,706	3,536,734	111402	16,809	1,376,889	653,966	6,703,887	3,053,141
111403		5,920,319	2,656,926	13,496,418	6,082,629	111403	43,413	4,112,017	1,857,641	11,208,644	5,066,864
120100	38,739	4,587,339	2,105,101	15,688,162	7,136,012	120100	38,590	3,476,280	1,583,415	17,569,059	8,037,625
120200	32,694	3,390,483	1,559,801	12,937,334	5,921,340	120200	33,389	2,746,457	1,306,337	12,777,536	5,902,439
120301	DD	DD	1,162,546	1,634,747	810,819	120301	26,707	1,839,663	834,404	3,305,749	1,473,762
120302		632,020	331,364	1,201,502	560,864	120302	7,728	838,954	486,961	2,413,983	1,110,766
120401	2,265	222,510	110,796	DD	DD	120401	DD	DD	DD	DD	DD
120402		89,583	56,205	29,412	18,999	120401	1,921	199,331	97,361	111,570	74,132
123402	041	37,503	30,203	27,712	.0,777	120402	1,721	.,,,,,,,1	,,,501	111,570	,132

 ${\bf Table~86\text{--}2012}. \ {\bf Farm-level~Excess~Manure~Nutrients~and~Related~Results~from~the~Land~Application~Simulation~Model~on~\underline{AFOs},~by~6\text{--digit~HUC},$ 

Company   Comp	Derived fro	om the 2007 Census	of Agriculture Datal	base			Derived from	the 2012 Census	of Agriculture Data	base		
		pastureland acres receiving on-farm manure	applied (pounds)	phosphorus applied (pounds)		manure		pastureland acres receiving on- farm manure applications in	applied (pounds)	phosphorus applied (pounds) in	excess manure	
		* *			-							phosphorus
1980   79.55   14.533.18	HUC	model simulation	simulation	simulation	(pounds)	(pounds)						(pounds)
12000	120500	70.076	14.522.102	5.000.750	22 002 000	10.502.715						
12000    25.83   328.865												72,342
13000												1,918,474
12000												2,474,220
12000    1,540   12074   21,500   1,944,60   1,945,60   1,00	120702	18,521	2,997,271	1,330,537	4,124,451	1,994,985	120702	14,660	1,792,460	789,462	4,693,381	2,212,913
12900    12900   12900   12900    129	120800											1,113,821
1990    1990												586,821
												68,460
1200    13399   1341,533   854,70   10052,79   425,777   12100   13399   1341,533   854,70   10052,79   425,777   12100   1200												204,411 DD
132000												227,710
121000   1,715   17,939   8,8557   11,941   1,941												6,029,283
121101												DD
	121004	1,715	170,319	88,354	DD	DD	121004	1,518	112,899	54,145	154,932	60,675
130000	121101											391,387
1900    700												385,409
130001												DD
130901   DB												38,683
130002												/50,779 DD
130402												DD
1304012   DD   DD   DD   DD   DD   DD   DD												DD
130900												23,871
130600   6,867						DD						DD
139700												DD
130800   DD   DD   DD   DD   DD   DD   DD												3,172,875
139900   DD												DD
14000												DD DD
140200												230,860
H44001												159,386
H40402   DD												15,039
149600	140401	901	61,619	25,922	16,952	9,828	140401	1,103	52,577	32,387	22,831	14,648
140600   3,003   \$22,549   243,761   222,050   129,737   14060   3,209   605,781   273,961   271,385   144,0700   993   223,191   119,658   DD   DD   DD   DD   DD   DD   DD												DD
140700   993   223,191   119,658   DD   DD   140700   DD   DD   DD   DD   DD   DD   DD												DD
												144,675
149802												DD
150100												DD
150200   311   41,527   20,640   DD   DD   150200   96   11,955   6,346   2,397,626   1,488, 150301   DD   DD   DD   DD   DD   DD   DD												127,542
150002   DD   DD   DD   DD   28,333   86,163   150400   DD   DD   DD   DD   DD   DD   150501   DD   DD   DD   DD   DD   DD   DD												1,488,078
159,000	150301	DD	46,401	31,750	DD	DD	150301	DD	DD	DD	DD	DD
159501   DD   DD   DD   DD   DD   DD   DD	150302	DD	DD	DD	66,924	44,516						12,186
150802   DD   DD   DD   DD   S,854,086   2,953,169   150503   DD   DD   DD   DD   DD   DD   DD												DD
150503												DD
150601   DD   DD   DD   333,312   377,881   150601   DD   DD   DD   DD   DD   DD   DD												DD DD
150602												DD
150701   DD   DD   DD   B,076,444   3,384,170   150701   2,040   744,223   314,050   10,018,280   4,136,015002   DD   DD   DD   DD   DD   DD   DD												DD
150801												4,136,066
150802	150702	DD	DD	DD	DD	DD	150702	DD	DD	DD	DD	DD
150803   DD   DD   DD   DD   11,628   6,262   150803   DD   DD   DD   DD   DD   DD   DD												DD
160101												0
160102         16,120         2,700,402         1,171,679         1,964,202         829,400         160102         16,709         3,080,031         1,341,626         2,105,153         900,1           160201         3,060         663,905         274,583         82,263         44,966         160201         2,445         570,268         252,739         165,022         73,8           160203         4,486         1,200,440         470,845         DD         DD         160203         4,346         1,185,817         490,705         1,470,174         610,2           160300         14,389         3,063,260         1,440,986         8,668,448         DD         160300         DD												DD
160201   3,060   663,905   274,583   82,263   44,996   160201   2,445   570,268   252,739   165,022   73,5160202   4,613   1,035,899   456,322   1,542,997   635,348   160202   4,545   1,203,271   527,769   1,740,381   739,6160203   4,486   1,200,440   470,845   DD   DD   DD   160203   4,346   1,185,817   490,705   1,470,174   610,2160300   14,389   3,063,260   1,440,986   8,668,448   DD   160300   DD   DD   DD   DD   DD   DD   DD												DD 900,162
160202         4,613         1,035,899         456,322         1,542,997         635,348         160202         4,545         1,203,271         527,769         1,740,381         739,6           160203         4,486         1,200,440         470,845         DD         DD         DD         160203         4,346         1,185,817         490,705         1,470,174         610,2           160300         14,389         3,063,260         1,440,986         8,668,448         DD         160300         DD         DD </td <td></td> <td>73,976</td>												73,976
160203         4,486         1,200,440         470,845         DD         DD         160203         4,346         1,185,817         490,705         1,470,174         610,21           160300         14,389         3,063,260         1,440,986         8,668,448         DD         160300         DD         160401         778         143,703         51,474         93,449         54,8           160402         DD         DD <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>739,632</td></td<>												739,632
160300         14,389         3,063,260         1,440,986         8,668,448         DD         160300         DD         DD         DD         DD         10           160401         1,506         204,023         106,165         DD         47,310         160401         778         143,703         51,474         93,449         54,8           160402         DD												610,247
160402         DD         DD         DD         5,381         3,190         160402         DD         DD         DD         DD         DD         I           160501         410         82,685         42,243         DD         DD         DD         160501         DD		14,389	3,063,260	1,440,986			160300	DD	DD	DD	DD	DD
160501         410         82,685         42,243         DD         DD         160501         DD         DD <td></td> <td>54,825</td>												54,825
160502         2,878         699,877         304,089         552,375         235,198         160502         2,919         721,388         317,509         467,727         193,0           160503         DD         33,491         20,069         DD												DD
160503         DD         33,491         20,069         DD         DD         160503         DD												DD 102 094
160600         1,665         289,590         161,625         DD         204,174         160600         2,436         612,641         307,389         151,428         87,4           170101         182         19,340         10,893         DD         DD <td></td> <td>193,084 DD</td>												193,084 DD
170101         182         19,340         10,893         DD         DD         170101         DD         DD <td></td> <td>87,474</td>												87,474
170102         2,613         413,592         188,325         144,721         85,193         170102         2,643         276,859         137,668         244,625         144,825           170103         1,965         189,990         89,432         39,088         20,108         170103         1,265         118,239         59,510         51,220         28,8           170200         12,876         3,626,523         1,578,879         6,928,156         2,502,437         170200         18,832         5,445,835         2,357,075         8,993,176         3,307,6           170300         15,215         4,615,850         1,945,908         4,784,846         1,991,106         170300         15,931         5,108,827         2,145,329         8,684,899         3,242,5           170401         2,058         198,133         90,666         8,793         5,413         170401         2,122         185,645         94,991         14,326         8,0           170402         89,192         27,375,045         11,560,933         20,623,036         8,485,531         170402         112,057         37,325,373         15,800,210         18,024,571         7,429,5           170501         28,176         7,670,569         3,303,218         11,300,7												DD
170103         1,965         189,990         89,432         39,088         20,108         170103         1,265         118,239         59,510         51,220         28,8           170200         12,876         3,626,523         1,578,879         6,928,156         2,502,437         170200         18,832         5,445,835         2,357,075         8,993,176         3,307,6           170300         15,215         4,615,850         1,945,908         4,784,846         1,991,106         170300         15,931         5,108,827         2,145,329         8,684,899         3,242,5           170401         2,058         198,133         90,666         8,793         5,413         170401         2,122         185,645         94,991         14,326         8,6           170402         89,192         27,375,045         11,560,933         20,623,036         8,485,531         170402         112,057         37,325,373         15,800,210         18,024,571         7,429,5           170501         28,176         7,670,569         3,303,218         11,300,756         4,307,970         170501         32,875         10,449,870         4,411,726         9,991,275         3,909,3           170502         1,138         134,723         57,938												144,871
170200         12,876         3,626,523         1,578,879         6,928,156         2,502,437         170200         18,832         5,445,835         2,357,075         8,993,176         3,307,6           170300         15,215         4,615,850         1,945,908         4,784,846         1,991,106         170300         15,931         5,108,827         2,145,329         8,684,899         3,242,51           170401         2,058         198,133         90,666         8,793         5,413         170401         2,122         185,645         94,991         14,326         8,6           170402         89,192         27,375,045         11,560,933         20,623,036         8,485,531         170402         112,057         37,325,373         15,800,210         18,024,571         7,429,5           170501         28,176         7,670,569         3,303,218         11,300,756         4,307,970         170501         32,875         10,449,870         4,411,726         9,991,275         3,909,3           170502         1,138         134,723         57,938         24,361         14,646         170502         DD         DD         DD         DD         DD         DD         DD         DD         DD         12,2         66,519         1												28,867
170401         2,058         198,133         90,666         8,793         5,413         170401         2,122         185,645         94,991         14,326         8,6           170402         89,192         27,375,045         11,560,933         20,623,036         8,485,531         170402         112,057         37,325,373         15,800,210         18,024,571         7,429,9           170501         28,176         7,670,569         3,303,218         11,300,756         4,307,970         170501         32,875         10,449,870         4,411,726         9,991,275         3,909,3           170502         1,138         134,723         57,938         24,361         14,646         170502         DD         12,23         266,519         112,24         11,200,75         11,200,		12,876				2,502,437						3,307,630
170402         89,192         27,375,045         11,560,933         20,623,036         8,485,531         170402         112,057         37,325,373         15,800,210         18,024,571         7,429,5           170501         28,176         7,670,569         3,303,218         11,300,756         4,307,970         170501         32,875         10,449,870         4,411,726         9,991,275         3,909,3           170502         1,138         134,723         57,938         24,361         14,646         170502         DD         DD         DD         DD         DD         DD         112,205         3,909,3           170601         3,824         445,306         227,290         130,172         54,642         170601         3,328         289,284         159,153         266,519         112,205           170602         949         108,229         57,581         DD         DD         DD         1,555         142,266         68,170         27,493         18,24												3,242,578
170501         28,176         7,670,569         3,303,218         11,300,756         4,307,970         170501         32,875         10,449,870         4,411,726         9,991,275         3,909,3           170502         1,138         134,723         57,938         24,361         14,646         170502         DD         12,20         12,20         130,172         54,642         170601         3,328         289,284         159,153         266,519         112,20         170602         949         108,229         57,581         DD         DD         170602         1,555         142,266         68,170         27,493         18,20												8,022
170502         1,138         134,723         57,938         24,361         14,646         170502         DD												7,429,950
170601 3,824 445,306 227,290 130,172 54,642 170601 3,328 289,284 159,153 266,519 112,2 170602 949 108,229 57,581 DD DD 170602 1,555 142,266 68,170 27,493 18,2												3,909,347
170602 949 108,229 57,581 DD DD 170602 1,555 142,266 68,170 27,493 18,2												DD 112,296
												18,280
	170603	792	66,574	32,247		DD	170603	1,304	98,220	61,046	42,637	26,950

 $\label{thm:continuity} \textbf{Table S6-2012}. \ \ \text{Farm-level Excess Manure Nutrients and Related Results from the Land Application Simulation Model on $\underline{\text{AFOs}}$, by 6-digit HUC,$ 

Derived from the 2012 Census of Agriculture Database

Derived in	on the 2007 Census	or Agriculture Datat	oasc			Delived Holli	Cropland and	or Agriculture Data	ioasc		
	Cropland and pastureland acres receiving on-farm	Manure nitrogen	Manure phosphorus	F 1	Farm-level excess		pastureland acres receiving on- farm manure	Manure nitrogen	Manure phosphorus applied	Farm-level	Farm-level
6-digit	manure applications in the	applied (pounds) in the model	applied (pounds) in the model	Farm-level excess manure nitrogen	manure phosphorus	6-digit	applications in the model	applied (pounds) in the model	(pounds) in the model	excess manure nitrogen	excess manure phosphorus
HUC	model simulation	simulation	simulation	(pounds)	(pounds)	HUC	simulation	simulation	simulation	(pounds)	(pounds)
				(F)	4	huc6	all_aa	all_na	all_pa	fex_n	fex_p
170701	7,786	DD	518,099	6,250,959	2,289,063	170701	5,665	1,032,150	484,700	7,074,574	2,661,057
170702	1,695	101,904	41,443	42,084	24,493	170702	1,725	103,649	45,861	7,083	3,413
170703	1,945	197,912	101,023	140,850	74,594	170703	1,708	180,996	99,451	125,199	71,638
170800	6,951	1,105,900	477,170	2,322,678	1,056,138	170800	6,535	1,094,042	473,530	2,527,679	1,153,616
170900 171001	14,230 5,955	2,751,026 697,370	1,183,092 301,842	5,816,520 1,604,140	2,509,881 649,344	170900 171001	16,408 5,038	3,344,638 730,367	1,435,667 310,776	5,256,614 1,588,936	2,259,992 643,559
171001	11,381	1,325,893	568,332	1,448,500	613,115	171001	9,336	1,461,065	616,480	1,166,758	497,461
171002	4,183	405,508	182,939	DD	144,813	171002	3,866	513,583	222,792	259,318	120,573
171100	31,273	7,744,729	3,274,870	2,839,206	1,196,204	171100	31,815	7,608,215	3,222,926	3,029,655	1,255,161
171200	DD	165,284	104,818	30,289	19,401	171200	DD	DD	DD	DD	DD
180101	17,566	2,608,819	1,108,616	4,470,653	1,920,985	180101	19,178	2,834,446	1,199,505	5,363,032	2,326,777
180102	4,368	612,363	293,312	321,363	132,322	180102	8,463	543,210	224,718	424,149	193,109
180200	280	47,952	DD	9,335	5,771	180200	DD	DD	DD	DD	DD
180201 180300	14,540 172,425	3,627,482 56,846,112	1,552,669 23,904,546	2,011,806 57,782,950	890,711 24,618,243	180201 180300	17,016 202,019	3,832,300 61,866,554	1,633,388 25,850,097	1,731,057 60,783,327	766,921 25,775,342
180400	158,437	49,310,825	20,751,142	47,310,091	21,123,237	180400	165,885	52,286,390	21,819,125	45,960,343	20,408,255
180500	6,284	726,757	310,905	885,453	403,357	180500	7,956	807,933	343,032	1,303,211	590,242
180600	3,034	464,663	196,340	902,130	440,426	180600	2,131	212,520	88,315	881,175	424,878
180701	125	15,618	7,929	293,504	143,902	180701	DD	DD	DD	DD	DD
180702	3,890	1,295,685	532,737	17,166,322	7,148,951	180702	3,665	942,393	388,707	12,951,844	5,410,155
180703	641	41,998	20,306	3,629,658	1,530,049	180703	2,162	345,595	145,667	3,564,597	1,487,660
180800 180901	83 DD	8,572 DD	4,601 DD	DD DD	DD DD	180800 180901	DD DD	DD DD	DD DD	DD DD	DD DD
180901	DD	1,500,224	632,751	2,523,583	1,112,758	180901	2,892	1,136,699	478,964	4,052,043	1,737,607
181001	DD	DD	DD	DD	DD	181001	DD	DD	DD	DD	DD
181002	3,740	1,001,973	413,833	10,168,963	3,084,468	181002	DD	DD	DD	DD	DD
190101	0	0	0	0	0	190101	0	0	0	0	0
190102	0	0	0	0	0	190102	0	0	0	0	0
190103	0	0	0	0	0	190103	0	0	0	0	0
190104 190201	0 DD	0 DD	0 DD	0	0	190104 190201	0 DD	DD DD	0 DD	0 DD	0 DD
190201	0	0	0	0	0	190201	0	0	0	0	0
190203	DD	DD	DD	DD	DD	190203	DD	DD	DD	DD	DD
190204	DD	DD	DD	0	0	190204	DD	DD	DD	DD	DD
190205	655	34,077	14,566	DD	DD	190205	DD	DD	DD	DD	DD
190206	0	0	0	0	0	190206	0	0	0	0	0
190207	0	0	0	DD 0	DD 0	190207 190301	0	0	0	0	0
190301 190302	0	0	0	0	0	190301	0	0	0	0	0
190303	0	0	0	0	0	190303	0	0	0	0	0
190304	0	0	0	0	0	190304	0	0	0	0	0
190305	0	0	0	0	0	190305	0	0	0	0	0
190401	DD	DD	DD	0	0	190401	0	0	0	0	0
190402	0	0	0	0	0	190402	0	0	0	0	0
190403 190404	0 DD	0 DD	0 DD	0 DD	0 DD	190403 190404	0 DD	DD DD	DD DD	0 DD	0 DD
190404	199	DD	5,306	1,021	592	190404	DD	DD	DD	DD	DD
190406	0	0	0	0	0	190406	0	0	0	0	0
190407	0	0	0	0	0	190407	0	0	0	0	0
190408	0	0	0	0	0	190408	0	0	0	0	0
190501	0	0	0	0	0	190501	0	0	0	0	0
190502	0	0	0	0	01.115	190502	0	0	0	0	0
200100 200200	DD DD	DD DD	DD DD	206,168 DD	91,115 DD	200100 200200	DD DD	DD DD	DD DD	DD DD	DD DD
200400	0	0	0	0	0	200400	0	0	0	0	0
200500	0	0	0	DD	DD	200500	DD	DD	DD	DD	DD
200600	DD	DD	DD	DD	DD	200600	DD	DD	DD	DD	DD
200700	DD	DD	DD	DD	DD	200700	DD	DD	DD	DD	DD
200800	0	0	0	DD	DD	200800	0	0	0	0	0
						Sum of column National	8,439,264	1,290,184,631	581,219,345	1,840,448,307	823,668,127
						total national	8,547,164	1,307,565,904	589,004,593	1,912,631,848	854,878,563
						total	98 74%	98 67%	98 68%	96 23%	96 35%

Notes: For complete definitions of variables, see the USDA/NRCS report entitled "Estimates of Recoverable and Non-Recoverable Manure Nutrients Based on the Census of Agriculture," authored by Robert L. Kellogg, David C. Moffitt, and Noel Gollehon.

98.74%

98.67%

98.68%

96.23%

96.35%

Table S7--2007. Off-Farm Excess Manure Nutrients and Related Results from the Land Application Simulation Model on Non-AFOs, by 6-digit HUC,
Derived from the 2007 Census of Agriculture Database

Table S7--2012. Off-Farm Excess Manure Nutrients and Related Results from the Land Application Simulation Model on Non-AFOs, by 6-digit HUC,
Derived from the 2012 Census of Agriculture Database

		culture Database				Derived from the 2012 Census of Agriculture Database  Manure					
6-digit HUC	Cropland and pastureland acres receiving off-farm manure applications in the model simulation			HUC 6-level excess manure nitrogen (pounds)	HUC 6-level excess manure phosphorus (pounds)	6-digit HUC	Cropland and pastureland acres receiving off-farm manure applications in the model simulation	applied (pounds)	phosphorus applied (pounds) in the	HUC 6-level excess manure nitrogen (pounds)	HUC 6-level excess manure phosphorus
			simulation						simulation		(pounds)
10100	0	0	0	0	0	huc6 10100	mrf_all_aa DD	MRF_all_na DD	MRF_all_pa DD	cex_n DD	cex_p DD
10200		60,579	25,739	0	0	10200	536	106,196	45,126	0	0
10300	202	40,995	22,200	0	0	10300	11,798	1,283,309	503,123	0	Ö
10400		1,116,248	446,940	2,451,970	981,757	10400	DD	DD	DD	DD	DD
10500		76,283	55,862	0	0	10500	369	40,465	20,826	0	0
10600 10700		49,824 116,204	22,998 59,519	0	0	10600 10700	93 340	21,421 64,943	10,407 35,138	0	0
10801	1,036	224,798	92,328	0	0	10801	1,150	263,791	110,501	0	Ċ
10802	832	187,140	79,974	0	0	10802	755	143,670	62,590	0	(
10900		115,994	57,909	0	0	10900	797	156,332	74,454	0	(
11000 11100		2,757,507	1,110,649	0	0	11000 11100	19,893	2,281,272 0		0	(
20100		57,998 927,741	24,521 376,883	0	0	20100	0	0		0	(
20200		507,772	215,074	0	0	20200	4,013	720,997	308,861	0	(
20301	124	22,786	12,199	0	0	20301	244	42,602	23,684	0	(
20302		182,503	117,560	0	0	20302	DD	DD	DD	DD	DD
20401 20402	10,258 38,808	1,659,406 5,423,789	689,794 2,410,773	0	0	20401 20402	13,231 41,457	1,947,980 6,478,880	836,529 2,862,430	0	0
20402		126,143	49,996	0	0	20402	DD	DD	DD	DD	DE
20501	5,432	954,236	466,551	0	0	20501	5,493	932,004	497,664	0	0
20502		1,292,825	616,239	0	0	20502	10,484	1,656,666	765,632	0	0
20503		25,654,702	11,753,776	0	0	20503	191,392	28,981,228	12,897,172 2,772,786	0	0
20600 20700		34,499,381 36,866,512	15,754,220 17,444,775	0	0	20600 20700	45,213 244,199	6,055,660 30,844,133	2,772,786 14,690,560	0	(
20801	20,224	2,159,610	1,011,718	0	0	20801	205,621	24,977,867	11,451,405	0	0
20802	37,261	4,185,113	1,940,805	0	0	20802	32,098	4,193,391	1,951,570	0	0
30101	22,481	2,427,434	1,266,119	0	0	30101	19,396	2,240,868	1,221,557	0	0
30102 30201	44,488 42,582	5,824,024 5,942,779	3,074,174	0	0	30102 30201	36,968 38,668	5,527,749 6,003,027	2,711,008 2,954,136	0	0
30201		18,446,559	3,235,063 10,299,091	0	0	30202	110,043	13,120,116		0	0
30203		0		0	0	30203	14,582	2,161,427	1,171,176	0	0
30300		22,391,473	12,122,032	39,209,634	21,226,850	30300	286,428	23,907,276		26,740,663	14,513,486
30401	280,660	24,524,122	11,391,836	3,275,146	1,521,356	30401	187,743	21,794,462	10,031,834 12,189,304	0	0
30402 30501	233,080 238,406	24,524,016 17,221,602	12,566,725 8,338,799	0	0	30402 30501	181,133 181,484	23,958,625 19,929,889	9,393,503	0	0
30502		5,358,912	2,453,780	0	0	30502	40,551	5,507,486	2,544,227	0	0
30601	288,167	24,236,443	11,006,787	10,918,249	4,958,436	30601	246,887	22,487,033	10,231,606	15,733,012	7,158,525
30602		2,037,547	948,670	0	0	30602	9,407	1,880,547	889,885	0	0
30701	216,145	22,412,840	9,981,016	0	0	30701	151,329	20,939,069	9,293,180	0	0
30702 30801	47,337 1,137	6,162,995 237,536	2,768,247 116,205	0	0	30702 30801	42,162 1,089	6,387,726 239,735	2,874,161 127,259	0	0
30802		12,884	7,074	0	0	30802	DD	DD	DD	DD	DD
30901	30,212	3,558,242	1,474,966	0	0	30901	18,741	2,820,280	1,273,537	0	0
30902		418,971	205,478	0	0	30902	3,081	745,675	429,475	0	0
31001	4,536	884,167	401,613	0	0	31001	6,823	793,920	345,888	0	0
31002 31101	19,461 10,985	3,073,917 1,117,435	1,246,651 512,864	0	0	31002 31101	23,149 6,009	3,101,559 795,150	1,256,883 358,549	0	0
31102		15,330,261	6,722,909	0	0	31102	64,562	11,615,468	5,064,586	0	0
31200		2,983,970	1,358,436	0	0	31200	13,124	1,890,405	868,036	0	0
31300		20,957,156	9,552,822	0	0	31300	94,476	19,913,224	9,075,135	0	0
31401 31402	17,577 116,763	1,748,717 11,694,977	758,939 5,335,530	0	0	31401 31402	13,512 171,442	1,668,806 12,628,317	740,588 5,766,785	0 1,047,942	478,548
31402		6,393,279	2,914,038	0	0	31403	43,415	6,335,626	2,873,183	0	470,540
31501	360,114	28,716,936	13,117,947	16,102,333	7,355,574	31501	332,809	30,936,061	14,118,839	17,589,774	8,027,757
31502		2,151,014	998,797	0	0	31502	24,250	2,584,160	1,192,697	0	(
31601	261,599	26,581,613	12,493,575	0	0	31601	184,560	24,217,924	11,304,607	0	0
31602 31700	8,851 195,227	20,984,921	9,536,211	6,559,810	2,980,985	31602 31700	3,265 174,058	474,110 17,567,457	211,908 8,032,981	8,756,603	4,004,087
31800		24,407,726		9,619,237	4,402,401	31800	171,595	18,673,072	8,537,237	14,585,542	6,668,439
40101	0	0	0	0	0	40101	DD	DD	DD	DD	DD
40102		1,261	855	0	0	40102	23	2,861	1,953	0	0
40103 40201		27,393	12,232	0	0	40103 40201	68 2	8,339 517	5,181 297	0	0
40201	3 0	120 0	69 0	0	0	40201	DD	DD DD	DD	DD	DD
40203		0	0	0	0	40203	0	0		0	0
40301	12,979	2,176,536	950,398	0	0	40301	18,316	3,268,388	1,410,781	0	0
40302		1,623,399	709,725	0	0	40302	11,876	2,066,139	899,195	0	0
40400		91,300	43,285	0	0	40400	1,558	271,778	115,516	0	0
40500 40601	105,002 12,474	15,620,930 1,653,955	7,205,454 897,500	0	0	40500 40601	153,851 4,047	23,193,097 651,787	10,832,513 393,825	0	0
40602		21,819	9,225	0	0	40602	DD	DD	DD	DD	DD
40700	508	55,382	23,377	0	0	40700	506	69,769	30,403	0	0
40801	13,065	2,309,386	969,891	0	0	40801	18,832	3,582,986	1,499,388	0	0
40802 40803		1,300,020		0	0	40802 40803	9,792 0	1,874,350 0		0	0
40803		52,001	24,085	0	0	40900	702	111,660	52,781	0	0
41000		10,142,710	4,481,414	0	0	41000	97,578	13,401,463	5,873,497	0	(
41100		113,689	53,490	0	0	41100	921	149,958	66,773	0	Č
41201	5,780	1,021,393	410,590	0	0	41201	3,651	682,797	273,492	0	(
41202		046.010		0	0	41202	0 5 575	1 142 624		0	(
41300 41401	4,616 864	946,010 112,509	408,245 49,922	0	0	41300 41401	5,575 6,540	1,142,624 974,468	498,693 383,477	0	(
41401		1,332,090	643,514	0	0	41401	7,284	1,274,859	539,613	0	(
41501		115,876		0	0	41501	642	128,410	54,325	0	(
41502	0	0	0	0	0	41502	DD	DD	DD	DD	DD
41502	375	72,908	31,402	0	0	41503	710	118,098	51,104	0	0
41503 41504		0		0	0	41504	3,336	686,332	291,325	0	

Table S7--2007. Off-Farm Excess Manure Nutrients and Related Results from the Land Application Simulation Model on Non-AFOs, by 6-digit HUC,
Derived from the 2007 Census of Agriculture Database

Table S7--2012. Off-Farm Excess Manure Nutrients and Related Results from the Land Application Simulation Model on Non-AFOs, by 6-digit HUC,
Derived from the 2012 Census of Agriculture Database

igit C	Cropland and pastureland acres receiving off-farm		Manure phosphorus	HUC 6-level	HUC 6-level excess manure		Cropland and pastureland			HUC 6-level	HUC 6-le
	manure applications in the model simulation	in the model simulation	applied (pounds) in the model simulation	excess manure nitrogen (pounds)	phosphorus (pounds)	6-digit HUC	acres receiving off-farm manure applications in the model simulation		applied (pounds) in the model simulation	excess manure nitrogen (pounds)	manu phosphor (pound
						huc6	mrf_all_aa	MRF_all_na	MRF_all_pa	cex_n	cex_p
41505	0	0	0	0	0	41505	437	59,254	25,237	0	
50100	5,809	986,820	414,120	0	0	50100	5,378	1,036,320	434,457	0	
50200	484	76,631	40,558	0	0	50200	354	65,108	34,094	0	
50301	2,493	395,115	176,280	0	0	50301	2,805	506,248	233,160	0	
50302	552	93,947	39,325	0	0	50302	332	76,684	31,459	0	
50400	42,733	7,582,540	3,349,166	0	0	50400	57,910	8,942,826	4,078,393	0	
50500 50600	3,244 5,621	531,168 1,112,317	268,379 660,217	0	0	50500 50600	4,136 12,537	892,397 2,026,859	450,456 1,072,844	0	
50701	0,021	1,112,317	000,217	0	0	50701	12,537 DD	2,026,839 DD	1,072,844 DD	DD	Г
50702	18	4,091	2,494	0	0	50702	DD	DD	DD	DD	1
50800	58,431	9,877,457	4,329,826	0	0	50800	75,659	9,547,159	4,188,084	0	
50901	188	26,298	14,462	0	0	50901	2,438	300,018	124,580	0	
50902	5,810	894,683	341,787	0	0	50902	3,658	511,144	254,134	0	
51001	964	152,971	72,228	0	0	51001	403	54,876	28,611	0	
51002	753	108,471	63,923	0	0	51002	1,057	147,413	95,059	0	
51100	58,928	9,305,431	4,286,310	0	0	51100	96,304	9,542,068	4,334,128	0	
51201	124,119	23,165,802	11,509,308	0	0	51201	286,358	31,001,908	15,130,788	0	
51202	93,296	15,955,507	7,598,519	0	0	51202	171,333	16,356,276	7,990,767	0	
51301	33,924	4,220,048	1,944,168	0	0	51301	22,290	2,525,435	1,177,785	0	
51302	22,858	2,695,086	1,172,236	0	0	51302	29,804	2,425,890	1,038,400	0	
51401	11,497	1,686,186	804,420	0	0	51401	12,334	1,745,467	823,511	0	
51402	24,840	4,122,908	1,976,126	0	0	51402	57,194	4,475,277	2,292,062	0	
60101	21,855	2,764,542	1,248,557	0	0	60101	16,453	2,611,608	1,177,538	0	
60102	3,535	449,616	216,222	0	0	60102	2,292	424,536	199,767	0	
60200	89,055	7,595,912	3,420,299	0	0	60200	66,496	7,525,521	3,364,612	0	
60300	283,009	26,524,315	12,087,559	0	0	60300	256,076	24,891,579	11,333,521	0	
60400	44,091	4,918,084	2,280,979	0	0	60400	66,968	4,675,382	2,186,153	0	
70101	33,753	3,406,453	1,710,378	0	0	70101	41,042	5,576,003	2,902,758	0	
70102	158,140	20,793,144	10,337,878	0	0	70102	99,244	17,558,025	8,616,920	0	
70200	155,207	27,564,467	14,859,299	0	0	70200	151,935	28,891,795	15,433,677	0	
70300	10,986	1,617,860	754,017	0	0	70300	8,863	1,661,761	767,239	0	
70400	51,440	9,539,666	4,862,358	0	0	70400	54,769	10,652,200	5,590,045	0	
70500	41,526	5,432,068	2,785,623	0	0	70500	35,555	5,793,814	2,941,756	0	
70600	24,178	5,040,733	2,557,323	0	0	70600	41,973	6,324,697	3,295,654	0	
70700	12,718	2,260,285	1,055,010	0	0	70700	12,584	1,767,999	790,485	0	
70801	34,426	7,197,347	4,227,716	0	0	70801	52,387	8,452,260	5,053,162	0	
70802	101,276	20,768,948	10,970,584	0	0	70802	153,686	25,457,979	13,582,702	0	
70900	32,244	6,835,965	3,160,044	0	0	70900	58,329	7,896,621	3,685,949	0	
71000	235,112	45,694,289	21,936,563	0	0	71000	260,765	42,165,362	20,394,246	0	
71100	14,010	2,373,135	1,347,714	0	0	71100	39,968	3,514,287	2,118,763	0	
71200 71300	41,657	8,928,906	4,053,891	0	0	71200	52,161	7,895,187	3,687,831	0	
71401	18,734	4,027,032 448,870	2,749,048 250,516	0	0	71300 71401	43,460 13,175	5,691,009 988,287	3,691,748 576,332	0	
71401	3,380 9,830	1,792,341	832,750	0	0	71402	31,340	2,831,784	1,368,857	0	
80101	1,748	307,519	140,652	0	0	80101	DD	2,831,784 DD	DD	DD	
80102	59,057	8,270,832	3,835,232	0	0	80102	88,147	9,119,882	4,228,210	0	
80201	0	0,270,032	0	0	0	80201	0	0	0	0	
80202	15,210	2,987,697	1,392,104	0	0	80202	20,096	3,222,121	1,492,321	0	
80203	1,751	348,369	158,722	0	0	80203	DD	DD	DD	DD	
80204	1,661	339,082	153,024	0	0	80204	DD	DD	DD	DD	
80301	0	0	0	0	0	80301	DD	DD	DD	DD	
80302	1,880	280,064	140,954	0	0	80302	1,392	224,611	117,605	0	
80401	40,346	5,122,438	2,323,870	0	0	80401	88,399	6,016,485	2,720,538	0	
80402	120,799	20,236,611	9,237,572	0	0	80402	61,276	13,410,853	6,120,209	0	
80403	9,861	1,908,574	868,826	0	0	80403	7,518	1,530,603	684,296	0	
80500	127	25,814	14,773	0	0	80500	DD	DD	DD	DD	
80601	59	10,813	7,302	0	0	80601	DD	DD	DD	DD	
80602	21,902	3,306,491	1,482,387	0	0	80602	19,424	3,366,884	1,599,698	0	
80701	52	11,035	7,062	0	0	80701	DD	DD	DD	DD	
80702	22,929	2,947,015	1,290,149	0	0	80702	23,148	2,708,608	1,200,558	0	
80703	33	7,114	4,571	0	0	80703	DD	DD	DD	DD	
80801	137	26,023	16,626	0	0	80801	DD	DD	DD	DD	
80802	941	106,193	61,943	0	0	80802	DD	DD	DD	DD	
80901	0	0	0	0	0	80901	DD	DD	DD	DD	
80902	98	13,634	6,143	0	0	80902	DD	DD	DD	DD	
80903	61	4,382	2,886	0	0	80903	DD	DD	DD	DD	
90100	1,004	130,272	94,390	0	0	90100	1,270	190,369	136,661	0	
90201	46,810	7,102,361	3,455,050	0	0	90201	40,326	6,899,280	3,392,143	0	
90202	2,990	453,492	282,315	0	0	90202	3,704	531,352	341,847	0	
90203	8,269	1,195,940	645,420	0	0	90203	6,713	1,047,458	556,600	0	
90300	42	4,717	3,178	0	0	90300	DD	DD	DD	DD	
90400	0	0	0	0	0	90400	251	8,351	5,462	0	
00100	156	4,309	2,829	0	0	100100	0	0	0	0	
00200	638	159,189	98,182	0	0	100200	888	206,124	130,354	0	
00301	3,292	205,057	100,705	0	0	100301	1,766	187,381	124,045	0	
00302	2,589	145,569	93,431	0	0	100302	5,013	325,048	151,699	0	
00401	1,087	108,395	52,184	0	0	100401	DD	DD	DD	DD	
00402	93	23,189	15,188	0	0	100402	133	32,320	21,728	0	
00500	358	50,641	33,204	0	0	100500	565	140,938	93,693	0	
00600	79	16,025	10,761	0	0	100600	191	38,451	25,919	0	
00700	1,292	367,814	150,980	0	0	100700	985	276,950	149,066	0	
100800	224	54,052	35,492	0	0	100800	909	219,922	134,335	0	
	21	5,796	3,844	0	0	100901	DD	DD	DD	DD	
00901				0	0	100902	541	148,834	91,414	0	
	83	21,225	14,271	U	U	100702	511	,	, .,		
100901 100902 101000	83 675	21,225 158,195 39,279	14,271 96,569 19,354	0	0	101000 101101	818 219	179,460 31,454	118,800 20,015	0	

Table S7--2007. Off-Farm Excess Manure Nutrients and Related Results from the Land Application Simulation Model on Non-AFOs, by 6-digit HUC,
Derived from the 2007 Census of Agriculture Database

Table S7--2012. Off-Farm Excess Manure Nutrients and Related Results from the Land Application Simulation Model on Non-AFOs, by 6-digit HUC,
Derived from the 2012 Census of Agriculture Database

		culture Database					ne 2012 Census of Agriculture		Manure	_	IIIIC C I
6-digit HUC	Cropland and pastureland acres receiving off-farm manure applications in the model simulation			HUC 6-level excess manure nitrogen (pounds)	HUC 6-level excess manure phosphorus (pounds)	6-digit HUC	Cropland and pastureland acres receiving off-farm manure applications in the model simulation	applied (pounds)	applied (pounds) in the	HUC 6-level excess manure nitrogen (pounds)	HUC 6-leve exces manur phosphoru
	model simulation	Jiikikiioii	simulation		(pounds)				simulation		(pounds
101201	19,460	1,047,859	401,223	0	0	huc6 101201	mrf_all_aa DD	MRF_all_na DD	MRF_all_pa DD	cex_n DD	cex_p DI
101201	302	49,718	25,722	0	0	101202	546	64,395	42,643	0	Di
101301	4,441	548,655	211,928	0	0	101301	6,155	689,969	407,585	0	
101302 101303	2,357 5,644	264,271 411,442	127,807 125,965	0	0	101302 101303	1,241 3,954	158,883 409,831	84,099 184,849	0	
101303	6,650	635,451	406,795	0	0	101401	12,486	980,395	495,983	0	
101402		995,804	441,977	0	0	101402	10,291	784,452	360,966	0	
101500 101600	15,489 25,498	2,288,066 3,352,087	856,142 1,622,183	0	0	101500 101600	32,605 29,139	3,162,209 3,212,085	1,284,109 1,604,626	0	
101701	40,441	5,486,255	2,305,062	0	0	101701	71,628	5,779,926		0	
101702	88,563	15,142,783	7,042,442	0	0	101702	137,646	19,236,787	8,882,456	0	
101800		5,346,376		0	0	101800 101900	32,490 160,215	6,156,162 28,038,303	2,079,514 9,705,997	0	
101900 102001	161,281 42,673	30,197,703 8,749,996	10,759,528 2,746,109	0	0	102001	65,183	11,966,015	3,848,817	0	
102002	21,117	3,513,361	1,805,834	0	0	102002	18,595	2,278,795	893,077	0	
102100	52,255	9,932,604	4,323,970	0	0	102100	79,851	10,608,985	5,209,798	0	
102200 102300	71,079 99,147	12,748,177 18,017,627	4,789,895 9,030,199	0	0	102200 102300	130,966 136,853	16,318,798 21,827,055	5,995,856 10,379,045	0	
102400	49,153	8,132,653	4,149,581	0	0	102400	73,037	9,166,025	4,423,469	0	
102500	124,767	22,447,265	8,543,051	0	0	102500	235,140	28,549,648	10,863,112	0	
102600 102701	84,206 4,754	12,757,555 850,512	3,805,166 424,055	0	0	102600 102701	153,261 12,035	14,178,152 1,105,191	4,343,188 675,583	0	
102701	48,849	9,048,653	3,706,502	0	0	102702	53,381	8,565,742	3,592,382	0	
102801	60,114	9,113,130		0	0	102801	140,467	10,548,229	6,591,062	0	D.
102802 102901	1,272 47,223	235,021 6,673,259	174,306 3,512,150	0	0	102802 102901	DD 101,290	DD 6,541,399	DD 3,436,648	DD 0	Di
102902	6,427	904,826		0	0	102902	11,192	803,358	407,961	0	
103001	56,382	9,183,398		0	0	103001	119,819	9,627,364	4,732,380	0	
103002 110100	403 337,210	64,067 38,326,698	45,220 18,222,571	0	0	103002 110100	824 473,216	94,021 37,836,876	61,249 18,007,375	0	
110200	44,892	5,365,821	1,871,112	0	0	110200	67,170	6,417,597	2,213,624	0	
110300	228,563	43,070,207	13,574,699	0	0	110300	282,935	39,833,494	12,696,971	0	
110400 110500	126,251 53,421	26,809,705 5,108,426	9,394,973 2,626,915	0	0	110400 110500	199,571 47,366	33,867,817 3,381,344	12,569,849 1,911,013	0	
110600	2,235	332,529		0	0	110600	5,532	476,826	1,511,013	0	
110701	3,027	405,836	215,918	0	0	110701	9,256	740,862	345,286	0	
110702	216,847	28,447,027	13,046,775	0	0	110702 110800	540,132 1,311	32,074,264 181,255	14,662,081 64,655	0	
110800 110901	660 45,861	17,075 11,480,285	11,241 3,520,581	0	0	110901	54,530	12,627,072	4,151,368	0	
110902	3,304	408,224	291,226	0	0	110902	16,390	994,275	709,747	0	
111001	122,100	30,921,262		0	0	111001	173,646	36,561,785	13,884,993	0	DI
111002 111003	60,142 5,646	9,616,668 633,468		0	0	111002 111003	DD 18,635	DD 1,481,220	DD 775,142	DD 0	DI
111101	201,476	23,581,386		0	0	111101	356,404	23,826,161	10,998,282	0	
111102	205,701	25,078,630		0	0	111102	371,706	23,562,938	11,151,020	3,333,666	1,577,63
111201 111202	160,295 7,516	31,333,143 1,137,712		0	0	111201 111202	186,642 DD	28,170,128 DD	8,052,906 DD	0 DD	DI
111203	16,854	3,460,441	962,167	0	0	111203	12,664	2,714,724	768,195	0	
111301	551	110,366		0	0	111301	DD	DD	DD	DD	DI
111302 111303	3,904 16,328	524,377 1,924,068	235,028 833,057	0	0	111302 111303	7,073 34,229	781,985 2,405,478	366,843 1,034,970	0	
111401	131,874	15,222,228	7,061,175	0	0	111401	157,990	13,696,936	6,401,202	0	
111402	39,777	7,780,706		0	0	111402	40,330	6,703,887	3,053,141	0	
111403 120100	100,646 120,016	13,496,418 15,688,162	6,082,629 7,136,012	0	0	111403 120100	110,755 175,050	11,208,644 17,569,059	5,066,864 8,037,625	0	
120200	83,757	12,937,334		0	0	120200	114,897	12,777,536		0	
120301	13,327	1,634,747	810,819	0	0	120301	26,802	3,305,749	1,473,762	0	
120302 120401	14,257 2,131	1,201,502 309,093		0	0	120302 120401	28,034 DD	2,413,983 DD	1,110,766 DD	0 DD	D)
120401		29,412		0	0	120401	853	111,570		0	Di
120500	125,214	32,092,909	10,582,715	0	0	120500	275,151	42,779,837	14,943,183	0	
120601 120602	3,243 35,474	479,313 4,221,292		0	0	120601 120602	2,136 34,374	182,503 4,072,844	72,342 1,918,474	0	
120602	33,187	4,221,292 4,180,989	1,966,201	0	0	120602	47,722	5,256,190	2,474,220	0	
120702	33,427	4,124,451	1,994,985	0	0	120702	45,377	4,693,381	2,212,913	0	
120800	13,153	1,889,483		0	0	120800	29,758	2,701,078	1,113,821	0	
120901 120902	20,872 1,305	1,944,403 189,952		0	0	120901 120902	18,583 1,640	1,420,051 164,285	586,821 68,460	0	
120903	1,082	197,166		0	0	120903	4,266	488,675	204,411	0	
120904	22,574	3,261,808	1,296,453	0	0	120904	DD	DD	DD	DD	D
121001 121002	11,599	1,436,238 10,052,739		0	0	121001 121002	5,018 151,958	518,713 14,089,609	227,710 6,029,283	0	
121002	97,839 4,367	411,912		0	0	121002	DD	14,089,009 DD	0,029,283 DD	DD	D
121004	1,213	234,339	85,410	0	0	121004	1,573	154,932	60,675	0	
121101	10,521	1,391,421	478,670	0	0	121101	8,820	1,153,273	391,387	0	
121102 130100	10,551 156	1,129,334 37,404		0	0	121102 130100	9,900 DD	1,227,629 DD	385,409 DD	0 DD	Di
130201	189	33,973		0	0	130201	928	60,124	38,683	0	
130202		1,779,443	797,252	0	0	130202	13,356	1,665,078	750,779	0	D.
130301 130302	12,916 12,455	2,447,432 2,041,113		0	0	130301 130302	DD DD	DD DD	DD DD	DD DD	Di Di
130401	12,433	129,562		0	0	130401	DD	DD	DD	DD	D
130402	42	6,902	4,256	0	0	130402	197	35,466	23,871	0	
130403	75	4,671		0	0	130403	DD	DD	DD	DD	D
130500	3,022	914,901 7,913,922	374,013 3,331,926	0	0	130500 130600	DD 43,528	7,462,219	DD 3,172,875	DD	D
130600	37,267									0	

Table S7--2007. Off-Farm Excess Manure Nutrients and Related Results from the Land Application Simulation Model on Non-AFOs, by 6-digit HUC,
Derived from the 2007 Census of Agriculture Database

Table S7--2012. Off-Farm Excess Manure Nutrients and Related Results from the Land Application Simulation Model on Non-AFOs, by 6-digit HUC,
Derived from the 2012 Census of Agriculture Database

	Coopland	Manu:	Manure		HIICCL		Comparation	Manner -:	Manure	IIIIC C : .	HUC 6-leve
-digit IUC	Cropland and pastureland acres receiving off-farm manure applications in the	applied (pounds) in the model	phosphorus applied (pounds)	HUC 6-level excess manure nitrogen (pounds)	HUC 6-level excess manure phosphorus	6-digit HUC	Cropland and pastureland acres receiving off-farm manure applications in the	applied (pounds) in the model	(pounds) in the	HUC 6-level excess manure nitrogen	exces manur phosphoru
	model simulation	simulation	simulation	ma ogen (pounus)	(pounds)	huc6	model simulation mrf_all_aa	simulation  MRF_all_na	model simulation MRF_all_pa	(pounds)	(pounds
130800	3,926	400,212	119,321	0	0	130800	DD DD	MKF_an_na DD	DD	cex_n DD	cex_p DI
130900	2,305	271,203	78,135	0	0	130900	DD	DD	DD	DD	DI
140100	3,672	488,540	202,078	0	0	140100	3,059	540,976	230,860	0	(
140200	1,695	452,799	186,977	0	0	140200	1,425	360,257	159,386	0	(
140300	170	32,414	19,418	0	0	140300	110	23,225	15,039	0	
140401 140402	166 0	16,952 0	9,828 0	0	0	140401 140402	279 DD	22,831 DD	14,648 DD	DD DD	DI
140500	323	25,002	14,393	0	0	140500	DD	DD	DD	DD	DI
140600	1,290	252,050	129,737	0	0	140600	1,109	271,385	144,675	0	
140700	1,937	302,577	155,212	0	0	140700	DD	DD	DD	DD	DI
140801	3,964	414,796	262,926	0	0	140801	813	180,278	114,724	0	-
140802	3,353	276,966	168,251	0	0	140802	DD	DD	DD	DD	DI
150100 150200	2,172 27,522	265,429 2,090,981	169,249 1,286,416	0 38,643	0 23,774	150100 150200	1,862 22,071	213,897 1,794,732	127,542 1,113,894	602,893	374,18
150200	352	121,025	63,824	0 0	23,774	150301	DD	1,794,732 DD	DD	DD	DI
150302	404	66,924	44,516	0	0	150302	61	20,007	12,186	0	
150400	553	128,339	86,163	0	0	150400	DD	DD	DD	DD	DI
150501	15,084	4,436,969	1,928,449	0	0	150501	DD	DD	DD	DD	DI
150502	1,400	389,632	186,673	0	0	150502	DD	DD	DD	DD	DI
150503	47,895	8,854,086	2,953,169	0	0	150503	DD	DD	DD	DD	DI
150601	4,525	833,312	377,881	0	0	150601	DD DD	DD DD	DD DD	DD DD	DI DI
150602 150701	786 57,074	115,739 8,076,444	74,226 3,384,170	0	0	150602 150701	44,204	10,018,280	4,136,066	0 0	Di
150701	13,123	3,297,357	1,105,491	0	0	150702	44,204 DD	10,018,280 DD	4,130,000 DD	DD	Di
150801	1	357	242	0	0	150801	DD	DD	DD	DD	D
150802	0	0	0	0	0	150802	0	0		0	
150803	151	11,628	6,262	0	0	150803	DD	DD	DD	DD	D
60101	64	14,144	9,059	0	0	160101	DD	DD	DD	DD	D
60102	10,536	1,964,202	829,400	0	0	160102	10,565	2,105,153	900,162	0	
60201	379	82,263	44,996	0	0	160201	566	165,022	73,976 739,632	0	
160202 160203	7,241 5,469	1,542,997 1,348,801	635,348 552,334	0	0	160202 160203	7,809 6,917	1,740,381 1,470,174	610,247	0	
160300	74,775	8,668,448	4,869,949	0	0	160300	DD	DD	DD	DD	D!
60401	795	111,696	47,310	0	0	160401	267	93,449	54,825	0	
60402	89	5,381	3,190	0	0	160402	DD	DD	DD	DD	D!
60501	157	50,891	22,995	0	0	160501	DD	DD	DD	DD	D!
60502	1,826	552,375	235,198	0	0	160502	2,406	467,727	193,084	0	
160503	1,823	224,179	121,360	0	0	160503	DD	DD	DD	DD	DI
160600 170101	2,910 185	407,579 10,517	204,174 4,575	0	0	160600 170101	425 DD	151,428 DD	87,474 DD	0 DD	Di
170101	640	144,721	85,193	0	0	170101	1,452	244,625	144,871	0	Di
170102	624	39,088	20,108	0	0	170102	406	51,220	28,867	0	
70200	26,580	6,928,156	2,502,437	0	0	170200	34,504	8,993,176	3,307,630	0	
70300	16,124	4,784,846	1,991,106	0	0	170300	29,259	8,684,899	3,242,578	0	
170401	47	8,793	5,413	0	0	170401	73	14,326	8,022	0	(
170402	65,971	20,623,036	8,485,531	0	0	170402	57,021	18,024,571	7,429,950	0	
170501	37,681	11,300,756	4,307,970	0	0	170501	29,073	9,991,275	3,909,347	0	DI
170502 170601	106 381	24,361 130,172	14,646 54,642	0	0	170502 170601	DD 1,383	DD 266,519	DD 112,296	DD 0	DI
70602	13	1,227	757	0	0	170602	1,363	27,493	18,280	0	
70603	184	10,218	6,237	0	0	170603	755	42,637	26,950	0	
70701	21,721	6,250,959	2,289,063	0	0	170701	23,740	7,074,574	2,661,057	0	
70702	128	42,084	24,493	0	0	170702	53	7,083	3,413	0	
70703	1,506	140,850	74,594	0	0	170703	1,535	125,199	71,638	0	
70800	26,139	2,322,678	1,056,138	0	0	170800	29,121	2,527,679	1,153,616	0	
70900	46,735	5,816,520	2,509,881	0	0	170900	38,464	5,256,614	2,259,992	0	
71001 71002	16,187 13,845	1,604,140 1,448,500	649,344 613,115	0	0	171001 171002	15,142 10,349	1,588,936 1,166,758	643,559 497,461	0	
71002	3,330	321,432	144,813	0	0	171002	2,292	259,318	120,573	0	
71100	15,293	2,839,206	1,196,204	0	0	171100	18,189	3,029,655	1,255,161	0	
71200	327	30,289	19,401	0	0	171200	DD	DD	DD	DD	D
80101	51,738	4,470,653	1,920,985	0	0	180101	60,164	4,727,416	2,051,012	635,616	275,76
80102	2,883	321,363	132,322	0	0	180102	4,819	424,149	193,109	0	
80200	104	9,335	5,771	0	0	180200	DD	DD	DD	DD	D
80201	6,732	2,011,806	890,711	0	0	180201	5,336	1,731,057	766,921	0	
80300 80400	238,129 222,870	57,782,950 47,310,091	24,618,243 21,123,237	0	0	180300 180400	365,994 213,304	60,783,327 45,960,343	25,775,342 20,408,255	0	
80500	4,520	885,453	403,357	0	0	180500	6,953	1,303,211	590,242	0	
80600	12,361	902,130	440,426	0	0	180600	9,889	881,175	424,878	0	
80701	3,411	293,504	143,902	0	0	180701	DD	DD	DD	DD	D
80702	11,417	1,895,570	789,414	15,270,752	6,359,537	180702	23,869	4,806,695	2,007,819	8,145,149	3,402,33
80703	10,753	827,048	348,634	2,802,610	1,181,414	180703	5,953	858,981	358,490	2,705,617	1,129,17
80800	183	16,834	10,313	0	0	180800	DD	DD	DD	DD	D
80901	11	809	465	1 200 162	0	180901	DD 12 502	DD	DD 520 720	DD	1 216 97
80902	10,976	1,224,421	539,901	1,299,162	572,857 352,712	180902	12,592	1,214,326	520,730	2,837,717	1,216,87
81001 81002	3,287 38,333	130,703 10,168,963	54,872 3,084,468	840,151 0	352,712 0	181001 181002	DD DD	DD DD	DD DD	DD DD	D D
81002 90101	38,333	10,168,963	3,084,468	0	0	190101	0	0 0	0	0 0	D
190101	0	0	0	0	0	190101	0	0		0	
190102	0	0	0	0	0	190102	0	0		0	
90104	0	0	0	0	0	190104	0	0		0	
190201	0	0	0	0	0	190201	DD	DD	DD	DD	D
190202	0	0	0	0	0	190202	0	0		0	
	10	631	363	0	0	190203	DD	DD	DD	DD	D
190203				0	0	190204	DD	DD	DD	DD	D!
190203 190204 190205	0 117	0 5,995	0 3,699	0	0	190204	DD	DD	DD	DD	D

 $\textbf{Table S7--2007}. \ Off-Farm \ Excess \ Manure \ Nutrients \ and \ Related \ Results \ from \ the \ Land \ Application \ Simulation \ Model \ on \ \underline{Non-AFOs}, \ by \ 6-digit \ HUC,$ 

 $\label{thm:constraint} \textbf{Table S7--2012}. \ Off-Farm Excess \ Manure \ Nutrients \ and \ Related \ Results \ from the \ Land \ Application \ Simulation \ Model on \ \underline{Non-AFOs}, by \ 6-digit \ HUC,$ 

Manure

Derived from the 2012 Census of Agriculture Database

6-digit HUC	Cropland and pastureland acres receiving off-farm manure applications in the model simulation		Manure phosphorus applied (pounds) in the model simulation	HUC 6-level excess manure nitrogen (pounds)	HUC 6-level excess manure phosphorus (pounds)	6-digit HUC	Cropland and pastureland acres receiving off-farm manure applications in the model simulation	applied (pounds)	phosphorus applied (pounds) in the model simulation	HUC 6-level excess manure nitrogen (pounds)	HUC 6-level excess manure phosphorus (pounds)
						huc6	mrf_all_aa	MRF_all_na	MRF_all_pa	cex_n	cex_p
190207	12	221	149	0	0	190207	0	0	0	0	0
190301	0	0	0	0	0	190301	0	0	0	0	0
190302	0	0	0	0	0	190302	0	0	0	0	0
190303		0	0	0	0	190303	0	0	0	0	0
190304		0	0	0	0	190304	0	0	0	0	0
190305	0	0	0	0	0	190305	0	0	0	0	0
190401	0	0	0	0	0	190401	0	0	0	0	0
190402		0	0	0	0	190402	0	0	0	0	0
190403		0	0	0	0	190403	0	0	0	0	0
190404		311	209	0	0	190404	DD	DD	DD	DD	DD
190405		1,021	592	0	0	190405	DD	DD	DD	DD	DD
190406	0	0	0	0	0	190406	0	0	0	0	0
190407	0	0	0	0	0	190407	0	0	0	0	0
190408	0	0	0	0	0	190408	0	0	0	0	0
190501	0	0	0	0	0	190501	0	0	0	0	0
190502	0	0	0	0	0	190502	0	0	0	0	0
200100		206,168	91,115	0	0	200100	DD	DD	DD	DD	DD
200200	192	13,814	8,716	0	0	200200	DD	DD	DD	DD	DD
200400	0	0	0	0	0	200400	0	0	0	0	0
200500	30	1,825	1,333	0	0	200500	DD	DD	DD	DD	DD
200600	1,581	121,096	53,970	289,029	128,814	200600	DD	DD	DD	DD	DD
200700	380	14,524	8,543	0	0	200700	DD	DD	DD	DD	DD
200800	0	0	0	0	0	200800	0	0	0	0	0
						Sum of column	13,991,966	1,737,734,112	774,841,316	102,714,195	48,826,811
						National total Percent of	14,489,417	1,809,061,062	805,712,732	103,570,786	49,165,831
						national total	96.57%	96.06%	96.17%	99.17%	99.31%

Notes: For complete definitions of variables, see the USDA/NRCS report entitled "Estimates of Recoverable and Non-Recoverable Manure Nutrients Based on the Census of Agriculture," authored by Robert L. Kellogg, David C. Moffitt, and Noel Gollehon.

For these results, the off-farm land application simulation was conducted at the 6-digit HUC level.

National results reported in the report, however, are for the off-farm land application simulation conducted at the county level. Consequently, the national totals for the results shown in this table differ from those in the full report.