```sas
PROC IMPORT DATAFILE='/folders/myfolders/Dakota_Farmer_Survey_All_Data_Niaz.xlsx'
                    OUT=WORK.Landusechangedata3766
                    DBMS=XLSX
                    REPLACE;
RUN;
PROC PRINT DATA=WORK.Landusechangedata3766; RUN;

data Landusechangedata3767;
     set WORK.Landusechangedata3766;
     array myarray{98}Q2C1 Q2C2 Q3a Q3b Q3c Q3d Q6CornA Q6SoyA Q6WhA Q6AlfA Q9aAC Q9bAC Q9cAC Q9dAC Q9eAC Q9fAC
     Q6CornY Q6SoyY Q6WhY Q6ALfY Q12a Q18a Q18b Q18c Q18d
     Q2C1T1 Q2C1T2 Q2C2T1 Q2C2T2 Q12b Q12c Q12d Q10b Q4 Q5a Q5b Q7a Q7b Q8a Q8b Q8c
     Q8d Q8e Q8f Q8g Q8h Q9aYN Q9bYN Q9cYN Q9dYN Q9eYN Q9fYN
     Q9aCorn Q9aSoy Q9aWht Q9aOth Q9bCorn Q9bSoy Q9bWht Q9bOth Q9cCorn Q9cSoy Q9cWht Q9cOth
     Q10a1 Q10a2 Q10a3 Q10a4 Q10a5 Q10a6 Q10a7 Q10a8 Q10a9 Q10a10 Q11a Q11b Q11c Q13a Q13b
     Q13c Q13d Q14a1 Q14a2 Q14a3 Q14b1 Q14b2 Q14b3 Q16a Q16b Q16c Q16d Q17a Q17b Q17c Q17d
     Q19 Q23 Q1;
      do i=1 to 98;
      if myarray{i}=99999 then myarray{i}=.;
      if myarray{i}=9999 then  myarray{i}=.;
      if myarray{i}=999 then   myarray{i}=.;
      if myarray{i}=99 then myarray{i}=.;
      if myarray{i}=9 then myarray {i}=.;
end;
drop i;
run;
data Landusechangedata3767;
     set WORK.Landusechangedata3767;
     if Q2C1 = 19025 then delete;
     if Q2C1 = 27105 then delete;
     if Q2C1 = 27117 then delete;
     if Q2C1 = 27133 then delete;
     if Q2C1 = 27167 then delete;
     if Q2C1 = 38019 then delete;
     if Q2C1 = 38075 then delete;
     if Q2C1 = 46031 then delete;
     if Q2C1 = 46055 then delete;
     if Q2C1 = 38001 then delete;
     if Q2C1 = 38061 then delete;
     if Q2C1 = 46085 then delete;
     if Q2C2 = 27133 then delete;
     if Q3a=0 then Q3a=.;
run;
proc format;
value Regions
      38027,38031,38043,38083,88886,38093,88888,88889,90000,38103, 38047, 38045,88884, 38051, 38021,88881, 38015,

      38003,88880,38017,38039,88883,38091,88887,38097, 38073, 38077,88885, 38081='East North Dakota'

46013,90004,46021,90005,46045,90009,90001,46049,46089,46107,46115,46129,90014='North Central South Dakota'
      46025,90007,46029,46037,46039,46051,90010,46057,46091,46109='North East South Dakota'
      46003,46005,46015,46017,46059,90011,46065,46069,46073,46119,46117,46043,90008,46023,90006='Central South Dak
      46011,90002,90003,46035,46061,46077,90012,46079,90013,46087,46097,46099,46101,46111,46067,46083,46125='East

value State
      1001-2182,9002='North Dakota'
      2183-4000,9001='South Dakota';

/*value State
   38027,38031,38043,38083,88886,38093,88888,88889,90000,38103, 38047, 38045,88884, 38051, 38021,88881, 38015, 380
   38003,88880,38017,38039,88883,38091,88887,38097, 38073, 38077,88885, 38081,9002='North DaKota'

   46013,90004,46021,90005,46045,90009,90001,46049,46089,46107,46115,46129,90014,
   46025,90007,46029,46037,46039,46051,90010,46057,46091,46109,
   46003,46005,46015,46017,46059,90011,46065,46069,46073,46119,46117,46043,90008,46023,90006,
   46011,90002,90003,46035,46061,46077,90012,46079,90013,46087,46097,46099,46101,46111,46067,46083,46125,9001='Sou


value County
38003,88880='BARNES'
38005='BENSON'
38007='BILLINGS'
38009='BOTTINEAU'
38011='BOWMAN'
38013='BURKE'
38015='BURLEIGH'
38017='CASS'
38019='CAVALIER'
38021,88881='DICKEY'
38023='DIVIDE'
```

```
 81  38025='DUNN'
 82  38027='EDDY'
 83  38029,88882='EMMONS'
 84  38031='FOSTER'
 85  38033='GOLDEN VALLEY'
 86  38035='GRAND FORKS'
 87  38037='GRANT'
 88  38039,88883='GRIGGS'
 89  38041='HETTINGER'
 90  38043='KIDDER'
 91  38045,88884='LAMOURE'
 92  38047='LOGAN'
 93  38049='MCHENRY'
 94  38051='MCINTOSH'
 95  38053='MCKENZIE'
 96  38055='MCLEAN'
 97  38057='MERCER'
 98  38059='MORTON'
 99  38063='NELSON'
100  38065='OLIVER'
101  38067='PEMBINA'
102  38069='PIERCE'
103  38071='RAMSEY'
104  38073='RANSOM'
105  38077,88885='RICHLAND'
106  38079='ROLETTE'
107  38081='SARGENT'
108  38083,88886='SHERIDAN'
109  38085='SIOUX'
110  38087='SLOPE'
111  38089='STARK'
112  38091,88887='STEELE'
113  38093,88888,88889,90000='STUTSMAN'
114  38095='TOWNER'
115  38097='TRAILL'
116  38099='WALSH'
117  38101='WARD'
118  38103='WELLS'
119  38105='WILLIAMS'
120  46003='AURORA'
121  46005,90001='BEADLE'
122  46007='BENNETT'
123  46009='BON HOMME'
124  46011,90002,90003='BROOKINGS'
125  46013,90004='BROWN'
126  46015='BRULE'
127  46017='BUFFALO'
128  46019='BUTTE'
129  46021,90005='CAMPBELL'
130  46023,90006='CHARLES MIX'
131  46025,90007='CLARK'
132  46027='CLAY'
133  46029='CODINGTON'
134  46031='CORSON'
135  46033='CUSTER'
136  46035='DAVISON'
137  46037='DAY'
138  46039='DEUEL'
139  46041='DEWEY'
140  46043,90008='DOUGLAS'
141  46045,90009='EDMUNDS'
142  46047='FALL RIVER'
143  46049='FAULK'
144  46051,90010='GRANT'
145  46053='GREGORY'
146  46055='HAAKON'
147  46057='HAMLIN'
148  46059,90011='HAND'
149  46061='HANSON'
150  46063='HARDING'
151  46065='HUGHES'
152  46067='HUTCHINSON'
153  46069='HYDE'
154  46071='JACKSON'
155  46073='JERAULD'
156  46075='JONES'
157  46077,90012='KINGSBURY'
158  46079,90013='LAKE'
159  46081='LAWRENCE'
160  46083='LINCOLN'
161  46091='MARSHALL'
```

```sas
162  46087='MCCOOK'
163  46089='MCPHERSON'
164  46093='MEADE'
165  46095='MELLETTE'
166  46097='MINER'
167  46099='MINNEHAHA'
168  46101='MOODY'
169  46103='PENNINGTON'
170  46105='PERKINS'
171  46107='POTTER'
172  46109='ROBERTS'
173  46111='SANBORN'
174  46113='SHANNON'
175  46115='SPINK'
176  46117='STANLEY'
177  46119='SULLY'
178  46121='TODD'
179  46123='TRIPP'
180  46125='TURNER'
181  46127='UNION'
182  46129,90014='WALWORTH'
183  46135='YANKTON'
184  46137='ZIEBACH';
185  run;
186
187  PROC SORT DATA=Landusechangedata3767
188    OUT=Landusechangedata3768;
189    BY CaseID Q2C1 Q2C2;
190    format CaseID State. Q2C1 county. Q2C2 county.;
191  RUN ;
192
193  data Landusechangedata3769;
194        set WORK.Landusechangedata3768;
195        NewQ2C1=Q2C1+1;
196   format NewQ2C1 Regions.;
197  run;
198
199  proc print data=Landusechangedata3769;
200  run;
201
202  proc print data=Landusechangedata3767;
203  var CaseID Q2C1 Q2C2;
204  format CaseID State. Q2C1 County. Q2C2 County.;
205  run;
206
207   /**part A;**/
208  /**question 1;**/
209
210  proc format;
211  value operation
212        1='Have been a farm operator'
213        2='less than 10 years as a farm operator'
214        3='10 to 10 years as a farm operator'
215        4='20 to 29 years as a farm operator'
216        5='30 years or more as a farm operator'
217        ;
218  run;
219
220  proc freq data=Landusechangedata3768;
221  label Q1 ='Years as a farm opertor';
222  tables Q1*CaseID /norow nocol nocum;
223  format Q1 operation.;
224  run;
225
226  /** questions 2 & 3;**/
227
228  proc tabulate data=Landusechangedata3768 format=6.;
229  class CaseID Q2C1;
230  var Q3a Q3b Q3c Q3d;
231  label CaseID='State'
232        Q2C1='County 1'
233        Q3a ='Total farmland acres in 2014'
234        Q3b ='Cropland (excluding CRP) acres in 2014'
235        Q3c ='CRP acres in 2014'
236        Q3d ='Pasture or rangeland acres in 2014';
237  table (CaseID*Q2C1), Q3a Q3b Q3c Q3d ;
238  format CaseID State. Q2C1 Regions. Q2C1 county.;
239  format Q3a comma10.;
240  run;
241
242  proc tabulate data=Landusechangedata3768 format=6.;
```

```sas
243  class CaseID Q2C2;
244  var Q3a Q3b Q3c Q3d;
245  label CaseID='State'
246        Q2C2='County 2'
247        Q3a ='Total farmland acres in 2014'
248        Q3b ='Cropland (excluding CRP) acres in 2014'
249        Q3c ='CRP acres in 2014'
250        Q3d ='Pasture or rangeland acres in 2014';
251  table (CaseID*Q2C2), Q3a Q3b Q3c Q3d ;
252  format CaseID State. Q2C2 county.;
253  run;
254
255  proc tabulate data=Landusechangedata3768 format=6.;
256  class Q2C1;
257  var Q3a Q3b Q3c Q3d;
258  label
259        Q2C1='Regions'
260        Q3a ='Total farmland acres in 2014'
261        Q3b ='Cropland (excluding CRP) acres in 2014'
262        Q3c ='CRP acres in 2014'
263        Q3d ='Pasture or rangeland acres in 2014';
264  table (Q2C1), Q3a Q3b Q3c Q3d ;
265  format Q2C1 Regions.;
266  run;
267
268  proc tabulate data=Landusechangedata3768 format=10.;
269  class CaseID;
270  var Q3a Q3b Q3c Q3d;
271  label
272        CaseID='State'
273        Q3a ='Total farmland acres in 2014'
274        Q3b ='Cropland (excluding CRP) acres in 2014'
275        Q3c ='CRP acres in 2014'
276        Q3d ='Pasture or rangeland acres in 2014';
277  table (CaseID), Q3a Q3b Q3c Q3d ;
278  format CaseID State.;
279  run;
280
281  proc format;
282  value Farmland  0 ='0 acres'
283                   1-9 = '1 to 9 acres'
284                10-49 ='10 to 49 acres'
285                50-69 ='50 to 69 acres'
286                70-99 ='70 to 99 acres'
287              100-139 ='100 to 139 acres'
288              140-179 ='140 to 179 acres'
289              180-219 ='180 to 219 acres'
290              220-259 ='220 to 259 acres'
291              260-499 ='260 to 499 acres'
292              500-999 ='500 to 999 acres'
293            1000-1999 ='1,000 to 1,999 acres'
294            2000-4999 ='2,000 to 4,999 acres'
295            5000-high ='5000 acres and above'
296                    .='Missing';
297  value Cropland 0 ='0 acres'
298                   1-9 = '1 to 9 acres'
299                10-49 ='10 to 49 acres'
300                50-69 ='50 to 69 acres'
301                70-99 ='70 to 99 acres'
302              100-139 ='100 to 139 acres'
303              140-179 ='140 to 179 acres'
304              180-219 ='180 to 219 acres'
305              220-259 ='220 to 259 acres'
306              260-499 ='260 to 499 acres'
307              500-999 ='500 to 999 acres'
308            1000-1999 ='1,000 to 1,999 acres'
309            2000-4999 ='2,000 to 4,999 acres'
310            5000-high ='5000 acres and above'
311                    .='Missing';
312  value CRPland    0 ='0 acres'
313                   1-9 = '1 to 9 acres'
314                10-49 ='10 to 49 acres'
315                50-69 ='50 to 69 acres'
316                70-99 ='70 to 99 acres'
317              100-139 ='100 to 139 acres'
318              140-179 ='140 to 179 acres'
319              180-219 ='180 to 219 acres'
320              220-259 ='220 to 259 acres'
321              260-499 ='260 to 499 acres'
322              500-999 ='500 to 999 acres'
323            1000-1999 ='1,000 to 1,999 acres'
```

```sas
324                      2000-4999 ='2,000 to 4,999 acres'
325                      5000-high ='5000 acres and above'
326                      .='Missing';
327  value Pastureland 0 ='0 acres'
328                      1-9 = '1 to 9 acres'
329                      10-49 ='10 to 49 acres'
330                      50-69 ='50 to 69 acres'
331                      70-99 ='70 to 99 acres'
332                      100-139 ='100 to 139 acres'
333                      140-179 ='140 to 179 acres'
334                      180-219 ='180 to 219 acres'
335                      220-259 ='220 to 259 acres'
336                      260-499 ='260 to 499 acres'
337                      500-999 ='500 to 999 acres'
338                      1000-1999 ='1,000 to 1,999 acres'
339                      2000-4999 ='2,000 to 4,999 acres'
340                      5000-high ='5000 acres and above'
341                      .='Missing';
342
343  proc freq data=Landusechangedata3768;
344  table (Q3a Q3b Q3c Q3d)*CaseID / nocol norow nopercent nocum;
345  format CaseID State. Q3a Farmland. Q3b Cropland. Q3c CRPland. Q3d Pastureland. ;
346  run;
347
348  /** Summary Statistics on 3**/
349
350  proc means data=Landusechangedata3768 n sum min max mean std maxdec=1;
351  class Q2C1;
352  var Q3a Q3b Q3c Q3d;
353  label Q2C1='State'
354        Q3a ='Total Farmland acres'
355        Q3b ='Cropland (excluding CRP) acres'
356        Q3c ='CRP acres'
357        Q3d ='Pasture/Rangeland acres';
358  format Q2C1 Regions.;
359  run;
360
361  proc means data=Landusechangedata3768 n sum min max mean std maxdec=1;
362  class CaseID;
363  var Q3a Q3b Q3c Q3d;
364  label Q2C1='State'
365        Q3a ='Total Farmland acres'
366        Q3b ='Cropland (excluding CRP) acres'
367        Q3c ='CRP acres'
368        Q3d ='Pasture/Rangeland acres';
369  format CaseID State.;
370  run;
371
372  /** question 4**/
373  proc format;
374  value Ownership
375        1='Own all acres farmed'
376        2='Own most acres farmed, rented the remainder'
377        3='Own and rent roughly equal number of farmland acres'
378        4='Rented most of the acres farmed,owned the remainder'
379        5='Rented all acres farmland'
380        6='Professional farm manager'
381        7='Other'
382        .='Missing';
383  run;
384
385   proc freq data=Landusechangedata3768;
386   label CaseID='State'
387         Q4 ='Ownership Status of Land Farmed in 2014';
388  tables Q4*CaseID / nocol norow nocum;
389  format Q4 Ownership. CaseID State.;
390  run;
391
392  /** question 5a**/
393
394  proc format;
395  value Currentacres
396        1 = 'Fewer acres than 10 years ago (by over 10%)'
397        2 = 'No change or a minor change'
398        3 = 'More acres than 10 years ago (by over 10%)';
399  proc freq data=Landusechangedata3768;
400  label CaseID='State'
401         Q5a ='Cropland acres operated';
402  tables Q5a*CaseID / norow nocum;
403  format Q5a Currentacres. CaseID State.;
404  run;
```

```sas
405
406  /** question 5b**/
407  proc format;
408  value Currentacres
409        1 = 'Fewer acres than 10 years ago (by over 10%)'
410        2 = 'No change or a minor change'
411        3 = 'More acres than 10 years ago (by over 10%)';
412  proc freq data=Landusechangedata3768;
413  label CaseID='State'
414        Q5b ='Pasture/rangeland acres operated';
415  tables Q5b*CaseID / norow nocum;
416  format Q5b Currentacres. CaseID State.;
417  run;
418
419  /** question 6**/
420
421  data Landusechangedata3770;
422   set work.Landusechangedata3768;
423   if (Q6cornY=0) or (Q6cornY=280) then delete;
424   if (Q6cornY=500) or (Q6cornY=902) then delete;
425   if (Q6soyY=0) or (Q6soyY=128)then delete;
426   if (Q6soyY=162) or (Q6soyY=176)then delete;
427   if (Q6soyY=258) or (Q6soyY=300)then delete;
428   if (Q6WhY=0) or (Q6WhY=120)then delete;
429   if (Q6soyY=500)then delete;
430   if (Q6AlfY=0) or (Q6AlfY=120)then delete;
431   if (Q6AlfY=170) or (Q6AlfY=200)then delete;
432   if (Q6AlfY=240) or (Q6AlfY=500)then delete;
433   if (Q6AlfY=22) or (Q6AlfY=25)then delete;
434   if (Q6AlfY=40) or (Q6AlfY=42)then delete;
435   if (Q6AlfY=45) or (Q6AlfY=48)then delete;
436   if (Q6AlfY=56) or (Q6AlfY=15)then delete;
437  run;
438
439  proc tabulate data=Landusechangedata3768 format=6.;
440  class CaseID Q2C1;
441  var Q6cornA Q6soyA Q6WhA Q6AlfA Q6cornY Q6soyY Q6WhY Q6AlfY;
442  label CaseID='State'
443        Q2C1='County 1'
444        Q6cornA='Corn Acres'
445        Q6soyA='Soybean Acres'
446        Q6WhA='Wheat Acres'
447        Q6AlfA='Alfalfa Acres'
448        Q6CornY='Corn Yeild'
449        Q6soyY='Soybean Yield'
450        Q6WhY='Wheat Yeild'
451        Q6AlfY='Alfalfa Yield';
452  table (CaseID*Q2C1), (Q6cornA Q6soyA Q6WhA Q6AlfA Q6cornY Q6soyY Q6WhY Q6AlfY);
453  format CaseID State. Q2C1 county.;
454  run;
455
456  proc tabulate data=Landusechangedata3768 format=6.;
457  class CaseID Q2C2;
458  var Q6cornA Q6soyA Q6WhA Q6AlfA Q6cornY Q6soyY Q6WhY Q6AlfY;
459  label CaseID='State'
460        Q2C2='County 2'
461        Q6cornA='Corn Acres'
462        Q6soyA='Soybean Acres'
463        Q6WhA='Wheat Acres'
464        Q6AlfA='Alfalfa Acres'
465        Q6CornY='Corn Yeild'
466        Q6soyY='Soybean Yield'
467        Q6WhY='Wheat Yeild'
468        Q6AlfY='Alfalfa Yield';
469  table (CaseID*Q2C2), (Q6cornA Q6soyA Q6WhA Q6AlfA Q6cornY Q6soyY Q6WhY Q6AlfY);
470  format CaseID State. Q2C2 county.;
471  run;
472
473  /** Summary Statistics on 6**/
474
475  proc means data=Landusechangedata3768 n sum min max mean std maxdec=0;
476  class Q2C1;
477  var Q6cornA Q6soyA Q6WhA Q6AlfA;
478  label CaseID='Regions'
479        Q6cornA='Corn Acres'
480        Q6soyA='Soybean Acres'
481        Q6WhA='Wheat Acres'
482        Q6AlfA='Alfalfa Acres';
483  format Q2C1 Regions.;
484  run;
485
```

```sas
486   proc means data=Landusechangedata3768 n sum min max mean std maxdec=0;
487   class Q2C2;
488   var Q6cornA Q6soyA Q6WhA Q6AlfA;
489   label CaseID='Regions'
490         Q6cornA='Corn Acres'
491         Q6soyA='Soybean Acres'
492         Q6WhA='Wheat Acres'
493         Q6AlfA='Alfalfa Acres';
494   format Q2C2 Regions.;
495   run;
496
497
498   proc tabulate data=Landusechangedata3768 format=10.;
499   class CaseID;
500   var Q6cornA Q6soyA Q6WhA Q6AlfA;
501   label CaseID='State'
502         Q6cornA='Corn Acres'
503         Q6soyA='Soybean Acres'
504         Q6WhA='Wheat Acres'
505         Q6AlfA='Alfalfa Acres';
506   table (CaseID),(Q6cornA Q6soyA Q6WhA Q6AlfA);
507   format CaseID State.;
508   run;
509
510   proc means data=Landusechangedata5 n min max mean std maxdec=2;
511   class Q2C1;
512   var Q6cornY Q6soyY Q6WhY Q6AlfY;
513   label CaseID='Regions'
514         Q6CornY='Corn Bu/acre'
515         Q6soyY='Soybean Bu/acre'
516         Q6WhY='Wheat Bu/acre'
517         Q6AlfY='Alfalfa ton/acre';
518   format Q2C1 Regions.;
519   run;
520
521   /** question 7 **/
522   proc format;
523   value Response
524         1='Yes'
525         2='No';
526   proc freq data=Landusechangedata3768;
527   label CaseID='State'
528         Q7a='Any other grain or oilseed drops in 2014'
529         Q7b='Any other hay crop in 2014';
530   tables (Q7a Q7b)*CaseID/ norow;
531   format CaseID State. Q7a Response. Q7b Response.;
532   run;
533
534   /** question 8 **/
535   proc freq data=Landusechangedata3768;
536   label CaseID='State'
537         Q8a='Grown corn and/or soybeans each year'
538         Q8b='Increased proportion of corn and/or soybeans'
539         Q8c='Grown wheat each year'
540         Q8d='Increased proportion of wheat'
541         Q8e='Grown other grains or oilseed crops each year'
542         Q8f='Grown alfalfa or other hay crops each year'
543         Q8g='Adopted or increased use of tile drainage'
544         Q8h='Adopted or increased use of no-till';
545   tables (Q8a Q8b Q8c Q8d Q8e Q8f Q8g Q8h)*CaseID/norow;
546   format CaseID State. Q8a Response. Q8b Response. Q8c Response. Q8d Response.
547   Q8e Response. Q8f Response. Q8g Response. Q8h Response.;
548   run;
549
550   /** question 9 **/
551   proc freq data=Landusechangedata3768;
552   label CaseID='State'
553         Q9aYN='Conversion of native grass to cropland'
554         Q9bYN='Conversion of tamend grassland to cropland'
555         Q9cYN='Conversion of CRP land to cropland'
556         Q9dYN='Conversion of CRP land to pasture/hay'
557         Q9eYN='Enrollment of farmland acres to CRP'
558         Q9fYN='Enrollment of land into WRP (wetland reserve) or grass easement program';
559   table (Q9aYN Q9bYN Q9cYN Q9dYN Q9eYN Q9fYN)*CaseID/norow;
560   format CaseID State. Q9aYN Response. Q9bYN Response. Q9cYN Response. Q9dYN Response.
561   Q9eYN Response. Q9fYN Response.;
562   run;
563
564   proc tabulate data=Landusechangedata3768 format=6.;
565   class CaseID;
566   var Q9aAC Q9bAC Q9cAC Q9dAC Q9eAC Q9fAC;
```

```sas
label CaseID='State'
      Q9aAC='Conversion of native grass to cropland'
      Q9bAC='Conversion of tamend grassland to cropland'
      Q9cAC='Conversion of CRP land to cropland'
      Q9dAC='Conversion of CRP land to pasture/hay'
      Q9eAC='Enrollment of farmland acres to CRP'
      Q9fAC='Enrollment of land into WRP (wetland reserve) or grass easement program';
table (Q9aAC Q9bAC Q9cAC Q9dAC Q9eAC Q9fAC),CaseID;
format CaseID State.;
run;

/**regional acrage analysis**/

proc tabulate data=Landusechangedata3768 format=6.;
class Q2C1;
var Q9aAC Q9bAC Q9cAC Q9dAC Q9eAC Q9fAC;
label Q2C1='Regions'
      Q9aAC='Conversion of native grass to cropland'
      Q9bAC='Conversion of tamend grassland to cropland'
      Q9cAC='Conversion of CRP land to cropland'
      Q9dAC='Conversion of CRP land to pasture/hay'
      Q9eAC='Enrollment of farmland acres to CRP'
      Q9fAC='Enrollment of land into WRP (wetland reserve) or grass easement program';
table (Q9aAC Q9bAC Q9cAC Q9dAC Q9eAC Q9fAC),Q2C1;
format Q2C1 Regions.;
run;

proc format;
value response
      0='No'
      1='Yes';
proc tabulate data=Landusechangedata3768;
class CaseID Q9aCorn Q9aSoy Q9aWht Q9aOth Q9bCorn Q9bSoy Q9bWht Q9bOth Q9cCorn Q9cSoy Q9cWht Q9cOth;
label CaseID='State'
      Q9aCorn='Conversion of native grass to Corn land'
      Q9aSoy='Conversion of native grass to Soybean land'
      Q9aWht='Conversion of native grass to Wheat land'
      Q9aOth='Conversion of native grass to Other use'
      Q9bCorn='Conversion of tamend grassland to Corn land'
      Q9bSoy='Conversion of tamend grassland to Soy land'
      Q9bWht='Conversion of tamend grassland to Wheat land'
      Q9bOth='Conversion of tamend grassland to Other use'
      Q9cCorn='Conversion of CRP land to Corn land'
      Q9cSoy='Conversion of CRP land to Soy land'
      Q9cWht='Conversion of CRP land to Wheat land'
      Q9cOth='Conversion of CRP land to Other use' ;
table (Q9aCorn Q9aSoy Q9aWht Q9aOth Q9bCorn Q9bSoy Q9bWht Q9bOth Q9cCorn Q9cSoy Q9cWht Q9cOth),CaseID;
format CaseID State. Q9aCorn response. Q9aSoy response. Q9aWht response. Q9aOth response.
       Q9bCorn response. Q9bSoy response. Q9bWht response. Q9bOth response.
       Q9cCorn response. Q9cSoy response. Q9cWht response. Q9cOth response.;
run;

/** question 10 **/
proc format;
value Impact
      1='No Impact'
      2='Slight Impact'
      3='Some Impact'
      4='Quite a bit of Impact'
      5='Great Impact';
run;
proc freq data=Landusechangedata3768;
label CaseID='State'
      Q10a1='Changing crop prices'
      Q10a2='Changing prices in input markets (seed, fertilizer, chemicals, etc.)'
      Q10a3='Availability of crop and revenue insurance policies'
      Q10a4='Availability of drought-tolerant seed'
      Q10a5='Developments in pest management practices, including pest management seed traits'
      Q10a6='Improved crop yields (other than seed related traits)'
      Q10a7='Development of more efficient cropping equipment'
      Q10a8='Labor availability problems'
      Q10a9='Improving wildlife habitat'
      Q10a10='Changing weather /climate patterns';
tables(Q10A1 Q10A2 Q10a3 Q10A4 Q10A5 Q10A6 Q10A7 Q10A8 Q10A9 Q10A10)*CaseID/norow;
format CaseID State. Q10A1 Impact. Q10A2 Impact. Q10A3 Impact. Q10A4 Impact. Q10A5 Impact.
Q10A6 Impact. Q10A7 Impact. Q10A8 Impact. Q10A9 Impact. Q10A10 Impact.;
run;

*question 10b;

proc format;
```

```sas
value State
      1001-2182,9002='North Dakota'
      2183-4000,9001='South Dakota';
value gimpact
      01 = 'Changing crop prices'
      02 = 'Changing prices in input markets (seed, fertilizer, chemicals, etc.) '
      03 = 'Availability of crop and revenue insurance policies'
      04= 'Availability of drought-tolerant seed'
      05= 'Developments in pest management practices, including pest management seed traits'
      06= 'Improved crop yields (other than seed related traits) '
      07 = 'Development of more efficient cropping equipment'
      08 = 'Labor availability problems'
      09 = 'Improving wildlife habitat'
      10 = 'Changing weather /climate patterns';
proc tabulate data=Landusechangedata3768;
class CaseID Q10b;
label CaseID='State';
tables Q10b,CaseID;
format CaseID State. Q10b gimpact.;
run;

/** question 11 **/

proc format;
value Future
      1='Yes'
      2='No'
      3='Dont Know';
proc freq data=Landusechangedata3768;
label CaseID='State'
      Q11a='Plan to convert native grassland to cropland in next 10 years'
      Q11b='Plan to convert tame grassland to cropland in next 10 years'
      Q11c='Plan to convert cropland to grassland in next 10 years';
tables (Q11a Q11b Q11c)*CaseID/norow;
format CaseID State. Q11a Future. Q11b Future. Q11c Future.;
run;

/** question 12 **/

proc format;
value distance
      1-9='1 to 9 miles'
      10-29='10 to 29 miles'
      30-59='30 to 59 miles'
      60-99='60 to 99 miles'
      100-149='100 to 149 miles'
      150-high='150 miles and above'
      .='Missing';
value Miles
      1-14='1 to 14 miles'
      15-29='15 to 29 miles'
      30-44='30 to 44 miles'
      45-59='45 to 59 miles'
      60-74='60 to 74 miles'
      75-89='75 to 89 miles'
      90-high='90 miles and above'
      .='Missing';
run;
proc freq data=Landusechangedata3768;
label CaseID='State'
      Q12a='Miles from your farm to ethanol plant'
      Q12b='Miles from your farm to elevator for wheat'
      Q12c='Miles from your farm to an elevator for corn'
      Q12d='Miles from your farm to an elevator for soybeans';
table (Q12a Q12b Q12c Q12d)*CaseID / norow nocum;
format CaseID State. Q12a distance. Q12b Miles. Q12c Miles. Q12d Miles. ;
run;

*question 12 descriptives;

proc means data=Landusechangedata3768 n sum min max mean std maxdec=0;
class CaseID;
var Q12a Q12b Q12c Q12d;
label CaseID='State'
      Q12a='Miles from your farm to ethanol plant'
      Q12b='Miles from your farm to elevator for wheat'
      Q12c='Miles from your farm to an elevator for corn'
      Q12d='Miles from your farm to an elevator for soybeans';
format CaseID State. Q12a distance. Q12b Miles. Q12c Miles. Q12d Miles. ;
run;
```

```sas
/** question 13 **/

proc format;
value Rating
        1='Much'
        2='Somewhat worse'
        3='Stayed about the same'
        4='Somewhat Better'
        5='Much Better'
        .='Missing';
run;
proc freq data=Landusechangedata3768;
label CaseID='State'
        Q13a='Cattle production'
        Q13b='Wheat production'
        Q13c='Corn production'
        Q13d='Soybean Production';
tables (Q13a Q13b Q13c Q13d)*CaseID/norow;
format CaseID State. Q13a Rating. Q13b Rating. Q13c Rating. Q13d Rating.;
run;

/** question 14**/

Proc format;
value Pastchange
        1='Decreased Markedly (over 10%)'
        2='Decreased Somewhat (5-10%)'
        3='Stayed about the same (less than 5%)'
        4='Increased Somewhat (5-10%)'
        5='Increased Markedly (over 10%)'
        .='Missing';
value Futurechange
        1='Decrease Markedly (over 10%)'
        2='Decrease Somewhat (5-10%)'
        3='Stayed about the same (less than 5%)'
        4='Increase Somewhat (5-10%)'
        5='Increase Markedly (over 10%)'
        .='Missing';
run;
proc freq data=Landusechangedata3768;
label CaseID='State'
        Q14a1='Grassland acres, any type'
        Q14a2='Native Grassland acres only'
        Q14a3='Soybean or Corn acres';
tables (Q14a1 Q14a2 Q14a3)*CaseID/norow;
format CaseID State. Q14a1 Pastchange. Q14a2 Pastchange. Q14a3 Pastchange.;
run;

proc freq data=Landusechangedata3768;
label CaseID='State'
        Q14b1='Grassland acres, any type'
        Q14b2='Native Grassland acres only'
        Q14b3='Soybean or Corn acres';
tables (Q14b1 Q14b2 Q14b3)*CaseID/norow;
format CaseID State. Q14b1 Futurechange. Q14b2 Futurechange. Q14b3 Futurechange.;
run;

/** question 15aCheck**/

Proc format;
value Check
        0='no changes in Ag-land use in my area over the past 10 years'
        1='there have been changes in Ag-land use in my area over the past 10 years'
        9='Missing';
run;
proc freq data=Landusechangedata3768;
label CaseID='State'
        Q15aCheck='Check the box if there have been no changes in agricultural land use in your area during the past
tables (Q15aCheck)*CaseID/ norow;
format CaseID State. Q15aCheck Check.;
run;

/** question 15a **/
proc format;
value Areaimpact
        0='Not applicable (No change)'
        1='No Impact'
        2='Slight Impact'
        3='Some Impact'
        4='Quite a bit of Impact'
        5='Great Impact'
```

```sas
810    ;
811    run;
812    proc freq data=Landusechangedata3768;
813    /**class CaseID Q15a1 Q15a2 Q15a3 Q15a4 Q15a5 Q15a6 Q15a7 Q15a8 Q15a9 Q15a10;**/
814    label CaseID='State'
815          Q15a1='Changing crop prices'
816          Q15a2='Changing prices in input markets (seed, fertilizer, chemicals, etc.)'
817          Q15a3='Availability of crop and revenue insurance policies'
818          Q15a4='Availability of drought-tolerant seed'
819          Q15a5='Developments in pest management practices, including pest management seed traits'
820          Q15a6='Improved crop yields (other than seed related traits)'
821          Q15a7='Development of more efficient cropping equipment'
822          Q15a8='Labor availability problems'
823          Q15a9='Improving wildlife habitat'
824          Q15a10='Changing weather /climate patterns';
825    tables(Q15a1 Q15a2 Q15a3 Q15a4 Q15a5 Q15a6 Q15a7 Q15a8 Q15a9 Q15a10)*CaseID/norow;
826    format CaseID State. Q15a1 Areaimpact. Q15a2 Areaimpact. Q15a3 Areaimpact. Q15a4 Areaimpact. Q15a5 Areaimpact.
827    Q15a6 Impact. Q15a7 Areaimpact. Q15a8 Areaimpact. Q15a9 Areaimpact. Q15a10 Areaimpact.;
828    run;
829
830    *question 15b;
831
832    proc format;
833    value State
834          1001-2182,9002='North Dakota'
835          2183-4000,9001='South Dakota';
836    value biggestimpact
837          0 = 'No applicable (No change)'
838          01 = 'Changing crop prices'
839          02 = 'Changing prices in input markets (seed, fertilizer, chemicals, etc.) '
840          03 = 'Availability of crop and revenue insurance policies'
841          04= 'Availability of drought-tolerant seed'
842          05= 'Developments in pest management practices, including pest management seed traits'
843          06= 'Improved crop yields (other than seed related traits) '
844          07= 'Development of more efficient cropping equipment'
845          08 = 'Labor availability problems'
846          09 = 'Improving wildlife habitat'
847          10 = 'Changing weather /climate patterns';
848    proc freq data=Landusechangedata3768;
849
850    /**class CaseID Q15b;**/
851    label CaseID='State'
852          Q15b='Which one issue had the greatest impact on changes in land use in your local area?';
853    tables Q15b*CaseID/norow;
854    format CaseID State. Q15b biggestimpact.;
855    run;
856
857    /** question 16 **/
858    Proc format;
859    Value Temperature
860          1='Warmer weather'
861          2='About the same'
862          3='Cooler weather'
863          6='Dont Know'
864          .='Missing';
865    Value Precipitation
866          1='More precipitation'
867          2='About the same'
868          3='Less precipitation'
869          6='Dont Know'
870          .='Missing';
871    Value Drought
872          1='More Drought'
873          2='About the same'
874          3='Less Drought'
875          6='Dont Know'
876          .='Missing';
877    Value Flooding
878          1='More flooding'
879          2='About the same'
880          3='Less flooding'
881          6='Dont Know'
882          .='Missing';
883    proc freq data=Landusechangedata3768;
884    label CaseID='State'
885          Q16a='Current temperature compared to 10 years ago'
886          Q16b='Current precipitation compared to 10 years ago'
887          Q16c='Current drought compared to 10 years ago'
888          Q16d='Current flooding compared to 10 years ago';
889    tables (Q16a Q16b Q16c Q16d)*CaseID/norow;
890    format Q16a Temperature. Q16b Precipitation. Q16c Drought. Q16d Flooding.;
```

```sas
891  run;
892
893  /** question 17 **/
894
895  proc freq data=Landusechangedata3768;
896  label CaseID='State'
897        Q17a='Current temperature compared to 10 years ago'
898        Q17b='Current precipitation compared to 10 years ago'
899        Q17c='Current drought compared to 10 years ago'
900        Q17d='Current flooding compared to 10 years ago';
901  tables (Q17a Q17b Q17c Q17d)*CaseID/norow;
902  format Q17a Temperature. Q17b Precipitation. Q17c Drought. Q17d Flooding.;
903  run;
904
905  /** chi-square on 16 and 17 **/
906  proc freq data=Landusechangedata3768;
907  label CaseID='State'
908        Q16a='Current temperature compared to 10 years ago'
909        Q17a='Projected temperature over the 10 years';
910  tables CaseID*Q16a*Q17a/norow chisq;
911  format Q16a Temperature. Q17a Temperature. CaseID State.;
912  run;
913
914
915  proc freq data=Landusechangedata3768;
916  label CaseID='State'
917        Q16b='Current precipitation compared to 10 years ago'
918        Q17b='Projected precipitation over the next 10 years';
919  tables CaseID*Q16b*Q17b/norow chisq;
920  format Q16b Precipitation. Q17b Precipitation. CaseID State.;
921  run;
922
923
924  proc freq data=Landusechangedata3768;
925  label CaseID='State'
926        Q16c='Current drought compared to 10 years ago'
927        Q17c='Projected drought over the next 10 years';
928  tables CaseID*Q16c*Q17c/norow chisq;
929  format Q16c Drought. Q17c Drought. CaseID State.;
930  run;
931
932  proc freq data=Landusechangedata3768;
933  label CaseID='State'
934        Q16d='Current flooding compared to 10 years ago'
935        Q17d='Projected flooding over the next 10 years';
936  tables CaseID*Q16d*Q17d/norow chisq;
937  format Q16d Flooding. Q17d Flooding. CaseID State.;
938  run;
939
940  /** question 18**/
941  proc format;
942  value Proportion
943        0-19='0-9 %'
944        20-39='20-39 %'
945        40-59='40-59 %'
946        60-79='60-79 %'
947        80-high='80% and above'
948        .='Missing';
949  run;
950  proc freq data=Landusechangedata3768;
951  label CaseID='State'
952        Q18a='Heavy Erodible land (HEL)'
953        Q18b='Heavy Soil'
954        Q18c='Slow draining soil (Predominantly clay)'
955        Q18d='Sandy Soil';
956  tables (Q18a Q18b Q18c Q18d)*CaseID/norow;
957  format Q18a Proportion. Q18b Proportion. Q18c Proportion. Q18d Proportion.;
958  run;
959
960  proc means data=Landusechangedata3768 n mean std maxdec=0;
961  class CaseID;
962  var Q18a Q18b Q18c Q18d;
963  label CaseID='State'
964        Q18a='Heavy Erodible land (HEL)'
965        Q18b='Heavy Soil'
966        Q18c='Slow draining soil (Predominantly clay)'
967        Q18d='Sandy Soil';
968  run;
969
970  /** question 19**/
971
```

```sas
972  proc format;
973  value Age
974       1='19 to 34 years'
975       2='35 to 49 years'
976       3='50 to 59 years'
977       4='60 to 69 years'
978       5='70 years and over'
979       9='Missing';
980  value Gender
981       1='Male'
982       2='Female'
983       9='Missing';
984  value Education
985       1='Less than high school'
986       2='High school'
987       3='Some college/technical school'
988       4='4-year college degree'
989       5='Advanced degree (Masters, etc.)'
990       9='Missing';
991  value Occupation
992       1='Farming or Ranching'
993       2='Employment in off-farm job'
994       3='Own/operate a non-farm business'
995       4='Retired'
996       5='Other'
997       9='Missing';
998  value Sales
999       1='Less than $50,000'
1000      2='From $50,000 up to $99,999'
1001      3='From $100,000 up to $249,999'
1002      4='From $250,000 up to $499,999'
1003      5='From $500,000 up to $999,999'
1004      6='$1 million or more'
1005      9='Missing';
1006 run;
1007 proc freq data=Landusechangedata3768;
1008 label CaseID='State'
1009       Q19='Respondent Age'
1010       Q20='Respondent Gender'
1011       Q21='Respondent level of education'
1012       Q22='Principal occupation'
1013       Q23='Gross farm/ranch sales';
1014 tables (Q19 Q20 Q21 Q22 Q23)*CaseID/norow;
1015 format Q19 Age. Q20 Gender. Q21 Education. Q22 Occupation. Q23 Sales.;
1016 run;
1017
1018 /** Crosstabs 14a versus 5b **/
1019
1020 proc freq data=Landusechangedata3768;
1021 tables CaseID*Q15b*Q14a1/norow nopercent;
1022 format CaseID State. Q15b biggestimpact. Q14a1 Pastchange.;
1023 run;
1024
1025 proc freq data=Landusechangedata3768;
1026 tables CaseID*Q15b*Q14a2/norow nopercent;
1027 format CaseID State. Q15b biggestimpact. Q14a2 Pastchange.;
1028 run;
1029
1030 proc freq data=Landusechangedata3768;
1031 tables CaseID*Q15b*Q14a3/norow nopercent;
1032 format CaseID State. Q15b biggestimpact. Q14a3 Pastchange.;
1033 run;
1034
1035
1036 /** Crosstabs 14b versus 5b **/
1037
1038 proc freq data=Landusechangedata3768;
1039 tables CaseID*Q15b*Q14b1/norow nopercent;
1040 format CaseID State. Q15b biggestimpact. Q14b1 Futurechange.;
1041 run;
1042
1043 proc freq data=Landusechangedata3768;
1044 tables CaseID*Q15b*Q14b2/norow nopercent;
1045 format CaseID State. Q15b biggestimpact. Q14b2 Futurechange.;
1046 run;
1047
1048 proc freq data=Landusechangedata3768;
1049 tables CaseID*Q15b*Q14b3/norow nopercent;
1050 format CaseID State. Q15b biggestimpact. Q14b3 Futurechange.;
1051 run;
1052
```

```sas
/** question 22 versus 23 **/

proc freq data=Landusechangedata3768;
label CaseID='State'
      Q22='Principal occupation'
      Q23='Gross farm/ranch sales';
tables CaseID*Q23*Q22/norow nopercent;
format CaseID State. Q22 Occupation. Q23 Sales.;
run;

/** Major Analysis **/
*question 10a;

ODS graphics on;
proc factor data=Landusechangedata3768  nfactors = 4 corr scree ev rotate = varimax method = prinit priors = smc;
var Q10a1 Q10a2 Q10a3 Q10a4 Q10a5 Q10a6 Q10a7 Q10a8 Q10a9 Q10a10;
run;
ODS graphics off;

ODS graphics on;
proc factor data=Landusechangedata3768  nfactors = 4
corr rotate = varimax
method = prinit priors = smc msa residual
plots=(scree initloadings preloadings loadings);
var Q10a1 Q10a2 Q10a3 Q10a4 Q10a5 Q10a6 Q10a7 Q10a8 Q10a9 Q10a10;
run;
ODS graphics off;


/** Chi square analysis **/
/** 9aYN,9bYN,9cYN versus 10a1**/

proc freq data=Landusechangedata3768;
label
      Q9aYN='Conversion of native grassland to cropland';
      Q10a1='Changing of crop prices';
tables Q10a1*Q9aYN / chisq;
format Q10a1 Impact. Q9aYN Future.;
run;

proc freq data=Landusechangedata3768;
label
      Q9bYN='Conversion of tamed grassland to cropland'
      Q10a1='Changing of crop prices';
tables Q10a1*Q9bYN / chisq;
format Q10a1 Impact. Q9bYN Future.;
run;

proc freq data=Landusechangedata3768;
label
      Q9cYN='Conversion of CRP land to cropland'
      Q10a1='Changing of crop prices';
tables Q10a1*Q9cYN / chisq;
format Q10a1 Impact. Q9cYN Future.;
run;

/** 9aYN,9bYN,9cYN versus 10a2**/
proc freq data=Landusechangedata3768;
label
      Q9aYN='Conversion of native grassland to cropland'
      Q10a2='Changing prices in input markets';
tables Q10a2*Q9aYN / chisq;
format Q10a2 Impact. Q9aYN Future.;
run;

proc freq data=Landusechangedata3768;
label
      Q9bYN='Conversion of tamed grassland to cropland';
      Q10a2='Changing prices in input markets';
tables Q10a2*Q9bYN / chisq;
format Q10a2 Impact. Q9bYN Future.;
run;

proc freq data=Landusechangedata3768;
label
      Q9cYN='Conversion of CRP land to cropland'
      Q10a2='Changing prices in input markets';
tables Q10a2*Q9cYN / chisq;
format Q10a2 Impact. Q9cYN Future.;
run;
```

```sas
/** 9aYN,9bYN,9cYN versus 10a10**/
proc freq data=Landusechangedata3768;
label
        Q9aYN='Conversion of native grassland to cropland'
        Q10a10='Changing weather/climate patterns';
tables Q10a10*Q9aYN / chisq;
format Q10a10 Impact. Q9aYN Future.;
run;

proc freq data=Landusechangedata3768;
label
        Q9bYN='Conversion of tamed grassland to cropland'
        Q10a10='Changing weather/climate patterns';
tables Q10a10*Q9bYN / chisq;
format Q10a10 Impact. Q9bYN Future.;
run;

proc freq data=Landusechangedata3768;
label
        Q9cYN='Conversion of CRP land to cropland'
        Q10a10='Changing weather/climate patterns';
tables Q10a10*Q9cYN / chisq;
format Q10a10 Impact. Q9cYN Future.;
run;

/** 9aYN,9bYN,9cYN versus 10a7**/
proc freq data=Landusechangedata3768;
label
        Q9aYN='Conversion of native grassland to cropland'
        Q10a7='Development of more efficient cropping equipment';
tables Q10a7*Q9aYN / chisq;
format Q10a7 Impact. Q9aYN Future.;
run;

proc freq data=Landusechangedata3768;
label
        Q9bYN='Conversion of tamed grassland to cropland'
        Q10a7='Development of more efficient cropping equipment';
tables Q10a7*Q9bYN / chisq;
format Q10a7 Impact. Q9bYN Future.;
run;

proc freq data=Landusechangedata3768;
label
        Q9cYN='Conversion of CRP land to cropland'
        Q10a7='Development of more efficient cropping equipment';
tables Q10a7*Q9cYN / chisq;
format Q10a7 Impact. Q9cYN Future.;
run;

/** 9aYN,9bYN,9cYN versus 10a6**/
proc freq data=Landusechangedata3768;
label
        Q9aYN='Conversion of native grassland to cropland'
        Q10a6='Improved crop yields';
tables Q10a6*Q9aYN / chisq;
format Q10a6 Impact. Q9aYN Future.;
run;

proc freq data=Landusechangedata3768;
label
        Q9bYN='Conversion of tamed grassland to cropland'
        Q10a6='Improved crop yields';
tables Q10a6*Q9bYN / chisq;
format Q10a6 Impact. Q9bYN Future.;
run;

proc freq data=Landusechangedata3768;
label
        Q9cYN='Conversion of CRP land to cropland'
        Q10a6='Improved crop yields';
tables Q10a6*Q9cYN / chisq;
format Q10a6 Impact. Q9cYN Future.;
run;

/** 8b versus 10a1**/
proc freq data=Landusechangedata3768;
label
        Q8b='Increased the proportion of your corn and/or soybean acres compared to other crops'
        Q10a1='Changing crop prices';
```

```sas
1215    tables Q10a1*Q8b / chisq;
1216    format Q10a1 Impact. Q8b Future.;
1217    run;
1218
1219    /** 8b versus 10a2**/
1220    proc freq data=Landusechangedata3768;
1221    label
1222            Q8b='Increased the proportion of your corn and/or soybean acres compared to other crops'
1223            Q10a2='Changing prices in input markets';
1224    tables Q10a2*Q8b / chisq;
1225    format Q10a2 Impact. Q8b Future.;
1226    run;
1227
1228    /** 8b versus 10a10**/
1229    proc freq data=Landusechangedata3768;
1230    label
1231            Q8b='Increased the proportion of your corn and/or soybean acres compared to other crops'
1232            Q10a10='Changing weather/climate patterns';
1233    tables Q10a10*Q8b / chisq;
1234    format  Q10a10 Impact. Q8b Future.;
1235    run;
1236
1237    /** 8b versus 10a7**/
1238    proc freq data=Landusechangedata3768;
1239    label
1240            Q8b='Increased the proportion of your corn and/or soybean acres compared to other crops'
1241            Q10a7='Development of more efficient cropping equipment';
1242    tables Q10a7*Q8b / chisq;
1243    format Q10a7 Impact. Q8b Future.;
1244    run;
1245
1246    /** 8b versus 10a6**/
1247    proc freq data=Landusechangedata3768;
1248    label
1249            Q8b='Increased the proportion of your corn and/or soybean acres compared to other crops'
1250            Q10a6='Improved crop yields';
1251    tables Q10a6*Q8b / chisq;
1252    format Q10a6 Impact. Q8b Future.;
1253    run;
1254
1255
1256    /** 8d versus 10a1**/
1257    proc freq data=Landusechangedata3768;
1258    label
1259            Q8d='Increased the proportion of your wheat acres compared to other crops'
1260            Q10a1='Changing crop prices';
1261    tables Q10a1*Q8d / chisq;
1262    format Q10a1 Impact. Q8d Future.;
1263    run;
1264
1265    /** 8b versus 10a2**/
1266    proc freq data=Landusechangedata3768;
1267    label
1268            Q8d='Increased the proportion of your wheat acres compared to other crops'
1269            Q10a2='Changing prices in input markets';
1270    tables Q10a2*Q8d / chisq;
1271    format Q10a2 Impact. Q8d Future.;
1272    run;
1273
1274    /** 8b versus 10a10**/
1275    proc freq data=Landusechangedata3768;
1276    label
1277            Q8d='Increased the proportion of your wheat acres compared to other crops'
1278            Q10a10='Changing weather/climate patterns';
1279    tables Q10a10*Q8d / chisq;
1280    format Q10a10 Impact. Q8d Future.;
1281    run;
1282
1283    /** 8b versus 10a7**/
1284    proc freq data=Landusechangedata3768;
1285    label
1286            Q8d='Increased the proportion of your wheat acres compared to other crops'
1287            Q10a7='Development of more efficient cropping equipment';
1288    tables Q10a7*Q8d / chisq;
1289    format Q10a7 Impact. Q8d Future.;
1290    run;
1291
1292    /** 8b versus 10a6**/
1293    proc freq data=Landusechangedata3768;
1294    label
1295            Q8d='Increased the proportion of your corn wheat acres compared to other crops'
```

```sas
                Q10a6='Improved crop yields';
1296
1297    tables Q10a6*Q8d / chisq;
1298    format Q10a6  Impact. Q8d Future.;
1299    run;
1300
1301
1302
1303
1304
1305
1306
1307
1308
1309
1310
1311    /**logistic regression**/
1312    data Landusechangedata3671;
1313        set Landusechangedata3768;
1314     if  (Q10a1=1) then NQ10a1=0;
1315     if  (Q10a1=2) or (Q10a1=3) then NQ10a1=1;
1316     if  (Q10a1=4) or (Q10a1=5) then NQ10a1=2;
1317
1318     if  (Q10a2=1) then NQ10a2=0;
1319     if  (Q10a2=2) or (Q10a2=3) then NQ10a2=1;
1320     if  (Q10a2=4) or (Q10a2=5) then NQ10a2=2;
1321
1322     if  (Q10a10=1) then NQ10a10=0;
1323     if  (Q10a10=2) or (Q10a10=3) then NQ10a10=1;
1324     if  (Q10a10=4) or (Q10a10=5) then NQ10a10=2;
1325
1326     if  (Q10a7=1) then NQ10a7=0;
1327     if  (Q10a7=2) or (Q10a7=3) then NQ10a7=1;
1328     if  (Q10a7=4) or (Q10a7=5) then NQ10a7=2;
1329
1330     if  (Q10a6=1) then NQ10a6=0;
1331     if  (Q10a6=2) or (Q10a6=3) then NQ10a6=1;
1332     if  (Q10a6=4) or (Q10a6=5) then NQ10a6=2;
1333
1334     if  (Q10a3=1) then NQ10a3=0;
1335     if  (Q10a3=2) or (Q10a3=3) then NQ10a3=1;
1336     if  (Q10a3=4) or (Q10a3=5) then NQ10a3=2;
1337
1338     if  (Q10a5=1) then NQ10a5=0;
1339     if  (Q10a5=2) or (Q10a5=3) then NQ10a5=1;
1340     if  (Q10a5=4) or (Q10a5=5) then NQ10a5=2;
1341
1342     if  (Q10a8=1) then NQ10a8=0;
1343     if  (Q10a8=2) or (Q10a8=3) then NQ10a8=1;
1344     if  (Q10a8=4) or (Q10a8=5) then NQ10a8=2;
1345
1346     if  (Q10a9=1) then NQ10a9=0;
1347     if  (Q10a9=2) or (Q10a9=3) then NQ10a9=1;
1348     if  (Q10a9=4) or (Q10a9=5) then NQ10a9=2;
1349
1350     if  (Q10a4=1) then NQ10a4=0;
1351     if  (Q10a4=2) or (Q10a4=3) then NQ10a4=1;
1352     if  (Q10a4=4) or (Q10a4=5) then NQ10a4=2;run;
1353    proc print data=Landusechangedata3671;
1354    run;
1355
1356    /** Correlation matrix**/
1357    proc corr data=sasintro.dakota15reg;
1358    var  Q9aYN Q9bYN Q9cYN Q9dYN Q9eYN Q9fYN NQ10a1 NQ10a2 NQ10a3 NQ10a10 NQ10a7 NQ10a6;
1359    run;
1360
1361    proc format;
1362    value regroup
1363        0='No Impact'
1364        1='Some Impact'
1365        2='Great Impact';
1366    run;
1367    proc logistic data=Landusechangedata3671;
1368    label CaseID='State'
1369        Q8b='Increased corn and soybean production compared to other crops'
1370        NQ10a1='Changing crop prices'
1371        NQ10a2='Changing prices in input markets'
1372        NQ10a6='Improved crop yields'
1373        NQ10a7='Development of more efficient cropping equipment'
1374        NQ10a10='Changing weather/climate patterns';
1375    class NQ10a1 NQ10a2 NQ10a6 NQ10a7 NQ10a10 CaseID / param=ref;
1376    model Q8b = NQ10a1 NQ10a2 NQ10a6 NQ10a7 NQ10a10 CaseID /rsquare;
```

```sas
      format NQ10a1 regroup. NQ10a2 regroup. NQ10a6 regroup. NQ10a7 regroup. NQ10a10 regroup. CaseID State.;
      run;

      proc logistic data=Landusechangedata3671;
      label CaseID='State'
            Q8b='Increased corn and soybean production compared to other crops'
            NQ10a1='Changing crop prices'
            NQ10a6='Improved crop yields'
            NQ10a7='Development of more efficient cropping equipment';
      class NQ10a1 NQ10a6 NQ10a7 CaseID / param=ref;
      model Q8b = NQ10a1 NQ10a6 NQ10a7 CaseID /rsquare;
      format NQ10a1 regroup. NQ10a6 regroup. NQ10a7 regroup. CaseID State.;
      run;

      proc logistic data=Landusechangedata3671;
      label CaseID='State'
            Q8b='Increased corn and soybean production compared to other crops'
            NQ10a2='Changing prices in input markets'
            NQ10a10='Changing weather/climate patterns';
        class NQ10a2 NQ10a10 CaseID / param=ref;
        model Q8b = NQ10a2  NQ10a10 CaseID /rsquare;
        format  NQ10a2 regroup. NQ10a10 regroup. CaseID State.;
      run;

      proc logistic data=Landusechangedata3671;
      label CaseID='State'
            Q8b='Increased corn and soybean production compared to other crops'
            NQ10a1='Changing crop prices'
            NQ10a6='Improved crop yields'
            NQ10a7='Development of more efficient cropping equipment';
        class NQ10a1 NQ10a6 NQ10a7 CaseID / param=ref;
        model Q8b = NQ10a1 NQ10a6 NQ10a7 CaseID /rsquare;
        format NQ10a1 regroup. NQ10a6 regroup. NQ10a7 regroup. CaseID State.;
      run;

      proc logistic data=Landusechangedata 3671;
      label CaseID='State'
            Q8d='Increased the proportion of your wheat acres compared to other crops'
            NQ10a2='Changing prices in input markets'
            NQ10a10='Changing weather/climate patterns';
        class NQ10a2 NQ10a10 CaseID / param=ref;
        model Q8d = NQ10a2 NQ10a10 CaseID /rsquare;
        format NQ10a2 regroup. NQ10a10 regroup. CaseID State.;
      run;


      proc logistic data=Landusechangedata3671;
      label CaseID='State'
            Q9aYN='Conversion of native grassland to cropland'
            NQ10a1='Changing crop prices'
            NQ10a6='Improved crop yields'
            NQ10a7='Development of more efficient cropping equipment';
        class NQ10a1 NQ10a6 NQ10a7 CaseID / param=ref;
        model Q9aYN = NQ10a1 NQ10a6 NQ10a7 CaseID /rsquare;
        format NQ10a1 regroup. NQ10a6 regroup. NQ10a7 regroup. CaseID State.;
      run;

      proc logistic data=Landusechangedata3671;
      label CaseID='State'
            Q9bYN='Conversion of tamed grassland to cropland'
            NQ10a1='Changing crop prices';
        class NQ10a1 CaseID / param=ref;
        model Q9bYN = NQ10a1 CaseID /rsquare;
        format NQ10a1 regroup. CaseID State.;
      run;

      proc logistic data=Landusechangedata3671;
      label CaseID='State'
            Q9cYN='Conversion of CRP land to cropland'
            NQ10a1='Changing crop prices'
            NQ10a6='Improved crop yields'
            NQ10a7='Development of more efficient cropping equipment';
        class NQ10a1 NQ10a6 NQ10a7 CaseID / param=ref;
        model Q9cYN = NQ10a1 NQ10a6 NQ10a7 CaseID / rsquare;
        format NQ10a1 regroup. NQ10a6 regroup. NQ10a7 regroup. CaseID State.;
      run;
```