

## Appendix 3: Supplemental tables

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This document contains supplemental tables for the manuscript “Biodiversity effects of food system sustainability actions from farm to fork” by Quentin D. Read, Kelly L. Hondula, and Mary K. Muth, currently under consideration for publication in *PNAS*. **Update this with citation when it is available.**

**Table S1. Total footprints and footprint intensities, baseline scenario**

This table shows the total land and biodiversity threat footprint of food consumed in the United States in 2012 (baseline scenario). The land footprint is disaggregated by the three land use types (annual crops, permanent crops, and pasture) as well as origin (domestic and foreign), in units of 1000 km<sup>2</sup>. Biodiversity footprints associated with each of these six land footprint components are shown for animals, plants, and the total of the two, in units of potential global species extinctions. The biodiversity footprints are divided by the land footprints to yield footprint intensities. Cell shading represents relative magnitude of values within each column.

	Total footprint				Footprint intensity		
	land 1000 km <sup>2</sup>	animals extinctions	plants extinctions	total extinctions	animals extinctions/1000 km <sup>2</sup>	plants extinctions/1000 km <sup>2</sup>	total extinctions/1000 km <sup>2</sup>
<b>domestic origin</b>							
annual cropland	640	9.1	22	31	0.014	0.034	0.048
permanent cropland	96	1.6	11	13	0.017	0.120	0.130
pastureland	1100	17.0	61	78	0.016	0.057	0.073
<i>total</i>	<i>1800</i>	<i>28.0</i>	<i>94</i>	<i>120</i>	<i>0.016</i>	<i>0.059</i>	<i>0.073</i>
<b>foreign origin</b>							
annual cropland	55	2.2	12	14	0.040	0.220	0.260
permanent cropland	28	6.8	18	25	0.240	0.630	0.870
pastureland	370	8.3	31	40	0.023	0.085	0.110
<i>total</i>	<i>450</i>	<i>17.0</i>	<i>61</i>	<i>78</i>	<i>0.110</i>	<i>0.270</i>	<i>0.380</i>
<b>grand total</b>	<b>2300</b>	<b>45.0</b>	<b>160</b>	<b>200</b>	<b>0.052</b>	<b>0.140</b>	<b>0.190</b>

	No waste reduction					50% waste reduction				
	baseline diet	USDA U.S. style	USDA Mediterranean	USDA vegetarian	Planetary Health	baseline diet	USDA U.S. style	USDA Mediterranean	USDA vegetarian	Planetary Health
Alabama	10800 (+0%)	10300 (-4.4%)	10600 (-1.6%)	5160 (-49.7%)	5510 (-47.7%)	7740 (-28.4%)	7420 (-31.1%)	7620 (-29.1%)	3920 (-61.8%)	4280 (-59.2%)
Alaska	2430 (+0%)	2480 (+2.2%)	2980 (+22.6%)	430 (-80.5%)	1170 (-51.6%)	1700 (-30.2%)	1750 (-27.8%)	2120 (-12.7%)	318 (-85.4%)	857 (-64.5%)
Arizona	76300 (+0%)	77000 (+1.1%)	92500 (+21.6%)	11200 (-84.6%)	34600 (-54.4%)	53000 (-30.5%)	54200 (-28.9%)	65700 (-13.7%)	8140 (-88.7%)	25100 (-66.9%)
Arkansas	21600 (+0%)	21200 (0%)	21500 (+1.2%)	12500 (-26.9%)	12600 (-33.3%)	15800 (-27%)	15600 (-26.1%)	15700 (-25.4%)	9650 (-43.2%)	9810 (-47.3%)
California	74200 (+0%)	99900 (+37.7%)	110000 (+52.5%)	77800 (+13.6%)	60500 (-13.9%)	54300 (-26.8%)	73400 (+1.3%)	80500 (+12.3%)	58400 (-14.7%)	46800 (-33.4%)
Colorado	69800 (+0%)	66500 (-4.2%)	68800 (-1%)	30600 (-48.6%)	33500 (-48.6%)	50000 (-28.2%)	48000 (-30.5%)	49700 (-28.3%)	23400 (-60.2%)	25900 (-59.9%)
Connecticut	586 (+0%)	742 (+26.9%)	764 (+30.7%)	551 (-5.2%)	437 (-25.2%)	430 (-26.6%)	548 (-6.3%)	563 (-3.7%)	417 (-28.1%)	334 (-42.9%)
Delaware	923 (+0%)	1120 (+20.9%)	1140 (+23.8%)	866 (-6%)	736 (-20.2%)	687 (-25.6%)	832 (-9.8%)	850 (-7.9%)	663 (-28%)	568 (-38.4%)
Florida	16900 (+0%)	21600 (+31.8%)	23800 (+46.7%)	15500 (+4.8%)	12100 (-21.2%)	12200 (-27.8%)	15800 (-3.5%)	17400 (+7.6%)	11600 (-21.7%)	9130 (-40.1%)
Georgia	10800 (+0%)	12300 (+14.9%)	12700 (+19.2%)	9050 (-9.4%)	8030 (-22.3%)	7930 (-26.5%)	9010 (-15.3%)	9300 (-12.3%)	6880 (-31%)	6390 (-37.7%)
Hawaii	2470 (+0%)	2420 (-1.8%)	2560 (+3.7%)	1120 (-52.7%)	1090 (-54.9%)	1750 (-29.3%)	1730 (-29.8%)	1830 (-25.8%)	839 (-64.6%)	819 (-66.1%)
Idaho	24500 (+0%)	28300 (+16.2%)	29200 (+19.6%)	19100 (-19.5%)	15700 (-35%)	17900 (-27%)	20800 (-14.6%)	21400 (-12.3%)	14500 (-38.8%)	12200 (-49.4%)
Illinois	41300 (+0%)	46700 (+13.2%)	47400 (+14.8%)	37000 (-10.2%)	33700 (-18.3%)	31300 (-24.2%)	35200 (-14.6%)	35600 (-13.7%)	28700 (-30.4%)	26500 (-35.6%)
Indiana	22100 (+0%)	24900 (+13%)	25400 (+15.4%)	19000 (-13.7%)	17500 (-20.6%)	16600 (-24.6%)	18700 (-15.1%)	19000 (-13.6%)	14700 (-33.2%)	13700 (-37.7%)
Iowa	51600 (+0%)	56900 (+10.3%)	58600 (+13.7%)	40300 (-21.4%)	38600 (-24.9%)	38600 (-25.1%)	42600 (-17.5%)	43700 (-15.2%)	31200 (-39%)	30300 (-41%)
Kansas	83300 (+0%)	86000 (+3.6%)	86900 (+4.7%)	55900 (-29.5%)	53100 (-34.2%)	61600 (-26%)	63800 (-22.9%)	64400 (-22.3%)	43400 (-45.3%)	41600 (-48.2%)
Kentucky	19100 (+0%)	18700 (-1.6%)	19000 (0%)	10400 (-42.4%)	10300 (-44%)	13800 (-27.5%)	13600 (-28.3%)	13800 (-27.3%)	7960 (-55.8%)	8070 (-56.1%)
Louisiana	11700 (+0%)	12000 (+2.5%)	12200 (+4.7%)	7460 (-30.6%)	7240 (-34.6%)	8580 (-26.7%)	8780 (-24.5%)	8950 (-23.1%)	5730 (-46.4%)	5700 (-48.2%)
Maine	2920 (+0%)	3710 (+29.7%)	3850 (+35.2%)	2710 (+0.4%)	2150 (-24.7%)	2100 (-28.1%)	2710 (-5%)	2810 (-1.2%)	2030 (-24.7%)	1600 (-43.8%)
Maryland	2970 (+0%)	3470 (+17.5%)	3490 (+17.9%)	2650 (-9.3%)	2230 (-24.3%)	2210 (-25.3%)	2500 (-12.2%)	2600 (-12.2%)	2040 (-30.3%)	1740 (-41%)
Massachusetts	697 (+0%)	973 (+40.3%)	1040 (+51.4%)	774 (+12.6%)	592 (-13.9%)	512 (-26.4%)	718 (+3.6%)	768 (+11.7%)	583 (-15.2%)	453 (-34.1%)
Michigan	15900 (+0%)	20100 (+26.8%)	20400 (+29.2%)	16500 (+4.8%)	13000 (-18%)	12000 (-24.7%)	15100 (-4.9%)	15300 (-3.4%)	12600 (-19.7%)	10200 (-35.9%)
Minnesota	41200 (+0%)	47900 (+16.4%)	48300 (+17.3%)	37500 (-8.3%)	32500 (-20.9%)	31100 (-24.5%)	36000 (-12.5%)	36200 (-12.1%)	29000 (-29.1%)	25600 (-37.6%)
Mississippi	12500 (+0%)	12900 (+3.5%)	13100 (+5.4%)	8340 (-28%)	8040 (-32.5%)	9170 (-26.6%)	9470 (-23.7%)	9640 (-22.4%)	6390 (-44.5%)	6310 (-46.7%)
Missouri	43200 (+0%)	42300 (-1.5%)	42900 (-0.2%)	24200 (-36.9%)	23800 (-40.2%)	31400 (-27.2%)	30900 (-27.8%)	31300 (-27%)	18600 (-51.4%)	18600 (-53%)
Montana	133000 (+0%)	124000 (-6.6%)	128000 (-3.2%)	51800 (-52.3%)	59900 (-51%)	95300 (-28.5%)	89100 (-32.5%)	92400 (-30.2%)	39600 (-63.1%)	46100 (-61.8%)
Nebraska	92100 (+0%)	88800 (-3.1%)	90100 (-1.7%)	48400 (-43.5%)	48800 (-44.4%)	66900 (-27.4%)	64900 (-29.1%)	65700 (-28.1%)	37200 (-56.3%)	38000 (-56.4%)
Nevada	13300 (+0%)	12000 (-9.8%)	12700 (-4.7%)	3750 (-70%)	5020 (-61.6%)	9370 (-29.7%)	8480 (-36.2%)	8960 (-32.5%)	2810 (-77.5%)	3800 (-70.7%)
New Hampshire	496 (+0%)	576 (+16.6%)	583 (+17.7%)	380 (-21.5%)	323 (-34.7%)	358 (-27.7%)	421 (-14.7%)	425 (-14.2%)	288 (-40.5%)	244 (-50.6%)
New Jersey	1310 (+0%)	1830 (+40.6%)	1940 (+49.4%)	1560 (+21%)	1190 (-8.5%)	976 (-25.3%)	1360 (+4.8%)	1440 (+11.2%)	1180 (-8.5%)	914 (-29.8%)
New Mexico	105000 (+0%)	92200 (-11.7%)	98600 (-5.3%)	22400 (-77%)	35100 (-65.6%)	73100 (-30.2%)	64800 (-37.9%)	69400 (-33.2%)	16500 (-82.9%)	26000 (-74.4%)
New York	11200 (+0%)	16000 (+43.6%)	15700 (+40.5%)	14000 (+25.7%)	8650 (-22.2%)	8430 (-24.7%)	12000 (+7.9%)	11700 (+5%)	10600 (-4.2%)	6720 (-39.6%)
North Carolina	11400 (+0%)	12600 (+10.8%)	13000 (+14.8%)	8540 (-22.8%)	8050 (-28.2%)	8350 (-26.6%)	9240 (-18.4%)	9550 (-15.6%)	6520 (-41%)	6300 (-43.7%)
North Dakota	69000 (+0%)	73600 (+7.1%)	74900 (+8.9%)	51700 (-22.7%)	48800 (-27.9%)	51400 (-25.5%)	54900 (-20.1%)	55700 (-19%)	40000 (-40.1%)	38500 (-43%)
Ohio	20200 (+0%)	22900 (+13.8%)	23200 (+15%)	17200 (-12.9%)	15200 (-23.7%)	15100 (-25%)	17100 (-14.8%)	17300 (-14.2%)	13300 (-32.8%)	12000 (-40.1%)
Oklahoma	71200 (+0%)	66300 (-6.3%)	67800 (-4.2%)	30500 (-49.6%)	32300 (-50.4%)	51000 (-28.4%)	47800 (-32.1%)	48800 (-30.8%)	23300 (-61.1%)	24900 (-61.2%)
Oregon	35000 (+0%)	34900 (-0.5%)	36800 (+6.1%)	17100 (-46.5%)	17700 (-47.3%)	25000 (-28.5%)	25200 (-27.4%)	26600 (-23.3%)	12900 (-59.3%)	13600 (-59.4%)
Pennsylvania	11300 (+0%)	14400 (+28.6%)	14200 (+25.9%)	11500 (+4.2%)	8150 (-27.5%)	8440 (-25.3%)	10800 (-3.8%)	10500 (-6.2%)	8820 (-20.3%)	6370 (-43.3%)
Rhode Island	94.3 (+0%)	117 (+24.2%)	123 (+30.3%)	97.6 (+3.6%)	83.5 (-11.4%)	70.4 (-25.4%)	87.3 (-7.4%)	91.4 (-3%)	74 (-21.4%)	64.1 (-32%)
South Carolina	4920 (+0%)	5370 (+9.5%)	5570 (+13.6%)	3630 (-23.3%)	3440 (-28.5%)	3610 (-26.6%)	3950 (-19.4%)	4090 (-16.6%)	2770 (-41.3%)	2700 (-43.6%)
South Dakota	90600 (+0%)	86400 (-4.3%)	89800 (-0.5%)	40200 (-50.8%)	44900 (-48%)	65200 (-28%)	62500 (-30.6%)	65000 (-27.9%)	30800 (-62.1%)	34600 (-59.6%)
Tennessee	17400 (+0%)	16600 (-3.9%)	16900 (-2.3%)	8520 (-45.6%)	8550 (-47.2%)	12500 (-28%)	12000 (-30.2%)	12200 (-29.2%)	6490 (-58.3%)	6620 (-58.8%)
Texas	291000 (+0%)	264000 (-9.1%)	276000 (-4.8%)	93500 (-62.2%)	115000 (-57.7%)	206000 (-29.3%)	188000 (-35.2%)	196000 (-32.2%)	70600 (-71.1%)	87900 (-67.3%)
Utah	25800 (+0%)	25500 (-1%)	29300 (+13.6%)	6440 (-73%)	12100 (-52.8%)	18200 (-29.7%)	18100 (-29.7%)	20900 (-19%)	4830 (-79.7%)	9060 (-64.6%)
Vermont	1550 (+0%)	2160 (+39.7%)	2040 (+31.5%)	1800 (+18%)	1050 (-32.2%)	1160 (-25.2%)	1620 (+4.7%)	1520 (-2%)	1370 (-9.9%)	814 (-47.6%)
Virginia	12100 (+0%)	11890 (-1.8%)	12000 (-0.2%)	6030 (-45.4%)	5790 (-49.2%)	8670 (-28.3%)	8520 (-28.9%)	8640 (-27.9%)	4580 (-58.4%)	4460 (-60.6%)
Washington	23400 (+0%)	29500 (+27.3%)	30800 (+34.1%)	23600 (+3.7%)	18900 (-17.4%)	17400 (-25.5%)	22000 (-5.2%)	22900 (-0.4%)	18000 (-20.9%)	14800 (-35.2%)
West Virginia	4280 (+0%)	3840 (-10%)	3940 (-7.6%)	1390 (-65.7%)	1560 (-63%)	3010 (-29.6%)	2720 (-36.1%)	2790 (-34.5%)	1040 (-74.3%)	1170 (-72.2%)
Wisconsin	23200 (+0%)	31600 (+37%)	30300 (+31%)	27400 (+19%)	17200 (-25.6%)	17500 (-24.4%)	23900 (+3.3%)	22700 (-1.7%)	21000 (-8.8%)	13400 (-42%)
Wyoming	78400 (+0%)	68300 (-12.8%)	73200 (-6.5%)	15100 (-80.3%)	25700 (-66.8%)	54700 (-30.2%)	47900 (-38.8%)	51500 (-34.1%)	11100 (-85.4%)	19000 (-75.4%)

Table S2

	No waste reduction					50% waste reduction				
	baseline diet	USDA U.S. style	USDA Mediterranean	USDA vegetarian	Planetary Health	baseline diet	USDA U.S. style	USDA Mediterranean	USDA vegetarian	Planetary Health
Alabama	0.522 (+0%)	0.498 (-4.3%)	0.512 (-1.4%)	0.25 (-48.4%)	0.269 (-46.7%)	0.374 (-28.4%)	0.358 (-31%)	0.368 (-29%)	0.19 (-60.8%)	0.209 (-58.3%)
Alaska	0.0243 (+0%)	0.0245 (+0.6%)	0.0295 (+21.5%)	0.00323 (-85.5%)	0.0111 (-54.4%)	0.0169 (-30.5%)	0.0172 (-29.2%)	0.0209 (-13.8%)	0.00235 (-89.3%)	0.00801 (-66.9%)
Arizona	6.12 (+0%)	6.27 (+2.5%)	7.54 (+23.6%)	1.03 (-81%)	2.92 (-52%)	4.27 (-30.3%)	4.42 (-27.7%)	5.36 (-12.1%)	0.758 (-85.9%)	2.13 (-64.9%)
Arkansas	0.901 (+0%)	0.863 (-2.8%)	0.876 (-1.4%)	0.467 (-33.9%)	0.484 (-38.6%)	0.652 (-27.6%)	0.628 (-28.7%)	0.636 (-27.8%)	0.358 (-48.7%)	0.375 (-51.7%)
California	13.2 (+0%)	19 (+46.7%)	21.2 (+65.3%)	15.4 (+24.4%)	11.7 (-7.1%)	9.69 (-26.7%)	14 (+8%)	15.6 (+21.9%)	11.5 (-6.9%)	8.95 (-28.6%)
Colorado	2.16 (+0%)	2.01 (-6.8%)	2.09 (-2.9%)	0.786 (-55.1%)	0.918 (-54.1%)	1.54 (-28.9%)	1.44 (-33%)	1.5 (-30.3%)	0.596 (-65.4%)	0.701 (-64.5%)
Connecticut	0.0119 (+0%)	0.0151 (+27.3%)	0.0155 (+31.1%)	0.0113 (-3.7%)	0.00896 (-24.2%)	0.00872 (-26.5%)	0.0111 (-5.9%)	0.0114 (-3.4%)	0.00859 (-27%)	0.00685 (-42%)
Delaware	0.00284 (+0%)	0.00347 (+22.5%)	0.00356 (+25.5%)	0.00277 (-2.2%)	0.00232 (-18.1%)	0.00212 (-25.1%)	0.0026 (-8.3%)	0.00266 (-6.3%)	0.00213 (-24.9%)	0.0018 (-36.4%)
Florida	3.88 (+0%)	6.04 (+61.4%)	6.88 (+86.3%)	5.29 (+52.6%)	3.95 (+11.5%)	2.87 (-26.1%)	4.47 (+19.7%)	5.09 (+38.3%)	3.96 (+14.1%)	3.01 (-14.9%)
Georgia	0.432 (+0%)	0.5 (+16.9%)	0.516 (+21.1%)	0.389 (-3.9%)	0.342 (-17.7%)	0.32 (-26%)	0.369 (-13.6%)	0.38 (-10.6%)	0.296 (-26.7%)	0.275 (-33.6%)
Hawaii	22.6 (+0%)	23.4 (+5.5%)	24.9 (+12.4%)	12.8 (-30.6%)	11.7 (-41.7%)	16.1 (-28.7%)	16.9 (-23.7%)	18 (-18.6%)	9.6 (-47.7%)	8.84 (-55.5%)
Idaho	5.12 (+0%)	6 (+18.1%)	6.18 (+21.8%)	3.98 (-18.9%)	3.17 (-37%)	3.73 (-27.2%)	4.4 (-13.2%)	4.53 (-10.7%)	3.02 (-38.5%)	2.43 (-51.6%)
Illinois	0.52 (+0%)	0.589 (+13.3%)	0.598 (+15%)	0.468 (-9.9%)	0.425 (-18.1%)	0.394 (-24.2%)	0.444 (-14.5%)	0.45 (-13.5%)	0.362 (-30.2%)	0.336 (-35.4%)
Indiana	0.231 (+0%)	0.262 (+13.3%)	0.267 (+15.6%)	0.201 (-13.1%)	0.184 (-20.2%)	0.175 (-24.6%)	0.197 (-14.9%)	0.2 (-13.4%)	0.155 (-32.7%)	0.145 (-37.3%)
Iowa	0.653 (+0%)	0.72 (+10.3%)	0.741 (+13.5%)	0.51 (-21.4%)	0.487 (-25.1%)	0.489 (-25.1%)	0.538 (-17.5%)	0.553 (-15.3%)	0.395 (-39%)	0.382 (-41.2%)
Kansas	1.1 (+0%)	1.12 (+2.3%)	1.13 (+3.5%)	0.706 (-32.1%)	0.675 (-36.2%)	0.81 (-26.3%)	0.829 (-24.1%)	0.837 (-23.4%)	0.546 (-47.3%)	0.528 (-49.9%)
Kentucky	0.218 (+0%)	0.21 (-3.4%)	0.215 (-1.4%)	0.109 (-47.5%)	0.111 (-47.6%)	0.157 (-28%)	0.152 (-30%)	0.155 (-28.7%)	0.0828 (-59.9%)	0.0868 (-59%)
Louisiana	1.5 (+0%)	1.45 (-2.6%)	1.5 (+0.3%)	0.762 (-45.8%)	0.782 (-45.9%)	1.08 (-28%)	1.05 (-29.3%)	1.08 (-27.4%)	0.58 (-58.5%)	0.609 (-57.7%)
Maine	0.0896 (+0%)	0.116 (+32.2%)	0.121 (+38%)	0.0868 (+4.5%)	0.0676 (-22.8%)	0.0646 (-27.9%)	0.0851 (-3.1%)	0.0882 (+1.1%)	0.0652 (-21.6%)	0.0504 (-42.3%)
Maryland	0.0321 (+0%)	0.0394 (+23%)	0.0389 (+21.2%)	0.0305 (-3.5%)	0.0228 (-28.8%)	0.024 (-25.4%)	0.0294 (-8.1%)	0.0289 (-9.8%)	0.0234 (-26%)	0.0178 (-44.5%)
Massachusetts	0.0162 (+0%)	0.023 (+43.3%)	0.0249 (+56.3%)	0.0186 (+16.8%)	0.0142 (-10.6%)	0.0119 (-26.4%)	0.017 (+5.8%)	0.0183 (+15.3%)	0.014 (-12.1%)	0.0109 (-31.6%)
Michigan	0.281 (+0%)	0.358 (+28%)	0.363 (+30.6%)	0.296 (+6.8%)	0.231 (-17.2%)	0.212 (-24.6%)	0.269 (-4%)	0.272 (-2.4%)	0.227 (-18.2%)	0.181 (-35.2%)
Minnesota	0.436 (+0%)	0.511 (+17.6%)	0.514 (+18.2%)	0.405 (-6.6%)	0.345 (-20.6%)	0.329 (-24.5%)	0.385 (-11.5%)	0.386 (-11.3%)	0.313 (-27.8%)	0.272 (-37.4%)
Mississippi	0.311 (+0%)	0.315 (+1.8%)	0.323 (+4.1%)	0.188 (-32.2%)	0.183 (-36.6%)	0.226 (-27.2%)	0.23 (-25.3%)	0.235 (-23.8%)	0.143 (-47.8%)	0.142 (-50.4%)
Missouri	0.924 (+0%)	0.892 (-2.8%)	0.904 (-1.5%)	0.484 (-40.1%)	0.482 (-42.9%)	0.668 (-27.6%)	0.648 (-29.1%)	0.656 (-28.3%)	0.37 (-53.9%)	0.374 (-55.2%)
Montana	8.3 (+0%)	7.5 (-9.3%)	7.9 (-4.5%)	2.5 (-65.4%)	3.28 (-58.5%)	5.86 (-29.3%)	5.34 (-35.4%)	5.62 (-31.9%)	1.89 (-73.5%)	2.49 (-68.2%)
Nebraska	1.58 (+0%)	1.48 (-5.3%)	1.5 (-4%)	0.754 (-46.9%)	0.773 (-47.5%)	1.14 (-27.8%)	1.08 (-31%)	1.09 (-30.2%)	0.579 (-59%)	0.601 (-58.9%)
Nevada	3.12 (+0%)	2.81 (-9.8%)	2.96 (-4.8%)	0.89 (-69.5%)	1.18 (-61.4%)	2.19 (-29.6%)	1.99 (-36.2%)	2.09 (-32.6%)	0.667 (-77%)	0.895 (-70.5%)
New Hampshire	0.0108 (+0%)	0.0126 (+17.1%)	0.0127 (+18.2%)	0.00843 (-19.9%)	0.00712 (-33.7%)	0.00779 (-27.6%)	0.0092 (-14.2%)	0.00926 (-13.7%)	0.00639 (-39.2%)	0.00539 (-49.8%)
New Jersey	0.0359 (+0%)	0.0506 (+41.9%)	0.0537 (+50.9%)	0.0438 (+23.5%)	0.0332 (-7%)	0.0268 (-25.2%)	0.0378 (+5.8%)	0.04 (+12.4%)	0.0331 (-6.6%)	0.0255 (-28.7%)
New Mexico	5.03 (+0%)	4.38 (-12.7%)	4.65 (-7.1%)	1.05 (-77.6%)	1.62 (-66.9%)	3.51 (-30.2%)	3.07 (-38.7%)	3.27 (-34.6%)	0.774 (-83.3%)	1.2 (-75.4%)
New York	0.658 (+0%)	0.954 (+45.3%)	0.911 (+38.8%)	0.845 (+29.3%)	0.493 (-24.8%)	0.497 (-24.5%)	0.718 (+9.4%)	0.682 (+3.9%)	0.645 (-1.3%)	0.384 (-41.4%)
North Carolina	0.304 (+0%)	0.338 (+11.5%)	0.349 (+15.4%)	0.238 (-19.9%)	0.225 (-25.1%)	0.224 (-26.2%)	0.249 (-17.6%)	0.257 (-15%)	0.182 (-38.6%)	0.177 (-41%)
North Dakota	6.66 (+0%)	7.28 (+9.5%)	7.39 (+11%)	5.46 (-17.1%)	5.07 (-23.2%)	5 (-24.9%)	5.46 (-17.9%)	5.32 (-16.9%)	4.23 (-35.7%)	4.02 (-39.2%)
Ohio	0.187 (+0%)	0.211 (+12.5%)	0.214 (+14.2%)	0.165 (-11.2%)	0.151 (-19.3%)	0.141 (-24.4%)	0.158 (-15.4%)	0.16 (-14.4%)	0.128 (-31.4%)	0.119 (-36.4%)
Oklahoma	1.2 (+0%)	1.09 (-9%)	1.11 (-6.9%)	0.445 (-55.8%)	0.491 (-55.2%)	0.855 (-28.9%)	0.779 (-34.6%)	0.796 (-33.2%)	0.338 (-65.9%)	0.377 (-65.2%)
Oregon	4.45 (+0%)	4.34 (-1.9%)	4.53 (+2.4%)	2.03 (-48%)	2.12 (-49.1%)	3.18 (-28.5%)	3.13 (-29%)	3.26 (-26%)	1.54 (-60.1%)	1.63 (-60.7%)
Pennsylvania	0.278 (+0%)	0.361 (+30.3%)	0.352 (+26.9%)	0.295 (+7.4%)	0.204 (-26.5%)	0.208 (-25.1%)	0.27 (-2.4%)	0.262 (-5.4%)	0.226 (-17.8%)	0.159 (-42.4%)
Rhode Island	0.00229 (+0%)	0.00286 (+24.8%)	0.003 (+30.9%)	0.0024 (+4.8%)	0.00204 (-10.9%)	0.00171 (-25.3%)	0.00214 (-6.9%)	0.00224 (-2.5%)	0.00182 (-20.5%)	0.00157 (-31.5%)
South Carolina	0.144 (+0%)	0.16 (+11.4%)	0.166 (+15.2%)	0.115 (-18%)	0.107 (-24.4%)	0.107 (-26.1%)	0.119 (-17.6%)	0.122 (-15%)	0.0881 (-37.1%)	0.0849 (-40.1%)
South Dakota	3.15 (+0%)	3.02 (-3.8%)	3.12 (-0.5%)	1.49 (-49.6%)	1.62 (-47%)	2.27 (-27.8%)	2.19 (-30%)	2.27 (-27.8%)	1.14 (-61.2%)	1.25 (-58.9%)
Tennessee	0.471 (+0%)	0.435 (-7.4%)	0.441 (-6.1%)	0.19 (-57.9%)	0.194 (-57.7%)	0.335 (-28.9%)	0.312 (-33.6%)	0.315 (-32.8%)	0.144 (-68.1%)	0.148 (-67.6%)
Texas	14.9 (+0%)	13.7 (-7.9%)	14.3 (-3.5%)	5.12 (-58.7%)	6.16 (-55.4%)	10.6 (-29.2%)	9.74 (-34.2%)	10.2 (-31.1%)	3.86 (-68.4%)	4.71 (-65.3%)
Utah	3.8 (+0%)	3.8 (+0.1%)	4.37 (+15%)	0.993 (-71.3%)	1.84 (-51.5%)	2.68 (-29.6%)	2.7 (-28.9%)	3.12 (-17.9%)	0.746 (-78.3%)	1.37 (-63.6%)
Vermont	0.174 (+0%)	0.251 (+45.2%)	0.234 (+35.1%)	0.218 (+26.9%)	0.12 (-31.1%)	0.131 (-24.7%)	0.189 (+9.3%)	0.175 (+1%)	0.167 (-3.1%)	0.0927 (-46.6%)
Virginia	0.355 (+0%)	0.34 (-3.6%)	0.344 (-2.4%)	0.166 (-48.5%)	0.161 (-51.9%)	0.254 (-28.5%)	0.245 (-30.4%)	0.247 (-29.7%)	0.126 (-60.8%)	0.124 (-62.8%)
Washington	3.71 (+0%)	4.5 (+22%)	4.62 (+25.5%)	3.56 (-2.3%)	2.94 (-19.5%)	2.78 (-24.9%)	3.38 (-8.5%)	3.46 (-6.2%)	2.74 (-24.8%)	2.3 (-36.7%)
West Virginia	0.077 (+0%)	0.0696 (-9.3%)	0.0715 (-6.7%)	0.0255 (-64.7%)	0.0284 (-62.3%)	0.0542 (-29.6%)	0.0494 (-35.6%)	0.0507 (-33.8%)	0.0191 (-73.5%)	0.0212 (-71.7%)
Wisconsin	0.301 (+0%)	0.408 (+35.8%)	0.393 (+30.7%)	0.352 (+17.5%)	0.227 (-24.5%)	0.228 (-24.4%)	0.308 (+2.4%)	0.295 (-2%)	0.27 (-9.9%)	0.177 (-41.2%)
Wyoming	1.81 (+0%)	1.59 (-11.9%)	1.71 (-5%)	0.358 (-79.3%)	0.611 (-65.6%)	1.26 (-30.2%)	1.12 (-38.1%)	1.21 (-33%)	0.265 (-84.6%)	0.452 (-74.4%)

	No waste reduction					50% waste reduction				
	baseline diet	USDA U.S. style	USDA Mediterranean	USDA vegetarian	Planetary Health	baseline diet	USDA U.S. style	USDA Mediterranean	USDA vegetarian	Planetary Health
Australia (AUS)	285000 (+0%)	272000 (-4.7%)	335000 (+17.5%)	1440 (-99.5%)	140000 (-50.9%)	239000 (-16.1%)	221000 (-22.5%)	268000 (-6%)	1040 (-99.6%)	111000 (-61.1%)
Mexico (MEX)	42200 (+0%)	49500 (+17.4%)	59400 (+40.9%)	17800 (-57.7%)	28100 (-33.4%)	34900 (-17.1%)	39700 (-5.7%)	47200 (+11.8%)	14000 (-66.8%)	22200 (-47.3%)
Canada (CAN)	69300 (+0%)	70700 (+2%)	82100 (+18.6%)	22500 (-67.5%)	47900 (-30.8%)	57800 (-16.5%)	57600 (-16.8%)	66100 (-4.6%)	18400 (-73.4%)	38600 (-44.2%)
Colombia (COL)	3300 (+0%)	7430 (+125.3%)	9230 (+179.8%)	7530 (+128.4%)	5420 (+64.3%)	2550 (-22.6%)	5720 (+73.4%)	7100 (+115.2%)	5810 (+76.1%)	4230 (+28.4%)
Ecuador (ECU)	2250 (+0%)	5090 (+125.9%)	6320 (+180.6%)	5170 (+129.5%)	3710 (+64.7%)	1740 (-22.6%)	3920 (+73.9%)	4860 (+115.8%)	3990 (+77%)	2900 (+28.7%)
Nicaragua (NIC)	5590 (+0%)	6370 (+13.9%)	7740 (+38.5%)	2020 (-63.9%)	3700 (-33.9%)	4640 (-17%)	5120 (-8.5%)	6140 (+9.8%)	1580 (-71.8%)	2930 (-47.6%)
New Zealand (NZL)	8760 (+0%)	8520 (-2.8%)	10400 (+18.4%)	388 (-95.6%)	4350 (-50.3%)	7350 (-16.1%)	6930 (-20.9%)	8310 (-5.2%)	314 (-96.4%)	3460 (-60.6%)
Costa Rica (CRI)	1140 (+0%)	2050 (+79.5%)	2500 (+119%)	1720 (+51%)	1390 (+21.9%)	907 (-20.4%)	1590 (+39.9%)	1940 (+70%)	1330 (+16.9%)	1090 (-4.3%)
Guatemala (GTM)	1760 (+0%)	3840 (+117.7%)	4620 (+162.1%)	3890 (+120.6%)	2680 (+52.1%)	1370 (-22.3%)	2970 (+68.6%)	3570 (+102.6%)	3020 (+71.2%)	2100 (+19.1%)
Indonesia (IDN)	1950 (+0%)	3810 (+95.6%)	4550 (+133.5%)	3730 (+91.6%)	2750 (+41.4%)	1540 (-20.9%)	2970 (+52.8%)	3540 (+81.8%)	2920 (+49.8%)	2190 (+12.3%)
Peru (PER)	1730 (+0%)	3480 (+101%)	3910 (+125.9%)	3510 (+103.2%)	2270 (+31.4%)	1370 (-20.5%)	2740 (+58.6%)	3070 (+77.3%)	2770 (+60.5%)	1800 (+4.2%)
Brazil (BRA)	6110 (+0%)	9170 (+49.9%)	11200 (+83.8%)	6140 (+0.5%)	6110 (-0.1%)	4960 (-18.8%)	7210 (+18%)	8780 (+43.6%)	4760 (-22.2%)	4810 (-21.3%)
Honduras (HND)	929 (+0%)	1890 (+103%)	2300 (+147.1%)	1800 (+94.2%)	1330 (+43.4%)	729 (-21.6%)	1460 (+57.4%)	1780 (+91.2%)	1400 (+50.4%)	1050 (+12.5%)
Côte d'Ivoire (CIV)	5150 (+0%)	11700 (+127.2%)	14600 (+182.8%)	11900 (+130.8%)	8540 (+65.7%)	3980 (-22.7%)	9000 (+74.7%)	11200 (+117.4%)	9160 (+77.9%)	6670 (+29.4%)
El Salvador (SLV)	475 (+0%)	1020 (+115.3%)	1250 (+164%)	1040 (+119.9%)	764 (+60.9%)	369 (-22.3%)	788 (+66.1%)	965 (+103.4%)	808 (+70.1%)	603 (+27%)
Chile (CHL)	1960 (+0%)	3110 (+58.7%)	3530 (+80%)	2340 (+19.7%)	1810 (-7.5%)	1590 (-18.6%)	2470 (+26.3%)	2780 (+42%)	1850 (-5.4%)	1430 (-26.7%)
Sri Lanka (LKA)	72.5 (+0%)	89 (+22.8%)	93.2 (+28.6%)	80 (+10.4%)	71.8 (-0.8%)	63 (-13.1%)	76.2 (+5.2%)	79.4 (+9.6%)	68.9 (-4.9%)	62.4 (-13.9%)
Uruguay (URY)	5200 (+0%)	4970 (-4.2%)	6120 (+17.9%)	70 (-98.7%)	2570 (-50.6%)	4360 (-16.1%)	4050 (-22.1%)	4900 (-5.7%)	54 (-99%)	2040 (-60.8%)
India (IND)	1000 (+0%)	1330 (+33.4%)	1420 (+42.4%)	1160 (+16.2%)	1040 (+4.2%)	825 (-17.5%)	1090 (+8.9%)	1160 (+15.7%)	953 (-4.8%)	868 (-13.3%)
Malaysia (MYS)	181 (+0%)	407 (+125.1%)	503 (+178.2%)	413 (+128.5%)	295 (+62.8%)	140 (-22.5%)	314 (+73.4%)	387 (+114.1%)	319 (+76.5%)	230 (+27.3%)
Other	6580 (+0%)	10400 (+71.2%)	11700 (+102.7%)	9920 (+73.8%)	8260 (+33.1%)	5350 (-18.6%)	8290 (+34.4%)	9270 (+57.7%)	7920 (+36.4%)	6700 (+7.2%)

	No waste reduction					50% waste reduction				
	baseline diet	USDA U.S. style	USDA Mediterranean	USDA vegetarian	Planetary Health	baseline diet	USDA U.S. style	USDA Mediterranean	USDA vegetarian	Planetary Health
Australia (AUS)	42.7 (+0%)	40.7 (-4.6%)	50.2 (+17.5%)	0.262 (-99.4%)	21 (-50.8%)	35.8 (-16.1%)	33.1 (-22.4%)	40.1 (-6%)	0.194 (-99.5%)	16.7 (-61%)
Mexico (MEX)	36.9 (+0%)	50.3 (+36.4%)	59.7 (+62%)	28.7 (-21.8%)	30.4 (-17.6%)	30.2 (-18.1%)	40 (+8.6%)	47.1 (+27.8%)	22.5 (-38.7%)	24 (-34.9%)
Canada (CAN)	21.2 (+0%)	21.7 (+2.7%)	25.1 (+18.7%)	7.61 (-64%)	15.1 (-28.5%)	17.6 (-16.6%)	17.7 (-16.3%)	20.2 (-4.4%)	6.23 (-70.5%)	12.2 (-42.3%)
Colombia (COL)	15.7 (+0%)	35.5 (+125.8%)	44.1 (+180.7%)	36 (+129.2%)	25.9 (+64.9%)	12.2 (-22.7%)	27.3 (+73.8%)	33.9 (+115.9%)	27.8 (+76.7%)	20.3 (+28.9%)
Ecuador (ECU)	12.7 (+0%)	28.7 (+125.9%)	35.6 (+180.7%)	29.1 (+129.5%)	20.9 (+64.8%)	9.82 (-22.6%)	22.1 (+73.9%)	27.4 (+115.9%)	22.5 (+77%)	16.3 (+28.7%)
Nicaragua (NIC)	10.1 (+0%)	11.6 (+15.1%)	14.1 (+40%)	3.85 (-61.5%)	6.76 (-32.7%)	8.35 (-17%)	9.29 (-7.6%)	11.2 (+11%)	3 (-70%)	5.36 (-46.7%)
New Zealand (NZL)	7.83 (+0%)	7.61 (-2.7%)	9.27 (+18.5%)	0.354 (-95.5%)	3.89 (-50.3%)	6.57 (-16.1%)	6.19 (-20.9%)	7.42 (-5.2%)	0.286 (-96.3%)	3.09 (-60.5%)
Costa Rica (CRI)	5.58 (+0%)	10.7 (+91.5%)	13 (+133.7%)	9.62 (+72.4%)	7.39 (+32.5%)	4.41 (-21%)	8.3 (-48.8%)	10.1 (+81.1%)	7.44 (+33.5%)	5.8 (+3.9%)
Guatemala (GTM)	5.17 (+0%)	11.3 (+117.9%)	13.6 (+162.6%)	11.4 (+120.8%)	7.88 (+52.5%)	4.01 (-22.3%)	8.72 (+68.7%)	10.5 (+103%)	8.85 (+71.3%)	6.17 (+19.5%)
Indonesia (IDN)	2.54 (+0%)	4.97 (+95.9%)	5.93 (+133.8%)	4.87 (+92%)	3.58 (+41.3%)	2.01 (-20.9%)	3.88 (+53%)	4.62 (+82%)	3.81 (+50.1%)	2.85 (+12.2%)
Peru (PER)	2.51 (+0%)	5.11 (+103.7%)	5.88 (+134.3%)	5.17 (+106.1%)	3.48 (+38.5%)	1.99 (-20.9%)	4.02 (+60%)	4.6 (+83.2%)	4.07 (+62.1%)	2.75 (+9.6%)
Brazil (BRA)	1.86 (+0%)	2.69 (+44.4%)	3.29 (+77%)	1.68 (-9.7%)	1.76 (-5.4%)	1.52 (-18.6%)	2.12 (+13.9%)	2.58 (+38.6%)	1.3 (-30%)	1.39 (-25.4%)
Honduras (HND)	1.86 (+0%)	3.8 (+104.4%)	4.63 (+149.1%)	3.65 (+96.7%)	2.69 (+44.8%)	1.46 (-21.6%)	2.94 (+58.4%)	3.58 (+92.6%)	2.83 (+52.3%)	2.11 (+13.6%)
Côte d'Ivoire (CIV)	1.63 (+0%)	3.7 (+127.2%)	4.61 (+182.8%)	3.76 (+130.8%)	2.7 (+65.8%)	1.26 (-22.7%)	2.85 (+74.8%)	3.54 (+117.4%)	2.9 (+77.9%)	2.11 (+29.4%)
El Salvador (SLV)	0.906 (+0%)	1.95 (+115.4%)	2.39 (+164.1%)	1.99 (+120%)	1.46 (+61%)	0.704 (-22.3%)	1.51 (+66.1%)	1.84 (+103.5%)	1.54 (+70.2%)	1.15 (+27%)
Chile (CHL)	0.803 (+0%)	1.34 (+66.8%)	1.54 (+92.3%)	1.07 (+33.1%)	0.815 (+1.6%)	0.65 (-19.1%)	1.06 (+32%)	1.21 (+51%)	0.839 (+4.6%)	0.644 (-19.7%)
Sri Lanka (LKA)	0.552 (+0%)	0.677 (+22.7%)	0.709 (+28.5%)	0.608 (+10.2%)	0.546 (-1%)	0.48 (-13%)	0.58 (+5.1%)	0.604 (+9.5%)	0.524 (-5.9%)	0.475 (-13.9%)
Uruguay (URY)	0.585 (+0%)	0.56 (-4.2%)	0.689 (+17.9%)	0.008 (-98.6%)	0.289 (-50.6%)	0.491 (-16.1%)	0.455 (-22.1%)	0.551 (-5.7%)	0.00617 (-98.9%)	0.229 (-60.8%)
India (IND)	0.405 (+0%)	0.541 (+33.5%)	0.578 (+42.7%)	0.472 (+16.5%)	0.422 (+4.3%)	0.334 (-17.5%)	0.442 (+9.1%)	0.47 (+16%)	0.387 (-4.5%)	0.352 (-13.2%)
Malaysia (MYS)	0.343 (+0%)	0.774 (+125.4%)	0.958 (+179.1%)	0.786 (+128.9%)	0.561 (+63.6%)	0.266 (-22.6%)	0.596 (+73.6%)	0.737 (+114.8%)	0.606 (+76.7%)	0.439 (+27.9%)
Other	2.43 (+0%)	4.18 (+82.4%)	4.71 (+113.7%)	4.13 (+84.2%)	3.12 (+35.6%)	1.96 (-19.3%)	3.32 (+43%)	3.71 (+66.2%)	3.28 (+44.5%)	2.53 (+9.4%)

Table S3

Table S4

Table S5

Table S6

	Virtual biodiversity threat export by taxonomic group						
	plants	amphibians	birds	mammals	reptiles	animals	total
Australia (AUS)	16.4000	0.7990	1.36000	0.89400	0.24700	3.3000	19.700
Mexico (MEX)	12.1000	1.8800	0.67600	0.80500	0.83300	4.2000	16.300
Canada (CAN)	9.2000	0.1530	0.26300	0.38200	0.11700	0.9150	10.100
Colombia (COL)	5.2100	1.1700	0.36100	0.19100	0.04280	1.7700	6.980
Ecuador (ECU)	4.2000	0.9380	0.32300	0.13900	0.03000	1.4300	5.630
Nicaragua (NIC)	2.8600	0.9710	0.27900	0.14900	0.04770	1.4500	4.310
New Zealand (NZL)	3.3300	0.0283	0.32100	0.00915	0.02840	0.3870	3.720
Costa Rica (CRI)	1.8400	0.4200	0.12700	0.07750	0.00611	0.6310	2.470
Guatemala (GTM)	1.5700	0.4420	0.08340	0.07900	0.06960	0.6740	2.250
Indonesia (IDN)	0.8080	0.0586	0.10200	0.11500	0.03050	0.3070	1.110
Peru (PER)	0.5910	0.2570	0.12600	0.04990	0.00965	0.4430	1.030
Brazil (BRA)	0.4750	0.1460	0.08980	0.06010	0.00722	0.3040	0.778
Honduras (HND)	0.4550	0.2040	0.04390	0.04190	0.02670	0.3160	0.771
Côte d'Ivoire (CIV)	0.2460	0.1300	0.08270	0.12500	0.04160	0.3800	0.625
El Salvador (SLV)	0.2320	0.0910	0.02200	0.02120	0.01330	0.1480	0.379
Chile (CHL)	0.2760	0.0380	0.01490	0.02460	0.00612	0.0836	0.360
Sri Lanka (LKA)	0.1910	0.0359	0.00751	0.00851	0.00438	0.0563	0.248
Uruguay (URY)	0.0767	0.0458	0.04800	0.04540	0.00452	0.1440	0.220
India (IND)	0.1410	0.0166	0.00976	0.00584	0.00892	0.0412	0.182
Malaysia (MYS)	0.1190	0.0135	0.00615	0.01050	0.00492	0.0351	0.154

Table S7

item	export quantity tonnes	virtual land export km <sup>2</sup>
<b>Australia (AUS)</b>		
meat, cattle	321000.000	205000.000
meat, sheep	71400.000	61200.000
meat, goat	17800.000	18500.000
milk, cattle	8530.000	269.000
chick peas	3600.000	26.700
meat, pig	2640.000	13.300
molasses	71300.000	8.930
beans, dry	960.000	6.900
nuts nes	1200.000	6.790
oats	750.000	4.440
meat, horse	6.000	3.830
oranges	6410.000	3.280
hops	638.000	2.700
almonds, with shell	460.000	2.340
tangerines, mandarins, clementines, satsumas	3630.000	1.590
oilseeds nes	377.000	0.736
sugar nes	4700.000	0.589
broad beans, horse beans, dry	74.000	0.460
sugar confectionery	2280.000	0.286
lentils	16.700	0.150
cherries	95.000	0.146
pistachios	14.500	0.141
fruit, tropical fresh nes	72.200	0.128
anise, badian, fennel, coriander	9.330	0.080
lemons and limes	169.000	0.071
grapefruit (inc. pomelos)	66.000	0.068
meat, chicken	16.300	0.048
pears	71.000	0.039
fruit, fresh nes	5.000	0.014
asparagus	4.000	0.008
fructose and syrup, other	20.000	0.002
sugar refined	1.250	0.000
sugar raw centrifugal	1.000	0.000
mushrooms and truffles	2.600	0.000
<b>Mexico (MEX)</b>		
meat, cattle	168000.000	33400.000
coffee, green	59500.000	2250.000
vegetables, fresh nes	561000.000	662.000
avocados	678000.000	656.000
chillies and peppers, green	939000.000	516.000
milk, cattle	40400.000	463.000
lemons and limes	599000.000	413.000
tomatoes	1670000.000	385.000
mangoes, mangosteens, guavas	315000.000	309.000
beans, dry	23000.000	297.000
pumpkins, squash and gourds	475000.000	256.000
watermelons	697000.000	223.000
walnuts, with shell	26500.000	162.000

(continued)

item	export quantity tonnes	virtual land export km <sup>2</sup>
asparagus	141000.000	158.000
cucumbers and gherkins	690000.000	145.000
cauliflowers and broccoli	231000.000	138.000
chillies and peppers, dry	25500.000	135.000
maize	46700.000	129.000
onions, dry	374000.000	122.000
grapes	161000.000	120.000
bananas	350000.000	119.000
sugar raw centrifugal	728000.000	99.500
lettuce and chicory	175000.000	78.300
sugar refined	482000.000	65.900
beans, green	45100.000	53.000
chick peas	9390.000	52.800
fruit, fresh nes	37700.000	49.300
meat, goat	125.000	45.600
beer of barley	2550000.000	45.400
meat, pig	15700.000	43.800
cabbages and other brassicas	148000.000	43.500
melons, other (inc.cantaloupes)	125000.000	41.700
wheat	19800.000	38.800
oranges	55600.000	38.700
carrots and turnips	105000.000	37.400
sugar confectionery	256000.000	35.000
peas, green	17800.000	34.300
coconuts	17500.000	27.600
papayas	152000.000	26.700
strawberries	112000.000	24.900
olives	6440.000	17.600
pineapples	73200.000	16.000
meat, horse	17.000	14.200
molasses	102000.000	14.000
groundnuts, shelled	1920.000	11.500
roots and tubers nes	32600.000	10.800
garlic	11200.000	9.570
spinach	13700.000	8.700
eggplants (aubergines)	62900.000	8.630
meat, chicken	3960.000	7.180
sorghum	2100.000	5.960
oilseeds nes	5060.000	5.610
spices nes	4580.000	5.560
lentils	475.000	5.250
dates	3030.000	4.970
leeks, other alliaceous vegetables	7220.000	4.330
fructose and syrup, other	26300.000	3.590
nuts nes	679.000	3.410
tangerines, mandarins, clementines, satsumas	4070.000	2.800
sweet potatoes	5310.000	2.710
broad beans, horse beans, dry	375.000	2.560
meat, sheep	10.700	2.250
pepper (piper spp.)	412.000	2.050

(continued)

item	export quantity tonnes	virtual land export km <sup>2</sup>
grapefruit (inc. pomelos)	3430.000	1.350
artichokes	1590.000	1.230
pistachios	67.000	1.170
peaches and nectarines	618.000	1.020
cocoa, beans	47.200	1.010
barley	242.000	0.884
figs	472.000	0.876
peas, dry	78.400	0.596
cashew nuts, with shell	120.000	0.439
ginger	333.000	0.369
eggs, chicken	1320.000	0.321
apples	409.000	0.312
sugar nes	1450.000	0.198
vanilla	8.800	0.170
canary seed	24.200	0.165
potatoes	396.000	0.140
cassava dried	107.000	0.084
plums and sloes	44.200	0.084
apricots	42.000	0.078
oats	13.800	0.077
quinoa	5.750	0.039
sugar beet	67.000	0.035
anise, badian, fennel, coriander	39.800	0.030
cherries	9.500	0.028
quinces	14.000	0.018
almonds, with shell	1.750	0.013
rice, paddy	6.000	0.011
pears	5.000	0.008
millet	0.500	0.003
<b>Canada (CAN)</b>		
meat, cattle	342000.000	47900.000
wheat	2750000.000	8560.000
oats	1530000.000	4540.000
meat, pig	396000.000	3180.000
peas, dry	200000.000	802.000
barley	272000.000	760.000
meat, chicken	64600.000	511.000
maize	495000.000	494.000
milk, cattle	99400.000	448.000
rye	117000.000	402.000
beans, dry	79900.000	342.000
lentils	43900.000	296.000
meat, horse	1120.000	261.000
chick peas	32700.000	187.000
potatoes	504000.000	118.000
blueberries	35100.000	79.900
canary seed	8270.000	62.300
anise, badian, fennel, coriander	4250.000	48.600
cabbages and other brassicas	68300.000	31.500
chillies and peppers, green	138000.000	26.200

(continued)

item	export quantity tonnes	virtual land export km <sup>2</sup>
cucumbers and gherkins	139000.000	25.300
tomatoes	182000.000	24.800
cranberries	61400.000	23.700
carrots and turnips	89800.000	20.800
buckwheat	3690.000	19.600
triticale	5090.000	17.800
lettuce and chicory	39500.000	17.500
onions, dry	66600.000	15.200
meat, sheep	77.600	11.900
pumpkins, squash and gourds	23600.000	11.900
apples	27000.000	10.100
vegetables, fresh nes	25900.000	9.820
sugar beet	57200.000	8.370
cauliflowers and broccoli	15500.000	8.360
beans, green	4910.000	7.060
eggs, chicken	8760.000	6.670
cherries	5090.000	4.620
asparagus	1470.000	3.360
spinach	2520.000	2.870
grapes	1250.000	1.310
peas, green	475.000	1.030
strawberries	706.000	0.786
garlic	162.000	0.621
leeks, other alliaceous vegetables	876.000	0.489
cherries, sour	180.000	0.301
watermelons	602.000	0.146
fruit, fresh nes	79.800	0.135
melons, other (inc.cantaloupes)	306.000	0.080
peaches and nectarines	80.200	0.074
pears	84.400	0.067
apricots	6.500	0.007
plums and sloes	3.330	0.005
<b>Colombia (COL)</b>		
coffee, green	297000.000	3040.000
bananas	325000.000	114.000
plantains and others	61500.000	70.400
meat, cattle	128.000	19.000
milk, cattle	521.000	17.300
cocoa, beans	246.000	6.430
sugar raw centrifugal	47400.000	5.320
sugar refined	46500.000	5.220
molasses	35600.000	3.990
lemons and limes	4380.000	3.150
beans, dry	309.000	2.700
beer of barley	382.000	1.680
lentils	46.000	1.630
sugar confectionery	12800.000	1.440
roots and tubers nes	1240.000	1.290
spices nes	920.000	1.090
quinoa	104.000	0.459



(continued)

item	export quantity tonnes	virtual land export km <sup>2</sup>
cassava dried	358.000	0.362
pineapples	1430.000	0.343
fruit, fresh nes	309.000	0.232
onions, dry	434.000	0.177
avocados	93.800	0.119
vegetables, fresh nes	117.000	0.112
starch, cassava	73.200	0.074
apples	59.000	0.054
beans, green	14.800	0.053
garlic	45.000	0.034
oranges	40.800	0.026
tangerines, mandarins, clementines, satsumas	33.500	0.024
nuts nes	8.670	0.024
pears	24.000	0.017
meat, chicken	61.000	0.016
grapes	15.500	0.013
asparagus	3.500	0.013
peas, green	2.250	0.012
tea	2.600	0.011
groundnuts, shelled	1.000	0.009
maize	3.200	0.009
mangoes, mangosteens, guavas	4.200	0.004
chillies and peppers, green	2.250	0.003
potatoes	4.750	0.002
plums and sloes	2.000	0.002
lettuce and chicory	3.250	0.001
sugar nes	4.400	0.000
figs	1.000	0.000
<b>Ecuador (ECU)</b>		
cocoa, beans	67900.000	1580.000
bananas	809000.000	211.000
plantains and others	127000.000	186.000
coffee, green	2150.000	147.000
mangoes, mangosteens, guavas	46600.000	79.800
roots and tubers nes	2950.000	10.700
beans, dry	291.000	5.470
pepper (piper spp.)	1030.000	5.120
quinoa	679.000	4.690
sweet potatoes	683.000	3.980
tea	499.000	2.330
cassava dried	1010.000	1.870
oilseeds nes	202.000	1.550
cauliflowers and broccoli	1160.000	1.500
sugar raw centrifugal	10300.000	1.210
milk, cattle	132.000	0.926
pineapples	2830.000	0.774
lemons and limes	394.000	0.747
fruit, fresh nes	618.000	0.746
asparagus	193.000	0.648
oats	40.800	0.558

(continued)

item	export quantity tonnes	virtual land export km <sup>2</sup>
peas, dry	14.000	0.337
potatoes	328.000	0.251
cucumbers and gherkins	193.000	0.229
vegetables, fresh nes	110.000	0.186
beans, green	23.000	0.142
peas, green	24.000	0.142
broad beans, horse beans, dry	4.600	0.077
spices nes	7.000	0.076
sugar refined	520.000	0.061
maize	20.400	0.053
papayas	60.000	0.047
groundnuts, shelled	4.800	0.040
sugar confectionery	203.000	0.024
figs	2.400	0.020
plums and sloes	11.600	0.016
tomatoes	44.000	0.016
tangerines, mandarins, clementines, satsumas	6.000	0.015
chillies and peppers, green	4.200	0.011
lentils	0.333	0.004
pumpkins, squash and gourds	1.400	0.004
coconuts	2.000	0.003
sugar nes	3.000	0.000
<b>Nicaragua (NIC)</b>		
meat, cattle	46400.000	4620.000
coffee, green	63200.000	675.000
beans, dry	9940.000	132.000
milk, cattle	4730.000	121.000
sugar raw centrifugal	70300.000	7.620
plantains and others	11700.000	7.010
bananas	38900.000	6.300
molasses	49400.000	5.350
sugar nes	32900.000	3.560
oilseeds nes	754.000	3.330
vegetables, fresh nes	1860.000	1.910
sugar refined	12000.000	1.300
cocoa, beans	54.800	1.000
cassava dried	836.000	0.968
groundnuts, shelled	317.000	0.760
fruit, fresh nes	143.000	0.278
chillies and peppers, green	321.000	0.107
coconuts	38.000	0.086
meat, pig	18.700	0.040
meat, chicken	43.000	0.015
pineapples	7.000	0.005
maize	0.500	0.004
sugar confectionery	9.600	0.001
<b>New Zealand (NZL)</b>		
meat, cattle	206000.000	7350.000
meat, sheep	27800.000	1200.000
milk, cattle	126000.000	177.000

(continued)

item	export quantity tonnes	virtual land export km <sup>2</sup>
meat, goat	268.000	12.300
apples	42300.000	8.140
kiwi fruit	17500.000	5.060
beer of barley	1790.000	3.020
peas, dry	943.000	2.780
avocados	878.000	1.510
lemons and limes	841.000	0.499
onions, shallots, green	1680.000	0.397
pears	1470.000	0.290
fruit, fresh nes	265.000	0.218
cherries	68.400	0.196
hops	33.200	0.136
asparagus	44.300	0.133
apricots	52.000	0.072
plums and sloes	35.000	0.062
melons, other (inc.cantaloupes)	85.400	0.060
pumpkins, squash and gourds	86.800	0.050
blueberries	22.800	0.047
maize	25.200	0.024
persimmons	34.000	0.021
lentils	2.000	0.009
tomatoes	93.800	0.008
strawberries	11.200	0.005
oranges	6.400	0.005
watermelons	3.250	0.003
grapes	1.800	0.002
wheat	1.000	0.001
tangerines, mandarins, clementines, satsumas	0.750	0.001
vegetables, fresh nes	2.400	0.001
potatoes	2.800	0.001
cauliflowers and broccoli	0.800	0.001
grapefruit (inc. pomelos)	1.330	0.001
lettuce and chicory	1.200	0.000
meat, pig	3.670	0.000
currants	0.250	0.000
chillies and peppers, green	0.750	0.000
cucumbers and gherkins	0.500	0.000
cabbages and other brassicas	0.800	0.000
leeks, other alliaceous vegetables	0.250	0.000
eggs, chicken	6.000	0.000
<b>Costa Rica (CRI)</b>		
meat, cattle	9580.000	370.000
coffee, green	35600.000	328.000
bananas	868000.000	165.000
pineapples	1080000.000	150.000
cassava dried	75500.000	50.400
melons, other (inc.cantaloupes)	60200.000	19.000
vegetables, fresh nes	24400.000	15.900
sugar raw centrifugal	77700.000	11.600
beans, dry	413.000	6.030

(continued)

item	export quantity tonnes	virtual land export km <sup>2</sup>
molasses	24200.000	3.600
milk, cattle	357.000	2.190
chillies and peppers, green	1380.000	2.110
mangoes, mangosteens, guavas	1590.000	2.030
ginger	2280.000	1.970
plantains and others	1490.000	1.390
watermelons	5830.000	1.370
fruit, tropical fresh nes	1060.000	1.260
nuts nes	65.200	1.240
cocoa, beans	14.200	1.010
roots and tubers nes	1230.000	0.981
avocados	348.000	0.923
sweet potatoes	175.000	0.589
oilseeds nes	39.000	0.538
beans, green	48.300	0.485
carrots and turnips	1310.000	0.383
coconuts	251.000	0.265
cabbages and other brassicas	858.000	0.234
sugar refined	1510.000	0.225
fruit, fresh nes	94.200	0.137
pepper (piper spp.)	56.500	0.108
papayas	642.000	0.074
sugar nes	394.000	0.059
sugar confectionery	373.000	0.056
meat, chicken	104.000	0.052
cucumbers and gherkins	27.000	0.030
cauliflowers and broccoli	8.500	0.012
starch, cassava	11.000	0.007
meat, pig	17.000	0.007
leeks, other alliaceous vegetables	6.000	0.006
lemons and limes	10.700	0.005
tomatoes	15.500	0.003
<b>Guatemala (GTM)</b>		
coffee, green	74000.000	864.000
bananas	1930000.000	392.000
melons, other (inc.cantaloupes)	382000.000	168.000
beans, green	21000.000	102.000
plantains and others	135000.000	63.700
peas, green	23600.000	31.000
sugar raw centrifugal	261000.000	21.600
watermelons	62700.000	16.100
nutmeg, mace and cardamoms	720.000	14.500
mangoes, mangosteens, guavas	17600.000	13.700
beans, dry	1040.000	9.980
papayas	28400.000	9.650
cauliflowers and broccoli	14700.000	8.920
molasses	94300.000	7.820
pineapples	21500.000	7.730
vegetables, fresh nes	5110.000	6.390
fruit, fresh nes	2850.000	5.230

(continued)

item	export quantity tonnes	virtual land export km <sup>2</sup>
tea	142.000	3.100
tomatoes	9980.000	2.640
sugar refined	29400.000	2.440
chillies and peppers, green	5100.000	2.070
pepper (piper spp.)	106.000	1.720
nuts nes	856.000	1.490
lemons and limes	2480.000	1.160
meat, cattle	19.000	1.070
carrots and turnips	3110.000	1.060
spices nes	54.200	0.809
sugar non-centrifugal	8030.000	0.666
cabbages and other brassicas	1380.000	0.433
onions, dry	1220.000	0.410
sugar nes	4490.000	0.372
lettuce and chicory	845.000	0.286
sugar confectionery	1820.000	0.151
cocoa, beans	35.000	0.131
cassava dried	6.250	0.060
coconuts	23.000	0.040
starch, cassava	4.000	0.038
oilseeds nes	7.400	0.025
maize	5.000	0.023
meat, chicken	19.500	0.022
milk, cattle	1.500	0.021
broad beans, horse beans, dry	0.667	0.005
barley	1.000	0.005
strawberries	6.670	0.003
<b>Indonesia (IDN)</b>		
coffee, green	66600.000	1240.000
cinnamon (cannella)	21800.000	267.000
pepper (piper spp.)	7500.000	153.000
nutmeg, mace and cardamoms	1470.000	75.900
sugar nes	16200.000	61.100
milk, cattle	2670.000	46.800
tea	3750.000	30.500
cloves	548.000	22.800
vanilla	216.000	14.800
cocoa, beans	525.000	13.900
sugar confectionery	3170.000	12.000
cashew nuts, with shell	57.300	2.200
sugar refined	500.000	1.890
areca nuts	81.000	0.858
nuts nes	25.000	0.518
cassava dried	482.000	0.203
garlic	134.000	0.160
coconuts	86.000	0.149
spices nes	298.000	0.137
molasses	10.500	0.040
ginger	56.200	0.028
starch, cassava	60.300	0.025

(continued)

item	export quantity tonnes	virtual land export km <sup>2</sup>
flour, cassava	53.000	0.022
watermelons	12.000	0.008
fruit, fresh nes	8.000	0.006
maize	2.000	0.004
mushrooms and truffles	26.000	0.004
sweet potatoes	5.330	0.003
beans, green	2.000	0.003
melons, other (inc.cantaloupes)	3.000	0.002
sugar raw centrifugal	0.333	0.001
bananas	7.000	0.001
vegetables, fresh nes	1.000	0.001
<b>Peru (PER)</b>		
coffee, green	54800.000	750.000
milk, cattle	22700.000	433.000
quinoa	17400.000	129.000
asparagus	88900.000	76.700
avocados	58800.000	49.800
cocoa, beans	3340.000	40.900
grapes	80800.000	36.800
mangoes, mangosteens, guavas	44900.000	34.800
onions, dry	119000.000	29.600
chillies and peppers, dry	16400.000	26.900
bananas	60500.000	21.800
tangerines, mandarins, clementines, satsumas	45700.000	17.100
beer of barley	1380.000	16.500
blueberries	16100.000	15.900
beans, dry	1280.000	10.800
peas, green	2960.000	7.750
maize	1580.000	4.820
broad beans, horse beans, dry	667.000	4.760
ginger	6900.000	4.490
oilseeds nes	1230.000	4.460
sugar raw centrifugal	47800.000	3.970
meat, sheep	3.000	2.220
flour, cassava	1400.000	1.150
pepper (piper spp.)	223.000	1.010
grapefruit (inc. pomelos)	605.000	0.750
garlic	795.000	0.750
anise, badian, fennel, coriander	47.800	0.646
spices nes	140.000	0.489
sweet potatoes	699.000	0.394
wheat	48.600	0.327
lettuce and chicory	322.000	0.297
chillies and peppers, green	363.000	0.236
lemons and limes	210.000	0.197
barley	23.600	0.159
tea	13.000	0.090
sugar refined	1010.000	0.084
roots and tubers nes	49.200	0.070
vegetables, fresh nes	135.000	0.069

(continued)

item	export quantity tonnes	virtual land export km <sup>2</sup>
buckwheat	5.670	0.068
figs	32.200	0.064
peas, dry	7.000	0.063
oranges	95.000	0.060
sugar nes	712.000	0.059
olives	31.700	0.058
dates	12.300	0.050
beans, green	18.000	0.045
cherries, sour	22.000	0.036
leeks, other alliaceous vegetables	52.000	0.028
quinces	22.000	0.024
chick peas	2.000	0.016
pumpkins, squash and gourds	21.500	0.008
plantains and others	9.800	0.008
strawberries	13.800	0.007
rice, paddy	3.800	0.005
melons, other (inc.cantaloupes)	8.500	0.005
fruit, fresh nes	3.400	0.004
potatoes	3.000	0.002
chestnut	0.750	0.002
sugar confectionery	13.200	0.001
cassava dried	1.200	0.001
artichokes	1.670	0.001
<b>Brazil (BRA)</b>		
meat, cattle	32600.000	3280.000
coffee, green	369000.000	2420.000
maize	119000.000	231.000
milk, cattle	3450.000	55.000
pepper (piper spp.)	10800.000	42.800
sugar raw centrifugal	212000.000	28.700
mangoes, mangosteens, guavas	29600.000	15.800
sugar refined	96800.000	13.100
meat, pig	4120.000	8.000
beans, dry	467.000	4.450
flour, cassava	4870.000	3.270
sugar confectionery	13700.000	1.860
starch, cassava	2420.000	1.620
sugar nes	11300.000	1.530
tea	274.000	1.280
roots and tubers nes	1200.000	1.230
maté	747.000	0.906
papayas	2950.000	0.689
grapes	1100.000	0.570
melons, other (inc.cantaloupes)	1060.000	0.421
meat, chicken	435.000	0.380
cocoa, beans	12.600	0.335
molasses	2420.000	0.328
fruit, fresh nes	82.000	0.314
watermelons	278.000	0.123
walnuts, with shell	20.000	0.112

(continued)

item	export quantity tonnes	virtual land export km <sup>2</sup>
sorghum	21.000	0.076
avocados	114.000	0.067
nuts nes	65.000	0.062
groundnuts, shelled	16.200	0.047
lemons and limes	68.200	0.026
rice, paddy	12.500	0.022
sweet potatoes	22.000	0.016
bananas	20.800	0.014
apples	43.000	0.012
persimmons	18.000	0.009
figs	6.330	0.006
cassava dried	6.500	0.004
garlic	3.000	0.003
coconuts	2.250	0.002
strawberries	1.000	0.001
oranges	3.000	0.001
tangerines, mandarins, clementines, satsumas	2.000	0.001
vegetables, fresh nes	1.000	0.001
eggs, chicken	1.800	0.001
potatoes	0.500	0.000
pineapples	0.333	0.000
<b>Honduras (HND)</b>		
coffee, green	62000.000	550.000
bananas	594000.000	120.000
meat, cattle	1260.000	114.000
melons, other (inc.cantaloupes)	158000.000	35.800
beans, dry	1220.000	15.700
vegetables, fresh nes	19000.000	13.100
molasses	105000.000	12.700
pineapples	51400.000	11.300
watermelons	33500.000	7.880
milk, cattle	556.000	6.910
pepper (piper spp.)	303.000	6.470
cucumbers and gherkins	25500.000	6.010
chillies and peppers, green	14400.000	5.700
nutmeg, mace and cardamoms	176.000	3.890
sugar raw centrifugal	26000.000	3.130
eggplants (aubergines)	9880.000	3.110
pumpkins, squash and gourds	11100.000	2.770
cocoa, beans	72.600	2.360
cassava dried	1860.000	2.190
sugar refined	13500.000	1.620
sweet potatoes	957.000	1.510
lemons and limes	1610.000	0.793
fruit, fresh nes	742.000	0.534
maize	79.000	0.435
plantains and others	458.000	0.364
apples	53.000	0.304
sorghum	31.000	0.297
sugar nes	2130.000	0.256



(continued)

item	export quantity tonnes	virtual land export km <sup>2</sup>
potatoes	174.000	0.120
onions, dry	257.000	0.113
roots and tubers nes	32.700	0.058
meat, chicken	40.500	0.041
eggs, chicken	198.000	0.032
carrots and turnips	25.000	0.021
mangoes, mangosteens, guavas	21.000	0.016
tomatoes	67.500	0.015
oranges	23.000	0.012
coconuts	3.000	0.003
sugar confectionery	17.200	0.002
meat, pig	0.500	0.002
<b>Côte d'Ivoire (CIV)</b>		
cocoa, beans	262000.000	5130.000
cashew nuts, with shell	500.000	11.900
kola nuts	456.000	6.500
milk, cattle	1.000	1.470
coconuts	182.000	0.787
mangoes, mangosteens, guavas	13.000	0.222
fonio	5.000	0.038
eggplants (aubergines)	19.200	0.033
oilseeds nes	1.500	0.027
pepper (piper spp.)	1.500	0.024
vegetables, fresh nes	8.600	0.021
groundnuts, shelled	1.670	0.011
nuts nes	3.200	0.010
beans, dry	0.667	0.008
millet	0.500	0.006
spices nes	0.333	0.005
cassava dried	2.000	0.003
starch, cassava	1.250	0.002
fruit, fresh nes	1.000	0.001
chillies and peppers, green	0.500	0.001
chillies and peppers, dry	0.200	0.000
<b>El Salvador (SLV)</b>		
coffee, green	14600.000	423.000
molasses	160000.000	18.400
sugar raw centrifugal	106000.000	12.200
milk, cattle	855.000	8.480
beans, dry	707.000	7.480
sugar refined	15300.000	1.760
plantains and others	2680.000	1.410
chillies and peppers, green	1700.000	0.614
lemons and limes	473.000	0.347
oilseeds nes	31.200	0.260
cocoa, beans	3.800	0.091
vegetables, fresh nes	122.000	0.058
sugar confectionery	459.000	0.053
cashew nuts, with shell	1.600	0.027
coconuts	76.800	0.026

(continued)

item	export quantity tonnes	virtual land export km <sup>2</sup>
cabbages and other brassicas	13.000	0.016
tea	2.000	0.011
fruit, fresh nes	7.330	0.010
potatoes	6.000	0.002
pumpkins, squash and gourds	1.000	0.002
cassava dried	2.200	0.001
starch, cassava	2.000	0.001
<b>Chile (CHL)</b>		
meat, sheep	621.000	692.000
milk, cattle	23500.000	450.000
grapes	330000.000	289.000
meat, cattle	470.000	113.000
cranberries	61300.000	96.300
avocados	28000.000	60.100
tangerines, mandarins, clementines, satsumas	97700.000	54.800
oranges	67300.000	37.200
meat, chicken	33000.000	25.700
maize	23700.000	20.600
apples	91600.000	18.900
peaches and nectarines	36900.000	18.500
lemons and limes	36200.000	16.000
plums and sloes	23000.000	13.600
cherries	6960.000	13.600
kiwi fruit	25400.000	9.900
fruit, fresh nes	3860.000	8.570
hazelnuts, with shell	505.000	7.330
pears	15500.000	4.600
beans, dry	395.000	2.340
walnuts, with shell	298.000	1.320
quinces	181.000	1.090
meat, pig	1690.000	0.903
onions, dry	3210.000	0.667
persimmons	346.000	0.653
apricots	586.000	0.576
figs	66.600	0.487
grapefruit (inc. pomelos)	152.000	0.343
garlic	166.000	0.132
pumpkins, squash and gourds	290.000	0.123
peas, dry	9.000	0.090
chestnut	9.250	0.042
wheat	22.500	0.038
cherries, sour	26.500	0.028
cabbages and other brassicas	35.300	0.014
carrots and turnips	48.000	0.011
asparagus	4.500	0.008
vegetables, fresh nes	9.000	0.004
currants	4.000	0.003
strawberries	2.000	0.001
<b>Sri Lanka (LKA)</b>		
tea	4720.000	32.100

(continued)

item	export quantity tonnes	virtual land export km <sup>2</sup>
cinnamon (cannella)	2070.000	28.700
pepper (piper spp.)	460.000	5.440
beans, dry	368.000	3.230
cloves	160.000	1.650
nutmeg, mace and cardamoms	54.000	0.429
peas, dry	57.000	0.419
pineapples	122.000	0.151
bananas	17.500	0.138
coconuts	36.000	0.059
milk, cattle	6.600	0.051
spices nes	28.600	0.032
plantains and others	33.500	0.029
meat, chicken	15.000	0.014
cocoa, beans	1.000	0.012
sugar nes	41.200	0.010
coffee, green	0.667	0.008
rice, paddy	3.000	0.008
mangoes, mangosteens, guavas	6.750	0.006
ginger	4.200	0.005
lemons and limes	5.000	0.003
maize	1.000	0.003
fruit, fresh nes	1.250	0.002
vegetables, fresh nes	1.000	0.001
sugar refined	3.250	0.001
fructose and syrup, other	2.000	0.001
cassava dried	0.500	0.000
sugar confectionery	0.600	0.000
<b>Uruguay (URY)</b>		
meat, cattle	47000.000	5140.000
meat, sheep	47.200	19.000
milk, cattle	1590.000	14.900
tangerines, mandarins, clementines, satsumas	12600.000	7.660
meat, horse	15.000	5.550
wheat	664.000	2.120
barley	456.000	1.370
oranges	2210.000	1.250
sorghum	363.000	0.941
lemons and limes	1520.000	0.727
maize	16.200	0.029
<b>India (IND)</b>		
anise, badian, fennel, coriander	15000.000	201.000
pepper (piper spp.)	9650.000	200.000
chillies and peppers, dry	25000.000	117.000
beans, dry	3890.000	90.500
spices nes	18500.000	89.800
oilseeds nes	11300.000	81.900
tea	14200.000	66.700
meat, cattle	2880.000	39.000
chick peas	2610.000	28.300
coffee, green	2130.000	28.100

(continued)

item	export quantity tonnes	virtual land export km <sup>2</sup>
nutmeg, mace and cardamoms	440.000	15.100
maize	2710.000	9.710
lentils	560.000	7.590
mangoes, mangosteens, guavas	5580.000	6.540
sorghum	515.000	5.990
ginger	1520.000	2.650
coconuts	939.000	1.720
milk, cattle	1390.000	1.520
areca nuts	176.000	1.130
millet	129.000	1.050
sugar raw centrifugal	6820.000	0.943
sugar refined	6110.000	0.844
fruit, fresh nes	547.000	0.839
peas, dry	64.300	0.800
rice, paddy	146.000	0.390
cocoa, beans	6.330	0.294
garlic	145.000	0.262
molasses	1640.000	0.226
groundnuts, shelled	22.400	0.146
sugar confectionery	1020.000	0.141
vegetables, fresh nes	171.000	0.129
sugar nes	833.000	0.115
walnuts, with shell	11.500	0.102
onions, dry	150.000	0.091
cashew nuts, with shell	6.500	0.089
chillies and peppers, green	62.000	0.074
lettuce and chicory	39.000	0.062
wheat	16.400	0.053
meat, sheep	2.000	0.037
beans, green	7.000	0.025
barley	5.800	0.023
cassava dried	40.600	0.017
apricots	3.000	0.011
potatoes	22.800	0.010
sweet potatoes	9.750	0.009
meat, pig	3.000	0.008
bananas	25.800	0.007
meat, chicken	6.000	0.006
peas, green	6.000	0.006
cucumbers and gherkins	3.250	0.005
cauliflowers and broccoli	9.500	0.005
grapes	10.300	0.005
eggplants (aubergines)	7.500	0.004
eggs, chicken	33.800	0.004
plums and sloes	2.330	0.003
melons, other (inc.cantaloupes)	5.600	0.003
figs	0.667	0.003
papayas	7.750	0.002
apples	1.330	0.002
flour, cassava	3.000	0.001

(continued)

item	export quantity tonnes	virtual land export km <sup>2</sup>
oranges	1.000	0.001
pineapples	1.330	0.001
starch, cassava	1.330	0.001
tomatoes	1.000	0.000
grapefruit (inc. pomelos)	0.500	0.000
watermelons	0.333	0.000
fructose and syrup, other	0.333	0.000
<b>Malaysia (MYS)</b>		
cocoa, beans	1780.000	174.000
milk, cattle	1230.000	4.430
pepper (piper spp.)	118.000	0.670
sugar confectionery	1050.000	0.493
fruit, tropical fresh nes	218.000	0.445
sugar nes	484.000	0.227
cloves	1.000	0.044
coffee, green	13.000	0.041
spices nes	40.000	0.040
groundnuts, shelled	20.000	0.033
sugar refined	21.000	0.010
fructose and syrup, other	19.000	0.009
tea	3.600	0.006
meat, chicken	39.000	0.004
mangoes, mangosteens, guavas	2.670	0.003
vegetables, fresh nes	4.000	0.002
meat, pig	14.500	0.002
maize	1.000	0.002
cabbages and other brassicas	3.000	0.001
ginger	1.000	0.001
cassava dried	0.500	0.000
<b>Other</b>		
cocoa, beans	75700.000	1690.000
coffee, green	72400.000	1220.000
meat, pig	115000.000	518.000
milk, cattle	229000.000	479.000
tea	77900.000	443.000
maize	235000.000	348.000
wheat	119000.000	341.000
beer of barley	122000.000	340.000
oats	103000.000	288.000
rye	126000.000	282.000
quinoa	16800.000	274.000
oilseeds nes	32400.000	262.000
beans, dry	30400.000	216.000
vanilla	955.000	203.000
meat, cattle	4000.000	178.000
barley	43300.000	161.000
sorghum	53500.000	126.000
meat, sheep	268.000	94.900
chick peas	9210.000	85.400
anise, badian, fennel, coriander	6270.000	82.000

(continued)

item	export quantity tonnes	virtual land export km <sup>2</sup>
sugar raw centrifugal	437000.000	74.300
spices nes	12700.000	57.000
ginger	55800.000	55.600
coconuts	25900.000	55.500
chillies and peppers, dry	28000.000	47.000
tangerines, mandarins, clementines, satsumas	81100.000	41.400
starch, cassava	88000.000	39.900
garlic	74300.000	38.000
dates	20800.000	37.000
peas, dry	6050.000	28.800
pears	64200.000	28.000
nuts nes	11200.000	27.600
vegetables, fresh nes	10300.000	22.600
lentils	2940.000	20.600
hops	3550.000	19.900
oranges	54100.000	15.300
groundnuts, shelled	2750.000	14.700
molasses	72100.000	14.200
chestnut	3390.000	13.400
kiwi fruit	26600.000	12.200
cloves	351.000	11.500
buckwheat	813.000	9.270
eggs, chicken	22400.000	8.900
mangoes, mangosteens, guavas	4330.000	8.810
sugar confectionery	84500.000	8.270
plantains and others	7690.000	7.380
pepper (piper spp.)	621.000	7.130
cashew nuts, with shell	406.000	6.870
fruit, fresh nes	6180.000	6.830
apples	13300.000	5.780
roots and tubers nes	9580.000	5.440
olives	3610.000	4.650
lemons and limes	13000.000	4.650
meat, horse	24.000	4.450
millet	457.000	4.380
pistachios	998.000	4.360
broad beans, horse beans, dry	1400.000	4.340
meat, chicken	6880.000	4.210
sugar refined	20400.000	3.780
nutmeg, mace and cardamoms	181.000	3.650
maté	632.000	3.640
onions, dry	12200.000	3.540
chillies and peppers, green	26000.000	2.850
rice, paddy	1380.000	2.820
walnuts, with shell	458.000	2.740
sugar nes	18000.000	2.510
carrots and turnips	16300.000	2.440
cherries	733.000	2.430
onions, shallots, green	4040.000	1.850
grapes	1780.000	1.790

(continued)

item	export quantity tonnes	virtual land export km <sup>2</sup>
cassava dried	2280.000	1.610
papayas	8820.000	1.410
pineapples	5990.000	1.390
persimmons	2770.000	1.280
beans, green	1260.000	1.270
grapefruit (inc. pomelos)	4460.000	1.270
bananas	2730.000	1.180
meat, goat	5.500	1.160
cinnamon (cannella)	216.000	1.150
fruit, tropical fresh nes	546.000	1.080
sweet potatoes	1310.000	0.968
almonds, with shell	64.800	0.965
pumpkins, squash and gourds	593.000	0.941
flour, cassava	1560.000	0.745
mushrooms and truffles	13500.000	0.662
areca nuts	109.000	0.645
watermelons	958.000	0.587
potatoes	1750.000	0.539
lettuce and chicory	1940.000	0.518
fonio	32.800	0.460
fructose and syrup, other	2850.000	0.436
asparagus	145.000	0.408
cabbages and other brassicas	1030.000	0.329
kola nuts	12.000	0.284
cucumbers and gherkins	3370.000	0.237
leeks, other alliaceous vegetables	597.000	0.193
figs	48.000	0.167
plums and sloes	124.000	0.163
peas, green	98.200	0.158
artichokes	272.000	0.141
cauliflowers and broccoli	245.000	0.123
melons, other (inc.cantaloupes)	135.000	0.105
sugar beet	860.000	0.103
avocados	62.000	0.098
apricots	53.000	0.083
tomatoes	616.000	0.082
eggplants (aubergines)	1750.000	0.081
blueberries	33.200	0.080
currants	17.000	0.052
strawberries	155.000	0.038
bambara beans	3.000	0.037
peaches and nectarines	33.800	0.021
spinach	26.500	0.016
grain, mixed	3.250	0.007
cranberries	1.000	0.005
hazelnuts, with shell	0.750	0.005
quinces	0.500	0.001

**Table S8. Data sources**

The following table contains the data sources used in the manuscript, along with the names of the dataset providers, the year the datasets represent, a description of the use of the datasets in the analysis, URLs of the datasets and when the datasets were downloaded and last checked for online availability. The table lists primary non-spatial data sources, spatial data sources (polygon and raster), and crosswalk tables used to harmonize different datasets. Some crosswalk tables were downloaded from existing sources and some were created manually by the authors for this analysis.

**Table S9: Primary agricultural commodity and processed food commodity codes**

The following table contains the commodity names and six-character codes from the U.S. Bureau of Economic Analysis input-output tables used in our analysis. Thirty-seven commodities are shown, including both primary agricultural goods (codes beginning with 1) and processed foods (codes beginning with 3).



Commodity code	Commodity description
<b>primary agricultural goods</b>	
1111A0	Fresh soybeans, canola, flaxseeds, and other oilseeds
1111B0	Fresh wheat, corn, rice, and other grains
111200	Fresh vegetables, melons, and potatoes
111300	Fresh fruits and tree nuts
111400	Greenhouse crops, mushrooms, nurseries, and flowers
111900	Tobacco, cotton, sugarcane, peanuts, sugar beets, herbs and spices, and other crops
112120	Dairies
1121A0	Cattle ranches and feedlots
112300	Poultry farms
112A00	Animal farms and aquaculture ponds (except cattle and poultry)
114000	Wild-caught fish and game
<b>processed foods</b>	
311210	Flours and malts
311221	Corn products
311224	Vegetable oils and by-products
311225	Refined vegetable, olive, and seed oils
311230	Breakfast cereals
311300	Sugar, candy, and chocolate
311410	Frozen food
311420	Fruit and vegetable preservation
311513	Cheese
311514	Dry, condensed, and evaporated dairy
31151A	Fluid milk and butter
311520	Ice cream and frozen desserts
311615	Packaged poultry
31161A	Packaged meat (except poultry)
311700	Seafood
311810	Bread and other baked goods
3118A0	Cookies, crackers, pastas, and tortillas
311910	Snack foods
311940	Seasonings and dressings
311990	All other foods
311930	Flavored drink concentrates
312110	Soft drinks, bottled water, and ice
311920	Coffee and tea
312120	Breweries and beer
312130	Wineries and wine
312140	Distilleries and spirits