TRIP REPORT

For

(November 9 to December 4)

WRITING COMPUTER PROGRAMS FOR SUMMARIZING DATA COLLECTED FOR SAMPLE SEGMENT IN EACH OF THE FOUR PAKISTAN PROVINCES.

AGRICULTURAL DATA COLLECTION COMPONENT
OF
AGRICULTURAL SECTOR SUPPORT PROGRAM

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SCOPE OF WORK
for

(Three Week TDY)

1) Write computer summary programs for summarizing data collected from sample segment in each of the four provinces.

   These programs will be required to summarized the data first to district, then to division (which is made up of more than one district, then to province and finally to the national level.

2) Document the programs that are written so they can be executed by the Pakistan Federal Bureau of Statistics computer specialist.

3) Write a trip report documenting his (or Her) accomplishments.

Introduction

Differences in sampling designs between the Balochistan Province and the other provinces required changes to the summary program. The Balochistan Province sample was originally selected without regard to district boundaries. Additional segments were latter selected in order to calculate district level direct expansions and variances estimates. Additional segments were selected so that each strata, substrata, and district (SSD) intersection had at least two segments, except for strata 51 and 52. For more information about the original sample design, see Paul Cook's June 20, 1991 trip report. For more information about selecting the additional segments, see Quarterly Report, April 1 - June 30, 1991, Agricultral Sector Program, Agriclltural Data Collection Component. Appendix 6. Pages 29 and 30. This report was also used as a guide for direct expansion and variances formulas.

> Note: Throughout this report the term, weights, refers to the expansion factor for the direct expansion and the finite population correction factor x $(N_h)^2/n_h$.

The previous summary system used two programs. One program produced district level statistics. The other program produced province and national level statistics. For both programs, the computer operator interactively executed the program for one district or province at a time. The district program read the edited data file and calculated weights from values in the summary code. After consulting with Dr. Perry, it was decided the weights should be calculated separate from the summary. Programs were written that calculate and store the weights in district level files. One group of programs was written for the Balochistan Province. Another program was written to handle the remaining provinces. Files for the Balochistan and Punjab Provinces were completed by the end of the TDY.

Other changes to the summary program code included modification to MACRO A. This macro calculates the district level statistics. It was modified to include 3 nested macros. One calculates the statistics for Balochistan districts, a second does Balochistan strata 51 and 52, and the third does the remaining provinces. Dr. Perry also requested the summary calculate and store total reported values and unexpanded variances for some of the major crops.

The previous province/country level summary program read files created by district program. This program was modified to store province level statistics in a print file and a SAS data set. Mr. Waqar Gilani and Ms. Suad Saeed will complete the division and national summary programs using this program as a guide.

The following sections give more details on the weight and summary programs.

Balochistan Weight Program -- BAL_WTS.SAS

This program is a collection of the four programs used to create weight files for the Balochistan Province. More documentation is included within the code.

To calculate the weights, several items needed to be calculated. Among which, the total number of segments within each ssd intersection, NSSD, and the number of selected segments within each ssd intersection, T_SEG. Listings of selected count units with segments existed only in paper form. I used Programs 1 and 2 to calculated the number of selected segments within each ssd intersection and each district, respectively.

In Program 3, MACRO MAC1, uses output from programs 1 and 2 to calculate the district weights. The program first counts the population size, NS, then the number of segments within each district, NSD. Next, the number of substrata, K, is calculated as:

K = SAMPLE1/4.

Where SAMPLE1 is the orginal sample size and 4 was the number of segments originally selected within each substrata.

The number of segments within each strata, substrata intersection, NSS, is calculated as:

NSS = NS/K.

Counting the number of segments within each ssd intersection, NSSD, is more difficult. No listing of segments existed, only lists of count units. Substrata usually intersected count units so the substrata boundaries had to be determined within count units. After several attempts using various functions, generating records for each segment within counts units was choosen.

After generating the records the following steps are followed:

1) First, segments are assigned to substrata. This was done by retaining the number of records till it exceeded NSS. The variable indexing the substrata, SS, is increased by 1 each time a record is read and the accumulated number of records exceeds NSS. The program also restarts the counting of the number of records with this record.

2) The variable, SSD, which indexes the strata, substrata, district intersection is then calculated.

3) The data set is sorted by SSD and the number of records within each ssd, NSSD, are counted. The last record in each SSD is then stored.

4) Finally, weights are calculated and stored in a strata level file.

In Program 3, MACRO MAC2, calculates weights for segments in strata 51 and 52. This is a shortened version of MAC1. No records needed to be generated in MAC2.

Program 4 combines the output files for each strata 10, 20, 31, and 62, sorts by district, then outputs the district weight files. It also copies the output files for strata 51 and 52 to files used in the summary.

```
/* THIS FILE CONTAINS THE FOUR PROGRAMS USED TO CREATE WEIGHT FILES
FOR THE BALOCHISTAN PROVINCE.  DOCUMENTATION FOR EACH PROGRAM IS
INCLUDE.*/

/* PROGRAM 1.  THIS PROGRAM CREATES A FILE THAT CONTAINS THE NUMBER
OF SEGMENTS SELECTED FOR EACH STRATA, SUBSTRATA, DISTRICT
INTERSECTION.
INPUTS:
     SSD:       DIGITS ONE AND TWO INDICATE STRATA, THREE AND FOUR
                INDICATE SUBSTRATA, FIVE AND SIX INDICATE DISTRICT.

     SEG1:      THE NUMBER OF SEGMENTS FROM THE ORIGINAL SAMPLE.

     SEG2:      THE NUMBER OF SEGMENTS FROM THE SECOND SAMPLE.*/

DATA OUT.SSD_SAM;
INPUT SSD SEG1 SEG2;
CARDS;
100101    0    2
100102    3    0
100103    1    1
100203    2    0
100204    2    0
100304    4    0
100404    4    0
100504    4    0
100604    4    0
100704    4    0
100804    4    0
100904    4    0
101004    4    0
101104    4    0
101204    4    0
101304    4    0
101404    4    0
101504    4    0
101604    4    0
101704    4    0
101804    4    0
101904    4    0
102004    4    0
102104    1    1
102105    3    0
102205    1    1
102206    3    0
102306    4    0
102406    4    0
102506    2    0
102507    2    0
102607    4    0
102707    4    0
102807    0    2
102808    4    0
102908    3    0
102909    1    1
103009    1    1
103010    0    0
103011    0    2
103012    3    0
103013    0    0
103113    0    0
103114    3    0
103115    1    1
103215    4    0
103315    4    0
103415    4    0
200101    3    0
200102    1    1
200202    4    0
200203    0    2
200303    2    0
200304    2    0
200404    4    0
200504    4    0
200604    4    0
200704    4    0
200804    4    0
200805    0    2
200905    4    0
201005    4    0
```

201105	0	2
201106	4	0
201206	4	0
201306	4	0
201406	4	0
201506	0	2
201507	4	0
201607	3	0
201608	1	1
201708	4	0
201808	4	0
201908	1	1
201909	3	0
202009	2	0
202010	0	0
202011	2	0
202111	1	1
202112	3	0
202212	3	0
202213	1	1
202313	1	1
202314	2	0
202315	1	1
202415	4	0
202515	4	0
202516	0	0
310101	0	2
310102	4	0
310202	4	0
310302	2	0
310303	2	0
310403	4	0
310503	4	0
310603	4	0
310604	0	2
310704	4	0
310705	0	2
310805	4	0
310905	4	0
311005	1	1
311006	3	0
311106	1	1
311107	3	0
311207	2	0
311208	2	0
311308	4	0
311408	4	0
311508	4	0
311608	0	2
311609	4	0
311709	4	0
311810	0	0
311811	3	0
311812	1	1
311912	2	0
311913	2	0
322013	4	0
322114	2	0
322115	2	0
322315	3	1
322316	1	1
620101	0	2
620102	4	0
620202	3	0
620205	1	1
620305	4	0
620405	4	0
620505	4	0
620605	4	0
620705	2	0
620706	2	0
620806	4	0
620906	4	0
621006	4	0
621106	1	1
621108	3	0
621208	4	0
621308	4	0
621309	0	2

```
621409    0    2
621410    2    0
621412    0    0
621413    2    0
621513    2    0
621516    2    0
621616    4    0
;
RUN;

DATA A;SET OUT.SSD_SAM;
SD=ROUND(SSD/100,1);
PROC SORT;
BY SD;
/*
THIS SECTION WAS USED TO CHECK THAT EACH SUBSTRATA HAD FOUR
SEGMENTS FROM THE ORIGINAL SAMPLE AND THAT EACH STRATA, SUBSTRATA,
DISTRICT, INTERSECTION HAS 2 OR MORE SEGMENTS.*/
PROC PRINT DATA=A;
BY SD;
SUM SEG1 SEG2;
SUMBY SD;
RUN;
```

```
/*PROGRAM 2.  CREATE OUT.SET_TOT.  THIS PROGRAM WILL CALCULATE THE
NUMBER OF SEGMENTS SELECTED FOR EACH STRATUM.*/

LIBNAME OUT 'C:\HOLD';
LIBNAME IN 'B:\';
DATA OUT.SEG_NUM;
 INPUT STRATA NEW_DIST SAMPLE1 SAMPLE2;
CARDS;
10 11 0   2
10  9 2   2
10 14 3   2
10  7 10  0
10  6 13  0
10 12 3   0
10  3 3   0
10 15 13  1
10   8 7  0
10   4 75 1
10  10 0  0
10   5 4  1
10  13 0  0
10   1 0  2
10  16 0  0
10   2 3  0
20 11 3   1
20  9 5   0
20 14 2   0
20  7 07  0
20  6 16  2
20 12 6   0
20  3 2   2
20 15 9   1
20   8 10 2
20   4 22 0
20  10 0  0
20   5 8  4
20  13 2  2
20   1 3  0
20  16 0  0
20   2 5  1
31 11 4   0
31  9 8   0
31 14 2   0
31  7 5   0
31  6 4   2
31 12 3   0
31  3 14  2
31 15 5   1
31   8 14 2
31   4 3  2
31  10 0  0
31   5 9  3
31  13 6  0
31   1 0  2
31  16 1  1
31   2 10 0
51 11 1   0
51  9 0   0
51 14 2   0
51  7 1   0
51  6 0   0
51 12 0  0
51  3 2 0
51 15 0 0
51   8 2 0
51   4 0 0
51  10 0 0
51   5 1 0
51  13 6 0
51   1 1 0
51  16 0 0
51   2 0 0
52 11 0 0
52  9 0 0
52 14 0 0
52  7 0 0
52  6 0 0
52 12 0 0
52  3 0 0
```

```
52 15 0 0
52   8 2 0
52   4 0 0
52  10 1 0
52   5 4 0
52  13 1 0
52   1 0 0
52  16 2 0
52   2 2 0
62 11 0 0
62  9 0 4
62 14 0 0
62  7 0 0
62  6 15 1
62 12 0  0
62  3 0  0
62 15 0  0
62   8 1' 0
62   4 0  0
62  10 2  0
62   5 19  1
62  13 4  0
62   1 0  2
62  16 6  0
62   2 7  0
;
PROC SORT;
BY STRATA NEW_DIST;
RUN;
PROC MEANS NOPRINT DATA=OUT.SEG_NUM;
VAR SAMPLE1 SAMPLE2;
BY STRATA ;
OUTPUT OUT=OUT.SEG_TOT SUM=;
RUN;
```

```
/* PROGRAM 3.
THE FOLLOWING TWO MACROS USE THE OUT.SSD_SAM, OUT.SEG_TOT FILES,
AND BALOCH1 FILE.  USE MAC1 FOR STRATA 10, 20, 31, AND 62.  USE
MAC2 FOR STRATA 51 AND 52.  EACH MACRO OUTPUTS A FILE THAT CONTAINS
THE WEIGHTS FOR EACH STRATA, SUBSTRATA, DISTRICT INTERSECTION.

/*NS IS THE NUMBER OF SEGMENTS IN THE STRATUM.
 VAR STRATA DIST SS NS NSD NSS NSSD S_NSEG SSD_NSEG
 SEG1 SEG2 1_SEG WIS WIV;*/

%MACRO MAC1(STRATA);
LIBNAME IN2 'C:\SAS';
DATA IN.ST&STRATA;SET IN2.BALOCH1;
   IF STRATA=&STRATA;
   IF STRATA>&STRATA THEN STOP;
PROC SORT;
   BY STRATA CLUSTER NEW_DIST NEW_TOPO FUNIT;

/*THIS SECTION CALCULATES THE TOTAL NUMBER OF SEGMENTS IN EACH
STRATUM.  THESE TOTALS ARE THEN MERGED WITH THE ORIGINAL DATA
SET.*/

DATA STTOT(KEEP=STRATA NS)
     CT_UNT(DROP=NS);
   SET IN.ST&STRATA;
   BY STRATA;
   RETAIN NS;
/*NS IS THE NUMBER OF SEGMENTS IN THE STRATUM.
     NS=(SUM(NS,PRJ_NSEG));
     OUTPUT CT_UNT;
     IF LAST.STRATA THEN OUTPUT STTOT;
   PROC PRINT DATA=STTOT;
   TITLE "NUMBER OF SEGMENTS IN STRATUM ";
   RUN;
/*
PROC PRINT DATA=CT_UNT;
TITLE "TEST";
VAR CLUSTER NEW_DIST NEW_TOPO FUNIT PRJ_NSEG NS;
RUN;
 */

DATA TEST(KEEP=STRATA DIST CLUSTER NEW_DIST NEW_TOPO FUNIT PRJ_NSEG
NS SAMPLE1);
     MERGE STTOT OUT.SEG_TOT CT_UNT;
  BY STRATA;
 IF STRATA=&STRATA;
PROC SORT DATA=TEST;
  BY STRATA NEW_DIST NEW_TOPO FUNIT NS;

/*THIS SECTION MERGES IN THE ORGINAL SAMPLE SIZE      */
/*SELECTED FOR EACH DISTRICT.  THEN THE TOTAL NUMBER  */
/*NUMBER OF SEGMENTS IN EACH DISTRICT IS CALCULATED.  */
/*THESE TOTALS ARE THEN MERGED WITH THE ORGINAL DATA  */
/*SET.                                                */

DATA DISTTOT(KEEP=STRATA DIST NEW_DIST NSD NS SAMPLE1);
   SET TEST ;
IF STRATA=&STRATA;
   BY STRATA NEW_DIST;
   RETAIN NSD;
     IF FIRST.NEW_DIST THEN NSD=0;
/*NSD IS THE NUMBER OF SEGMENTS UNITS IN EACH STRATA, */
/*DISTRICT INTERSECTION.                              */
     NSD=SUM(NSD,PRJ_NSEG);
     IF LAST.NEW_DIST THEN OUTPUT DISTTOT;

     PROC PRINT DATA=DISTTOT;
     TITLE "NUMBER OF SEGMENTS IN EACH DISTRICT";
     RUN;

/*THIS SECTION CALCULATES THE TOTAL NUMBER OF SEGMENTS  */
/*IN EACH DISTRICT.  THESE TOTALS ARE THEN MERGED WITH */
/*THE ORIGINAL DATA SET.                               */
/*A RECORD IS GENERATED FOR EACH POSSIBLE SEGMENT WITHIN*/
/*A COUNT UNIT.  SUBSTRATA BOUNDARIES ARE CREATED WHEN  */
/*THE ACCUMULATED NUMBER OF SEGMENTS EQUALS THE DESIRED */
/*NUMBER OF SEGMENTS IN A SUBSTRATA.                    */

DATA DIST; SET DISTTOT;
```

```
/* K IS THE NUMBER OF PAPER STRATA, 4 REPS ARE DRAWN IN */
/*EACH PAPER STRATA. */
      K=SAMPLE1/4;
/*NSS IS THE NUMBER OF SEGMENTS WITHIN A SUBSTRATUM*/
      NSS=ROUND(NS/K,1);
/*THIS SECTION GENERATES A RECORD FOR EACH POSIBLE     */
/*SEGMENT WITH IN COUNT UNITS.  THIS ALLOWS SUBSTRATUM */
/*TO INTERSECT COUNT UNITS.                            */

      G_SEGCT=ROUND(NSD,1);
      DO I=1 TO G_SEGCT;
        SEG=1;
        OUTPUT;
     END;

/*THIS SECTION DETERMINES THE SUBSTRATA BOUNDARIES AND */
/*ASSIGNS A SUBSTRATUM TO EACH SEGMENT.                */
/*S_NSEG IS THE ACCUMULATED NUMBER OF SEGMENTS.  SS    */
/*INDICATES THE SUBSTRATA.  WHEN S_NSEG REACHES THE    */
/*DESIRED NUMBER OF SEGMENTS IN THE SUBSTRATUM, S_NSEG */
/*IS RESET AND SS IS INCREASED BY 1.                   */
/*SSD INDICATES THE STRATUM, SUBSTRATUM, DISTRICT      */
/*INTERSECTION.*/

   DATA DIST;SET DIST;
    RETAIN S_NSEG 0 SS 1;
         S_NSEG=SUM(S_NSEG,SEG);
         IF S_NSEG>NSS THEN DO;
                SS=SUM(SS,1);
                S_NSEG=SEG;
         END;
     SSD=(STRATA*10000)+(SS*100)+NEW_DIST;
     PROC SORT DATA=DIST;
          BY SSD;

/*THIS SECTION CALCULATES THE TOTAL NUMBER OF SEGMENTS    */
/*IN EACH STRATA, SUBSTRATA, DISTRICT INTERSECTION AND    */
/*STORES ONE RECORD FOR EACH INTERSECTION.  THESE TOTALS  */
/*ARE THEN MERGED WITH THE ORIGINAL DATA SET.             */

DATA DIST;SET DIST;
  BY SSD;
       RETAIN SSD_NSEG;
        SSD_NSEG=SUM(SSD_NSEG,SEG);
         IF FIRST.SSD THEN DO;
                SSD_NSEG=SEG;
         END;

DATA OUT.NSSD&STRATA
(KEEP=STRATA DIST SS SSD NS NSD NSS NSSD S_NSEG SSD_NSEG SAMPLE1);
  SET DIST;
  BY SSD;
    IF LAST.SSD;
/*NSSD IS THE NUMBER OF SEGMENTS WITHIN EACH STRATA, */
/*SUBSTRAT, INTERSECTION.                            */
   NSSD=SSD_NSEG;

DATA OUT.FINAL&STRATA;MERGE OUT.SSD_SAM OUT.NSSD&STRATA;
 BY SSD;
IF STRATA=&STRATA;
   T_SEG=SUM(SEG1,SEG2);
   WTS=NSSD/T_SEG;
   WTV=((NSSD**2)/T_SEG)*(1-(T_SEG/NSSD));
   WTS_S=NS/SAMPLE1;
/*STRATA 31 AND 62 NEED THIS ADJUSTMENT BECAUSE THE TARGET*/
/*SEGMENT SIZE WAS 0.75 BUT ONLY 0.30 WILL BE ENUMERATED. */
     IF STRATA IN (31,62) THEN DO;
         WTS=(.75/.30)*WTS;
         WTV=((.75/.30)**2)*WTV;
      END;
PROC PRINT;
TITLE "EXPANSION FACTORS FOR DISTRICT &STRATA";
 VAR STRATA DIST SS NS NSD NSS NSSD S_NSEG SSD_NSEG
 SEG1 SEG2 T_SEG WTS WTV;
RUN;
%MEND MAC1;

%MACRO MAC2(STRATA);
/*THIS SECTION CALCULATES THE WEIGHTS FOR STRATUM 51  */
/*AND 52 IN THE BALOCHISTAN PROVINCE.                 */
```

```
/*THIS SECTION IS COMMENTED OUT BECAUSE IT IS IDENTICAL*/
/*TO CODE IN MAC1.  */

DATA IN.ST&STRATA;SET IN.BALOCH1;
   IF STRATA=&STRATA;
   IF STRATA>&STRATA THEN STOP;
PROC SORT;
   BY STRATA CLUSTER NEW_DIST NEW_TOPO FUNIT;

DATA STTOT(KEEP=STRATA NS)
     CT_UNT(DROP=NS);
   SET IN.ST&STRATA;
   BY STRATA;
   RETAIN NS;
     NS=(SUM(NS,PRJ_NSEG));
     OUTPUT CT_UNT;
     IF LAST.STRATA THEN OUTPUT STTOT;
   PROC PRINT DATA=STTOT;
   TITLE "NUMBER OF SEGMENTS IN STRATUM ";
   RUN;
/*OUT.SEG_TOT CONTAINS THE NUMBER OF SEGMENTS */
/*SELECTED FOR EACH STRATUM.                  */

DATA OUT.FINAL&STRATA;
     MERGE STTOT OUT.SEG_TOT CT_UNT;
  BY STRATA;
 IF STRATA=&STRATA;
 IF LAST.STRATA THEN OUTPUT;
/* K IS THE NUMBER OF SEGMENTS IN EACH SUBSTRATA, 4 IS
     THE NUMBER OF SUBSTRATA*/
       K=SAMPLE1/4;
/*NSS IS THE NUMBER OF SEGMENTS WITHIN A SUBSTRATUM*/
       NSS=ROUND(NS/K,1);
/*THIS SECTION GENERATES A RECORD FOR EACH POSIBLE     */
/*SEGMENT WITH IN COUNT UNITS.  THIS ALLOWS SUBSTRATUM */
/*TO INTERSECT COUNT UNITS.                            */
   T_SEG=4;
   WTS=NSS/4;
   WTV=((NSS**2)/T_SEG)*(1-(T_SEG/NSS));
PROC PRINT;
TITLE "EXPANSION FACTORS FOR DISTRICT &STRATA";
 VAR STRATA DIST  NS NSS
 WTS WTV;
RUN;
%MEND MAC2;

%MAC1(62)

%MAC1(10)
%MAC1(20)
%MAC1(31)

%MAC2(51)
%MAC2(52)

/*PROGRAM 4.
THIS PROGRAM COMBINES THE FINAL&STRATA FILES, AND OUTPUTS RECORDS INTO
APPROBRIATE DISTRICT FILES.*/

DATA WTS_BAL(KEEP=STRATA DIST SS NS NSD NSS NSSD T_SEG WTS WTV);
              SET OUT.FINAL10 OUT.FINAL20 OUT.FINAL31 OUT.FINAL62;
PROC PRINT;
BY STRATA SS;
SUM NSSD;
BY SS;
RUN;
PROC SORT;BY DIST STRATA SS;
RUN;
%MACRO W(D,DIST,PROV);
LIBNAME OUT1 "C:\93JAN\&PROV\DTAFILES";
DATA OUT1.WTS_&DIST;SET WTS_&PROV;
IF DIST=&D THEN OUTPUT OUT1.WTS_&DIST;
RUN;
%MEND W;
%W(17,CHA,BAL)
%W(21,D_B,BAL)
%W(41,GAW,BAL)
%W(55,KAC,BAL)
%W(57,KAL,BAL)
%W(75,KHA,BAL)
```

```
%W(81,KHU,BAL)
%W(97,LAS,BAL)
%W(101,LOR,BAL)
%W(117,NAS,BAL)
%W(127,PAN,BAL)
%W(131,PAS,BAL)
%W(133,QUE,BAL)
%W(155,SIB,BAL)
%W(171,TUR,BAL)
%W(175,ZHO,BAL)

DATA OUT1.WTS_B51(KEEP=STRATA DIST SS NS NSS T_SEG WTS WTV);
     SET OUT.FINAL51;
DATA OUT1.WTS_B52(KEEP=STRATA DIST SS NS NSS T_SEG WTS WTV);
    SET OUT.FINAL52;
RUN;
```

Other district weights -- WTB.BAB

This program will be used to calculate weights for the districts in the other provinces. The program is a set of macros that execute based on the name of province. In its present form, only weight files for districts in the Punjab Province can be done. Ms. Suad Saeed was shown how to modify the program to work for the other provinces. Code needs to be added to MACRO NEWD to create the correct value of NEW_DIST for the remaining provinces. Also code for, MACRO SND, MACRO NFP, needs to be written. These macros output the weight files for a particular province. MACRO PUN can be used as a model.

This program opens several files. You need FILES=75 in config.sys.

```
/*THIS PROGRAM CREATES THE WEIGHT FILES FOR PROVINCES OTHER THAN
BALOCHISTAN.  BEFORE EXECUTING THE PROGRAM YOU NEED TO COPY THE
FILES CREATED BY DR. CHARLES PERRY'S SAMPLE SELECT PROGRAM INTO
C:\D.  THE PROGRAM WILL COPY THIS TO A WORK FILE WHERE THE PREFIX
IS RND, AND THE SUFFIX IS THE FIRST THREE CHARACTERS OF  PROVINCE
NAME.

THIS PROGRAM CAN BE MODIFIED TO OUTPUT SAMPLE MASTER FILES THAT
CONTAIN THE SEGMENT NUMBER AND THE WEIGHTS.  THESE FILES COULD BE
MERGED WITH RAW DATA FILES DURING THE EDIT.   THIS COULD ELIMINATE
THE NEED FOR SEPARATE DATA AND WEIGHT FILES IN THE SUMMARY.

INPUT DATA:     RUN_PPP.SSD WHERE PPP IS THE FIRST THREE CHARACTERS
                IN THE PROVINCE NAME.
     DIST:      OLD DISTRICT CODE.
     STRATA:    LAND USE STRATA CODE.
     PS:        SUBSTRATA OR PAPER STRATA CODE.
     R:         REPLICATE NUMBER.
     NEW_DIST:  DISTRICT CODE USED BY FBS WHEN DESIGNATING COUNT
                UNITS.
     NSTRATA:   STRATA POPULATION.
     SAMPLE:    SAMPLE SIZE FOR THE STRATA WITHIN DISTRICT.
     REP:       NUMBER OF REPLICATES.
     K:         NUMBER OF SUBSTRATA.

OUTPUT DATA: OUT.WTS_DDD WHERE
                OUT REFERENCES THE SUBDIRECTORY FOR THE WEIGHT
                FILES.  THE PATH NEED TO C:\YYMMM\PPP\DTAFILES
                WHERE YY REPRESENTS THE YEAR, MMM REPRESENTS THE
                MONTH, PPP REPRESENTS THE PROVINCE.

     DIST:      A THREE DIGIT CODE WHERE THE FIRST DIGIT IS THE
                PROVINCE VALUE, THE SECOND AND THIRD DIGITS ARE THE
                NEW_DIST CODE.
     STRATA:    LAND USE STRATA CODE.
     SS:        SUBSTRATA CODE.
     NS:        STRATA POPULATION WITHIN DISTRICT.
     NSSD:      STRATA, SUBSTRATA, DISTRICT INTERSECTION
                POPULATION.
     WTS:       WEIGHT USED IN SUMMARY FOR DIRECT EXPANSION.
     WTV:       WEIGHT USED IN SUMMARY FOR VARIANCE.

FORMULAS WEIGHTS ARE DOCUMENTED IN THE APPENDIX TO PAUL COOKS .
CORRESPONDENCE.  THEY CAN ALSO BE FOUND IN SAMPLING TECHNIQUES,
COCHRAN, WILLIAM G.,  THIRD EDITION, PG 26-27.

EXECUTING PROGRAM:
     THE PROGRAM IS MACRO DRIVEN.  MAC3 IS THE ONLY MACRO YOU NEED
     TO CALL.  TWO MACRO VARIABLES ARE PASSED THROUGH THE PROGRAM.
     THESE MACRO VARIABLE "PROV" INDICATES THE PROVINCE AND "NREP"
     INDICATES NUMBER OF REPS.                                      */

LIBNAME IN 'C:\D';
LIBNAME A 'A:\';

%MACRO MAC3(PROV,NREP);

%IF &PROV=PUN %THEN %DO;
     DATA RND_PUN;SET IN.PUN_RND;
     PROV=1;
     RUN;
%END;

%IF &PROV=SIN %THEN %DO;
     DATA RND_SIN;SET D.SIN_RND;
     PROV=2;
     RUN;
%END;
%IF &PROV=NFP %THEN %DO;
     DATA RND_NFP;SET D.NFP_RND;
     PROV=3;
     RUN;
%END;

%IF &PROV=BAL %THEN %DO;
     DATA RND_BAL;SET D.BAL_RND;
     PROV=4;
     RUN;
%END;

LIBNAME OUT "C:\92JAN\&PROV\DTAFILES";
/*THIS MACRO OUTPUT WEIGHT FILES FOR PROVICENCES OTHER*/
/*THAN BALOCHISTAN.                                    */
```

```
%MACRO RENAME();
     RENAME NSTRATA=NS;
     RENAME R&I=RN;
     RENAME SUBSTRAT=SS;
%MEND RENAME;

%MACRO NEWD();
 %IF &PROV=PUN %THEN %DO;
      PROV=1;
      IF DIST= 47 THEN NEW_DIST= 1;
      IF DIST=139 THEN NEW_DIST= 2;
      IF DIST= 53 THEN NEW_DIST= 3;
      IF DIST=  3 THEN NEW_DIST= 4;
      IF DIST= 19 THEN NEW_DIST= 5;
      IF DIST= 37 THEN NEW_DIST= 6;
      IF DIST= 39 THEN NEW_DIST= 7;
      IF DIST=153 THEN NEW_DIST= 8;
      IF DIST=145 THEN NEW_DIST= 9;
      IF DIST= 79 THEN NEW_DIST=10;
      IF DIST=109 THEN NEW_DIST=11;
      IF DIST= 15 THEN NEW_DIST=12;
      IF DIST= 93 THEN NEW_DIST=13;
      IF DIST= 69 THEN NEW_DIST=14;
      IF DIST=149 THEN NEW_DIST=15;
      IF DIST=123 THEN NEW_DIST=16;
      IF DIST= 35 THEN NEW_DIST=17;
      IF DIST=169 THEN NEW_DIST=18;
      IF DIST= 51 THEN NEW_DIST=19;
      IF DIST=113 THEN NEW_DIST=20;
      IF DIST= 73 THEN NEW_DIST=21;
      IF DIST=173 THEN NEW_DIST=22;
      IF DIST=141 THEN NEW_DIST=23;
      IF DIST=  9 THEN NEW_DIST=24;
      IF DIST=  7 THEN NEW_DIST=25;
      IF DIST=135 THEN NEW_DIST=26;
      IF DIST= 29 THEN NEW_DIST=27;
      IF DIST=137 THEN NEW_DIST=28;
      IF DIST=115 THEN NEW_DIST=29;
      IF DIST= 99 THEN NEW_DIST=30;
   %END;
%MEND NEWD;
/*MACRO START READS IN THE DATA, CALCUATES THE WEIGHTS AND DIST
VALUES.  SEG VALUES COULD BE CALCUATED IF DESIRED, HOWEVER THIS NOT
NECESSARY FOR THE WEIGHTS. SOME VARIABLES ARE RENAMED OR CALCULATED
TO BE CONSISTENT WITH MAC1 AND MAC2.  THESE ARE USED TO CALCUATE
THE WEIGHTS FOR THE BALOCHISTAN PROVINCES */

%MACRO START();
  %DO I=1 %TO &NREP;
   DATA A_R&I(KEEP= DIST STRATA SS R  NEW_DIST
                NS SAMPLE REP K NSS NSSD RN WTS WIV);
          SET RND_&PROV;
     %NEWD
     %RENAME
     NSSD=PS;
     NSS=ROUND(NSTRATA/K,1);
     DIST=(PROV*100)+NEW_DIST;
     R=&I;
     T_SEG=REP;
      SEG=(STRATA*1000)+(SS*10)+R;
     WTS=NSTRATA/(K*T_SEG);
     WIV=((NSSD**2)/T_SEG)*(1-(T_SEG/NSSD));
    RUN;
  %END;
%MEND START;

/*MACRO X SETS THE FILES CREATED IN MACRO START AND PREPARES A DATA
SET TO OUTPUT THE WEIGHT FILES*/
%MACRO X();
   %MACRO A();
     %DO I=1 %TO &NREP;
       A_R&I
     %END;
   %MEND A;
 DATA X(KEEP=DIST NEW_DIST STRATA SS NS NSSD WTS WIV);
   SET %A;
  ;
  PROC SORT DATA=X;
  BY DIST STRATA SS;
 DATA X(KEEP=DIST NEW_DIST STRATA SS NS NSSD WTS WIV);
  SET X;
  BY DIST STRATA SS;
  IF LAST.SS;
  RUN;
```

```
%MEND X;

/*THE REMAINING MACROS OUTPUT THE DISTRICT LEVEL WEIGHT FILES.  THE
MACRO VARIABLE "PROV" IS USED TO CALL THE DESIRED MACRO*/

%MACRO PUN;
DATA OUT.WTS_ISL OUT.WTS_RAW OUT.WTS_JHE OUT.WTS_ATT OUT.WTS_CHA
     OUT.WTS_GUJ OUT.WTS_GUR OUT.WTS_STA OUT.WTS_SAR OUT.WTS_KHU
     OUT.WTS_MIA OUT.WTS_BHA OUT.WTS_LAH OUT.WTS_KAS OUT.WTS_SHE
     OUT.WTS_OKA OUT.WTS_FAS OUT.WTS_TOB OUT.WTS_JHA OUT.WTS_MUL
     OUT.WTS_KHA OUT.WTS_VEH OUT.WTS_SAH OUT.WTS_BHW OUT.WTS_BHL
     OUT.WTS_RAH OUT.WTS_DCK OUT.WTS_RAJ OUT.WTS_MUZ OUT.WTS_LAY;
   SET X;
   IF NEW_DIST=  1 THEN OUTPUT OUT.WTS_ISL;
   IF NEW_DIST=  2 THEN OUTPUT OUT.WTS_RAW;
   IF NEW_DIST=  3 THEN OUTPUT OUT.WTS_JHE;
   IF NEW_DIST=  4 THEN OUTPUT OUT.WTS_ATT;
   IF NEW_DIST=  5 THEN OUTPUT OUT.WTS_CHA;
   IF NEW_DIST=  6 THEN OUTPUT OUT.WTS_GUJ;
   IF NEW_DIST=  7 THEN OUTPUT OUT.WTS_GUR;
   IF NEW_DIST=  8 THEN OUTPUT OUT.WTS_STA;
   IF NEW_DIST=  9 THEN OUTPUT OUT.WTS_SAR;
   IF NEW_DIST= 10 THEN OUTPUT OUT.WTS_KHU;
   IF NEW_DIST= 11 THEN OUTPUT OUT.WTS_MIA;
   IF NEW_DIST= 12 THEN OUTPUT OUT.WTS_BHA;
   IF NEW_DIST= 13 THEN OUTPUT OUT.WTS_LAH;
   IF NEW_DIST= 14 THEN OUTPUT OUT.WTS_KAS;
   IF NEW_DIST= 15 THEN OUTPUT OUT.WTS_SHE;
   IF NEW_DIST= 16 THEN OUTPUT OUT.WTS_OKA;
   IF NEW_DIST= 17 THEN OUTPUT OUT.WTS_FAS;
   IF NEW_DIST= 18 THEN OUTPUT OUT.WTS_TOB;
   IF NEW_DIST= 19 THEN OUTPUT OUT.WTS_JHA;
   IF NEW_DIST= 20 THEN OUTPUT OUT.WTS_MUL;
   IF NEW_DIST= 21 THEN OUTPUT OUT.WTS_KHA;
   IF NEW_DIST= 22 THEN OUTPUT OUT.WTS_VEH;
   IF NEW_DIST= 23 THEN OUTPUT OUT.WTS_SAH;
   IF NEW_DIST= 24 THEN OUTPUT OUT.WTS_BHW;
   IF NEW_DIST= 25 THEN OUTPUT OUT.WTS_BHL;
   IF NEW_DIST= 26 THEN OUTPUT OUT.WTS_RAH;
   IF NEW_DIST= 27 THEN OUTPUT OUT.WTS_DCK;
   IF NEW_DIST= 28 THEN OUTPUT OUT.WTS_RAJ;
   IF NEW_DIST= 29 THEN OUTPUT OUT.WTS_MUZ;
   IF NEW_DIST= 30 THEN OUTPUT OUT.WTS_LAY;

RUN;
%MEND PUN;

%MACRO SIND;
%MEND SIND;

%MACRO NWB;
%MEND NWB;

%START
%X
%&PROV

%MEND MAC3;
%MAC3(PUN,2)
```

DISTRICT LEVEL SUMMARY -- ASFSUMM.GRK

The current district summary program was modified to handle the differences in the sampling plans. In general, the following changes were made:

1) Changed subdirectory structure so that all files were separated by province.

2) Weights were calculated in separate programs. Separate files were created for each district. The summary program read these files instead of calculating the weights.

3) Macro A, which calculated the desired statistics at the substrata and district level, was modified to have 3 nested macros. Macro variables based on the district code were used to call the appropriate nested macro.

4) Macro A will also store the total reported values and their variances for the first 50 crop codes. Dr. Perry requested these values be stored and used for post-survey analysis.

```
DM 'OUTPUT;CLEAR;LOG;CLEAR;';
OPTIONS PS=60 LS=73 NOSOURCE NOSOURCE2 DATE;
OPTIONS MTRACE MPRINT SYMBOLGEN;
**ASFSUMM.GRK ************* RABI ********************************;
**  CLOSED SEGMENT, WEIGHTED SEGMENT AND LIVESTOCK INDICATIONS. **;
*****************************************************************;
%LET YEAR=92;          /*     SURVEY YEAR     */
%LET SURVEY=RABI;
%LET MM=JAN;           /*   JAN FOR JANUARY   */
%LET CNT3=27;          /* # OF ITEMS IN ITEM3 */
%LET CNT4=15;          /* # OF ITEMS IN ITEM4 */
%LET CNT5=27;          /* # OF ITEMS IN ITEM5 */
%LET CNT6=26;          /* # OF ITEMS IN ITEM6 */
%LET DOT=.;
*****************************************************************;
****** INPUT DISTRICT CODE ******;
OPTIONS MISSING=' ';
DATA DIST(KEEP=DIST);
  WINDOW DISTSELE
   #2 @20 'SUMMARY PROGRAM FOR AREA SAMPLING FRAME SURVEY' A=H
   #5 @25 'PLEASE ENTER DISTRICT CODE  ' DIST 3. A=R
   #7 @15 ERR $50. P=YES A=H
  ;
  DIS:;
   DISPLAY DISTSELE;
   ERR='';
   IF (DIST IN (.)) THEN
      DO;ERR='INVALID CODE  --  ENTER 6, 7, 8, 12, 13, 14 OR 15';
         DIST=.;GOTO DIS;END;
   OUTPUT;STOP;
RUN;
OPTIONS MISSING='.';
FILENAME FILE1 'C:\MYSAS\FILE1';
DATA _NULL_;FILE FILE1;SET DIST;
  P=INT(DIST/100);
  D=MOD(DIST,100);
IF P=1 THEN DO;
 PUT '%LET PROV=PUN;';
 IF D= 1 THEN DO; PUT '%LET DIST=ISL;';PUT 'TITLE "ISLAMABAD";';END;
 IF D= 2 THEN DO; PUT '%LET DIST=RAW;';PUT 'TITLE "RAWALPINDI";';END;
 IF D= 3 THEN DO; PUT '%LET DIST=JHE;';PUT 'TITLE "JHELUM";';END;
 IF D= 4 THEN DO; PUT '%LET DIST=ATT;';PUT 'TITLE "ATTOCK";';END;
 IF D= 5 THEN DO; PUT '%LET DIST=CHA;';PUT 'TITLE "CHAKWAL";';END;
 IF D= 6 THEN DO; PUT '%LET DIST=GUJ;';PUT 'TITLE "GUJRANWALA";';END;
 IF D= 7 THEN DO; PUT '%LET DIST=GUR;';PUT 'TITLE "GUJRAT";';END;
 IF D= 8 THEN DO; PUT '%LET DIST=STA;';PUT 'TITLE "STALKOT";';END;
 IF D= 9 THEN DO; PUT '%LET DIST=SAR;';PUT 'TITLE "SARGODHA";';END;
 IF D=10 THEN DO; PUT '%LET DIST=KHU;';PUT 'TITLE "KHUSHAB";';END;
 IF D=11 THEN DO; PUT '%LET DIST=MIA;';PUT 'TITLE "MIANWLI";';END;
 IF D=12 THEN DO; PUT '%LET DIST=BHA;';PUT 'TITLE "BHAKKAR";';END;
 IF D=13 THEN DO; PUT '%LET DIST=LAH;';PUT 'TITLE "LAHORE";';END;
 IF D=14 THEN DO; PUT '%LET DIST=KAS;';PUT 'TITLE "KASUR";';END;
 IF D=15 THEN DO; PUT '%LET DIST=SHE;';PUT 'TITLE "SHEIKHPURA";';END;
 IF D=16 THEN DO; PUT '%LET DIST=OKA;';PUT 'TITLE "OKARA";';END;
 IF D=17 THEN DO; PUT '%LET DIST=FAS;';PUT 'TITLE "FAISABABAD";';END;
 IF D=18 THEN DO; PUT '%LET DIST=TOB;';PUT 'TITLE "TOBA TEK SING";';END;
 IF D=19 THEN DO; PUT '%LET DIST=JHA;';PUT 'TITLE "JHANG";';END;
 IF D=20 THEN DO; PUT '%LET DIST=MUL;';PUT 'TITLE "MULTAN";';END;
 IF D=21 THEN DO; PUT '%LET DIST=KHA;';PUT 'TITLE "KHANAWAL";';END;
 IF D=22 THEN DO; PUT '%LET DIST=VEH;';PUT 'TITLE "VEHARI";';END;
 IF D=23 THEN DO; PUT '%LET DIST=SAH;';PUT 'TITLE "SAHIWAL";';END;
 IF D=24 THEN DO; PUT '%LET DIST=BHW;';PUT 'TITLE "BHAWALPUR";';END;
 IF D=25 THEN DO; PUT '%LET DIST=BHL;';PUT 'TITLE "BHAWALNAGAR";';END;
 IF D=26 THEN DO; PUT '%LET DIST=RAH;';PUT 'TITLE "RAHIMYAREHRAN";';END;
 IF D=27 THEN DO; PUT '%LET DIST=DCK;';PUT 'TITLE "D. C. KHAN";';END;
 IF D=28 THEN DO; PUT '%LET DIST=RAJ;';PUT 'TITLE "RAJANPUN";';END;
 IF D=29 THEN DO; PUT '%LET DIST=MUZ;';PUT 'TITLE "MUZAFFARGARH";';END;
 IF D=30 THEN DO; PUT '%LET DIST=LAY;';PUT 'TITLE "LAYYAH";';END;
END;
IF P=4 THEN DO;
   PUT '%LET PROV=BAL;';
 IF D= 1 THEN DO; PUT '%LET DIST=SIB;';PUT 'TITLE "SIBBI";';END;
 IF D= 2 THEN DO; PUT '%LET DIST=ZHO;';PUT 'TITLE "ZHOB";';END;
 IF D= 3 THEN DO; PUT '%LET DIST=KHU;';PUT 'TITLE "KHUZDAR";';END;
 IF D= 4 THEN DO; PUT '%LET DIST=NAS;';PUT 'TITLE "NASIRABAD";';END;
 IF D= 5 THEN DO; PUT '%LET DIST=PAS;';PUT 'TITLE "PASHIN";';END;
 IF D= 6 THEN DO; PUT '%LET DIST=KAL;';PUT 'TITLE "KALAT";';END;
 IF D= 7 THEN DO; PUT '%LET DIST=KAC;';PUT 'TITLE "KACHHI";';END;
 IF D= 8 THEN DO; PUT '%LET DIST=LOR;';PUT 'TITLE "LORALAI";';END;
 IF D= 9 THEN DO; PUT '%LET DIST=D_B;';PUT 'TITLE "DERA BUGITI";';END;
```

```
 IF D=10 THEN DO; PUT '%LET DIST=PAN;';PUT 'TITLE "PANJGUR";';END;
 IF D=11 THEN DO; PUT '%LET DIST=CHA;';PUT 'TITLE "CHAGGI";';END;
 IF D=12 THEN DO; PUT '%LET DIST=KHA;';PUT 'TITLE "KHARAN";';END;
 IF D=13 THEN DO; PUT '%LET DIST=QUE;';PUT 'TITLE "QUETTA";';END;
 IF D=14 THEN DO; PUT '%LET DIST=GAW;';PUT 'TITLE "GAWADAR";';END;
 IF D=15 THEN DO; PUT '%LET DIST=LAS;';PUT 'TITLE "LASBELA";';END;
 IF D=16 THEN DO; PUT '%LET DIST=TUR;';PUT 'TITLE "TURBAT";';END;
 IF D=97 THEN DO; PUT '%LET DIST=B51;';PUT 'TITLE "STRATUM 51";';END;
 IF D=98 THEN DO; PUT '%LET DIST=B52;';PUT 'TITLE "STRATUM 52";';END;
END;

RUN;
%INC FILE1;
*****************************************************************;
%MACRO LST1();
 C1 C2 K200-K202 K205 K210 K220 K230 K240 K250 K260 K270 K280 K290
  K300 K310 K320-K322 K330 K340 K360 K362 K364 K370 K380 K410 K420
  K430 K440 K500 K510 K521 K522 K530 K540 K890 K900-K910 K999
%MEND LST1;
*****************************************************************;
%MACRO LST2();
   CG1-CG6 K206 K207 K251 K255 K256 K272 K301-K305 K308 K350 K372
      K390 K400 K402 K412 K432 K433 K442 K450 K451 K460 K461 K470
      K471 K480 K490 K523 K524 K541 K542 K544 K546 K548 K911-K918
%MEND LST2;
*****************************************************************;
%MACRO LST3();
   CODE1-CODE54
%MEND LST3;
*****************************************************************;
%MACRO LST4();
   CODE55-CODE108
%MEND LST4;
*****************************************************************;
%MACRO LST5();
   CODE1-CODE54
%MEND LST5;
*****************************************************************;
%MACRO LST6();
   CODE55-CODE108
%MEND LST6;
*****************************************************************;
%MACRO COMMOD1();
   C1='1';C2='2';
   K200='200';K201='201';K202='202';K205='205';K210='210';
   K220='220';K230='230';K240='240';K250='250';K260='260';
   K270='270';K280='280';K290='290';K300='300';K310='310';
   K320='320';K321='321';K322='322';K330='330';K340='340';
   K360='360';K362='362';K364='364';K370='370';K380='380';
   K410='410';K420='420';K430='430';K440='440';K500='500';
   K510='510';K521='521';K522='522';K530='530';K540='540';
   K890='890';K900='900';K901='901';K902='902';K903='903';
   K904='904';K905='905';K906='906';K907='907';K908='908';
   K909='909';K910='910';K999='999';
%MEND COMMOD1;
*****************************************************************;
%MACRO COMMOD2();
   CG1='4';CG2='5';CG3='6';CG4='7';CG5='3';CG6='8';
K206='206';K207='207';K251='251';K255='255';K256='256';K272='272';
K301='301';K302='302';K303='303';K304='304';K305='305';K308='308';
K350='350';K372='372';K390='390';K400='400';K402='402';K412='412';
K432='432';K433='433';K442='442';K450='450';K451='451';K460='460';
K461='461';K470='470';K471='471';K480='480';K490='490';K523='523';
K524='524';K541='541';K542='542';K544='544';K546='546';K548='548';
K911='911';K912='912';K913='913';K914='914';K915='915';K916='916';
K917='917';K918='918';
%MEND COMMOD2;
*****************************************************************;
%MACRO COMMOD3();
   ITEM100='100';ITEM101='101';
   ITEM201='201';ITEM202='202';ITEM203='203';
   ITEM301='301';ITEM302='302';ITEM303='303';
   ITEM311='311';ITEM312='312';ITEM313='313';
   ITEM501='501';ITEM502='502';ITEM511='511';ITEM512='512';
   ITEM601='601';ITEM602='602';ITEM611='611';ITEM612='612';
   ITEM701='701';ITEM702='702';ITEM703='703';ITEM704='704';
   ITEM705='705';ITEM706='706';ITEM707='707';ITEM716='716';
%MEND COMMOD3;
*****************************************************************;
%MACRO COMMOD4();
```

```
   ITEM717='717';
   ITEM801='801';ITEM802='802';ITEM803='803';ITEM804='804';
   ITEM36='36';ITEM37='37';ITEM38='38';ITEM39='39';
   ITEM40='40';ITEM41='41';ITEM42='42';ITEM43='43';
   ITEM44='44';ITEM45='45';
%MEND COMMOD4;
*****************************************************************;
%MACRO COMMOD5();
   ITEM913='913';ITEM915='915';ITEM917='917';
   ITEM919='919';ITEM921='921';ITEM923='923';
   ITEM925='925';ITEM927='927';ITEM929='929';
   ITEM931='931';ITEM933='933';ITEM935='935';
   ITEM937='937';ITEM939='939';ITEM941='941';
   ITEM943='943';ITEM945='945';ITEM947='947';
   ITEM949='949';ITEM951='951';ITEM953='953';
   ITEM955='955';ITEM957='957';ITEM959='959';
   ITEM961='961';ITEM963='963';ITEM965='965';
%MEND COMMOD5;
*****************************************************************;
%MACRO COMMOD6();
   ITEM967='967';ITEM969='969';ITEM971='971';
   ITEM973='973';ITEM975='975';ITEM977='977';
   ITEM979='979';ITEM981='981';ITEM983='983';
   ITEM985='985';ITEM987='987';ITEM989='989';
   ITEM991='991';ITEM993='993';ITEM995='995';
   ITEM997='997';
   ITEM36='36';ITEM37='37';ITEM38='38';
   ITEM39='39';ITEM40='40';ITEM41='41';
   ITEM42='42';ITEM43='43';ITEM44='44';
   ITEM45='45';
%MEND COMMOD6;
*****************************************************************;
%MACRO SORT1();
   NUX1 =  1; /*** ALL LAND                        1 *****/
   NUX2 =  2; /*** WASTE                           2 *****/
   NUX3 =  4; /*** WHEAT UNIRRIGATED             200 *****/
   NUX4 =  6; /*** WHEAT IRRI                    201 *****/
   NUX5 =  8; /*** WHEAT RAIN FED                202 *****/
   NUX6 =  5; /*** WHEAT UNIRRIGATED INTENTIONS 205 *****/
   NUX7 = 31; /*** BARLEY                        210 *****/
   NUX8 = 33; /*** GRAM                          220 *****/
   NUX9 = 39; /*** LINSEED                       230 *****/
   NUX10= 40; /*** RAPE AND MUSTARD              240 *****/
   NUX11= 23; /*** SUGARCANE                     250 *****/
   NUX12= 44; /*** TOBACCO                       260 *****/
   NUX13= 47; /*** CHILLIES VEGETABLE            270 *****/
   NUX14= 48; /*** GARLIC                        280 *****/
   NUX15= 46; /*** OTHER CONDIMENTS              290 *****/
   NUX16= 34; /*** MASOOR                        300 *****/
   NUX17= 38; /*** OTHER KHARIF PULSES           310 *****/
   NUX18= 66; /*** OTHER CITRUS                  320 *****/
   NUX19= 64; /*** LEMON                         321 *****/
   NUX20= 65; /*** KINOO                         322 *****/
   NUX21= 70; /*** OTHER RABI FRUITS             330 *****/
   NUX22= 67; /*** GUAVA                         340 *****/
   NUX23= 49; /*** ONIONS                        360 *****/
   NUX24= 50; /*** CARROTS                       362 *****/
   NUX25= 51; /*** PEAS                          364 *****/
   NUX26= 52; /*** POTATOES (SPRING)             370 *****/
   NUX27= 54; /*** TOMATOES                      380 *****/
   NUX28= 63; /*** OTHER KHARIF VEGETABLES       410 *****/
   NUX29= 73; /*** BARSEEM                       420 *****/
   NUX30= 74; /*** LUCERN                        430 *****/
   NUX31= 77; /*** OTHER KHARIF FODDERS          440 *****/
   NUX32= 28; /*** MAIZE FOR GRAIN               500 *****/
   NUX33= 29; /*** MAIZE FOR OTHER USES          510 *****/
   NUX34= 20; /*** COTTON IMPROVED                521 *****/
   NUX35= 18; /*** COTTON DESI                    522 *****/
   NUX36= 78; /*** BAMBOO                         530 *****/
   NUX37= 55; /*** LADY FINGER (OKRA)             540 *****/
   NUX38= 80; /*** OTHER CROPS                    890 *****/
   NUX39=100; /*** FALLOW UNKNOWN                 900 *****/
   NUX40= 98; /*** FALLOW FERT, 1 SEASON          901 *****/
   NUX41= 99; /*** FALLOW FERT, MORE THAN 1 SEA 902 *****/
   NUX42= 96; /*** FALLOW WATER 1 SEASON          903 *****/
   NUX43= 97; /*** FALLOW WATER MORE THAN 1 SEA 904 *****/
   NUX44= 94; /*** FALLOW LABOR 1 SEASON          905 *****/
   NUX45= 95; /*** FALLOW LABOR MORE THAN 1 SEA 906 *****/
   NUX46= 92; /*** FALLOW SEED 1 SEASON           907 *****/
   NUX47= 93; /*** FALLOW SEED MORE THAN 1 SEA   908 *****/
```

```
   NUX48= 90; /*** FALLOW FUNDING 1 SEASON      909 *****/
   NUX49= 91; /*** FALLOW FUND MORE THAN 1 SEA  910 *****/
   NUX50= 79; /*** FOREST                       999 *****/
%MEND SORT1;
*****************************************************************
%MACRO SORT2();
   NUX1 = 10; /*** RICE ALL                      CG1 ***/
   NUX2 = 17; /*** COTTON ALL                    CG2 ***/
   NUX3 = 81; /*** FALLOW ALL                    CG3 ***/
   NUX4 =  3; /*** WHEAT ALL                     CG4 ***/
   NUX5 = 22; /*** SUGARCANE ALL                 CG5 ***/
   NUX6 = 27; /*** MAIZE ALL                     CG6 ***/
   NUX7 =  7; /*** WHEAT IRRI INTENTIONS          206 ***/
   NUX8 =  9; /*** WHEAT RAIN FED INTENTIONS      207 ***/
   NUX9 = 24; /*** SUGARCANE INTENTIONS           251 ***/
   NUX10= 25; /*** SUGARCANE PONDA                255 ***/
   NUX11= 26; /*** SUGARCANE PONDA INTENTIONS     256 ***/
   NUX12= 45; /*** CHILLIES CONDIMENTS            272 ***/
   NUX13= 35; /*** MOONG                          301 ***/
   NUX14= 36; /*** MASH                           302 ***/
   NUX15= 42; /*** GUARA FOR SEED                 303 ***/
   NUX16= 43; /*** JANTAR FOR SEED                304 ***/
   NUX17= 41; /*** SESAHUM                        305 ***/
   NUX18= 37; /*** OTHER RABI PULSES              308 ***/
   NUX19= 71; /*** OTHER KHARIF FRUITS            350 ***/
   NUX20= 53; /*** POTATOES (AUTUMN)              372 ***/
   NUX21= 56; /*** GOURD                          390 ***/
   NUX22= 68; /*** WATERMELON                     400 ***/
   NUX23= 69; /*** MANGO                          402 ***/
   NUX24= 62; /*** OTHER RABI VEGETABLES          412 ***/
   NUX25= 30; /*** MAIZE FOR FODDER               432 ***/
   NUX26= 75; /*** JOWAR FOR FODDER               433 ***/
   NUX27= 76; /*** OTHER RABI FODDERS             442 ***/
   NUX28= 11; /*** RICE BASMATI                   450 ***/
   NUX29= 12; /*** RICE BASMATI INTENTIONS        451 ***/
   NUX30= 13; /*** RICE IRRI                      460 ***/
   NUX31= 14; /*** RICE IRRI INTENTIONS           461 ***/
   NUX32= 15; /*** RICE OTHER                     470 ***/
   NUX33= 16; /*** RICE OTHER INTENTIONS          471 ***/
   NUX34= 72; /*** GROUNDNUTS                     480 ***/
   NUX35= 32; /*** JOWAR FOR GRAIN                490 ***/
   NUX36= 21; /*** COTTON IMPROVED INTENTIONS     523 ***/
   NUX37= 19; /*** COTTON DESI INTENTIONS          524 ***/
   NUX38= 56; /*** SPINACH                        541 ***/
   NUX39= 57; /*** TINDA                          542 ***/
   NUX40= 59; /*** TURNIP                         544 ***/
   NUX41= 60; /*** REODISH                        546 ***/
   NUX42= 61; /*** BITTER GOURD                   548 ***/
   NUX43= 83; /*** FALLOW, WHEAT TO FOLLOW        911 ***/
   NUX44= 82; /*** FALLOW, NATURAL, FERTILITY     912 ***/
   NUX45= 84; /*** FALLOW, RICE TO FOLLOW         913 ***/
   NUX46= 85; /*** FALLOW, COTTON TO FOLLOW       914 ***/
   NUX47= 86; /*** FALLOW, MAIZE TO FOLLOW        915 ***/
   NUX48= 88; /*** FALLOW, WATER LOGGING          916 ***/
   NUX49= 89; /*** FALLOW, SALINITY               917 ***/
   NUX50= 87; /*** FALLOW, ROTATION OF CROPS      918 ***/
%MEND SORT2;
*****************************************************************
%MACRO SORT3();
   NUX1=   1; /*** ALL LAND, CURRENT, ACRES     100 ***/
   NUX2=   2; /*** ALL LAND, PREVIOUS,ACRES     101 ***/
   NUX3=   4; /*** WHEAT IRRIGATED, ACRES       201 ***/
   NUX4=   5; /*** WHEAT RAIN FED, ACRES         202 ***/
   NUX5=   6; /*** WHEAT RIVER FLOOD, ACRES      203 ***/
   NUX6=   8; /*** RICE PLANTED, BASMATI, ACRES 301 ***/
   NUX7=   9; /*** RICE PLANTED, IRRI, ACRES    302 ***/
   NUX8=  10; /*** RICE PLANTED, OTHER, ACRES   303 ***/
   NUX9=  12; /*** RICE PROD., BASMATI, MAUNDS  311 ***/
   NUX10= 13; /*** RICE PROD., IRRI, MAUNDS     312 ***/
   NUX11= 14; /*** RICE PROD., OTHER, MAUNDS    313 ***/
   NUX12= 16; /*** COTTON PLANTED, DESI, ACRES  501 ***/
   NUX13= 17; /*** COTTON PLANTED, IMPR, ACRES  502 ***/
   NUX14= 19; /*** COTTON PROD, DESI, MAUNDS    511 ***/
   NUX15= 20; /*** COTTON PROD, IMPR, MAUNDS    512 ***/
   NUX16= 22; /*** MAIZE PLANTED, DESI, ACRES   601 ***/
   NUX17= 23; /*** MAIZE PLANTED, IMPR, ACRES   602 ***/
   NUX18= 25; /*** MAIZE PROD., DESI, MAUNDS    611 ***/
   NUX19= 26; /*** MAIZE PROD., IMPR, MAUNDS    612 ***/
   NUX20= 28; /*** CANE NORMAL, ACRES            701 ***/
   NUX21= 29; /*** CANE RATOON, ACRES            702 ***/
```

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   NUX22= 30; /*** CANE SEP. LAST, ACRES          703 ***/
   NUX23= 31; /*** CANE SEP., ACRES               704 ***/
   NUX24= 32; /*** CANE(FODDER), ACRES            705 ***/
   NUX25= 33; /*** CANE(MILLING), ACRES           706 ***/
   NUX26= 34; /*** CANE(LOCAL), ACRES             707 ***/
   NUX27= 36; /*** CANE(MILLING), MAUNDS          716 ***/
%MEND SORT3;
*****************************************************************
%MACRO SORT4();
   NUX1 =37; /*** CANE(LOCAL), MAUNDS             717 ***/
   NUX2 =39; /*** WHEAT(RICE), ACRES              801 ***/
   NUX3 =40; /*** WHEAT(COTTON), ACRES             802 ***/
   NUX4 =41; /*** WHEAT(CANE), ACRES               803 ***/
   NUX5 =42; /*** WHEAT(MAIZE), ACRES              804 ***/
   NUX6 = 3; /*** WHEAT ALL, ACRES                 36 ***/
   NUX7 = 7; /*** RICE ALL, ACRES                  37 ***/
   NUX8 =11; /*** RICE ALL, MAUNDS                 38 ***/
   NUX9 =15; /*** COTTON ALL, ACRES                39 ***/
   NUX10=18; /*** COTTON ALL, MAUNDS               40 ***/
   NUX11=21; /*** MAIZE ALL, ACRES                 41 ***/
   NUX12=24; /*** MAIZE ALL, MAUNDS                42 ***/
   NUX13=27; /*** CANE ALL, ACRES                  43 ***/
   NUX14=35; /*** CANE ALL, MAUNDS                 44 ***/
   NUX15=38; /*** WHEAT FOLLOW OTHER CROPS,ACRES 45 ***/
   NUX16= .;
   NUX17= .;
   NUX18= .;
   NUX19= .;
   NUX20= .;
   NUX21= .;
   NUX22= .;
   NUX23= .;
   NUX24= .;
   NUX25= .;
   NUX26= .;
   NUX27= .;
%MEND SORT4;
*****************************************************************
%MACRO SEGNAME();
   IF T=1   THEN NAX='ALL LAND, ACRES';
   IF T=2   THEN NAX='WASTE LAND, ACRES';
   IF T=3   THEN NAX='SUGARCANE ALL, ACRES';
   IF T=7   THEN NAX='WHEAT ALL, ACRES';
   IF T=200 THEN NAX='WHEAT - UNIRRIGATED, ACRES';
   IF T=201 THEN NAX='WHEAT - IRRIGATED, ACRES';
   IF T=202 THEN NAX='WHEAT - RAIN FED, ACRES';
   IF T=205 THEN NAX='WHEAT UNIRRIGATED INTENTIONS, ACRES';
   IF T=206 THEN NAX='WHEAT IRRI INTENTIONS, ACRES';
   IF T=207 THEN NAX='WHEAT RAIN FED INTENTIONS, ACRES';
   IF T=210 THEN NAX='BARLEY, ACRES';
   IF T=220 THEN NAX='GRAM, ACRES';
   IF T=230 THEN NAX='LINSEED, ACRES';
   IF T=240 THEN NAX='RAPE AND MUSTARD, ACRES';
   IF T=250 THEN NAX='SUGARCANE, ACRES';
   IF T=251 THEN NAX='SUGARCANE INTENTIONS, ACRES';
   IF T=255 THEN NAX='SUGARCANE PONDA, ACRES';
   IF T=256 THEN NAX='SUGARCANE PONDA INTENTIONS, ACRES';
   IF T=260 THEN NAX='TOBACCO, ACRES';
   IF T=270 THEN NAX='CHILLIES VEGETABLE, ACRES';
   IF T=272 THEN NAX='CHILLIES CONDIMENTS, ACRES';
   IF T=280 THEN NAX='GARLIC, ACRES';
   IF T=290 THEN NAX='CONDIMENTS - OTHER, ACRES';
   IF T=300 THEN NAX='MASOOR, ACRES';
   IF T=301 THEN NAX='MOONG, ACRES';
   IF T=302 THEN NAX='MASH, ACRES';
   IF T=303 THEN NAX='GUARA FOR SEED, ACRES';
   IF T=304 THEN NAX='JANTER FOR SEED, ACRES';
   IF T=305 THEN NAX='SESAMUM, ACRES';
   IF T=308 THEN NAX='OTHER PULSES (RABI), ACRES';
   IF T=310 THEN NAX='OTHER PULSES (KHARIF), ACRES';
   IF T=320 THEN NAX='CITRUS FRUIT - OTHER, ACRES';
   IF T=321 THEN NAX='LEMON, ACRES';
   IF T=322 THEN NAX='KINNO, ACRES';
   IF T=330 THEN NAX='OTHER NON-CITRUS FRUIT (RABI), ACRES';
   IF T=340 THEN NAX='GUAVA, ACRES';
   IF T=350 THEN NAX='OTHER NON-CITRUS FRUIT (KHARIF), ACRES';
   IF T=360 THEN NAX='ONIONS, ACRES';
   IF T=362 THEN NAX='CARROTS, ACRES';
   IF T=364 THEN NAX='PEAS, ACRES';
   IF T=8   THEN NAX='MAIZE ALL, ACRES';
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   IF T=370 THEN NAX='POTATOES (SPRING), ACRES';
   IF T=372 THEN NAX='POTATOES (AUTUMN), ACRES';
   IF T=380 THEN NAX='TOMATOES, ACRES';
   IF T=390 THEN NAX='GOURD, ACRES';
   IF T=400 THEN NAX='WATERMELONS, ACRES';
   IF T=402 THEN NAX='MANGO, ACRES';
   IF T=410 THEN NAX='VEGETABLES OTHER (KHARIF), ACRES';
   IF T=412 THEN NAX='VEGETABLES OTHER (RABI), ACRES';
   IF T=420 THEN NAX='BERSEEM, ACRES';
   IF T=430 THEN NAX='LUCERN, ACRES';
   IF T=432 THEN NAX='MAIZE FOR FODDER, ACRES';
   IF T=433 THEN NAX='JOWAR/JANTAR FOR FODDER, ACRES';
   IF T=440 THEN NAX='FODDER OTHER (KHARIF), ACRES';
   IF T=442 THEN NAX='FODDER OTHER (RABI), ACRES';
   IF T=4   THEN NAX='RICE ALL, ACRES';
   IF T=450 THEN NAX='BASMATI RICE, ACRES';
   IF T=451 THEN NAX='BASMATI RICE INTENTIONS, ACRES';
   IF T=460 THEN NAX='IRRI RICE, ACRES';
   IF T=461 THEN NAX='IRRI RICE INTENTIONS, ACRES';
   IF T=470 THEN NAX='RICE OTHER/UNKNOWN, ACRES';
   IF T=471 THEN NAX='RICE OTHER/UNKNOWN INTENTIONS, ACRES';
   IF T=480 THEN NAX='GROUNDNUTS, ACRES';
   IF T=490 THEN NAX='JOWAR FOR GRAIN, ACRES';
   IF T=500 THEN NAX='MAIZE FOR GRAIN, ACRES';
   IF T=510 THEN NAX='MAIZE FOR OTHER USES, ACRES';
   IF T=5   THEN NAX='COTTON ALL, ACRES';
   IF T=521 THEN NAX='COTTON IMPROVED, ACRES';
   IF T=522 THEN NAX='COTTON DESI, ACRES';
   IF T=523 THEN NAX='COTTON IMPROVED INTENTIONS, ACRES';
   IF T=524 THEN NAX='COTTON DESI INTENTIONS, ACRES';
   IF T=530 THEN NAX='BAMBOO, ACRES';
   IF T=540 THEN NAX='LADY FINGER, ACRES';
   IF T=541 THEN NAX='SPINACH, ACRES';
   IF T=542 THEN NAX='TINDA, ACRES';
   IF T=544 THEN NAX='TURNIP, ACRES';
   IF T=546 THEN NAX='REDDISH, ACRES';
   IF T=548 THEN NAX='BITTER GOURD, ACRES';
   IF T=890 THEN NAX='CROPS OTHER, ACRES';
   IF T=6   THEN NAX='FALLOW ALL, ACRES';
   IF T=900 THEN NAX='FALLOW - UNKNOWN REASONS AND PERIOD, ACRES';
   IF T=901 THEN NAX='FALLOW - LACK OF FERT. - 1 SEASON, ACRES';
   IF T=902 THEN NAX='FALLOW - LACK OF FERT. - MORE SEASONS,
ACRES';
   IF T=903 THEN NAX='FALLOW - LACK OF WATER - 1 SEASON, ACRES';
   IF T=904 THEN NAX='FALLOW - LACK OF WATER - MORE SEASONS,
ACRES';
   IF T=905 THEN NAX='FALLOW - LACK OF LABOR - 1 SEASON, ACRES';
   IF T=906 THEN NAX='FALLOW - LACK OF LABOR - MORE SEASONS,
ACRES';
   IF T=907 THEN NAX='FALLOW - LACK OF SEED - 1 SEASON, ACRES';
   IF T=908 THEN NAX='FALLOW - LACK OF SEED - MORE SEASONS, ACRES';
   IF T=909 THEN NAX='FALLOW - LACK OF FUNDS - 1 SEASON, ACRES';
   IF T=910 THEN NAX='FALLOW - LACK OF FUNDS - MORE SEASONS,
ACRES';
   IF T=911 THEN NAX='FALLOW - WHEAT TO FOLLOW, ACRES';
   IF T=912 THEN NAX='FALLOW, NATURAL, FERTILITY, ACRES';
   IF T=913 THEN NAX='FALLOW - RICE TO FOLLOW, ACRES';
   IF T=914 THEN NAX='FALLOW - COTTON TO FOLLOW, ACRES';
   IF T=915 THEN NAX='FALLOW - MAIZE TO FOLLOW, ACRES';
   IF T=916 THEN NAX='FALLOW - WATER LOGGING, ACRES';
   IF T=917 THEN NAX='FALLOW - SALINITY, ACRES';
   IF T=918 THEN NAX='FALLOW - ROTATION OF CROPS, ACRES';
   IF T=999 THEN NAX='FOREST, ACRES';
%MEND SEGNAME;
*****************************************************************;
%MACRO HOLDNAME();
   IF T=36  THEN NAX='WHEAT, ALL, PLANTED, ACRES
      ';
   IF T=37  THEN NAX='RICE, ALL PLANTED ACRES';
   IF T=38  THEN NAX='RICE, ALL PRODUCTION MAUNDS';
   IF T=39  THEN NAX='COTTON, ALL PLANTED ACRES';
   IF T=40  THEN NAX='COTTON, ALL PRODUCTION MAUNDS';
   IF T=41  THEN NAX='MAIZE, ALL PLANTED ACRES';
   IF T=42  THEN NAX='MAIZE, ALL PRODUCTION MAUNDS';
   IF T=43  THEN NAX='SUGARCANE, ALL PLANTED ACRES';
   IF T=44  THEN NAX='SUGARCANE, ALL PRODUCTION';
   IF T=45  THEN NAX='WHEAT FOLLOW OTHER CROPS';
   IF T=100 THEN NAX='ALL LAND, CURRENT, ACRES';
   IF T=101 THEN NAX='ALL LAND, PREVIOUS, ACRES';
   IF T=201 THEN NAX='WHEAT, IRRIGATED, ACRES';
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    IF T=202 THEN NAX='WHEAT, RAIN FED, ACRES';
    IF T=203 THEN NAX='WHEAT, WITHIN RIVER FLOOD AREA, ACRES';
    IF T=301 THEN NAX='RICE PLANTED, BASMATI, ACRES';
    IF T=302 THEN NAX='RICE PLANTED, IRRI, ACRES';
    IF T=303 THEN NAX='RICE PLANTED, OTHER, ACRES';
    IF T=311 THEN NAX='RICE, BASMATI, PRODUCTION, MAUNDS';
    IF T=312 THEN NAX='RICE, IRRI, PRODUCTION, MAUNDS';
    IF T=313 THEN NAX='RICE, OTHER, PRODUCTION, MAUNDS';
    IF T=501 THEN NAX='COTTON,PLANTED, DESI, ACRES';
    IF T=502 THEN NAX='COTTON,PLANTED, IMPROVED, ACRES';
    IF T=511 THEN NAX='COTTON, DESI, PRODUCTION, PICKED, MAUNDS';
    IF T=512 THEN NAX='COTTON, IMPROVED, PRODUCTION, PICKED,
 MAUNDS';
    IF T=601 THEN NAX='MAIZE,PLANTED, DESI, ACRES';
    IF T=602 THEN NAX='MAIZE,PLANTED, IMPROVED, ACRES';
    IF T=611 THEN NAX='MAIZE, DESI, PRODUCTION, MAUNDS';
    IF T=612 THEN NAX='MAIZE, IMPROVED, PRODUCTION, MAUNDS';
    IF T=701 THEN NAX='SUGARCANE, NORMAL PLANTING, ACRES';
    IF T=702 THEN NAX='SUGARCANE, RATOON PLANTING, ACRES';
    IF T=703 THEN NAX='SUGARCANE, SEP. LAST PLANTING, ACRES';
    IF T=704 THEN NAX='SUGARCANE, SEPTEMBER PLANTING, ACRES';
    IF T=705 THEN NAX='SUGARCANE, HARVEST, FODDER, ACRES';
    IF T=706 THEN NAX='SUGARCANE, HARVEST, MILLING, ACRES';
    IF T=707 THEN NAX='SUGARCANE, HARVEST, LOCAL USE, ACRES';
    IF T=716 THEN NAX='SUGARCANE, PRODUCTION, MILLING, MAUNDS';
    IF T=717 THEN NAX='SUGARCANE, PRODUCTION, LOCAL USE, MAUNDS';
    IF T=801 THEN NAX='WHEAT PLANTED, FOLLOWING, RICE, ACRES';
    IF T=802 THEN NAX='WHEAT PLANTED, FOLLOWING, COTTON, ACRES';
    IF T=803 THEN NAX='WHEAT PLANTED, FOLLOWING, SUGARCANE, ACRES';
    IF T=804 THEN NAX='WHEAT PLANTED, FOLLOWING, MAIZE, ACRES';
 %MEND HOLDNAME;
 ******************************************************************;
 %MACRO ITEM3();
    ITEM100 ITEM101 ITEM201-ITEM203
    ITEM301-ITEM303 ITEM311-ITEM313 ITEM501 ITEM502
    ITEM511 ITEM512 ITEM601 ITEM602 ITEM611 ITEM612
    ITEM701-ITEM707 ITEM716
 %MEND ITEM3;
 ******************************************************************;
 %MACRO ITEM4();
    ITEM717 ITEM801-ITEM804
    ITEM36-ITEM45
 %MEND ITEM4;
 ******************************************************************;
 %MACRO ITEM5();
    ITEM913 ITEM915 ITEM917 ITEM919 ITEM921 ITEM923
    ITEM925 ITEM927 ITEM929 ITEM931 ITEM933 ITEM935
    ITEM937 ITEM939 ITEM941 ITEM943 ITEM945 ITEM947
    ITEM949 ITEM951 ITEM953 ITEM955 ITEM957 ITEM959
    ITEM961 ITEM963 ITEM965
 %MEND ITEM5;
 ******************************************************************;
 %MACRO ITEM6();
    ITEM967 ITEM969 ITEM971 ITEM973 ITEM975 ITEM977
    ITEM979 ITEM981 ITEM983 ITEM985 ITEM987 ITEM989
    ITEM991 ITEM993 ITEM995 ITEM997
    ITEM36-ITEM45
 %MEND ITEM6;
 ******************************************************************;
 %MACRO A(LST,LAST);
     %IF &DIST=B51 OR &DIST=B52 %THEN %DO;
         %A_S;
     %END;
     %ELSE %DO;
        %IF &PROV = BAL %THEN %DO;
           %A_2;
        %END;
        %ELSE %DO;
           %A_1;
        %END;
     %END;
 %MEND A;

 %MACRO A_1();
   /*CALCULATE DIR. EXPANSIONS AT SUBSTRATA LEVEL*/
   /*THEN ADD TO STRATA LEVEL.                   */
 %IF &NO=1 %THEN %DO;
    PROC MEANS DATA=ONE NOPRINT;
       VAR &&LST;
       BY STRATA SS;
```

```
      OUTPUT OUT=OUT3.AN_X_&DIST SUM= SSCR1-SSCR&LAST;
   RUN;

   PROC MEANS DATA=ONE NOPRINT;
      WHERE STRATA NOTIN (51,52);
      VAR X&LST;
      BY STRATA SS;
      OUTPUT OUT=OUT3.AN_S_&DIST VAR=VACR1-VACR&LAST;
   RUN;
%END;

  PROC MEANS DATA=ONE NOPRINT;
      VAR X&LST;
      BY STRATA SS;
      ID DIST;
      WEIGHT WTS;
      OUTPUT OUT=TWO SUM= SSCR1-SSCR&LAST;
   RUN;

   PROC SUMMARY;
      VAR SSCR1-SSCR&LAST;
      CLASS STRATA;
      ID DIST;
      OUTPUT OUT=TWO SUM=;
   RUN;

/*CALCULATE VARIANCES AT SUBSTRATA LEVEL*/
/*THEN ADD TO DISTRICT LEVEL.           */
   PROC MEANS DATA=ONE NOPRINT;
      VAR X&LST;
      BY STRATA SS;
      ID DIST;
      WEIGHT WTV;
      OUTPUT OUT=THREE VAR=VACR1-VACR&LAST;
   RUN;

   PROC SUMMARY;
      VAR VACR1-VACR&LAST;
      CLASS STRATA;
      ID DIST;
      OUTPUT OUT=THREE SUM=;
   RUN;
/*MERGE FILES WITH DIR. EXP. AND VARIANCES AND */
/*CALCULATE ST. ERRORS AND C.V.'S.             */
   DATA FOUR;MERGE TWO THREE;BY STRATA;RUN;
   DATA ASFSUMM;SET FOUR;BY STRATA;
      ARRAY SSCODE(&LAST) SSCR1-SSCR&LAST;
      ARRAY VACODE(&LAST) VACR1-VACR&LAST;
      ARRAY SDCODE(&LAST) SDCR1-SDCR&LAST;
      ARRAY CVCODE(&LAST) CVCR1-CVCR&LAST;
      DO I = 1 TO &LAST;
         IF VACODE(I) LE 0 THEN SDCODE(I) = .;
            ELSE SDCODE(I) = SQRT(VACODE(I));
         IF SDCODE(I) LE 0 OR SSCODE(I) LE 0 THEN CVCODE(I) = .;
            ELSE CVCODE(I) = SDCODE(I)/SSCODE(I)*100;
      END;
      DROP I;
   RUN;
%MEND A_1;

%MACRO A_2();
/*USE FOR BALOCHISTAN DIST. ONLY */
/*CALCULATE DIR. EXPANSIONS AT SUBSTRATA LEVEL*/
/*THEN ADD TO DISTRICT LEVEL FOR ALL STRATA EXCEPT 51 &52.*/
%IF &NO=1 %THEN %DO;
   PROC MEANS DATA=ONE NOPRINT;
      WHERE STRATA NOTIN (51,52);
      VAR X&LST;
      BY STRATA SS;
      OUTPUT OUT=OUT3.AN_X_&DIST SUM= SSCR1-SSCR&LAST;
   RUN;

   PROC MEANS DATA=ONE NOPRINT;
      WHERE STRATA NOTIN (51,52);
      VAR X&LST;
      BY STRATA SS;
      OUTPUT OUT=OUT3.AN_S_&DIST VAR=VACR1-VACR&LAST;
   RUN;
%END;
```

```
    PROC MEANS DATA=ONE NOPRINT;
       WHERE STRATA NOTIN (51,52);
       VAR %&LST;
       BY STRATA SS;
       WEIGHT WTS;
       OUTPUT OUT=TWO SUM= SSCR1-SSCR&LAST;
    RUN;

    PROC SUMMARY;
       VAR SSCR1-SSCR&LAST;
       CLASS STRATA;
       OUTPUT OUT=TWO SUM=;
    RUN;

 /*CALCULATE VARIANCES AT SUBSTRATA LEVEL*/
 /*THEN ADD TO DISTRICT LEVEL.           */
    PROC MEANS DATA=ONE NOPRINT;
       WHERE STRATA NOTIN (51,52);
       VAR %&LST;
       BY STRATA SS;
       WEIGHT WTV;
       OUTPUT OUT=THREE VAR=VACR1-VACR&LAST;
    RUN;

    PROC SUMMARY;VAR VACR1-VACR&LAST;
       CLASS STRATA;OUTPUT OUT=THREE SUM=;
    RUN;
 /*MERGE FILES WITH DIR. EXP. AND VARIANCES AND */
 /*CALCULATE ST. ERRORS AND C.V.'S.              */
    DATA FOUR;MERGE TWO THREE;BY STRATA;RUN;
    DATA ASFSUMM;SET FOUR;BY STRATA;
       ARRAY SSCODE(&LAST) SSCR1-SSCR&LAST;
       ARRAY VACODE(&LAST) VACR1-VACR&LAST;
       ARRAY SDCODE(&LAST) SDCR1-SDCR&LAST;
       ARRAY CVCODE(&LAST) CVCR1-CVCR&LAST;
       DO I = 1 TO &LAST;
          IF VACODE(I) LE 0 THEN SDCODE(I) = .;
             ELSE SDCODE(I) = SQRT(VACODE(I));
          IF SDCODE(I) LE 0 OR SSCODE(I) LE 0 THEN CVCODE(I) = .;
             ELSE CVCODE(I) = SDCODE(I)/SSCODE(I)*100;
       END;
       DROP I;
     RUN;
%MEND A_2;

/*THIS SECTION IS FOR SUMMARIZING ONLY STRATUM 51 & 52 */
/*OF THE BAL.PROV.                                     */
%MACRO A_S();
   PROC MEANS DATA=ONE NOPRINT;
      WHERE STRATA IN (51,52);
      VAR %&LST;
      CLASS STRATA;
      WEIGHT WTS;
      OUTPUT OUT=TWO SUM= SSCR1-SSCR&LAST;
   RUN;

   PROC MEANS DATA=ONE NOPRINT;
      WHERE STRATA IN (51,52);
      VAR %&LST;
      CLASS STRATA;
      WEIGHT WTV;
      OUTPUT OUT=THREE SUM= VACR1-VACR&LAST;
   RUN;

   DATA FOUR;MERGE TWO THREE;;
     BY STRATA;
     %IF &DIST=B51 %THEN %DO;
          DIST=997;
     %END;
     %IF &DIST=B52 %THEN %DO;
          DIST=998;
     %END;
   RUN;
   DATA ASFSUMM;SET FOUR;BY STRATA;
      ARRAY SSCODE(&LAST) SSCR1-SSCR&LAST;
      ARRAY VACODE(&LAST) VACR1-VACR&LAST;
      ARRAY SDCODE(&LAST) SDCR1-SDCR&LAST;
      ARRAY CVCODE(&LAST) CVCR1-CVCR&LAST;
      DO I = 1 TO &LAST;
         IF VACODE(I) LE 0 THEN SDCODE(I) = .;
```

```
            ELSE SDCODE(I) = SQRT(VACODE(I));
         IF SDCODE(I) LE 0 OR SSCODE(I) LE 0 THEN CVCODE(I) = .;
            ELSE CVCODE(I) = SDCODE(I)/SSCODE(I)*100;
      END;
      DROP I;
RUN;
%MEND A_S;

*****************************************************************;
%MACRO B(LST,KHAPRG,SEGSORT);
   DATA _NULL_;
      SET ASFSUMM;
      ARRAY SSCR(50) SSCR1-SSCR50;ARRAY VACR(50) VACR1-VACR50;
      ARRAY SDCR(50) SDCR1-SDCR50;ARRAY CVCR(50) CVCR1-CVCR50;
      ARRAY NUX(50) NUX1-NUX50;ARRAY T %&LST;
      FILE 'C:\MYSAS\ASFSUMM.PRN';
      %&KHAPRG;
      %&SEGSORT;
      DO I=1 TO 50;
         PUT DIST 3. NUX(I) 4. STRATA 4. SSCR(I) 9. VACR(I) 15. SDCR(I) 9.
             CVCR(I) 6.2 T(I) 3.;
      END;
   RUN;
   DATA ASFSUMM;
      INFILE 'C:\MYSAS\ASFSUMM.PRN';
      INPUT DIST 3. NUX 4. STRATA 4. EST 9. VAX 15. SDX 9. CVX 6.2 T 3.;
      IF EST=. OR NUX=. THEN DELETE;
   RUN;
%MEND B;
*****************************************************************;
%MACRO C(ITEM,HOLCODE,HOLSORT,CNT);
   DATA _NULL_;
      SET ASFSUMM;
      ARRAY SSCR(54) SSCR1-SSCR54;ARRAY VACR(54) VACR1-VACR54;
      ARRAY SDCR(54) SDCR1-SDCR54;ARRAY CVCR(54) CVCR1-CVCR54;
      ARRAY EST(54) EST1-EST54;ARRAY KST(54) KST1-KST54;
      ARRAY VAX(54) VAX1-VAX54;ARRAY SDX(54) SDX1-SDX54;
      ARRAY CVX(54) CVX1-CVX54;ARRAY NUX(54) NUX1-NUX54;
      ARRAY T %&ITEM;
      FILE 'C:\MYSAS\ASFSUMM.PRN';
      %&HOLSORT;
      %&HOLCODE;
      DO I=1 TO &CNT;
         EST(I)=SSCR(I*2-1);KST(I)=SSCR(I*2);
         VAX(I)=VACR(I*2-1);SDX(I)=SDCR(I*2-1);CVX(I)=CVCR(I*2-1);
         PUT DIST 3. NUX(I) 4. STRATA 4. EST(I) 9. KST(I) 9.
             VAX(I) 15. SDX(I) 9. CVX(I) 6.2 T(I) 3.;
      END;
   RUN;
   DATA ASFSUMM;
    INFILE 'C:\MYSAS\ASFSUMM.PRN';
    INPUT DIST 3. NUX 4. STRATA 4. EST 9. KST 9. VAX 15. SDX 9. CVX 6.2 T 3.
      IF EST=. OR NUX=. THEN DELETE;
   RUN;
%MEND C;
*****************************************************************;
%MACRO D(NAME,CNT);
   DATA _NULL_;
      MERGE ASFSUMM ASFSUMM1;BY NUX STRATA;
      %&NAME;
      FILE "C:\&YEAR&MM\PRNFILES\SUMM&CNT&DOT&DIST" PRINT LL=L ;
      IF STRATA=. THEN DO;
         IF L<10 THEN PUT _PAGE_ @;
         PUT '     ' NAX $44. +5 EST COMMA11. +3 CVX 4.1;
      END;
   RUN;
   TITLE4;
   DATA OUT2.&DIST&CNT;
      MERGE ASFSUMM ASFSUMM1;BY NUX STRATA;
      %&NAME;
      IF STRATA=. THEN OUTPUT;KEEP DIST NUX NAX EST VAX SDX CVX;
   RUN;
   TITLE4;
%MEND D;
*****************************************************************;
%MACRO E(NAME,CNT);
   DATA _NULL_;
      MERGE ASFSUMM ASFSUMM1;BY NUX STRATA;
      FILE "C:\&YEAR&MM\PRNFILES\SUMM&CNT&DOT&DIST" PRINT LL=L ;
      %&NAME;
```

```
      IF STRATA=. AND EST > 0 THEN DO;
         IF L<10 THEN PUT _PAGE_ @;
         PUT // '          ' T 4. +2 NAX $44. // '          ' 'STRATA' +2
             'INDICATION' +9 'VARIANCE' +8 'S.D.' +5 'C.V.%';
      END;
      IF EST>0 THEN DO;
         PUT '          ' STRATA COMMA4. EST COMMA14. VAX COMMA17.
            SDX COMMA12. CVX COMMA10.2;
      END;
   RUN;
%MEND E;
*****************************************************************;
%MACRO CC(NO,LAST);
   DATA STRING;SET STRING&NO;
      STRATA=INT(SEG/1000);SS=MOD(INT(SEG/10),100);REP=MOD(SEG,10);
   RUN;
   %IF &DIST = B51 OR &DIST = B52 %THEN %DO;
       DATA ONE;MERGE STRING(IN=A) WEIGHTS;BY STRATA;IF A;RUN;
       PROC SORT;BY STRATA;RUN;
 %END;
 %ELSE %DO;
       DATA ONE;MERGE STRING(IN=A) WEIGHTS;BY DIST STRATA SS;IF A;RUN;
       PROC SORT;BY STRATA SS;RUN;
 %END;
   %A(LST&NO,&LAST);
   %B(LST&NO,COMMOD&NO,SORT&NO);
   PROC SORT DATA=ASFSUMM;BY NUX STRATA;RUN;
%MEND CC;
*****************************************************************;
%MACRO DD(NO,LAST,CNT);
   DATA STRING;SET STRING&NO;
      STRATA=INT(SEG/1000);SS=MOD(INT(SEG/10),100);REP=MOD(SEG,10);
   RUN;
   %IF &DIST = B51 OR &DIST = B52 %THEN %DO;
       DATA ONE;MERGE STRING(IN=A) WEIGHTS;BY STRATA;IF A;RUN;
       PROC SORT;BY STRATA;RUN;
 %END;
 %ELSE %DO;
       DATA ONE;MERGE STRING(IN=A) WEIGHTS;BY DIST STRATA SS;IF A;RUN;
       PROC SORT;BY STRATA SS;RUN;
 %END;
   %A(LST&NO,&LAST);
   %C(ITEM&NO,COMMOD&NO,SORT&NO,&CNT);
   PROC SORT DATA=ASFSUMM;BY NUX STRATA;RUN;
%MEND DD;
*****************************************************************;
** THIS STEP CREATES THE DATA FILE 'WEIGHTS' WHICH INPUTS     **;
** STRATAS, SUBSTRATAS & REPLICAS IN EACH DISTRICT AND        **;
** OUTPUTS WEIGHTS TO BE USED TO CALCULATE INDICATIONS.       **;
*****************************************************************;
%MACRO WEIGHTS();
LIBNAME OUT  "C:\&YEAR&MM\&PROV\DTAFILES";
LIBNAME OUT2 "C:\&YEAR&MM\&PROV\FILES";/* OUTPUT DATA FILES */
LIBNAME OUT3 "C:\&YEAR&MM\&PROV\ANAFILES";/*FILES FOR POST SURVEY ANAL*/
DATA WEIGHTS;SET OUT.WTS_&DIST;
RUN;
%MEND WEIGHTS;
******************************;
** SEGMENT DATA PROCESSING. **;
******************************;
DATA STRING1(KEEP=DIST SEG %LST1)
     STRING2(KEEP=DIST SEG %LST2);
   SET OUT.FLD_&DIST;
   BY DIST SEG;
   ARRAY KCODE (9) $3. KCODE1-KCODE9;ARRAY KACRES (9)
KACRES1-KACRES9;
   ARRAY C (999) C1 C2 CG1-CG6 K9-K999;
   C1= SUM(C1,TOTAREA);C2= SUM(C2,WASTE);
   DO I = 1 TO 9;
      IF KCODE(I)='   ' THEN GOTO NEX;
      J=KCODE(I);C(J)=SUM(C(J),KACRES(I));
      IF J='205' THEN C(200)=SUM(C(200),KACRES(I));
      IF J='206' THEN C(201)=SUM(C(201),KACRES(I));
      IF J='207' THEN C(202)=SUM(C(202),KACRES(I));
      IF J='251' THEN C(250)=SUM(C(250),KACRES(I));
      IF J='256' THEN C(255)=SUM(C(255),KACRES(I));
      IF J='451' THEN C(450)=SUM(C(450),KACRES(I));
      IF J='461' THEN C(460)=SUM(C(460),KACRES(I));
      IF J='471' THEN C(470)=SUM(C(470),KACRES(I));
      IF J='523' THEN C(521)=SUM(C(521),KACRES(I));
```

```
      IF J='524' THEN C(522)=SUM(C(522),KACRES(I));
      IF J IN ('450','451','460','461','470','471')
         THEN CG1=SUM(CG1,KACRES(I));   /* TOTAL RICE */
      IF J IN ('521','522','523','524')
         THEN CG2=SUM(CG2,KACRES(I));   /* TOTAL COTTON */
      IF J IN
('900','901','902','903','904','905','906','907','908',
 '909','910','911','912','913','914','915','916','917',
 '918')
         THEN CG3=SUM(CG3,KACRES(I));   /* TOTAL FALLOW */
      IF J IN ('200','201','202','205','206','207')
         THEN CG4=SUM(CG4,KACRES(I));   /* TOTAL WHEAT */
      IF J IN ('250','251','255','256')
         THEN CG5=SUM(CG5,KACRES(I));   /* TOTAL SUGARCANE */
      IF J IN ('500','510','432')
         THEN CG6=SUM(CG6,KACRES(I));   /* TOTAL MAIZE */
       NEX:;
      END;
   IF LAST.SEG THEN DO;OUTPUT;DO I=1 TO 999;C(I)=0;END;END;
   RETAIN C1 C2 CG1-CG6 K9-K999;
RUN;
TITLE2 "&SURVEY 19&YEAR, AREA FRAME SURVEY, CLOSED SEGMENT
SUMMARY";
TITLE4 '      COMMODITY
INDICATION          CV.%


%WEIGHTS
%CC(1,50);
DATA ASFSUM41;SET ASFSUM4;RUN;
%CC(2,50);
%D(SEGNAME,1);
%E(SEGNAME,1);
*************************************************************;
**  CALULATE THE AREA OF EACH HOLDING WITHIN THE SEGMENT.  **;
*************************************************************;
PROC MEANS DATA=OUT.FLD_&DIST SUM NOPRINT;BY DIST SEG HOLDCODE;
   VAR TOTAREA;OUTPUT OUT=HOLDSIZE SUM=SEGAREA;
RUN;
******************************;
** HOLDING DATA PROCESSING. **;
******************************;
DATA STRING3 (KEEP=DIST SEG CODE1-CODE54)
     STRING4 (KEEP=DIST SEG CODE55-CODE108);
   MERGE HOLDSIZE(KEEP=DIST SEG HOLDCODE SEGAREA) OUT.HOL_&DIST;
   BY DIST SEG HOLDCODE;
   ARRAY KNT(54) KNT1-KNT54;ARRAY POS(54) POS1-POS54;
   ARRAY CODE(108) CODE1-CODE108;
   ARRAY ITEM3 %ITEM3;ARRAY ITEM4 %ITEM4;
   IF FIRST.SEG THEN DO I=1 TO 54;POS(I)=0;KNT(I)=0;END;
   IF ITEM100>0 THEN ADJ=SEGAREA/ITEM100;ELSE ADJ=0.5;
   DO I=1 TO &CNT3;
      IF ITEM3(I)>0 THEN DO;POS(I) + (ITEM3(I)*ADJ); KNT(I) + 1;
END;
      ELSE ITEM3(I)=0;
   END;
   DO I=1 TO &CNT4-10;
      IF ITEM4(I)>0 THEN
         DO;POS(I+&CNT3) + (ITEM4(I)*ADJ); KNT(I+&CNT3) + 1; END;
      ELSE ITEM4(I)=0;
   END;
   POS33+(SUM(OF ITEM201-ITEM203)*ADJ);** WHEAT ALL PLANTED;
   POS34+(SUM(OF ITEM301-ITEM303)*ADJ);** RICE ALL PLANTED;
   POS35+(SUM(OF ITEM311-ITEM313)*ADJ);** RICE ALL PRODUCTION;
   POS36+(SUM(OF ITEM501-ITEM502)*ADJ);** COTTON ALL PLANTED;
   POS37+(SUM(OF ITEM511-ITEM512)*ADJ);** COTTON ALL PRODUCTION;
   POS38+(SUM(OF ITEM601-ITEM602)*ADJ);** MAIZE ALL PLANTED;
   POS39+(SUM(OF ITEM611-ITEM612)*ADJ);** MAIZE ALL PRODUCTION;
   POS40+(SUM(OF ITEM701-ITEM704)*ADJ);** SUGARCANE ALL PLANTED;
   POS41+(SUM(OF ITEM716-ITEM717)*ADJ);** SUGARCANE ALL PRODUCTION;
   POS42+(SUM(OF ITEM801-ITEM804)*ADJ);** WHEAT IN RIC,MAZ,COT &
CANE;
   ** NOTE:- THERE IS NO NEED TO COUNT THE ABOVE TOTALS BECAUSE
      COUNTS ARE USUALLY INAPPROPRIATE FOR WEIGHTED EXPANSIONS **;
   IF LAST.SEG THEN DO;
      DO I=1 TO 54;
         CODE(I*2-1)=POS(I);CODE(I*2)=KNT(I);
      END;
      OUTPUT;
   END;
```

```
   RETAIN POS1-POS54 KNT1-KNT54;
RUN;
TITLE2 "&SURVEY 19&YEAR, AREA FRAME SURVEY, WEIGHTED SEGMENT
SUMMARY";
%DD(3,54,&CNT3);
DATA ASFSUMM1;SET ASFSUMM;RUN;
%DD(4,54,&CNT4);
%E(HOLDNAME,6);
```

PROVINCE LEVEL SUMMARY -- ASFSUMM1.GRK

This program takes the district level output files and summarizes them to the province level. It creates a print file and a SAS file which will be used in the National level summary program. In its present form, only the Punjab Province can be summarized. Ms. Suad Saeed was shown how to modify the program to work for any Province. MACRO SND, MACRO BAL, and MACRO NFP need to be modeled after MACRO PUN. Ms. Saeed agreed to use this program as a model for writing Division and National Summaries.

```
* ASFSUMM1.GRK ************ GENERAL ******************************;
*****************************************************************;
DM 'OUTPUT;CLEAR;LOG;CLEAR;';
OPTIONS PS=60 LS=73 NOSOURCE NOSOURCE2 DATE;
OPTIONS MTRACE MPRINT SYMBOLGEN;
%LET YEAR=92;        /*     SURVEY YEAR     */
%LET SURVEY=RABI;
%LET MM=JAN;         /*   JAN FOR JANUARY   */
%LET MON=JAN.;
%LET CNT=1;
%LET TIT='CLOSED SEGMENT SUMMARY';
*****************************************************************;
****** INPUT SUMMARY CODE ******;
OPTIONS MISSING=' ';
DATA PROV(KEEP=PROV);
WINDOW PROV COLOR=BLUE
#2 @17 'DISTRICT SUMMARY PROGRAM FOR AREA SAMPLING FRAME SURVEY'
A=H
#5 @10 'PLEASE ENTER: (BALOCHISTAN, PUNJAB, SIND, OR NFP)' PROV
$11. A=R
;
  DIS:;
   DISPLAY PROV;
   ERR='';
   PROV=UPCASE(PROV);
   IF ^(PROV IN ('BALOCHISTAN','PUNJAB','SIND','NFP')) THEN
      DO;SUMM=' ';GOTO DIS;END;
   OUTPUT;STOP;
RUN;
OPTIONS MISSING='.';
*******************************************************************;
FILENAME FILE1 'C:\MYSAS\FILE1';
DATA _NULL_;FILE FILE1;SET PROV;
   IF PROV='PUNJAB  ' THEN DO;
      PUT 'TITLE "PUNJAB" ;';PUT '%LET PROV=PUN;';END;
   IF PROV='SIND    ' THEN DO;
      PUT 'TITLE "SIND" ;';PUT '%LET PROV=SND;'; END;
   IF PROV='BALOCHISTAN' THEN DO;
      PUT 'TITLE "BALOCHISTAN";';PUT '%LET PROV=BAL;';END;
   IF PROV='NFP     ' THEN DO;
      PUT 'TITLE "NW FRONTIER PROVINCE";';PUT '%LET PROV=NFP;';END;
RUN;
%INC FILE1;
*******************************************************************
TITLE2 "&MON 19&YEAR, AREA FRAME SURVEY, &TIT";
TITLE4 '  COMMODITY                                    INDICATION
 CV.%     ';
;
*******************************************************************
%MACRO PUN();
  DATA ALL;
   SET OUT.ISL&CNT OUT.RAW&CNT OUT.JHE&CNT OUT.ATT&CNT OUT.CHA&CNT
       OUT.GUJ&CNT OUT.GUR&CNT OUT.STA&CNT OUT.SAR&CNT OUT.KHU&CNT
       OUT.MIA&CNT OUT.BHA&CNT OUT.LAN&CNT OUT.KAS&CNT OUT.SHE&CNT
       OUT.OKA&CNT OUT.FAS&CNT OUT.TOB&CNT OUT.JHA&CNT OUT.MUL&CNT
       OUT.KHA&CNT OUT.VEH&CNT OUT.SAH&CNT OUT.BHW&CNT OUT.BHL&CNT
       OUT.RAH&CNT OUT.DCK&CNT OUT.RAJ&CNT OUT.MUZ&CNT OUT.LAY&CNT;
     %SUMM
%MEND PUN;

%MACRO SND();
   DATA ALL;

     %SUMM
%MEND SND;
```

```
%MACRO BAL();
   DATA ALL;

     %SUMM
%MEND BAL;

%MACRO NFP();
   DATA ALL;

     %SUMM
%MEND NFP;
*****************************************************************;
%MACRO SUMM();
   PROC SORT;BY NUX;RUN;
   DATA OUT1.&PROV (KEEP=NAX NUX ESTOT VARTOT VSTD CV);
      SET ALL;BY NUX;
      RETAIN ESTOT VARTOT;
      ESTOT=SUM(ESTOT,EST);
      VARTOT=SUM(VARTOT,VAX);
      IF LAST.NUX THEN DO;

VSTD=SQRT(VARTOT);CV=VSTD/ESTOT*100;OUTPUT;ESTOT=.;VARTOT=.;
      END;
   RUN;

   DATA _NULL_;SET ALL;
    FILE "C:\&YEAR&MM\&PROV\PRNFILES\SUMMM&CNT..&PROV" PRINT LL=L;
      IF L < 10 THEN PUT _PAGE_ @;
      PUT '     ' NAX $44. +5 ESTOT COMMA11. +3 CV 4.1;
   RUN;
%MEND SUMM;
*************************************************************** *****;
LIBNAME OUT "C:\&YEAR&MM\&PROV\FILES";
LIBNAME OUT1 "C:\&YEAR&MM\&PROV";
%&PROV
RUN;
```

FIELD TRIP

During the last week, we took a field trip to the Punjab Province. We assisted/observed Federal Bureau of Statistics personnel with the segment location and field boundaries for two segments near Jhang. One segment was located with the traditional aerial photograph. The other was located with the Global Positioning System. No aerial photo was available for this segment. Field boundaries were sketched on graph paper. The problem of the field enumerator locating the segment was discussed. Possible solutions included:

-- Relocating the segment with the enumerator before the survey.

-- Burying electronic transmitter at center of segment.

-- Contracting for low level photography of the site.