```
EXECUT
      PROGRAM EXECUT(INPUT,OUTPUT,TAPE2=157,TAPE5=157,TAPE15=115,
     2TAPE50=335,TAPE60,TAPE6=175,TAPE8=175,TAPE13=175,TAPE7=175)
C
C       THE MAIN PROGRAM EXECUT AND ASSOCIATED SUBROUTINES SET UP AND
C MANAGE THE SIMULATION RUN(S).  SUBROUTINE MGT CONTAINS THE
C MASTER TIME AND REPORTING CONTROL.  SUB. MGT3 CHECKS AND
C PREPARES REPORTS ON THE SYSTEM.  SUB. EVNTS CALLS FOR EXECUTION OF
C THE UPDATING OF ANIMAL ATTRIBUTES.  REPORTS ARE WRITTEN BY THE
C SUBROUTINES OUT, REPT1, AND REPT2.  FILEM, REMOV, AND FIND ARE
C SUBROUTINES FOR PLACING, REMOVING AND FINDING ANIMALS IN A
C FILE.
C SUBROUTINES OF SUPPORT GROUP INCLUDE-
C         STATISTICAL -ZROSUM,COLLT,STATS FOR CALCULATION OF  MEAN ETC.
C         RANDOM DEVIATES-
C               FUNCTION RANUM  FOR RANDOM NUMBERS
C               FUNCTION RNORM(RMEAN,STD,RMIN,RMAX)  FOR NORMAL DIST.
C ARRAY STORAGE-
C        IN(R,C), VEN(R,C)  ARE THE INVENTORY FILING ARRAYS
C             DIMENSION BOTH TO (R,C) HERE,   TO (R,1) IN SUBROUTINES.
C             SEE PRITSKER -SIMULATION WITH GASPII-  PP. 23-24.
C
C LABELED COMMON IS NAME KEYED,  SEE SUBROUTINE USAGE.
      COMMON/INIT/NR,NW,ND,NT7,NT8,NDAT,NS1,NS2,NOWD
     2 /RAN/ IRN(54),KRANUM,RLIMIT,NRNOPT,ITAPE
     3/STAT/SUM(5,20),SUM2(5,10),SUM3(5,10),SUM4(5,10),SUM5(5,10)
     4 /GEN/ITOT,ISIZE,NOWT,NOWY,NDAYS,NRUNS,IATRIB(18),ATRIB(4)
     5/HOUSE/NH(6),N1,N2,N3,N4,N5,N6,NXTFAR,MX1,MX2,MX3,MX4,X1,X2,X4
     6 /SALES/ MDSELL,WTS,NXTSAL,NSLD(4),WTSLD(4),VSLD(4),PRIH,PRIS
     7/SALE2/NSLDP(4),WTSLDP(4),VSLDP(4),DIS
     7 /BRED/LBREED,NBREED,IFAR(6,5),IDB(30),KAGEW,LGTHW,NAGEM
     3/SCH/KS(2,500),IPT,IEVT,KODE,IWE,IWN(45),NKT
     4/CULL/NGLTS,MXSRV,MXAGS,PCULG,PCULS,PSSR,PRGT,MXBOR,LDP
     8 /BRED2/ ABNORG,GESM,GESS,GMIN,GMAX,ESTM,ESTS,EMIN,EMAX
     9 /BRED3/ PTRM1,PTRM2,PTRM16,PCON1,PCON2,ADJ1,ADJ2
     1 /SKIP/ ISTOP4,ISTOP5,ISTOP6,ISTOP7,MAXSKP
     2/SURVIV/PW1,PW23,PSRT,PSFIN,PSOWS,PBORS,PBORS1,MDEAD(8),PSRT2
     3 /GAIN/GW1,GW23,GSRT,GFIN1,GFIN2,GSOWM,GSOWL,SDP,SSOWM,SSOWL
     4 /BIRTH/ BRNM,BRNS,BMIN,BMAX,BWTM,BWTS,BWMIN,BWMAX,NOBRN
     5 /CLEAN/NDPREP,NH4CLN,LOSSL,SWTLP,SSLP,KL4
      COMMON /BOAR/ MXSDY,MXSWY,MXSDM,MXSWM,NPUR,IPDAT,KAGE,WTP8,IBS
     5/BRED4/KBRD,KSWGT(4),NONB(4),NONBK(4)
     2 /MG3/ NHH(6),MDEADH(8),NHP(6),MDP(6),KCALL,KPRET,KNSLD4,KPREP
     7 /KRS/ KRS1,KRS2,KRS3,KRS4,KRS5,KRS6,KRS7,KRPT
     1 /RPT1/ISMYP,ISMB,ISMBG,ISMF,ISMW,ISMS,ISMM
     2 /RPT2/ISMYC,ISMCS,ISMCH,ISML,ISMSS,ISMSH,ISMGR
     3 /RPT3/MJEV,ISALS,IFARS,IBRDS
     4 /RPT4/IDCS,IDCE,IDCN,IDCF,IDCM,IDCB,IDCFS,IDCFP,IOFLW
     5 /RPT5/IAAS,IAAE,IAAN,IAAFN,IAAM,IAAB,IAAFR
     3 /COST/FCS,FCB,CLAB,TFAR,TNUR,TSOW,TFIN,VAR(3),COST(30)
     6/WRT1/ KW
     4 /GAIN2/SOP(6),HOP(6),SSLD(6),HSLD(6),SEND(6),HEND(6)
      DIMENSION IN(3,1500),VEN(2,1500)
      DIMENSION EQARR(1802)
      EQUIVALENCE (NR,EQARR(1))
C
C
C
C ARRAYS  IN(3,J), VEN(2,J) OVERLOAD PROTECTION,  SEE SUB. FILEM.
C     SET  KRS3=J, COLUMN SIZE FOR THE ABOVE DIMENSIONED ARRAYS.
C     ITOT (TOTAL NO. OF ANIMALS) MAY NOT EXCEED  KRS3 AT ANYTIME.
```

```
1     KRS3=1500
C
C
C
C INITIATE THE PROGRAM IN SUBROUTINE INITN.
C     ASSIGN READ-WRITE TAPES, READ CONTROL PARAMETERS.
      CALL INITN(IN,VEN)
C
C PREPARE OPENING INVENTORY-  READ ORIGINAL HERD DATA
      CALL OPEN(IN,VEN)
C
C
C
C SET UP INVENTORY REPORTING IN SUBROUTINE MGT3.
      CALL MGT3(IN,VEN)
C
C
C LET SUBROUTINE MGT MANAGE THIS SIMULATION RUN.
 2    CALL MGT(IN,VEN,EQARR)
C
      STOP
      END
```

```
      SUBROUTINE INITN(IN,VEN)
      COMMON/INIT/NR,NW,ND,NT7,NT8,NDAT,NS1,NS2
     2 /RAN/ IRN(54),KRANUM,RLIMIT,NRNOPT,ITAPE
     3 /STAT/ SUM(5,20),SUM2(5,10),SUM3(5,10),SUM4(5,10)
     4 /GEN/ITOT,ISIZE,NOWT,NOWY,NDAYS,NRUNS,IATRIB(18),ATRIB(4)
     5/HOUSE/NH(6),N1,N2,N3,N4,N5,N6,NXTFAR,MX1,MX2,MX3,MX4,X1,X2,X4
     6 /SALES/ MDSELL,WTS,NXTSAL,NSLD(4),WTSLD(4),VSLD(4),PRIH,PRIS
     7 /BRED/LBREED,NBREED,IFAR(6,5),IDB(30),KAGEW,LGTHW,NAGEM
     8 /BRED2/ ABNORG,GESM,GESS,GMIN,GMAX,ESTM,ESTS,EMIN,EMAX
     9 /BRED3/ PTRM1,PTRM2,PTRM16,PCON1,PCON2,ADJ1,ADJ2
     1 /SKIP/ ISTOP4,ISTOP5,ISTOP6,ISTOP7,MAXSKP
     2/SURVIV/PW1,PW23,PSRT,PSFIN,PSOWS,PBORS,PBORS1,MDEAD(8),PSRT2
     3/GAIN/GW1,GW23,GSRT,GFIN1,GFIN2,GSOWM,GSOWL,SDP,SSOWM,SSOWL
     4 /BIRTH/ BRNM,BRNS,BMIN,BMAX,BWTM,BWTS,BWMIN,BWMAX,NOBRN
     5 /CLEAN/NDPREV,NH4CLN,LOSSL,SWTLP,SSLP
     4/CULL/NGLTS,MXSRV,MXAGS,PCULG,PCULS,PSSR,PRGT,MXBOR,LDP
     3 /COST/ FCS,FCB,CLAB,TFAR,TNUR,TSOW,TFIN
      COMMON /BOAR/ MXSDY,MXSWY,MXSDM,MXSWM,NPUR,IPDAT,KAGE,WTPB,IBS
     1/RPT1/ ISMYP,ISMB,ISMBG,ISMF,ISMW,ISMS,ISMM
     2/RPT2/ ISMYC,ISMCS,ISMCH,ISML,ISMSS,ISMSH,ISMGR
     3/RPT3/MJEV,ISALS,IFARS,IBRDS
     4/RPT4/IDCS,IDCE,IDCN,IDCF,IDCM,IDCB,IDCFS,IDCFP,IOFLW
     5/RPT5/ IAAS,IAAE,IAAN,IAAFN,IAAM,IAAB,IAAFR
     7/SALE2/DUMMY(12),DIS
     7/KRS/KRS1,KRS2,KRS3,KRS4,KRS5,KRS6,KRS7,KRPT
      DIMENSION RR(10),STRR(10)
      INTEGER XMINUS
      DATA XMINUS/00000000000000007777/
      DIMENSION ISTRR(10)
      EQUIVALENCE (ISTRR(1),STRR(1))
C ASSIGN TAPES
C       READ=NR= WRITE=NW, DIAGNOSTIC=ND, BASE HERD DATA TAPE=NDAT,
C                  RANDOM NOS. =ITAPE
      NR=2
      NR5=5
      NW=6
      ND=13
C  MAY SET TO 8 FOR JUNKING VIA CARD 56.
      NT7=13
      NDAT=15
      ITAPE=50
      MR=0
C
C
C INITIATE VARIABLES OUTSIDE SUBROUTINES
      KRANUM=0
      RLIMIT= 2.**48.-1.0
      ITOT=0
      DO 90 II=1,6
 90   NH(II)=0
      NOWY=0

C PRESET STATISTICAL COLLECTION ARRAYS
      DO 100 JVARBL=1,20
 100  CALL ZROSUM(SUM,JVARBL)
      DO 200 IVARBL=1,10
      CALL ZROSUM(SUM2,IVARBL)
      CALL ZROSUM(SUM3,IVARBL)
 200  CALL ZROSUM(SUM4,IVARBL)
```

```
C
C
C
C PRESET FARROWING DATES FOR FIRST YEAR
C
      IFAR(1,1)=15
      IFAR(2,1)=60
      IFAR(3,1)=152
      IFAR(4,1)=198
      IFAR(5,1)=244
      IFAR(6,1)=335
C
C
C
C MARK BEGINNING OF PRINTED OUTPUT
      WRITE(ND,606)ND
      WRITE(NT7,606)NT7
      WRITE(NW,606)NW
606   FORMAT(*8   BEGIN PRINT TAPE*I4* REPORTS*)
C
C
C READ  NR=TAPE5 DATA AND LIST THEM.
      READ(NR,705) RR
705   FORMAT(10A8)
706   FORMAT(//* FREE FORM IDENT CARD FOLLOWED BY*
     2 * DEFAULT DATA, USER OPTION CARDS */* APPEAR AFTER THE *
     3 *CORRESPONDING DEFAULT CARD*//5X,10A8)
      READ(NR5,705) RR
      WRITE(ND,706) RR
C
C READ STANDARD 10F7.0, FIRST CELL IS CARD NO., OTHERS
C  REPLACE WITH NON-BLANK CELLS IF FIND USER OPTION CARD NO.
C
30    READ(NR,50) RR
      WRITE(ND,60) RR
      IR=RR(1)
      IF(IR.EQ.8888) GO TO 999
355   READ(NR5,50) STRR
      MR = STRR(1)
      IF(MR-999) 301, 354, 354
301   IF(MR-IR) 355, 305, 355
305   WRITE(ND,60) STRR
      DO 353 I=1,10
      IF(ISHFTR(ISTRR(I),48).EQ.XMINUS) STRR(I)=RR(I)
353   RR(I)=STRR(I)
50    FORMAT(10F7.0)
60    FORMAT(5X,10F9.3)
354   REWIND NR5
      READ(NR5,705) ALPHA
      IF(IR.GT.20) GO TO 500
      GO TO(1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20) IR
C
C ISIZE OF OPENING INVENTORY HERDS
 1    ISIZE=RR(2)
C
      GO TO 30
C FARROWING CONTROL
 2    LBREED=RR(2)
      NBREED=RR(3)
      KAGEW=RR(4)
      LGTHW=RR(5)
      NAGEM=RR(6)
      GO TO 30
```

```
C
C SURVIVAL PROBABILITIES, CONVERT TO DAILY, PUT INTO /SURVIV/.
3       PW1=(1.-RR(2))**(1./7.)
        PW23=(1.-RR(3))**(1./14.)
        PSRT=(1.-RR(4))**(1./35.)
        PSRT2=(1.-RR(5))**(1./35.)
        PSFIN=(1.-RR(6))**(1./124.)
        PSOWS=(1.-RR(7))**(1./365.)
        PBORS=(1.-RR(8))**(1./365.)
        PBORS1=(1.-RR(9))**(1./365.)
        GO TO 30
C
C FILL /BRED2/  AND /BRED3/
C ABNORMAL GILTS, ESTRUS LENGTH, PROBABILITY OF CONCEPTION, ADJ. NO BORN
 4      ABNORG=RR(2)
        ESTM=RR(3)
        ESTS=RR(4)
        EMIN=RR(5)
        EMAX=RR(6)
        PCON1=RR(7)
        PCON2=RR(8)
        ADJ1=RR(9)
        ADJ2=RR(10)
        GO TO 30
C GESTATION LNEGTH AND PREMATURE TERMINATION.
 5      GESM=RR(2)
        GESS=RR(3)
        GMIN=RR(4)
        GMAX=RR(5)
        PTRM1=1.-((1.-RR(6))**(1./7.))
        PTRM2=1.-((1.-RR(7))**(1./100.))
        PTRM16=1.-((1.-RR(8))**(1./7.))
        GO TO 30
C
C FILL  /BIRTH/
 6      BRNM=RR(2)
        BRNS=RR(3)
        BMIN=RR(4)
        BMAX=RR(5)
C
C WEIGHTS FILLED INTO /BIRTH/
        BWTM=RR(6)
        BWTS=RR(7)
        BWMIN=RR(8)
        BWMAX=RR(9)
        GO TO 30
C
C WEIGHT INTO /GAIN/
 7      GW1=RR(2)
        GW23=RR(3)
        GSRT=RR(4)
        GFIN1=RR(5)
        GFIN2=RR(6)
        SDP=RR(7)/100.
        GO TO 30
C
C SALES CONTROL INTO /SALES/
 8      MDSELL=RR(2)
        WTS=RR(3)
        PRIH=RR(4)
        PRIS=RR(5)
        DIS=RR(6)/100.
```

```
      GO TO 30
C
C
C SOW GAINS
9     GSOWM=RR(2)
      SSOWM=RR(3)
      GSOWL=RR(4)
      SSOWL=RR(5)
C          ADD TO /CLEAN/
      SWTLP=RR(6)
      SSLP=RR(7)
      GO TO 30
C
C OPENING INVENTORY, BOARS - NEW, YOUNG, THEN MATURE.
10    NB1=RR(2)
      IF(NB1.LT.1) GO TO 6200
      DO 6101 K= 1,NB1
      IATRIB(1)=RR(3)
      IATRIB(2)=1
      IATRIB(3)=1
      IATRIB(4)=1
      IATRIB(5)=88*1000+K
      ATRIB(1)=RR(4)
      ATRIB(2)=RNORM(GSOWM,SSOWM,-5.,10.)
      CALL FILEM(IN,VEN,8)
6101  CONTINUE
C
6200  NB2=RR(5)
      IF(NB2.LT.1) GO TO 6300
      DO 6201 K=1,NB2
      IATRIB(1)=RR(6)
      IATRIB(2)=1
      IATRIB(3)=2
      IATRIB(4)=1
      IATRIB(5)=88*1000+NB1+K
      ATRIB(1)=RR(7)
      ATRIB(2)=RNORM(GSOWM,SSOWM,-5.,10.)
      CALL FILEM(IN,VEN,8)
6201  CONTINUE
C
6300  NB3=RR(8)
      IF(NB3.LT.1) GO TO 30
      DO 6301 K=1,NB3
      IATRIB(1)=RR(9)
      IATRIB(2)=1
      IATRIB(3)=3
      IATRIB(4)=1
      IATRIB(5)=88*1000+NB2+NB1+K
      ATRIB(1)=RR(10)
      CALL FILEM(IN,VEN,8)
6301  CONTINUE
      GO TO 30
C
C
C CULLING OF GILTS AND SOWS IN /CULL/
11    NGLTS=RR(2)
      MXSRV=RR(3)
      MXAGS=RR(4)
      PCULG=RR(5)/100.
      PCULS=RR(6)/100.
      MXBOR=RR(7)
      LDP=RR(8)
      GO TO 30
```

```
C
C CONCEPTION ADJUSTMENT, ADDED TO /CULL/
12      PSSR=RR(2)
        PRGT=RR(3)
        GO TO 30
C
C COST CARD
13      FCS=RR(2)
        FCB=RR(3)
        CLAB=RR(4)
        TFAR=RR(5)
        TNUR=RR(6)
        TSOW=RR(7)
        TFIN=RR(8)
        GO TO 30
C
C BUILDING OPTIONS, BUILDINGS ARE NOT IN FILES AS ARE ANIMALS.
14      MX1=RR(2)
        NDPREV=RR(3)
        X1=RR(4)
        GO TO 30
15      MX2=RR(2)
        X2=RR(3)
        GO TO 30
16      MX3=RR(2)
        GO TO 30
17      MX4=RR(2)
        X4=RR(3)
        GO TO 30
C
C NO SUCH CARDS
18      GO TO 1350
19      GO TO 1350
C
C BOAR MANAGEMENT OPTIONS
20      MXSDY=RR(2)
        MXSWY=RR(3)
        MXSDM=RR(4)
        MXSWM=RR(5)
        NPUR=RR(6)
        IPDAT=RR(7)
        KAGE=RR(8)
        WTPB=RR(9)
        GO TO 30
C
C CARDS 51. AND GREATER
C
500     IF(IR-51) 1350,51,502
502     IF(IR-53) 52, 53, 504
504     IF(IR-55) 54, 55, 506
506     IF(IR-57) 56, 57, 508
508     IF(IR-59) 58, 1350, 1350 -
C
C SIMULATION CONTROL -NDAYS,NRUNS
 51     NDAYS=RR(2)
        SEED=RR(3)
        SEED=RANF(SEED)
        MAXSKP=RR(4)
        NRNOPT=RR(5)
        KRS4=RR(6)
        GO TO 30
C
```

```
C
C NO CARD 52.
52    GO TO 1350
C
C PRODUCTION SUMMARY REPORT CONTROL
53    ISMYP=RR(2)
      ISMB=RR(3)
      ISMBG=RR(4)
      ISMF=RR(5)
      ISMW=RR(6)
      ISMM=RR(7)
      ISMM=RR(8)
      GO TO 30
C
C COSTS AND RETURNS SUMMARY REPORT CONTROL
54    ISMYC=RR(2)
      ISMCS=RR(3)
      ISMCH=RR(4)
      ISML=RR(5)
      ISMSS=RR(6)
      ISMSH=RR(7)
      ISMGR=RR(8)
      GO TO 30
C
C EVENTS AS THEY OCCUR REPORT CONTROL
55    MJEV=RR(2)
      ISALS=RR(3)
      IFARS=RR(4)
      IBRDS=RR(5)
      GO TO 30
C
C
C DAILY INVENTORY REPORT CONTROL
56    IDCS=RR(2)
      IDCE=RR(3)
      IDCN=RR(4)
      IDCF=RR(5)
      IDCM=RR(6)
      IDCB=RR(7)
      IDCFS=RR(8)
      IDCFP=RR(9)
      IOFLW=RR(10)
      GO TO 30
C
C INDIVIDUAL DAILY ANIMAL ATTRIBUTES CONTROL
57    IAAS=RR(2)
      IAAE=RR(3)
      IAAN=RR(4)
      IAAFN=RR(5)
      IAAM=RR(6)
      IAAB=RR(7)
      IAAFR=RR(8)
      GO TO 30
C
C NS1, NS2 DIAGNOSTIC SWITCHES
58    NS1=RR(2)
      NS2=RR(3)
      GO TO 30
1350  WRITE(ND,1351) RR(1)
1351  FORMAT(* ERROR SUB. INITN, DATA CARD .GT. PERMITED,=*F8.2)
      GO TO 30
C
999   DAY=DATE(0)
```

```
      REWIND NR5
      READ(NR5,705) RR
      WRITE(NW,998)NDAYS,DAY,RR
998   FORMAT(1H1,//18X*SWINE BREEDING HERD SIMULATOR*//7X
     2*REQUEST IS FOR*I4* DAYS,            TODAYS *
     3*DATE IS *A8/
     37X*YOUR IDENTIFICATION CARD=*///17X,10A8)
C
      RETURN
      END
```

```
OPEN
      SUBROUTINE OPEN(IN,VEN)
      COMMON/INIT/NR,NW,ND,NT7,NT8,NDAT,NS1,NS2
     3 /STAT/ SUM(5,20),SUM2(5,10),SUM3(5,10),SUM4(5,10)
     4 /GEN/ITOT,ISIZE,NOWT,NOWY,NDAYS,NRUNS,IATRIB(18),ATRIB(4)
     5 /HOUSE/ NH(6),N1,N2,N3,N4,N5,N6
     5/CLEAN/DUM(5),KL4
     4 /BIRTH/ BRNM,BRNS,BMIN,BMAX,BWTM,BWTS,BWMIN,BWMAX,NOBRN
     8 /BRED2/ ABNORG,GESM,GESS,GMIN,GMAX,ESTM,ESTS,EMIN,EMAX
     3/GAIN/GW1,GW23,GSRT,GFIN1,GFIN2,GSOWM,GSOWL,SDP,SSOWM,SSOWL
     4/GAIN2/SOP(6),HOP(6),SSLD(6),FSLD(6),SEND(6),HEND(6)
     6/SALES/DUMMY(15),PRIH,PRIS
      DIMENSION IN(3,1),VEN(2,1)
C
C
C READ IN BASIC HERD DATA FROM TAPE NDAT.
C          BASE HERD IS 30 SOW AND 219 FINISHING HOGS.,
C                  SOWS ARE READY TO FARROW,  HOGS ARE 5.5-6.0 MONTHS.
C CREATE OPENING INVENTORY FOR 6 FARROWING SYSTEM,  AT T=0.
C          -ADJUST ATTRIBUTES TO  T=0  FOR SOWS AND FINISHING, CREATE
C                  BABY PIGS FOR HERD GROUP NUMBER THREE.
C          - ADJUSTMENTS FOR 3 HERD GROUPS TO FARROW BEGINNING-
C                   HERD 1  JANUARY 15(T=15), AND JULY 15(T=196)
C                   HERD 2  MARCH 1(T=60),  AND SEPTEMBER 1(T=244)
C                   HERD 3  JUNE1(T=152),  AND DECEMBER 1(T=335)
C
C LET ITOT= TOTAL NUMBER OF ANIMALS AT ANY TIME DURING SIMULATION.
C LET ISIZE= NO. OF SOWS IN EACH HERD GROUP CREATED.
C ATTRIBUTES ARE CONTROL PARAMETER DEPENDENT.
C
C
      SIZE=ISIZE
      IFIN=SIZE*(BRNM*.78)+.5
C LOOP 3 HERDS, ID=1 IMPLIES SOW ADJUSTMENT,  ID=2 FINISHING .
C
      DO 9999 IHERD=1,3
      REWIND NDAT
      ID=1
  550 READ(NDAT,500) IAGE, JSEX,KLAS,LTAL,LOCA,MNUM,WT
  500 FORMAT(I4,I1,I1,I3,I3,I6,7X,F5.0)
      IF(IAGE.NE.6666) GO TO 449
      REWIND NDAT
      GO TO 550
  449 IF(IAGE.NE.7777) GO TO 551
      REWIND NDAT
      DO 776 KI=1,31
  776 READ(NDAT,6666)
      GO TO 550
  551 IF(LOCA.GT.10) LOCA=LOCA/100
      GO TO (1001,2001,3001)IHERD
C HERD 1, ADJUST BACK 15 DAYS
 1001 IF(ID.EQ.2) GO TO 1031
      LTAL=LTAL-15
      WT=WT-12.
  131 IAGE=IAGE-15
      MNUM=ITOT+1+10000
    3 IATRIB(1)=IAGE
      IATRIB(2)=JSEX
      IATRIB(3)=KLAS
      IATRIB(4)=LTAL
      IATRIB(5)=MNUM
      ATRIB(1)=WT
```

```
      ATRIB(2)=G
      CALL FILEM(IN,VEN,LOCA)
      IF(IHERD.EQ.2) GO TO 550
      IF(NH(3).GE.ISIZE.A.ID.EQ.1) GO TO 77
      IF(NHOGS.GE.IFIN) GO TO 9999
      GO TO 550
 1031 NHOGS=NHOGS+1
      IF(IAGE-149) 1032, 1032, 1033
1032  G=RNORM(GFIN1,GFIN1*SDP,-5.,10.)
      GO TO 131
1033  G=RNORM(GFIN2,GFIN2*SDP,-5.,10.)
      GO TO 131
C HERD 1, ADJUST BACK 60 DAYS
 2001 IF(ID.EQ.2) GO TO 2031
      IH2= IH2+1
      IF(IH2.GT. ISIZE) GO TO  77
      LTAL=LTAL-60
      WT=WT-48.
 231  IAGE=IAGE-60
      MNUM=ITOT+1+20000
      G=RNORM(GFIN1,GFIN1*SDP,-5.,10.)
      GO TO 3
2031  NHOGS=NHOGS+1
      IF(NHOGS.GT.IFIN)GO TO 9999
      WT=WT-107.1
      GO TO 231
C HERD 3, ADD 30 DAYS TO AGE, CREATE BABY PIGS FOR EACH SOW.
3001  DO 333 II=1,ISIZE
      IAGE=IAGE+30
      KLAS=KLAS+1
      LTAL=30+LTAL-114
      LOCA=LOCA-2
      WT=WT-0.8*LTAL
      MNUM=ITOT+1+30000
      NOSOW=MNUM
      AGE=IAGE+GESM
C ADJUST NO. PIGS FOR AGE SOW, DEVIATION OF MEAN -BRNM- FROM 10 INTERCE
C        ASSUME NO SOWS OVER 1300 DAYS IN OPENING INVENTORY.
      V=BRNM-10.
      BR=V+5.867+.01*AGE-.00000446*AGE**2.
      IPIGS=RNORM(BR,BRNS,BMIN,BMAX)+0.5
      IATRIB(1)=IAGE
      IATRIB(2)=JSEX
      IATRIB(3)=KLAS
      IATRIB(4)=LTAL
      IATRIB(5)=MNUM
      IATRIB(8)=IPIGS
      ATRIB(1)=WT
      CALL FILEM(IN,VEN,LOCA)
C        CREATE BABY PIGS FOR SOW II LOOP
      DO 380 IK=1,IPIGS
      IAGE=LTAL
      IF(RANUM(D).GT.0.5) 101,102
 101  JSEX=2
      KLAS=1
      GO TO 103
 102  JSEX=3
      KLAS=0
C        CALCULATE WEIGHT BY BIRTH WT. + .5 LB. DAY, STD.=3.6
 103  BTWT=RNORM(BWTM,BWTS,BWMIN,BWMAX)
      WT=BTWT+RNORM(.5*IAGE,3.6,5.0,25.0)
      MNUM=ITOT+1+30000
```

```
      IBT=BTWT*100.
      IATRIB(1)=IAGE
      IATRIB(2)=JSEX
      IATRIB(3)=KLAS
      IATRIB(5)=MNUM
      IATRIB(8)=NOSCW
      IATRIB(11)=IBT
      ATRIB(1)=WT
      CALL FILEM(IN,VEN,4)
 380  CONTINUE
381   READ(NDAT,500)IAGE,JSEX,KLAS,LTAL,LCCA,MNUM,WT
      IF(IAGE.NE.6666) GO TO 331
      REWIND NDAT
      GO TO 381
331   LCCA=LCCA/100
 333  CONTINUE
      GO TO 9999
C
C DUMMY READ SKIPS SOW DATA RECORDS
77    READ(NDAT,6666)NSTOP
6666  FORMAT(I4)
      IF(NSTOP.EQ.6666) GO TO 6667
      GO TO 77
6667  ID=2
      NHOGS=0
      IH2=0
      GO TO 550
C
C
C     SET FARROWING HOUSE LITTER COUNT KL4.
9999  KL4=ISIZE
C ADD ESTRUS CYCLES TO OPENING INVENTORY SOWS IN  PRODUCTION.
      LNH4=NH(1)
      DO 678 K4=1,LNH4
      CALL REMOV(IN,VEN,1)
      IF(IATRIB(1)-21) 673, 673, 671
623   ATRIB(2)=RNORM(GW23,GW23*SDP,-5.,10.)
      GO TO 678
671   IF(IATRIB(1)-200) 673, 673, 675
673   ATRIB(2)=RNORM(GSRT,GSRT*SDP,-5.,10.)
      GO TO 678
675   IATRIB(10)=RNORM(ESTM,ESTS,EMIN,EMAX)+0.5
      ATRIB(2)=RNORM(GSOWL,SSOWL,-5.,10.)
678   CALL FILEM(IN,VEN,4)
      LNH6=NH(3)
      DO 567  K6=1,LNH6
      CALL REMOV(IN,VEN,N2+1)
      A=IATRIB(1)
      C=BRNM-10.
      BR=C+5.867+.01*A-.00000446*A**2.0
      IATRIB(8)=RNORM(BR,BRNS,BMIN,BMAX)+0.5
      IATRIB(10)=RNORM(ESTM,ESTS,EMIN,EMAX)+0.5
      IATRIB(11)=RNORM(GESM,GESS,GMIN,GMAX)+0.5
      ATRIB(2)=RNORM(GSOWM,SSOWM,-5.,10.)
 567  CALL FILEM(IN,VEN,6)
C
C
C OPENING INVENTORY WEIGHTS AND VALUE
C   SOWS AND HOGS COUNT AND WT ONLY.
C ARRAYS GAIN2- 1=NO., 2=WT., 3=VALUE OF WT.
      DO 7009  I=1,ITOT
      ICHK=IN(1,I)/10000000000
      IF(ICHK-240) 7001, 7005, 7005
```

```
C       HOGS AND PIGS .LT. 240 DAYS OF AGE.
7001  HOP(1)=HOP(1)+1.
      HOP(2)=HOP(2)+VEN(1,I)
      HOP(3)=HOP(3)+VEN(1,I)*PRIH/100.
      GO TO 7009
C      OVER 240 DAYS OF AGE.
7005  SOP(1)=SOP(1)+1.
      SOP(2)=SOP(2)+VEN(1,I)
      SOP(3)=SOP(3)+VEN(1,I)*PRIS/100.
7009  CONTINUE
C
C
      IF(NS1.EQ.13) CALL CLT(IN,VEN,1,ITOT,131313.9)
C
      RETURN
      END
```

MGT

```
      SUBROUTINE MGT(IN,VEN,EQARR)
      COMMON/INIT/NR,NW,NC,NT7,NT8,NCAT,NS1,NS2,NCWD
     2 /RAN/ IRN(54),KRANUM,RLIMIT,NRNCPT,ITAPE
     3 /STAT/ SUM(5,20),SUM2(5,10),SUM3(5,10),SUM4(5,10)
     4 /GEN/ITOT,ISIZE,NOWT,NOWY,NDAYS,NRUNS,IATRIB(18),ATRIB(4)
     5 /HOUSE/ NH(6),N1,N2,N3,N4,N5,N6,NXTFAR,MX1,MX2,MX3,MX4
     6/SALES/MDSELL,WTS,NXTSAL,NSLC(4),WTSLC(4),VSLC(4),PRIF,PRIS
     7 /BREC/ LBREED,NBREED,IFAR(30),IDB(30),KAGEW,LGTHW,NAGEM
     8 /BREC2/ ABNORG,GESM,GESS,GMIN,GMAX,ESTM,ESTS,EMIN,EMAX
     9 /BREC3/ PTRM1,PTRM2,PTRM16,PCON1,PCON2,ADJ1,ADJ2
     1 /SKIP/ ISTOP4,ISTOP5,ISTOP6,ISTOP7,MAXSKP
     2 /SURVIV/ PW1,PW23,PSRT,PSFIN,PSOWS,PBORS,PBORS1,MDEAD(8)
     3 /GAIN/ GW1,GW23,GSRT,GFIN1,GFIN2,GSOWM,GSOWL
     4 /BIRTH/ BRNM,BRNS,BMIN,BMAX,BWTM,BWTS,BWMIN,BWMAX,NOBRN
     5 /CLEAN/ NDPREV,NH4CLN,LOSSL
     7 /KRS/ KRS1,KRS2,KRS3,KRS4,KRS5,KRS6,KRS7,KRPT
      COMMON/RPT5/ IAAS, IAAE
     1/RPT1/ISMYP,ISMB,ISMBG,ISMF,ISMW,ISMS,ISMM
     3 /SCH/KS(2,500),IPT,IEVT,KODE,TWE,TWN(44),NKT
     6/WRT1/KW

      DIMENSION IN(3,1),VEN(2,1)
C GENERAL MANAGEMENT OF THE SIMULATION RUN.
C
C LET MGT2 BUILD EVENTS FILE INTO ARRAY KS(2,500)
C
      KODE=1
      CALL MGT2(IN,VEN)
C
C
C
C LOOP NDAYS OF SIMULATION, INCREMENTING NOWT AND NOWY.
C
C ISTOP4-7 SET TO NDAYS HERE, MAY TEMPORARLY LOWER ELSEWHERE.
      KRS2=ISMYP
      ISTOP4=KRS2
      ISTOP5=KRS2
      ISTOP6=KRS2
      ISTOP7=KRS2
C
       NOWT=0
C
C
C        INDIVIDUAL DAILY ANIMAL ATTRIBUTE CALL 7777
      CALL OUT(IN,VEN,7777)
      IF(NS2-2) 8888,788,8888
788   CALL OUT(IN,VEN,1,ITOT,2788.0)
C
C
8888  NOWT=NOWT+1
      NOWY=(NOWT-1)/365+1
      NOWD=NOWT-(NOWY-1)*365
C
C
      CALL EVNTS(IN,VEN)
C
C  INDIVIDUAL DAILY ATTRIBUTE REPORT IN SUB. OUT(,,,7777)
      IF(IAAS-NOWT) 782, 782, 786
782   IF(IAAE-NOWT) 786, 784, 784
784   CALL OUT(IN,VEN,7777)
      IF(NS2-2) 786, 785, 786
```

```
785    CALL CUT(IN,VEN,1,ITCT,28888.7)
C     CALL MGT3 EVERY DAY, TEST FOR DAILY INVENTORY REPORT THERE.
C
C    KRS1 SWITCH SENSES CHANGE IN TOTAL INVENTORY
786    IF(ITOT-KRS1) 787, 789, 787
787    KRS1=1
789    CALL MGT3(IN,VEN)
       KRS1=ITOT
C
C
C PRODUCTION SUMMARY REPORTS CALLED
C    KRS2 HOLDS DAY OF NEXT CALL
       IF(NOWT-KRS2) 800, 401, 401
401    KRS2=KRS2+ISMYP
       ISTOP4=KRS2
       ISTOP5=KRS2
       ISTOP6=KRS2
       ISTOP7=KRS2
       IF(ISMB)5 ,5,  404
404    KW=4
       CALL REPT1(IN,VEN)
       KW=0
5      IF(ISMBG) 6, 6, 505
505    KW=5
       CALL REPT1(IN,VEN)
       KW=0
6      IF(ISMF) 7, 7, 606
606    KW=6
       CALL REPT1(IN,VEN)
C
C PRODUCTION GAINS AND COST SUMMARY REPORTS IN SUB. REPT1,
C     SUB. REPT1 CALLS REPT2 FOR COSTS AND RETURNS
C
7      KW=7
       CALL REPT1(IN,VEN)
       KW=0
800    CONTINUE
C
       CALL SECOND(T)
       KT=T
       IF(KT-KRS4) 801, 801, 999
999    WRITE(NW,961) KRS4, ITOT, NOWT
961    FORMAT(///*   STOP DUE TO TIME EXCEEDING LIMIT OF*I6
      2* SECONDS,  TOTAL NO. ANIMALS=*I6* AT DAY=*I5)
       STOP
801    CONTINUE
C
C
 88    IF(NOWT.LT.NDAYS) GO TO 8888
C
C
       RETURN
       END
```

```
MGT2
      SUBROUTINE MGT2(IN,VEN)
      COMMON /INIT/NR,NW,ND,NT7,NT8,NCAT,NS1,NS2
     4 /GEN/ ITOT,ISIZE,NOWT,NOWY,NDAYS,NRUNS,IATRIB(18),ATRIB(4)
     5 /HOUSE/NH(6),N1,N2,N3,N4,N5,N6,NXTFAR,MX1,MX2,MX3,MX4
     6/SALES/MDSELL,WTS,NXTSAL
     7 /BREC/ LBREED,NBREED,IFAR(6,5),IDB(30),KAGEW,LGTHW,NAGEM
     8 /BREC2/ ABNORG,GESM,GESS
     1 /SKIP/ ISTOP4,ISTOP5,ISTOP6,ISTOP7,MAXSKP
     5 /CLEAN/ NDPREV,NH4CLN,LOSSL
     1 /BOAR/ MXSDY,MXSWY,MXSDM,MXSWM,NPUR,IPDAT,KAGE,WTPB,IBS
     3 /SCH/ KS(2,500),IPT,IEVT,KODE,IWE
     3/RPT3/ MJEV
C
C
C MGT2 SETS UP SCHEDULES IN ARRAY KS(2,500) AND THEN SENDS THEM TO EVN
C
C          IFAR(I,1),I=1,6 IS FIRST YEARS FARROWING SCH. FROM  S. INIT
C    IEVT  1=SELECT,  NGLTS  PRIOR TO EACH BREEDING.
C          2=BREED,  ON FOR LBREED  DAYS WITH IBS=1, OFF IBS=2
C          3=CLEAN4, PREVIOUS TO FARROWING BY NDPREV  DAYS.
C          4=WEAN,  ON  FOR LGTHW   DAYS WITH IWE=1,  OFF  IWE=2
C          5=SELL,  EVERY  MDSELL  DAYS.
C          7=BOAR PURCHASES
C          6=UPDATES -CALLED EVERY DAY,  NOT INC. IN SCH. IN KS(,)
C
C  BRANCH TO 1000 FOR SET UP,  TO 2000  FOR USING THE SCHEDULE.
C
      IF(KODE-2)1000,2000,1390
C
C     COMPLETE FARROWING DATES ARRAY.
1000  DO 365 I=1,6
      DO 365 K=2,5
365   IFAR(I,K)=IFAR(I,1)+365*(K-1)
C
C     CALCULATE BREEDING DATES ARRAY  IDB().
      DO 114 K=1,5
      M=(K-1)*6
      DO 114I=1,6
114   IDB(I+M)=IFAR(I,K)-GESM+GESS
      IF(NS1.EQ.3) WRITE(ND,1314) IDB
1314  FORMAT(/* MGT2 SET UP BREEDING SEASONS=*/10X,15I5/
     2 10X,15I5/)
C
C
C FILL DAY TO START BREEDING AND STOP BREEDING,  START SET AT OFF
      IBS=2
      II=0
      DO 101 I=1,60,2
      II=II+1
      KS(1,I)=IDB(II)
      KS(2,I)=2
      KS(1,I+1)=KS(1,I)+LBREED
101   KS(2,I+1)=2
C
C FILL DAY TO SELECT GILTS
      IAJ=GESM-114
      DO 103 I=61,90
      KS(1,I)=IDB(I-60)-101+IAJ
103   KS(2,I)=1
C
C FILL DAY TO CLEAN HOUSE 4  NDPREV TO FARROWING.
```

```
      IAJ=GESM-GESS-NDPREV
      DO 105  I=91,120
      KS(1,I)=IDB(I-90)+IAJ
105   KS(2,I)=3
C
C FILL DAY TO BEGIN WEANING PROCESS,  SET UP LATER FOR  LGTHW DAYS.
      IAJ= KAGEW+GESM-GESS
      DO 107 I=121,150
      KS(1,I)=IDB(I-120)+IAJ
107   KS(2,I)=4
C
C FILL SELL EVENTS, NO. DEPENDING UPON SIZE OF  MDSELL.
      IDO=NDAYS/MDSELL+150
      IF(IDO.GT.498) WRITE(ND,1309) IDO
1309  FORMAT(* ERROR MGT2,  ATTEMPT TO LOAD*I4*  ITEMS INTO*
     2 * SCHEDULE ARRAY  KS(2,500).*)
      NXTSAL=1
      IDAT=1
      DO 109 I=151,IDO
      KS(1,I)=IDAT
      KS(2,I)=5
109   IDAT=IDAT+MDSELL
C
C        ADD ONE FOR LAST DAYS.
      KS(1,IDO+1)=NDAYS
      KS(2,IDO+1)=5
C
C FILL BOAR PURCHASE DATES CODE=7
      K7=IDC+1
      DO 201 I=1,5
      K7=K7+1
      IDAT=IPDAT+(365*(I-1))
      KS(1,K7)=IDAT
201   KS(2,K7)=7
C
C
C SPECIAL WEAN FOR OPENING INVENTORY PIGS, 30 DAY MIN AGE WEAN.
C
      IDAT=KAGEW-30
      IF(IDAT.LT.1) IDAT=1
      KS(1,K7+1)=IDAT
      KS(2,K7+1)=4
C
C ORDER THSE EVENTS BY TIME,  I.E. ROW 1.
C        BUBBLE SORT
      I=1
10    J=I
11    IF(KS(1,I)-KS(1,I+1)) 98, 98, 9
 9    KTS1=KS(1,I)
      KTS2=KS(2,I)
      KS(1,I)=KS(1,I+1)
      KS(2,I)=KS(2,I+1)
      KS(1,I+1)=KTS1
      KS(2,I+1)=KTS2
      IF(I .EQ. 1) GO TO 98
      I=I-1
      GO TO 11
98    I=J+1
      IF(I.LT.500)  GO TO 10
C        FINISHED W. BUBBLE SORT.
C
C DROP EMPTY COLUMNS AND THOSE SCHEDULED BEFORE NOWT=1
```

```
      IF(KS(1,1).GT.0) RETURN
      DO 117  I=1,500
      IF(KS(1,I).LT.1) GO TO 117
      DO 118 K=1,I
C
C           PREVENT EXCEEDING DIMENSIONS.
      L=I+K-1
      IF(L-501)144, 119, 119
144   KS(1,K)=KS(1,L)
118   KS(2,K)=KS(2,L)
117   CONTINUE
119   IPT=0
C
C
C NO TAPE WRITE SCHEDULE
      IF(MJEV) 1306, 1306, 1302
1302  WRITE(ND,1303) NDAYS
1303  FORMAT(//,3X*SCHEDULE OF EVENTS SET UP FOR A RUN OF*I5
     2*DAYS*/,5X*CODES FOLLOWING DATES ARE  1=SELECT, 2=*
     3 *BREED, 3=CLEAN4, 4=WEAN, 5=SELL, 6=UPDATE, 7=BUY BOARS*)
C
      IIDO=IDO+1
      WRITE(ND,1305)((KS(I,J),I=1,2),J=1,IIDO)
1305  FORMAT((3X,12(I6,I2)/))
1306  RETURN
C
C
C KODE  2000  FOR FINDING NEXT EVENTS.
C
2000  IPT=IPT+1
      IF(KS(1,IPT)-NOWT) 2000, 300, 400
C
C EXECUTE THE EVENT.
300   IEVT= KS(2,IPT)
      RETURN
C
C NEXT DAY ITEM.
400   IPT=IPT-1
      IEVT=6
      RETURN
1390  WRITE(ND,1391) NOWT,IPT,KODE,IDO
1391  FORMAT(/* ERROR MGT2, NOWT=*I6* IPT=*I4* KODE=*
     2 I3*  IDO=*I7*   RETURNING*/)
C
C
      RETURN
      END
```

```
MGT3
      SUBROUTINE MGT3(IN,VEN)
      COMMON /INIT/NR,NW,ND,NT7,NT8,NDAT,NS1,NS2
C
     4 /GEN/ITOT,ISIZE,NOWT,NOWY,NDAYS,NRUNS,IATRIB(18),ATRIB(4)
     5/HOUSE/NH(6),N1,N2,N3,N4,N5,N6,NXTFAR,MX1,MX2,MX3,MX4,X1,X2,X4
     2 /SURVIV/DUMY(7),MDEAD(8)  /BIRTH/DUM(8),NOBRN
     6 /SALES/ MDSELL,WTS,NXTSAL,NSLD(4),WTSLD(4),VSLD(4),PRIH,PRIS
     2 /MG3/ NHH(6),MDEADH(8),NHP(6),MDP(6),KCALL,KPRET,KNSLD4,KPREB
     7 /KRS/ KRS1,KRS2,KRS3,KRS4,KRS5,KRS6,KRS7,KRPT
     5 /CLEAN/NDPREV,NH4CLN,LCSSL,SWTLP,SSLP,KL4
     3 /SCH/ KS(2,500),IPT,IEVT,KCDE,IWE,IWN(45),NKT
     7 /BREC/ LBREED,NBREED,IFAR(6,5),IDB(30),KAGEW,LGTHW,NAGEM
     3 /COST/ FCS,FCB,CLAB,TFAR,TNUR,TSOW,TFIN
     4 ,VAR(3),COST(30)
     4 /RPT4/ IDCS,IDCE,IDCN,IDCF,IDCM,IDCB,IDCFS,IDCFP,ICFLW
     4/CULL/NGLTS,MXSRV,MXAGS,PCULG,PCULS,PSSR,PRGT,MXBCR
     3/GAIN/GW1,GW23,GSRT,GFIN1,GFIN2,GSOWM,GSOWL,SDP,SSOWM,SSOWL
     3/STAT/SUM(5,20),SUM2(5,10),SUM3(5,10),SUM4(5,10),SUM5(5,10)
      DIMENSION IN(3,1),VEN(2,1)
C
C       KRS1 SWITCH IS SET=1 IN SUB. MGT IF HAS BEEN CHANGE IN INV.
C
C         CALCULATE DIFERENCES
      NSLD4=NSLD(4)-KNSLD4
      NOBR=NOBRN-KPREB
      DO 4K=1,5
      NHP(K)=NH(K)-NHH(K)
4     MDP(K)=MDEAD(K+3)-MDEADH(K+3)
C
      GO TO 789
500   WRITE(ND,510) NOBR, NOBRN
510   FORMAT(27X*PIGS BORN*13X*=*I9,I21/)
      WRITE(ND,512)(MDP(J),MDEAD(J+3),J=1,5)
512   FORMAT(27X*FARROWING BLD. DEATHS =*I9,I21/
     227X*NURSERY BLD. DEATHS   =*I9,I21/
     3 27X*SOW MAINT. BLD. DEATHS=*I9,I21/
     4 27X*FINISHING BLD. DEATHS =*I9,I21/
     5 27X*BOAR DEATHS*11X*=*I9,I21)
      WRITE(ND,515) NSLD4,NSLD(4)
515   FORMAT(/27X*SALES OF BUTCHERS     =*I9,I21)
C
C
      GO TO 1271
C
789   KNSLD4=NSLD(4)
      KPREB=NOBRN
      KPRET=NOWT
      DO 7 I=1,6
 7    NHH(I)=NH(I)
      DO 8 II=1,8
 8    MDEADH(II)=MDEAD(II)
      IF(NOWT-IDCS) 2000, 1201, 1201
1201  IF(NOWT-IDCE) 1203, 1203, 2000
C
C
C WRITE CONSECUTIVE DAILY INVENTORY BY BUILDING IF REQUESTED.
1203  WRITE(ND,1205) NOWT, ITOT
1205  FORMAT(/////5X*DAILY INVENTORY ON DAY=*I5*  TOTAL ANIMALS=*
     2I6/5X,95(1H=))
      IF(IDCN)1213, 1213, 1207
```

```
C
C       NURSERY INFORMATION.
1207  NH2=NH(2)
      IF(NH2) 1213, 1213, 1209
1209  WT=0.
      NN1=N1+1
      DO 1210 I=NN1,N2
1210  WT=WT+VEN(1,I)
      AWT=WT/NH2
      WRITE(ND,1212) NH2, AWT
1212  FORMAT(/6X*NURSERY HAS*I6* PIGS AT*F5.1* LBS. AVE. WT.*)
C       FINISHING BLD.
1213  IF(IDCF) 1219, 1219, 1215
1215  NH4=NH(4)
      IF(NH4) 1219, 1219, 1216
1216  WT=0.
      NN1=N3+1
      DO 1217 I=NN1,N4
1217  WT=WT+VEN(1,I)
      AWT=WT/NH4
      WRITE(ND,1218) NH4, AWT
1218  FORMAT(/6X*FINISHING HAS*I6* PIGS AT*F7.1* LBS. AVE. WT.*)
C
C          MAINTENANCE BUILDING + CULL PEN FOR SALE.
1219  IF(IDCM) 1227, 1227, 1221
1221  NH3=NH(3)
      IF(NH3) 1227, 1227, 1223
1223  LNONC=0
      LOPEN=0
      LPREG=0
      DO 1225 I=1,NH3
      CALL REMOV(IN,VEN,N2+1)
      IF(IATRIB(3)-2) 1231, 1232, 1233
1231  LNONC=LNONC+1
      GO TO 1225
1232  LOPEN=LOPEN+1
      GO TO 1225
1233  LPREG=LPREG+1
1225  CALL FILEM(IN,VEN,6)
      WRITE(ND,1226) NH3, LNONC, LOPEN,LPREG, NH(6)
1226  FORMAT(/6X*MAINTENANCE HAS*I5* TOTAL SOWS CLASSED AS*
     2* FOLLOWS-*/10X*NONOVULATING=*I3*, OPEN=*I3*, IN GESTATION=*
     5I3/10X*IN ADDITION*I4* SOWS AWAIT SALE IN THE CULL PEN*)
1227  IF(IDCB) 1241, 1241, 1228
1228  NH5=NH(5)
      IF(NH5) 1241, 1241, 1229
1229  WRITE(ND,1230) NH5
1230  FORMAT(/6X*BOARS TOTAL= *I3)
C       FARROWING BLD. KL4= NO SOWS IN FARROWING HOUSE.
1241  IF(IDCFS) 1261, 1261, 1243
1243  IF(N1) 1261, 1261, 1245
1245  LPIGS=N1-KL4
      WRITE(ND,1247) N1, KL4, LPIGS
1247  FORMAT(/6X*FARROWING HAS*I4* TOTAL WHERE SOWS=*
     2I3*, PIGS=*I4)
C         SALES, BIRTHS, MORTALITY MISC.
1261  IF(IDCFP) 1271,  1271, 1263
1263  WRITE(ND, 1265)
1265  FORMAT(/6X*BIRTHS, DEATHS, SALES  MISC.*/
     250X*CHANGE=*10X*TOTAL TO DATE=*)
C         USE STATEMENTS ABOVE.
      GO TO 500
1271  WRITE(ND,1273)
```

```
1273  FORMAT(/5X*END DAILY INVENTORY REPORT*69(1H=))
2000  CONTINUE
C
C
C
C OVERFLOW CHECKING AND REPORTING
C     FARROWING HOUSE CHECKED IN SUB. FAROW.
C
C NURSERY SEND OVERFLOW TO FINISHING.
C       IF FINISHING IS FULL, NURSERY MAY BE OVERSTOCKED UP TO MX2*X2.
C        NURSERY PIGS ARE MOVED BY S. UPDATE AT OPTION AGE.
C      CAPACITY CALCULATION FOR PERCENT OCCUPANCY=SUM4( ,1)
      RNH=NH(2)
      RMX=MX2
      CALL COLLT(SUM4,1,RNH/RMX*100.)
      NI5=NH(2)
C IF FINISHING HAS ROOM APPLY MX2, ELSE MX2*X2
      IF(NH(4)-MX4) 251, 251, 253
251   MFLOW=NI5-MX2
      GO TO 255
253   RNI5=NI5
      MFLOW=RNI5-RMX*X2
255   IF(MFLOW ) 300, 300, 201
201   II=0
      DO 203 I=1,MFLOW
205   CALL REMOV(IN,VEN,N1+1)
      IF(IATRIB(1)-22) 211, 215, 215
211   CALL FILEM (IN,VEN,5)
      GO TO 203
215   CALL FILEM(IN,VEN,7)
      II=II+1
203   CONTINUE
      IF(IOFLW) 300, 300, 291
291   WRITE(ND,292) NOWT, II
292   FORMAT(/3X*NURSERY OVERFLOW DAY=*I5*,  *I4
     2 *PIGS MOVED TO FINISHING*)
C
C MAINTENANCE OVERFLOW CHECK AND REPORTED ONLY.
C      CAPACITY CALCULATION MAINT., SUM4( ,3)
300   RNH=NH(3)
      RMX=MX3
      CALL COLLT(SUM4,3,RNH/RMX*100.)
      MFLOW=NH(3)-MX3
      IF(MFLOW) 308, 308,303
303   IF(IOFLW) 308, 308, 333
333   WRITE(ND,304) MFLOW, NOWT
304   FORMAT(/3X*MAINTENANCE OVERFLOW BY*I4* SOWS, DAY=*I5)
C
C FINISHING -FIRST NORMAL SALE,  IF NOT SATISFIED DROP MIN. WEIGHT
C           BY 10 LBS. AND SELL MORE UNTIL WITHIN MX4.
C        MX4 OVERFLOW REPORTED, BUT FORCE SELL ONLY AT MX4*X4.
C      CAPACITY CALCULATION- FINISHING, SUM4( ,2)
308   RNH=NH(4)
      RMX=MX4
      CALL COLLT(SUM4,2,RNH/RMX*100.)
      SAVWTS=WTS
      KISTOP7=ISTOP7
      CHG=0.
      LFLOW=RNH-RMX*X4
C
C MX4 IS DESIGN CAPCITY, X4 IS OVER FLOW FACTOR ALLOWED,
C   FORCED SALE TAKES PLACE ONLY IF MX4*X4 IS EXCEEDED.
```

```
401    IF(LFLOW)408, 408, 403
403    WTS=WTS-CHG
       IF(WTS.LT.191.) GO TO 407
       CALL SELL(IN,VEN)
       RNH4=NH(4)
       LFLOW=RNH4-RMX*X4
       MFLOW=NH(4)-MX4
       IF(IOFLW)400, 400, 418
418    WRITE(ND,419) WTS, MFLOW, NOWT
419    FORMAT(/3X*FINISHING OVERFLOW SALE AT MINIMUM WEIGHT=*
      2F5.0* REDUCED OVERFLOW TO*I4* AT DAY=*I5)
400    CHG=10.
       GO TO 401
407    WRITE(ND,406) NOWT, NH(4), MX4, X4
406    FORMAT(/5X*FINISHING HOUSE OVERFLOW SALES CURTAILED AT 190*
      2* LBS. MINIMUM TO ALLOW HOG GROWTH.*/
      3 10X*DAY=*I5* BLD. HAS*I6* ANIMALS WITH CAPACITY=*I6
      4* OVERFLOW FACTOR=*F5.2)
408    WTS=SAVWTS
       ISTOP7=KISTOP7
C
C
C   CAPACITY CALCUL., FARROWING CRATES,  OVERFLOW DONE IN FARROW.
       RNH=KL4
       RMX=MX1
       CALL CCLLT(SUM4,4,RNH/RMX*100.)
C
C
C
C WEANING, FOLLOW NO. WEAN IN  IWN(NKT).
C      SCHEDULE MADE IN SUB. EVENTS.
C      DAILY WEANING DONE HERE.
C      SEASON ENDS WITH CLEANING DAY, SUB. CLEAN4.
C
       IF(IWE-1) 5000, 4000,5000
C
C WEAN DURING WEANING SEASON OF LGTHW DAYS.
4000   NKT=NKT+1
       IF(NKT.GT.45) GO TO 5000
C
C       NKT=CURRENT DAY OF SEASON, IWN(NKT)= NO. TO WEAN.
       IF(NKT) 4013, 4013, 4002
4002   NWN=IWN(NKT)
       IF(NWN) 5000, 5000, 4005
4005   DO 4100 I=1,NWN
C
C        FIND SOW AND REMOVE, THEN HER PIGS
C             FIRST IN  FIRST OUT ORDER.
       CALL FIND(0,1,4,4,KOL,IN,VEN)
       IF(KOL) 4100, 4100, 4006
4006   CALL REMOV(IN,VEN, KOL)
       IF(IATRIB(1)-200) 4013, 4013, 4008
4008   IATRIB(3)=2
       IATRIB(4)=IATRIB(10)/3*2+2
       IATRIB(8)=0
       IATRIB(11)=0
       NAME=IATRIB(5)
       ATRIB(2)=RNORM(GSOWM,SSOWM,-5.,10.)
C
C PROBABILITY CULLING HERE AND IN SUB. CLEAN4.
C      PROB. POOR FOR GILTS,  POOR FOR SOWS.
C      IF CULLED PUT IN FILE 9 FOR SALE AT NEXT SALE SCHEDULED.
       RN=RANUM(D)
```

```
      IF(IATRIB(1)-450) 4905, 4901, 4901
4901  PROB=PCULS
4903  IF(PROB-RN) 4909, 4909, 4908
4905  PROB=PCULG
      GO TO 4903
C GET READY FOR NEXT SALE DATE NXSAL, GAIN AT MAINT. RATES.
4908  ISKIP=NXSAL-NOWT
      SKIP=ISKIP
      IATRIB(9)=IATRIB(9)+ISKIP
      IATRIB(1)=IATRIB(1)+ISKIP
      ATRIB(1)=ATRIB(1)+SKIP*RNORM(GSOWM,SSOWM,-5.,10.)
      CALL FILEM(IN,VEN,9)
      GO TO 4018
4909  CALL FILEM(IN,VEN,6)
C LOOK FOR ABOVE SOWS LITTER.
4018  KCC=0
      CALL FIND(NAME,5,4,8,KCC,IN,VEN)
      IF(KCC) 4100, 4100, 4009
4009  CALL REMOV(IN,VEN,KCC)
      IF(IATRIB(1)-200) 4011, 4100, 4100
4011  CALL FILEM(IN,VEN,5)
      GO TO 4018
C
4100  CONTINUE
      GO TO 5000
C        DIAGNOSTIC WRITE.
4013  WRITE(ND,4014) NKT, IATRIB(1), NOWT
4014  FORMAT(/5X*SUBROUTINE MGT3 ERROR, NKT=*I5* AGE=*I5* AT DAY=*I5)
C
C
5000  CONTINUE
C
C
C  GATHER SOW DAYS IN MAINTENANCE AND LOBR MINUTES HERE.
C       COST(1)=SOW DAYS, (2)=FARROW BLD. MIN,(3)=NURSERY BLD. MIN,
C            (4)=MAINT. BLD.MIN.,(5)=FINISHING BLD.MIN.
C  REPORT WRITER IS IN SUB. REPT2.
C     SOWS INCLUDE CULLS IN CULL PEN (IGNORES BOARS)
      RNH=KL4
      COST(1)=COST(1)+RNH+NH(3)+NH(6)
C  LABOR IN MINUTES
      COST(2)=COST(2)+RNH*TFAR
      COST(3)=COST(3)+NH(2)*TNUR
      COST(4)=COST(4)+(NH(3)+NH(6))*TSOW
      COST(5)=COST(5)+NH(4)*TFIN
C
C
      RETURN
      END
```

```
      SUBROUTINE EVNTS(IN,VEN)
      COMMON /INIT/NR,NW,NC,NT7,NT8,NCAT,NS1,NS2
     4 /GEN/ITCT,ISIZE,NCWT,NCWY,NDAYS,NRUNS,IATRIB(18),ATRIB(4)
     5 /HOUSE/ NH(6),N1,N2,N3,N4,N5,N6
     3/SCH/ KS(2,500), IPT,IEVT,KODE,IWE,IWN(45),NKT
     7 /BREC/LBREED,NBREED,IFAR(6,5),IDB(30),KAGEW,LGTHW,NAGEM
     1/SKIP/ ISTOP4,ISTOP5,ISTOP6,ISTOP7,MAXSKP
     4 /CULL/NGLTS,MXSRV,MXAGS,PCULG,PCULS,PSRR,PRGT
     6 /SALES/ MDSELL
     5 /CLEAN/ DUM(5),KL4
     1 /BOAR/ MXSDY,MXSWY,MXSDM,MXSWM,NPUR,IPCAT,KAGE,WTPB,IBS
      COMMON/WRT1/KW
     4/BREC4/KBRD
      DIMENSION IN(3,1), VEN(2,1)
C
C GET EVENTS FROM FILE  ONE AT  A TIME AND CALL FOR EXECUTION.
C
C
C
      KODE=2
1111  CALL MGT2(IN,VEN)
      IF(IEVT-2) 1, 2, 33
 33   IF(IEVT-4) 3, 4,  55
55    IF(IEVT-6) 5, 6, 77
77    IF(IEVT-8) 7, 98,98
C
C
C UPDATE ALL ANIMALS, HOUSE AT TIME.
6     NDO1=NH(1)
      IF(NDO1.LT.1)GO TO 545
      NN=0
      DO 444 M=1,NDO1
      KOL=1+NN
      IF(MOD(IN(2,KOL),1000000).GE.NCWT) GO TO 443
      CALL REMOV(IN,VEN,KOL)
      CALL UPDATE(IN,VEN)
      GO TO 444
443   NN=NN+1
444   CONTINUE
545   NDO2=NH(2)
      IF(NDO2.LT.1)GO TO 656
      NN=0
      KPN=N1
      DO 555 M=1,NDO2
      KOL=N1+NN+1
      IF(MOD(IN(2,KOL),1000000).GE.NCWT) GO TO 553
      CALL REMOV(IN,VEN,KOL)
      CALL UPDATE(IN,VEN)
      IF(N1.NE.KPN)NN=NN+N1-KPN
      KPN=N1
      GO TO 555
553   NN=NN+1
555   CONTINUE
656   NDO3=NH(3)
      IF(NDO3.LT.1) GO TO 767
      NN=0
      KPN=N2
      DO 666 M=1,NDO3
      KOL=N2+NN+1
      IF(MOD(IN(2,KOL),1000000).GE.NCWT) GO TO663
      CALL REMOV(IN,VEN,KOL)
```

```
      CALL UPDATE(IN,VEN)
      IF(N2.NE.KPN)NN=NN+N2-KPN
      KPN=N2
      GO TO 666
663   NN=NN+1
666   CONTINUE
767   NDO4=NH(4)
      IF(NDO4.LT.1) GO TO 878
      NN=0
      KPN=N3
      DO777 M=1,NDO4
      KOL=N3+NN+1
      IF(MOD(IN(2,KOL),1000000).GE.NOWT) GO TO 773
      CALL REMOV(IN,VEN,KOL)
      CALL UPDATE(IN,VEN)
      IF(N3.NE.KPN)NN=NN+N3-KPN
      KPN=N3
      GO TO 777
773   NN=NN+1
777   CONTINUE
878   NDO5=NH(5)
      IF(NDO5.LT.1) GO TO 99
      DO 888 M=1,NDO5
      CALL REMOV(IN,VEN,N4+1)
888   CALL UPDATE(IN,VEN)
      GO TO 99
C
C
C
C SELECT
C       MINIMUM AGE TARGET=150, 140 ALLOWS FOR VARIANCE.
1     CALL SELECT(IN,VEN,NGLTS,140)
      GO TO 1111
C
C BREED FLIP SWITCH
2     IF( IBS  .EQ. 2)  GO TO 22
      IBS=2
C           SET=2 IMPLIES END OF SEASON, CALL REPT1 WITH KW=3
      KW=3
      CALL REPT1(IN,VEN)
      KW=0
C     SET NO SOWS EXPOSED (TARGET NO.) =0.
      KBRD=0
      GO TO 1111
22    IBS=1
      GO TO 1111
C
C
C CLEAN4, SETS CLEAN  FLAG=1.
3     CALL CLEAN4(IN,VEN)
      KL4=0
      GO TO 1111
C
C WEAN,  SET HOUSE 4 NOT CLEAN.
4     NH4CLN=2
C
C NO. FARROWING WITHIN YEAR NOWY, STORE IN IFAR(30)
      IFAR(30)=IFAR(30)+1
      IF(IFAR(30)-6) 400, 400, 47
47    IFAR(30)=1
400   CONTINUE
C
```

```
C
C FIRST DAY WEANING, SET UP SCHEDULE HERE IN  IWN(45)
C       SET BY SUB. CLEAN4.
C     NKT SET=0 FOR COUNTER START IN SUB. MGT3.
      NKT=0
      IWE=1
C           IF  LGTHW=1 DAY, USE  CLEAN4  TO WEAN ALL.
      IF(LGTHW-2) 401, 420, 420
401   CALL CLEAN4(IN,VEN)
      GO TO 1111
420   IF(KL4) 449, 449, 435
C
C SCHEDULE  -KL4-  WEANINGS WITHIN  -LGTHW- DAYS.
C           METHOD- ADD DIGITS FROM RIGHT TO LEFT INTO THE
C                   LGTHW WORDS OF  IWN().
435   KNT=0
      DO 437 I=1,45
437   IWN(I)=0
439   DO 441 K=1,LGTHW
      KK=LGTHW-K+1
      KNT=KNT+1
      IF(KNT-KL4) 440, 440, 449
440   IWN(KK)= IWN(KK)+1
441   CONTINUE
      IF(KNT-KL4) 439, 449, 449
C         NKT= WEANING SEASON DAY COUNTER FOR SUB. MGT3.
449   NKT=0
      GO TO 1111
C
C SELL
5     CALL SELL(IN,VEN)
      GO TO 1111
C
C
C BUY BOARS ROUTINE
7     IF(NPUR) 1111,1111, 701
701   DO 708 I=1,NPUR
      IATRIB(1)=KAGE
      IATRIB(2)=1
      IATRIB(3)=1
      IATRIB(4)=1
      IATRIB(5)=88*1000+NOWY*100+I
      ATRIB(1)=WTPB
      CALL FILEM(IN,VEN,8)
708   CONTINUE
      WRITE(ND,709)NOWY,NOWT,NPUR
709   FORMAT(/3X*BOAR PURCHASE FOR YEAR*I2* AT DAY=*I5
     2 * ADDED* I3* NEW BOARS*)
      GO TO 1111
98    WRITE(ND,1309)NOWT,IEVT,IPT,KODE,IWE
1309  FORMAT(/* ERROR EVNTS, NOWT=*I6* IEVT=*I3*IPT=*
     2 I6* KODE=*I3* IWE=*I2/)
99    RETURN
      END
```

```
UPDATE
      SUBROUTINE UPDATE(IN,VEN)
      COMMON /INIT/NR,NW,NC,NT7,NT8,NCAT,NS1,NS2
     4 /GEN/ITOT,ISIZE,NCWT,NCWY,NCAYS,NRUNS,IATRIB(18),ATRIB(4)
     5 /HOUSE/NH(6),N1,N2,N3,N4,N5,N6,NXTFAR,MX1,MX2,MX3,MX4
     1 /SKIP/ ISTOP4,ISTOP5,ISTOP6,ISTOP7,MAXSKP
     2/SURVIV/PW1,PW23,PSRT,PSFIN,PSOWS,PBORS,PBORS1,MDEAD(8),PSRT2
     3/GAIN/ GW1,GW23,GSRT,GFIN1,GFIN2,GSOWM,GSOWL,SDP,SSOWM,SSOWL
     4 /BIRTH/ BRNM,BRNS,BMIN,BMAX,BWTM,BWTS,BWMIN,BWMAX,NOBRN
     7/BREC/LBREED,NBREED,IFAR(6,5),ICB(30),KAGEW,LGTHW,NAGEM
     8 /BREC2/ CUM(3),GMIN
     9 /BREC3/ PTRM1,PTRM2,PTRM16
     5 /CLEAN/NOPREV,NH4CLN,LOSSL,SWTLP,SSLP,KL4
     4 /CULL/ NGLTS,MXSRV,MXAGS,PCULG,PCULS,PSSR,PRGT,MXBCR
      COMMON/SALES/MDSELL,WTS,NXTSAL
      DIMENSION IN(3,1), VEN(2,1)
C CALLED FROM SUB. EVNTS, APPLY SKIP TESTS, SURVIVAL PROB.,  I.E.
C        GENERAL UPDATE OF ANIMALS IN FILES.    SUB. FAROW IS PART OF
C        UPDATE.
C
C BRANCH TO HOUSE SECTION 4,5,6,7,OR 8.
      IC=IATRIB(6)
      IF(IC-4) 1380, 4000, 5555
5555  IF(IC-6) 5000, 6000, 7777
7777  IF(IC-8) 7000, 8000, 1380
C
C
C GENERAL RETURN TO FILE ACCORDING TO IATRIB(6)
700   CALL FILEM( IN, VEN, IATRIB(6))
      RETURN
C
C BOAR UPDATING, DAY AT A TIME.
8000  IAT1=IATRIB(1)
      IAT10=IATRIB(10)
      K=IATRIB(3)
      IAT4=IATRIB(4)
      IF(ATRIB(2).LE.0.) ATRIB(2)=RNORM(GSOWM/2.,SSOWM,-5.,10.)
C
C SORT FOR MAXIMUM AGE TO KEEP BOAR -MXBOR-
      IF(IAT1-MXBOR) 8005, 8002, 8002
8002  SKIP=NXTSAL-NOWT
      ATRIB(1)=ATRIB(1)+ATRIB(2)*SKIP
      CALL FILEM(IN,VEN,9)
      RETURN
8005  IF(IAT10) 6081, 6081, 6082
6081  IF(RANUM(D).GT.PBORS) GO TO 613
      GO TO 6083
6082  IF(RANUM(D).GT.PBORS) GO TO 613
6083  IAT1=IAT1+1
      IATRIB(1)=IAT1
      IATRIB(9)=IATRIB(9)+1
      ATRIB(1)=ATRIB(1)+ATRIB(2)
C
C CHECK K SUB-CLASS FOR NEW STATUS
      IF(K.EQ.1) GO TO 8011
C
C
C CONVERT DAILY SERVICES (10) TO 6 DAY PACKED TALLY IN (11).
      IAT11=IATRIB(11)
      IATRIB(11)= MOD(IAT11*10+IAT10,1000000)
      IATRIB(10)=0
```

```
C
C CONTINUE CHECKING
      IF(IAT1.EQ.195) GO TO 8011
      IF(IAT1.EQ.366) GO TO 8017
C
6085  IATRIB(4)=IAT4+1
      GO TO 700
C
8011  IF(IAT4.GT.29) GO TO 8013
      GO TO 6085
8013  IF(IAT1.GT.194) GO TO 8015
      GO TO 6085
C YOUNG BOAR, START TALLY 4 GAIN LIKE SOW/2, VARIANCE LIKE SOWS
8015  IATRIB(3)=2
      IATRIB(4)=1
      ATRIB(2)=RNORM(GSOWM/2.,SSOWM,-5.,10.)
      GO TO 700
C MATURE BOAR, START TALLY 4, GAIN REDUCED TO ARBITRARY SMALL AMOUNT.
8017  IATRIB(3)=3
      IATRIB(4)=1
      ATRIB(2)=.001
C
C
      GO TO 700
C SOWS IN LAC. AND SUCKLING PIGS WK 1, WK 2-3, OR STARTING AGE.
C              HOLD SOWS ISKIP DOWN TO HER PIGS AGE CLASSES.
C
C   NH4CLN IS HELD=1 UNTIL WEANING BEGINS THEN SET =2
4000  IF(NH4CLN-1) 4001, 4002, 4001
4001  ISTOP4=NOWT
      GO TO 4009
4002  IF(ISTOP4-(NOWT+6)) 4003, 4009, 4009
4003  ISTOP4=NOWT+6
4009  ISKIP=ISTOP4-NOWT+1
      IF(ISKIP.GT.MAXSKP)ISKIP=MAXSKP
      IAGE=IATRIB(1)
      LTAL=IATRIB(4)
      IF(IAGE.GT.200) ISKPT=LTAL
      IF(IAGE.LE.200) ISKPT=IAGE
      IF(ISKPT.LT.8) ISKIP=1
      IF(ISKIP.GT.7) ISKIP=7
      SKIP=ISKIP
C PIGS  HERE,  SOWS IN  4500.
      IF(IAGE.GT.200) GO TO 4500
C
C BABY PIGS IN HOUSE 4.
      IF(IAGE-56) 4320, 4320, 5000
4320  BW=IATRIB(11)
      BRTHW=BW/100.
      IF(IAGE.LE.7) GO TO 4007
      IF(IAGE.LE.21) GO TO 4021
C        PIGS AGE 22, UP TO 56 BUT NOT WEANED.
      P=PSRT**SKIP
      IF(IAGE-22) 4201, 4202, 4201
4202  ATRIB(2)=RNORM(GSRT,SDP*GSRT,-5.,10.)
4201  G=ATRIB(2)*SKIP
      GO TO 4050
C        BABY PIGS 1, AND 2-3 WKS. ADJ. WT.
C        DAILY SURV. PROB. ADJ=.0049*DEVIATION BIRTHWT, SPEER REF.
4021  IF(IAGE+ISKIP-22) 4023, 4023, 4022
4022  ISKIP=22-IAGE
      SKIP=ISKIP
4023  P=(PW23+(.0049*(BRTHW-BWTM)))**SKIP
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```
      IF(IAGE-8) 4029, 4027, 4029
4027  ATRIB(2)= RNORM(GW23,SDP*GW23,-.5, 10.)
4029  G=ATRIB(2)*SKIP
      GO TO 4050
4007  P=(PW1+(.0049*(BRTHW-BWTM)))**SKIP
      IF(ATRIB(2)) 4019, 4008, 4019
4008  ATRIB(2)= RNORM(GW1,SDP*SW1,-5.,10.)
4019  G=ATRIB(2)*SKIP
4050  IF(RANUM(D).GT.P) GO TO 613
C               IF SURVIVED, FILE.
 4051 IATRIB(1)=IATRIB(1)+ISKIP
      IATRIB(9)=IATRIB(9)+ISKIP
      ATRIB(1)=ATRIB(1)+G
      GO TO 700
C SOWS OF HOUSE 4 I.E. IN LACTATION WITH BABY PIGS
4500  IF(RANUM(D).GT.PSOWS**SKIP)GO TO 4613
C
C SOW WITH 1 PIG OR LESS MOVED VIA TERMINATION TO HOUSE 6
      IF(IATRIB(8).GT.1) GO TO 4515
      IATRIB(6)=6
      GO TO 6355
4515  IATRIB(4)=LTAL+ISKIP
      G=ATRIB(2)*SKIP
C               SURVIVES, FILE BACK TO HOUSE 4.
      GO TO 4051
C
C        LACTATING SOW DIES, KILL SOW, CHECK ON BABY PIGS WELFARE.
4613  NPIGS=IATRIB(8)
      NUSOW=IATRIB(5)
      MDEAD(4)=MDEAD(4)+1
C
C ADJUST LITTER COUNT (KL4) IN FARROWING HOUSE.
      KL4=KL4-1
C        FIND PIGS, .LT. 7 DAY DIE, 50 PERCENT LIVE AFTER 7 DAYS AGE.
4623  CALL FIND(NUSOW,5,4,8,KKOL,IN,VEN)
      IF(KKOL.EQ.0) RETURN
C     CALL REMOV(IN,VEN,KKOL)
      IF(IATRIB(1).LE.7) GO TO 4623
      IF(RANUM(D).GT.0.5) GO TO 4623
      IATRIB(8)=0
      IATRIB(13)=77
      CALL FILEM(IN,VEN,4)
      GO TO 4623
C
C     STARTING PIG= 22-56 DAYS, GROWING = 57-180
C NURSERY HOUSE PIGS
5000  ISKIP=ISTOP5-NOWT+1
      IF(ISKIP.GT.MAXSKP) ISKIP=MAXSKP
      IAGE=IATRIB(1)
      IF(IAGE.GT.55) GOTO 5500
C          PIGS AGE 22-56, ALLOWED TO SKIP TO 57 ONLY.
      IF(IAGE+ISKIP-57) 5005, 5005, 5003
5003  ISKIP=57-IAGE
5005  IF(IAGE-22) 5006, 5006, 5007
5006  ATRIB(2)= RNORM(GW23,SDP*GW23,-5.,10.)
5007  SKIP=ISKIP
C        PIGS AGE 22, UP TO 56 BUT WEANED.
      P=PSRT2**SKIP
      RGAIN=ATRIB(2)
C           TEST, ADJUST AND FILE VIA 7045
      GO TO 7045
C
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C         PIGS AGE 57-150
5500   IF(IAGE-149) 551, 5509, 5509
551    IF(IAGE-57) 5057, 5057, 5058
5057   ATRIB(2) = RNCRM(GFIN1,GFIN1*SDP,-5.,10.)
5058   IF(IAGE-NAGEM) 552, 5509,5509
552    IF(IAGE+ISKIP-NAGEM)558, 558, 5070
5070   ISKIP=NAGEM-IAGE
       GO TO 558
C
C MOVE TO HOUSE 7 AND ADD ONE DAY TO ITS UPDATE.
C        IF FINISHING HOUSE FULL, STAYS IATRIB(6)=5
C           MOVING DECISION IS THEN IN SUB. MGT3. DAILY.
5509   IF(NH(4)-MX4) 5512, 5514, 5514
5512   IATRIB(6)=7
5514   ISKIP=1
558    SKIP=ISKIP
       P=PSFIN**SKIP
       RGAIN=ATRIB(2)
C         TEST, ADJUST AND FILE VIA 7045
       GO TO 7045
C
C
C SOW AND GILT OF MAINTNACE BUILDING NO. 6.
6000   IAT1=IATRIB(1)
       IF(IAT1-MXAGS) 6001, 6001, 6900
C
C        AGE CAN BE SET ARTIFICALLY HIGH IN SUB. BREED FOR CULL FLAG.
C SOW OVER AGE SEND TO FILE 9 FOR SALE AS CULL.
6900   IF(IATRIB(3)-3) 6901, 6001, 6901
6901   ISKIP=NXTSAL-NOWT
       SKIP=ISKIP
       IATRIB(9)=IATRIB(9)+ISKIP
       IATRIB(1)=IATRIB(1)+ISKIP
       ATRIB(1)=ATRIB(1)+SKIP*RNORM(GSOWM,SSOWM,-5.,10.)
       CALL FILEM(IN,VEN,9)
       RETURN
6001   ISKIP=ISTOP6-NOWT+1
       IF(ISKIP.GT.MAXSKP)ISKIP=MAXSKP
       SKIP=ISKIP
       J=IATRIB(2)
       K=IATRIB(3)
       IAT10=IATRIB(10)
       IAT4=IATRIB(4)
C
C
C GO TO VALUE OF K.
       IF(K-2)6100,6200,6300
C
C K=1 YOUNG AND OR ABNORMAL GILTS SET IN SUB. SELECT.
C           SUB. SELECT PUTS GILTS INTO HOUSE 6 BEFORE 210 DAYS OF AGE
C
6100   IF(IATRIB(10).EQ.99) GO TO 6204
       IF(IAT1 + ISKIP .GT. 209) ISKIP=210-IAT1
       IF(IAT1.NE.210) GO TO 6204
       IATRIB(3)=2
       IATRIB(4)=0
       IATRIB(10)= RNORM(ESTM,ESTS,EMIN,EMAX)+.5
       GO TO 6204
C
C
C K=2, OVULATING SOWS AND GILTS.
6200   IF(IAT4-IAT10) 6202, 6201, 6201
C
```

```
C ISKIP=1, PUTS SOW IN HEAT, SENDS TO SUB. BREED.
6201  ISKIP=1
      CALL BREED (IN,VEN)
C        TEST FOR K=2,3  AND CONTINUE ITS UPDATE.
      IF(IATRIB(3)-3) 6204, 6300, 1380
6202  IF(IAT4+ISKIP.GT.IAT10) ISKIP=IAT10-IAT4
6204  SKIP=ISKIP
      IF(RANUM(D) .GT. PSOWS**SKIP) GO TO 613
      IATRIB(1)=IAT1+ISKIP
C         IATRIB(4) CAN BE ZERO FROM SUB. BREED.
      IATRIB(4)=IATRIB(4)+ISKIP
      IATRIB(9)=IATRIB(9)+ISKIP
      ATRIB(1)=ATRIB(1)+ATRIB(2)*SKIP
      CALL FILEM(IN,VEN,6)
      RETURN
C
C
C
C SOW IN GESTATION, K=3, APPLY PROBABILITY OF SURVIVAL,  PREMATURE
6300  IA4=IATRIB(4)
      IF(IA4+ISKIP.GT.GMIN-2) GO TO 6305
      IF(IA4.GE.8)   GO TO 6325
      IF(IA4-7) 6301, 6302, 1380
C
C GESTATION SOWS.
C          FIRST WEEK PREGNANCY- SURVIV NOPRETERM, SURVIV PRETERM
6301  IF(ISKIP.GT.7-IA4) ISKIP=7-IA4
6302  SKIP=ISKIP
      RN=RANUM(D)
      P1=(PSOWS*(1.-PTRM1)) **SKIP
      IF(RN.LE.P1) GO TO 6350
      P2=(PSOWS*PTRM1)**SKIP
6326  IF(RN.LE.P1+P2) GO TO 6355
      GO TO 613
C        NO PRETERM
6350  IATRIB(1)=IATRIB(1)+ISKIP
      IATRIB(4)=IATRIB(4)+ISKIP
      IATRIB(9)=IATRIB(9)+ISKIP
      ATRIB(1)=ATRIB(1)+ATRIB(2)*SKIP
C FILE SOWS BACK IN HOUSE 6
      GO TO 700
C TERMINATION.
6355  IATRIB(3)=2
C SET TO HEAT IN TRUNCATED 1/3 LENGTH ESTRUS-1
      ISKIP=1
      SKIP=1.
      IATRIB(4)=IATRIB(10)/3*2+1
      IATRIB(8)=0
      IATRIB(11)=0
      GO TO 6350
C FOR  8-107 DAYS OF GESTATION.
6325  RN=RANUM(D)
      P1=(PSOWS*(1.-PTRM2) )**SKIP
      IF(RN.LT.P1) GO TO 6350
      P2=(PSOWS*PTRM2) **SKIP
      GO TO 6326
C
C          108 DAYS TO FULL TERM AT LENGTH=IATRIB(11)
6305  IA11=IATRIB(11)
C BRANCH TO SUBROUTINE FARCH
      IF(IA11-IA4.LE.1) GO TO 6099
      IF(ISKIP.GE.IA11-IA4) ISKIP=IA11-IA4-1
```

```
      SKIP=ISKIP
C               NOT FARROWING
      RN=RANUM(C)
      P1=(PSOWS*(1.-PTRM16) )**SKIP
      IF(RN.LE.P1) GO TO 6350
      P2=(PSOWS*PTRM16) **SKIP
      GO TO 6326
C   RETURNED OPEN AND SENT TO STATEMENT 6355.
6099  CALL FARCW(IN,VEN)
      IF(IATRIB(1).EQ.0) RETURN
      ISKIP=1
      SKIP=1.
      IF(NH4CLN-1) 6355, 6665, 6355
6665  IF(MX1-KL4) 6355, 6666, 6666
6666  RETURN
C
C FINISHING HOUSE PIGS
C
C        MAXSKP=14 DEFAULT, ISTOP7 FIRST SET TO NDAY THEN IN SUB. SELL
7000  ISKIP=ISTOP7-NOWT+1
      IF(ISKIP.GT.MAXSKP)ISKIP=MAXSKP
      IF(IATRIB(1)-56) 7020,7040,7040
7020  ISKI=56-IATRIB(1)
      IF(ISKI-ISKIP) 7021, 7023, 7023
7021  ISKIP=ISKI
7023  SKIP=ISKIP
      RGAIN=ATRIB(2)
      P=PSRT**SKIP
      GO TO 7045
7040  IF(IATRIB(1)-150) 7430, 7041, 7041
7430  IF(IATRIB(1)-56) 7431, 7431, 7433
7431  ATRIB(2)=RNORM(GFIN1,GFIN1*SDP,-5.,10.)
7433  RGAIN=ATRIB(2)
      IF(IATRIB(1)+ISKIP-150) 7438, 7437, 7437
7437  ISKIP=150-IATRIB(1)
7438  SKIP=ISKIP
      P=PSFIN**SKIP
      GO TO 7045
7041  IF(IATRIB(1)-150) 7042, 7042, 7043
7042  ATRIB(2)=RNORM(GFIN2,GFIN2*SDP,-5.,10.)
7043  RGAIN=ATRIB(2)
      SKIP=ISKIP
      P=PSFIN**SKIP
7045  IF(RANUM(D).GT. P) GO TO 613
      IATRIB(1)=IATRIB(1)+ISKIP
      IATRIB(9)=IATRIB(9)+ISKIP
C          GAIN ADDED.
      ATRIB(1)=ATRIB(1)+RGAIN*SKIP
C FINISHED WITH ONE PIG FROM FINISHING HOUSE.
      CALL FILEM(IN,VEN,IATRIB(6))
      RETURN
C DEAD TALLY.
 613  IAB=IATRIB(6)
      MDEAD(IAB)=MDEAD(IAB)+1
      RETURN
C  ERROR AND FINISHED WRITES.
1380  WRITE(ND,1378)NOWT,KCL,(IATRIB(M),M=1,15)
1378  FORMAT(* ERROR UPDATE, NOWT=*I5* ,KCL=*I5* ,IATRIB()=*/10X,15I6
      RETURN
      END
```

```
FAROW
      SUBROUTINE FAROW(IN,VEN)
      COMMON /INIT/NR,NW,NC,NT7,NT8,NCAT,NS1,NS2
     4 /GEN/ITCT,ISIZE,NOWT,NOWY,NDAYS,NRUNS,IATRIB(18),ATRIB(4)
     7 /BRED/LBREED,NBREED,IFAR(30),IDB(30),KAGEW,LGTHW,NAGEM
     2 /SURVIV/ PW1,PW23,PSRT,PSFIN,PSOWS,PBORS,PBCRS1,NCEAC(8)
     3 /GAIN/GW1,GW23,GSRT,GFIN1,GFIN2,GSOWM,GSOWL,SDP,SSOWM,SSOWL
     4 /BIRTH/ BRNM,BRNS,BMIN,BMAX,BWTM,BWTS,BWMIN,BWMAX,NOBRN
     5/CLEAN/NDPREV,NH4CLN,LOSSL,SWTLP,SSLP,KL4
     5/HOUSE/NH(6),N1,N2,N3,N4,N5,N6,NXTFAR,MX1,MX2,MX3,MX4,X1,X2,X4
     4 /RPT4/ IDCS,IDCE,IDCN,IDCF,IDCM,IDCB,IDCFS,IDCFP,ICFLW
     3/RPT3/MJEV,ISALS,IFARS,IBRDS
     3/STAT/SUM(5,20),SUM2(5,10),SUM3(5,10),SUM4(5,10)
     1/RPT1/ISMYP,ISMB,ISMBG,ISMF,ISMW,ISMS,ISMM
      DIMENSION IN(3,1),VEN(2,1)
C BRANCH OF SUBROUTINE UPDATE FROM 6000 S.
C SOW IS TO FARROW AND CREATE PIGS= IATRIB(8)
C
C
C
C     WEANING TO MAKE ROOM FOR THIS SOW TO FARROW.
C
      IF(KL4-MX1) 409, 18, 18
18    IF(NH4CLN) 99,  99,   19
19    JX1=X1
      IF(JX1) 199, 199, 21
21    KDO= NH(1)
C
C         LOOK FOR LITTER OF LEGEL WEANING AGE= KAGEW-X1.
C         TEMP. STORE SOW IN IDB()
      DO 22 I=5,18
22    IDB(I)=IATRIB(I-4)
      XAT1=ATRIB(1)
      XAT2=ATRIB(2)
      DO 27 I=1,KDO
      CALL REMOV(IN,VEN,1)
      IF(IATRIB(4)-KAGEW-JX1) 26, 29, 29
26    CALL FILEM(IN,VEN, 4)
27    CONTINUE
      GO TO 39
C FOUND SOW WITH LITTER, WEAN HER  AND PIGS.
29    IATRIB(3)=2
      IATRIB(4)=IATRIB(10)/3*2+1
      IATRIB(8)=0
      IATRIB(11)=0
      ATRIB(2)=RNORM(GSOWM,SSOWM,-5.,10.)
      CALL FILEM(IN,VEN,6)
30    IF(VEN(1,1)-100.) 31, 31, 33
C          OVER 100 POUNDS IS NEXT SOW, I.E. HAVE ALL OF LITTER, STOP
31    CALL REMOV(IN,VEN,1)
      CALL FILEM(IN,VEN,5)
      GO TO 30
C STOP WEANING, ALLOW ORIGINAL SOW TO FARROW.
33    DO 35 I=5,18
35    IATRIB(I-4)=IDB(I)
      ATRIB(1)=XAT1
      ATRIB(2)=XAT1
      GO TO 410
C
C
39    DO 41 I=5,18
```

```
41     IATRIB(I-4)=ICB(I)
       ATRIB(1)=XAT1
       ATRIB(2)=XAT2
       GO TO 199
C END SPECIAL HOUSE OVERFLOW WEANING PROCEDURE.
C
C
C
C IF BUILDING HAS BEEN CLEANED NH4CLN=1
409    IF(NH4CLN) 99, 99,  410
C
C
C SOW IS FARROWING.
410    NAMDAM=IATRIB(5)
       NP=IATRIB(8)
       IATRIB(1)=IATRIB(1)+1
       IATRIB(3)=4
       IATRIB(4)=1
       IATRIB(9)=IATRIB(9)+1
       IF(RANUM(D).GT.PSOWS) GO TO 613
C        COUNT OF LITTERS +1
       KL4=KL4+1
C          WT. LOSS AT FARROWING.
       WTL=NP*RNORM(SWTLP,SSLP,-10.,10.)
       ATRIB(1)=ATRIB(1)-WTL
       ATRIB(2)=RNORM(GSOWL,SSOWL,-5.,10.)
C COLLECT SEASONAL REPORT STATS ON SOW FARROWING.
C      SEASAONAL IN SUM2(),  TERM REPORTS IN SUM3().
       RMX1=MX1
       RKL4=KL4
       FILL=RKL4/RMX1*100.
       RNP=NP
       RNOWT=NOWT
       IF(IFARS) 398, 398, 300
300    CALL COLLT(SUM2,1,RNP)
       CALL COLLT(SUM2,2,RNOWT)
       CALL COLLT(SUM2,3,FILL)
398    IF(ISMF) 397, 397, 310
310    CALL COLLT(SUM3,1,RNP)
       CALL COLLT(SUM3,3,FILL)
C
C FILE THE SOW
397    CALL FILEM(IN,VEN,4)
C CREATE NP  PIGS FOR ABOVE SOW,  ALSO FILE IN HOUSE 4
C              INCREASE TOTAL BIRTHS -NOBRN-  COUNTER.
       DO 63 KP=1,NP
       NOBRN=NOBRN+1
C            FILL ZEROED ATTRIBUTES.
       IATRIB(1)=1
       IF(ISEX.NE.1) GO TO 8
       IATRIB(2)=3
       ISEX=0
       GO TO 9
  8    IATRIB(2)=2
       IATRIB(3)=1
       ISEX=1
C
C LET IFAR(30)= CURRENT FARROWING 1-6 OF CURRENT YEAR NOWY.
C           SET IN SUBROUTINE EVENTS.
       MFAR=IFAR(30)
  9    IATRIB(5)=MFAR*10000+NOBRN
       IATRIB(6)=4
       IATRIB(8)=NAMDAM
```

```
      IATRIB(9)=NOWT
C BIRTH WT) =  MEAN ADJUSTED BY -.09 FOR DEVIATION FROM AVERAGE NC.
C          OF PIGS IN THE THE LITTER,  OMTVEDT, ET. AL.
      RNP=NP
      BWME=BWTM+(RNP-BRNM)*.09
      BT=RNORM(BWME,BWTS,BWMIN,BWMAX)
      IATRIB(11)=BT*100.
      ATRIB(1)=BT
      ATRIB(2)=0.
C          FILE THIS PIG.
C
C COLLECT SEASONAL REPORT STATS ON PIG IN SUM2(), TERM  IN SUM3().
      IF(IFARS)399, 399, 301
301   CALL CCLLT(SUM2,4,BT)
399   IF(ISMF) 400, 400, 303
303   CALL CCLLT(SUM3,4,BT)
C
C      FILE THIS PIG.
400   CALL FILEM(IN,VEN,4)
 63   CONTINUE
C
      RETURN
613   IATRIB(1)=0
      MDEAD(6)=MDEAD(6)+1
      RETURN
99    LOSSL=LOSSL+1
      RNP=IATRIB(8)
      CALL CCLLT(SUM2,5,RNP)
      WRITE(ND,1303)NOWT,NH4CLN,(IATRIB(M),M=1,15)
1303  FORMAT(* LOSS NEW LITTER, NOWT=*I5,
     2 * ,NH4CLN=*I2* ,IATRIB()=*/10X,15I5)
      RETURN
199   LOSSL=LOSSL+1
      RNP=IATRIB(8)
      CALL CCLLT(SUM2,6,RNP)
      CALL CCLLT(SUM3,6,RNP)
C TAPE NO OVERFLOW MESSAGE OPTION.
      IF(IOFLW) 1309, 1309, 1307
1307  WRITE(ND,1304) MX1,NOWT
1304  FORMAT(/3X*FARROWING OVERFLOW, SOW RETURNED OPEN*
     2* AND LITTER LOST.  ALL*I3* CRATES FULL AT DAY=*I5)
1309  RETURN
      END
```

```
SELL
      SUBROUTINE SELL(IN,VEN)
      COMMON /INIT/NR,NW,ND,NT7,NT8,NCAT,NS1,NS2
C
     4 /GEN/ITOT,ISIZE,NOWT,NOWY,NDAYS,NRUNS,IATRIB(18),ATRIB(4)
     5 /HOUSE/ NH(6),N1,N2,N3,N4,N5,N6
     6 /SALES/ MDSELL,WTS,NXTSAL,NSLD(4),WTSLD(4),VSLD(4),PRIH,PRIS
     4/GAIN2/SOP(6),HOP(6),SSLD(6),HSLD(6),SEND(6),HEND(6)
     7/SALE2/NSLDP(4),WTSLDP(4),VSLDP(4),DIS
     3 /COST/FCS,FCB,CLAB,TFAR,TNUR,TSOW,TFIN
     4  ,VAR(3),FEED(2,5),ABOR(2,10)
     1 /SKIP/ ISTOP4,ISTOP5,ISTOP6,ISTOP7,MAXSKP
     3 /RPT3/ MJEV,ISALS,IFARS,IBRDS
C
C  SWITCH DIAGNOSTIC
      IF(NS1.NE.8) GO TO 800
C
      CALL OUT(IN,VEN,N3+1,N4,8888.2)
C SELL FROM HOUSE 7 FIRST
C
800   CONTINUE
      NH4=NH(4)
      IF(NH4) 901, 901, 801
801   DO 810 J=1,NH4
      CALL REMOV(IN,VEN,N3+1)
      AT1=ATRIB(1)
      IF(AT1-WTS) 805, 850, 850
805   CALL FILEM(IN,VEN,7)
      GO TO 810
C          SELL BY RECORDING SALE.
850   NSLD(4)=NSLD(4)+1
      WTSLD(4)=WTSLD(4)+AT1
      VSLD(4)=VSLD(4)+PRIH/100.*AT1
C
C RECORD SALES FOR PRODUCTION SUMMARY.
      HSLD(1)=HSLD(1)+1.
      HSLD(2)=HSLD(2)+AT1
      HSLD(3)=HSLD(3)+AT1*PRIH/100.
C
810   CONTINUE
C
C
C SELL CULL SOWS AND GILTS FROM FILE 9, REPORT BELOW.
901   NH6=NH(6)
      IF(NH6) 811, 811, 900
900   DO 910 J=1,NH6
      CALL REMOV(IN,VEN,N5+1)
C     CULL SOW SALES USE NSLD(3), NSLDP(3), BUT WT6, WS6, ETC.
      NSLD(3)=NSLD(3)+1
      AT1=ATRIB(1)
      WTSLD(3)=WTSLD(3)+AT1
      PS=PRIS/100.
      IF(AT1-350.) 821, 821, 815
C        DIS  IS A DISCOUNT/LB. OVER ALL WT.
815   PS=PS-DIS
821   VSLD(3)=VSLD(3)+PS*AT1
C RECORD SALES FOR PRODUCTION SUMMARY.
      SSLD(1)=SSLD(1)+1.
      SSLD(2)=SSLD(2)+ATRIB(1)
      SSLD(3)=SSLD(3)+AT1*PS
C
C
```

```
910   CONTINUE
C
C REPORT ON TAPE IJK, SALES MADE
811   IJK=NO
      NSTOT=0
C CALCULATE CHANGE SINCE LAST SALES DATE.
      DO 5 I2=3,4
 5    NSTOT=NSTOT+NSLD(I2)
      NS4=NSLD(4)-NSLDP(4)
      WT4=WTSLD(4)-WTSLDP(4)
      VS4=VSLD(4)-VSLDP(4)
      AVWT=WT4/NS4
      NS6=NSLD(3)-NSLDP(3)
      WT6=WTSLD(3)-WTSLDP(3)
      VS6=VSLD(3)-VSLDP(3)
      AVWT6=WT6/NS6
      KTOT46=NS6+NS4
C
      IF(ISALS) 1243, 1243, 1201
1201  IF(KTOT46) 1243, 1243, 1202
1202  WRITE(IJK,1203) KTOT46, NOWT
1203  FORMAT(/////* SALES SEASONAL REPORT*
     2 /1X,60(1H=)/16X*REPORT OF*I5* SALE(S) ON DAY*I5)
      IF(NS4) 1903, 1903, 1204
1204  WRITE(IJK,1205) NS4,AVWT, VS4
1205  FORMAT(/* FROM FINISHING HOUSE*/7X*SOLD*I3* HOGS AT*
     2F6.1* POUNDS AVERAGE WEIGHT*/7X*SALES VALUE WAS*F10.2* DOL.*)
1903  IF(NS6) 1906, 1906, 1904
1904  WRITE(IJK,1905) NS6, AVWT6, VS6
1905  FORMAT(/* CULL SOWS AND GILTS */7X*SOLD*I3* HEAD AT*
     2F6.1* POUNDS AVERAGE WEIGHT*/7X*SALES VALUE WAS*F7.2*DOL.*)
1906  WRITE(IJK,1210) NSTOT
1210  FORMAT(/* TOTAL NUMBER SOLD TO DATE=*I5/*====END SALES REPORT*
     2 40(1H=))
C
1243  DO 1245 JK=1,4
      NSLDP(JK)=NSLD(JK)
      WTSLDP(JK)=WTSLD(JK)
1245  VSLDP(JK)=VSLD(JK)
C
C
C ISTOP7 SET FOR DATE OF NEXT SALE NXTSAL.
      NXTSAL=NOWT+MDSELL
      ISTOP7=NXTSAL
C
C DIAGNOSTICS SWITCH CALLS
      IF(NS1.EQ.8)CALL OUT(IN,VEN,N3+1,N4,8888.8)
C
C
C
C
      RETURN
      END
```

```
      SUBROUTINE BREED(IN,VEN)
      COMMON/INIT/NR,NW,ND,NT7,NT8,NDAT,NS1,NS2,NCWD
     4 /GEN/ITOT,ISIZE,NCWT,NCWY,NDAYS,NRUNS,IATRIB(18),ATRIB(4)
     5 /HOUSE/NH(6),N1,N2,N3,N4,N5,N6,NXTFAR,MX1,MX2,MX3,MX4
     7/BRED/LBREED,NBREED,IFAR(6,5),IDB(30),KAGEW,LGTHW,NAGEM
     8 /BRED2/ ABNORG,GESM,GESS,GMIN,GMAX
     4 /BIRTH/ BRNM,BRNS,BMIN,BMAX,BWT,BWTS,BWMIN,BWMAX,NOBRN
     9 /BRED3/ D(3),PCON1,PCON2,ADJ1,ADJ2
     4/CULL/NGLTS,MXSRV,MXAGS,PCULG,PCULS,PSSR,PRGT,MXBCR,LOP
      COMMON /BCAR/ MXSDY,MXSWY,MXSDM,MXSWM,NPUR,IPDAT,KAGE,WTPB,IBS
     3/GAIN/GW1,GW23,GSRT,GFIN1,GFIN2,GSDWM,GSDWL,SDP,SSDWM,SSDWL
     3/STAT/SUM(5,20),SUM2(5,10),SUM3(5,10),SUM4(5,10),SUM5(5,10)
     4/BRED4/KBRD,KSWGT(4),NONB(4),NONBK(4)
      DIMENSION KATRIB(12),BTRIB(2)
C
C SOW OR GILT IN HEAT IS SENT FROM UPDATE.
C       IF IN BREEDING SEASON  IBS=1
C       SOW RETURNED AS OPEN, K=2,   OR IN GESTATION, K=3
C
C
C
C TEST FOR BREEDING SEASON
      IATRIB(4)=0
      IF(IBS-1) 127, 28, 127
28    IF(KBRD-NBREED) 29, 27 ,27
27    NONB(1)=NONB(1)+1
      NONBK(1)=NONBK(1)+1
      IF(NONB(4)) 107, 107, 109
107   NONB(4)=NOWT
109   RETURN
C       COUNT SOWS IN HEAT BUT NO BREEDING SEASON.
127   NONBK(4)=NONBK(4)+1
      RETURN
C SAVE FEMALES ATTRIBUTES
C        COUNT NO.  SOWS EXPOSED (TARGET NO.)
29    KBRD=KBRD+1
      DO 30 KX=1,12
30    KATRIB(KX)=IATRIB(KX)
      DO 32 KX=1,2
32    BTRIB(KX)=ATRIB(KX)
C
C FIND AVAILABLE BOAR IN FILE 8
      NSERV=0
      NH5=NH(5)
      IF(NH5.LT.1) GO TO 9138
C LOOP FOR BOAR SEARCH
      DO 777 MK=1,NH5
      KUSE=0
      CALL REMOV(IN,VEN,N4+1)
      K=IATRIB(3)
      IF(K-1) 9138, 776,  41
 41   IAT10=IATRIB(10)
      IAT11=IATRIB(11)
      IF(IAT11.LT.1) GO TO 47
C          SOW WEEK SERVICES TALLY
      IT=IAT11/100000
      IT=IAT11/10000-IT*10+IT
      IT=IAT11/1000-(IAT11/10000*10)+IT
      IT=IAT11/100-(IAT11/1000*10)+IT
      IT=IAT11/10-(IAT11/100*10)+IT
      IT=IAT11-(IAT11/10*10)+IT
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```
      GO TO 49
47    IT=0
49    IF(K-2) 9138, 5, 50
C
C YOUNG BOARS CHECK MAX. DAILY AND WEEKLY SERVICES AVAILABLE.
5     IF(IT+IAT10-MXSWY) 6,  776,  776
6     IF(IAT10+1-MXSDY) 149, 148, 776
C
C MATURE BOARS CHECK MAX. DAILY AND WEEKLY SERVICES.
50    IF(IT+IAT10-MXSWM) 52, 776,  776
52    IF(IAT10-MXSDM) 149,148, 776
C
C ASSIGN KUSE TO SERVICES USED FOR THIS BOAR.
148   KUSE=1
      GO TO 150
149   KUSE=2
      GO TO 150
776   CALL FILEM(IN,VEN,8)
777   CONTINUE
      IF(NSERV-1) 1377, 161, 161
C
C DROP THROUGH 777 LOOP IMPLIES NO SERVICES AVAILABLE IF NSERV .EQ. 0.
1377  GO TO 161
C
C ADJUST BOAR USE ATTRIBUTES AND RE-ENTER LOOP OR RETURN SOW  AND QUIT.
C
C      NSERV BECOMES 1,2, OR 3(1 FROM 1 BOAR+2 FROM SECOND).
150   NSERV=NSERV+KUSE
153   IATRIB(10)=IAT10+KUSE
      IATRIB(12)=IATRIB(12)+KUSE
      IF(NSERV-2) 776, 151, 151
C
C FILE BOAR, BRING BACK SOW ATTRIBUTES.
151   CALL FILEM(IN,VEN,8)
161   DO 35 KX=1,12
35    IATRIB(KX)=KATRIB(KX)
      DO 37 KX=1,2
37    ATRIB(KX)=BTRIB(KX)
      IF(NSERV)152, 152, 155
C
C LACK BOARS NON CONCEPTION COUNT FOR NONB(2)
C          CHECK FAILS TO CONCEIVE IN BREEDING SEASON COUNT.
152   IATRIB(12)=IATRIB(12)+1
      IF(IATRIB(12)-MXSRV) 154, 154, 159
C       SET AGE UP TO AUTOMATICALLY CULL IN   LDP   DAYS.
159   IATRIB(1)=MXAGS-LDP
      IATRIB(10)=99
154   NONB(2)=NONB(2)+1
      NONBK(2)=NONBK(2)+1
      RETURN
C
C CONCEPTION TEST
155   IF(NSERV.GT.1) GO TO 175
C     PROB. OF CONCEPTION WHEN 1 SERVICE GIVEN.
      PC=PCON1
C
C   ADJUSTMENT FOR SUMMER DAYS 183-243
173   IF(NOWD-183)  183, 184, 184
184   IF(NOWD-243) 185, 185, 183
185   PC=PC+PSSR
C   ADJUSTMENT IF GILT.
183   IF(IATRIB(1)-365) 190, 193, 193
```

```
190    PC=PC+PRGT
193    RN=RANUM(D)
       IF(RN-PC) 205, 205, 9300
C      PROB. OF CONCEPTION WHEN 2 SERVICES= PROB. ON FIRST+
C             PROB. ON SECOND IF NOT CONCEIVED ON FIRST.
175    PC=PCON1+(1.-PCON2)*PCON2
       GO TO 173
C
C BRED SOW RETURNED WITH GESTATION ATTRIBUTES.
205    IATRIB(3)=3
       IATRIB(12)=0
C
C NO. PIGS ATTRIBUTE ADJUSTED FOR AGE SOW AND NO. SERVICES.
       AGE=IATRIB(1)+GESM
       V=BRNM-10.
       IF(AGE.GT.1300.) GO TO 207
       BRM=V+5.867+.01*AGE-.00000446*AGE**2.
       GO TO 209
207    BRM=V+5.867+.01*1300.-.00000446*1690000.-.0016*(AGE-1300.)
       IF(NSERV.GT.1) GO TO 708
       BRM=BRM+ADJ1
       GO TO 209
708    BRM=BRM+ADJ2
209    NPIGS=RNORM(BRM,BRNS,BMIN,BMAX) +0.5
       IATRIB(8)=NPIGS
       IATRIB(11)=RNORM(GESM,GESS,GMIN,GMAX)+0.5
C
C
C STATS FOR SEASONAL BREEDING REPORT.
C   SUM2( ,7)=AGE AT FARROWING (APPROX.)
C   SUM2( ,8)= LITTER SIZE IF SOW FARROWS.
       CALL COLLT(SUM2,7,AGE)
       CALL COLLT(SUM3,7,AGE)
       RNPIGS=NPIGS
       CALL COLLT(SUM2,8,RNPIGS)
       CALL COLLT(SUM3,8,RNPIGS)
       RNOWT=NOWT
       CALL COLLT(SUM2,9,RNOWT)
       RETURN
9138   WRITE(ND,9136) NOWT
9136   FORMAT(5X*BREEDING SEASON ON DAY=*I5*, NO BOARS EXIST,*
      2* SOW RETURNED OPEN*)
C INCREASE FAILS TO BREED COUNT.
9300   IATRIB(12)=IATRIB(12)+1
       IF(IATRIB(12)-MXSRV) 9309, 9309, 9302
C
C
C CHECK FAILS TO CONCEIVE IN BREEDING SEASON COUNT.
C   SET AGE UP TO AUTOMATICALLY CULL IN  LDP  DAYS.
9302   IATRIB(1)=MXAGS-LDP
       IATRIB(10)=99
C
C NON CONCEPTION COUNT FOR NONB(3).
9309   NONB(3)=NONB(3)+1
       NONBK(3)=NONBK(3)+1
       RETURN
       END
```

```
SELECT
      SUBROUTINE SELECT(IN,VEN,JSLT,MAGE)
      COMMON /INIT/NR,NW,NC,NT7,NT8,NCAT,NS1,NS2
     4 /GEN/ ITOT,ISIZE,NOWT,NOWY,NDAYS,NRUNS,IATRIB(18),ATRIB(4)
     5 /HOUSE/ NH(6),N1,N2,N3,N4,N5,N6,NXTFAR,MX1,MX2,MX3,MX4
     3/GAIN/GW1,GW23,GSRT,GFIN1,GFIN2,GSOWM,GSOWL,SDP,SSOWM,SSOWL
     8/BREC2/ABNORG,GESM,GESS,GMIN,GMAX,ESTM,ESTS,EMIN,EMAX
     4/BREC4/KBRD,KSWGT(4),NONB(4)
     4/CULL/NGLTS,MXSRV,MXAGS,PCULG,PCULS,PSSR,PRGT,MXBCR,LDP
     3/RPT3/MJEV,ISALS,IFARS,IBRDS
C
      DIMENSION IN(3,1),VEN(2,1)
C
C AGE .GT. 208 DAYS IS NEVER SELECTED, OLDEST SELECTED FIRST .
C   -JSLT- =NO. DESIRED,  -MAGE-  = MINUM AGE CRITERIA.
C
C
      KSLT=JSLT
      NAGE=MAGE
      NH4=NH(4)
      TWT=0
      KAGE=0
      NUM=0
C
C CHECK FEASIBILITY.
      IF(NH4.LT.1) GO TO 1308
      IF(KSLT.LT.1) GO TO 1308
C
C LOOP TO SELECT GILTS.
      DO 1010 KI=1,NH4
      CALL REMOV(IN,VEN,N3+1)
      IAT1=IATRIB(1)
      J=IATRIB(2)
      IF(J.NE.2) GO TO 1008
      IF(IAT1.LT.NAGE) GO TO 1008
      IF(IAT1.LT.209) GO TO 1018
1008  CALL FILEM(IN,VEN,7)
      GO TO 1010
1018  IATRIB(8)=0
C   ESTRUS=99 MEANS ABNORMAL, OTHERWISE SOURCE IS RNORM.
      RN=RANUM(D)
      IF(ABNORG-RN) 1103, 1103, 1101
1101  IATRIB(10) = 99
C      SET AGE FOR AUTOMATIC CULL IN  LDP DAYS.
      IATRIB(1)=MXAGS-LDP
      GO TO 1109
1103  IATRIB(10)=RNORM(ESTM,ESTS,EMIN,EMAX)
      RIA10=IATRIB(10)
      IATRIB(4)=RANUM(D)*RIA10
1109  IATRIB(11)=0
      ATRIB(2)=RNORM(GSOWM,SSOWM,-5.,10.)
      KAGE=KAGE+IAT1
      TWT=TWT+ATRIB(1)
      NUM=NUM+1
      CALL FILEM(IN,VEN,6)
      IF(NUM.GE.KSLT) GO TO 1012
1010  CONTINUE
1012  RNUM=NUM
      AGE=KAGE
      AGE=AGE/RNUM
      TWT=TWT/RNUM
```

```
      IF(IBRDS) 1308, 1308, 1049
1049  WRITE(ND,1050) KSLT,NUM,NCWT,AGE,TWT
1050  FORMAT(//5X*SELECTION OF GILT REPLACEMENTS WITH A TARGET OF*
     2I4* RESULTED IN*I4* MOVED TO THE MAINTENANCE BUILDING*
     3* ON DAY*I6/20X* AVERAGE AGE=*F6.0*, AVERAGE WT.=*
     4F8.1* POUNDS*/)
C
C
C
C BREEDING SEASONAL REPORT PART 1 FOR NO. ANIMALS AVAIL.
C  THIS CALL TO SELECT IS BEGINNING OF SEASON.
1308  KBRD=0
      DO 1319 I=1,3
      NONB(I)=0
1319  KSWGT(I)=0
      NONB(4)=-999
C
C      COUNT KSWGT(1)= OPEN GILTS, KSWGT(2)=OPEN SOWS, KSWGT(3)=
C                    ALL OTHERS IN MAINT. BLD., &SWGT(4)=NOWT
      KSWGT(4)=NOWT
      NH3=NH(3)
      IF(NH3) 1378, 1378, 1321
1321  DO 1341 I=1,NH3
      CALL REMOV(IN,VEN,N2+1)
      IF(IATRIB(3)-2) 1325, 1323, 1329
1323  IF(IATRIB(1)-365) 1325, 1337, 1337
1325  KSWGT(1)=KSWGT(1)+1
      GO TO 1327
1337  KSWGT(2)=KSWGT(2)+1
      GO TO 1327
1329  KSWGT(3)=KSWGT(3)+1
1327  CALL FILEM(IN,VEN,6)
1341  CONTINUE
      RETURN
1378  WRITE(ND,1309) NH(4),NCWT,KSLT,NAGE
1309  FORMAT(//* SELECT INFEASIBLE, HOUSE 7 HAS*I5* HOGS AT NCWT=*I6
     2 * REQUESTED KSLT=*I3* MIN AGE=*I3)
C
C
      RETURN
      END
```

```
CLEAN4
      SUBROUTINE CLEAN4(IN,VEN)
      COMMON /INIT/NR,NW,ND,NT7,NT8,NDAT,NS1,NS2
     4 /GEN/ ITOT,ISIZE,NOWT,NOWY,NDAYS,NRUNS,IATRIB(18),ATRIB(4)
     5 /HOUSE/ NH(6),N1,N2,N3,N4,N5,N6,NXTFAR,MX1,MX2,MX3,MX4
     5 /CLEAN/ NDPREV,NH4CLN,LOSSL,SWTLP,SSLP,KL4
     3/SCH/ DUMY(1000),IPT,IEVT,KODE,IWE,IWN(45),NKT
     4/CULL/NGLTS,MXSRV,MXAGS,PCULG,PCULS,PSSR,PRGT,MXBOR
     6/SALES/MOSELL,WTS,NXTSAL
     3/GAIN/GW1,GW23,GSRT,GFIN1,GFIN2,GSOWM,GSOWL,SDP,SSOWM,SSOWL
     6/WRT1/KW
     3/RPT3/MJEV,ISALS,IFARS,IBROS
C
      TLTAL=0.
      KS=0
      KP=0
C
C NS1 DIAGNOSTICS SWITCH.
      IF(NS1.NE.11) GO TO 1349
      WRITE(NT7,1300) NOWT,NH(1)
1300  FORMAT(* ENTER CLEAN4 AT NOWT=*I5* ,HOUSE4 HAS *I5
     2 * ANIMALS*)
      CALL OUT(IN,VEN,1,N1,11.2)
C
C
C CLEAN4 REMOVES ALL SOWS AND PIGS FROM HOUSE 4.
C
1349  MH=NH(1)
      IF(MH) 1399, 99, 50
50    DO 444 IM=1,MH
      CALL REMOV(IN,VEN,1)
C SORT FOR SOWS .GT. 199 DAYS,AND PIGS GO TO 5000.
      IAGE=IATRIB(1)
      IF(IAGE.LT.200) GO TO 5000
C
C SOWS
      KS=KS+1
C
C SET TO OVULATE IN 4-6 DAYS AFTER WEANING.
      IATRIB(3)=2
      IATRIB(4)=IATRIB(10)/3*2+2
      IATRIB(8)=0
      IATRIB(11)=0
      ATRIB(2)=RNORM(GSOWM,SSOWM,-5.,10.)
C
C
C FILE IN 6 OR IN 9 FOR SALE.
C PROB. CULL HERE AND SEE WEANING IN SUB. MGT3
C     FORM SOW AND GILT CULLING PATTERN.
      RN=RANUM(D)
      IF(IATRIB(1)-450) 4905, 4901, 4901
4901  PROB=PCULS
4903  IF(PROB-RN) 4909, 4909, 4908
4905  PROB=PCULG
      GO TO 4903
4908  ISKIP=NXTSAL-NOWT
      SKIP=ISKIP
      IATRIB(9)=IATRIB(9)+ISKIP
      IATRIB(1)=IATRIB(1)+ISKIP
      ATRIB(1)=ATRIB(1)+SKIP*RNORM(GSOWM,SSOWM,-5.,10.)
      CALL FILEM(IN,VEN,9)
```

```
      GO TO 444
4909  CALL FILEM(IN,VEN,6)
      GO TO 444
C
C PIGS MOVED TO HOUSE NO 5 I.E. FILE 5
5000  KP=KP+1
      CALL FILEM(IN,VEN,5)
444   CONTINUE
C
C SET CLEAN HOUSE FLAG -NH4CLN- =1
99    NH4CLN=1
C
C  KL4 I.E. LITTERS IN FARROWING HOUSE SET=0
      KL4=0
C
C IWE  SET TO OFF, I.E.=2
      IWE=2
C
C
C ISTOP4  SET UP TO ESTIMATED WEANING DATE.
      ISTOP4=NOWT+NDPREV+KAGEW
      WRITE(ND,1380)KS,KP,NOWT
1380  FORMAT(40X*NOTE(1) CLEANING MOVED*I4* SOWS, AND*I5
     2* PIGS ON DAY=*I6)
C
C
C
C
C FARROWING SEASON REPORTING CALL TO SUB. REPT1
C     STATS COLLECTED IN SUB. FARROW, REPORT VIA  KW=2.
      IF(IFARS) 999, 999, 200
200   KW=2
      CALL REPT1(IN,VEN)
      KW=0.
999   RETURN
1399  WRITE(ND,1398)NOWT, NH(1)
1398  FORMAT(3X*ERROR CLEAN4 AT NOWT=*I5* NH(1)=*I4)
      END
```

```
FILEM
      SUBROUTINE FILEM(IN,VEN,JJ)
      COMMON/INIT/NR,NW,ND,NT7,NT8,NCAT,NS1,NS2
     4 /GEN/ITOT,ISIZE,NCWT,NCWY,NDAYS,NRUNS,IATRIB(18),ATRIB(4)
     5 /HOUSE/ NH(6),N1,N2,N3,N4,N5,N6
     7/KRS/KRS1,KRS2,KRS3
      DIMENSION IN(3,1),VEN(2,1)
      JH=JJ
C
C ITOT= TOTAL NUMBER, AND NH()= NUMBER IN EACH HOUSE FILE, INCREMENTED.
C JH IMPLIES THE  J HOUSE=J FILE OF COLUMNS IN ARRAYS IN, VEN.
C PLACES ATTRIBUTES  IATRIB(4) AND ATRIB(2) INTO JH FILES OF IN AND VEN
C IATRIB(I)-1=IAGE,2=JSEX,3=KLAS,4=LTAL,5=MNUM,6=LOC,7=PEN NO.,
C         8=SOW NO. (OR NO. OF PIGS)
C ATRIB(I) -1=WT
C IATRIB AND ATRIB ARE ZEROED BEFORE RETURN.
      NTOT=0
      DO 13 IK=1,6
 13   NTOT=NTOT+NH(IK)
      IF(NTOT.NE.ITOT)WRITE(ND,1301) JH,(NH(KI),KI=1,6),ITOT
 1301 FORMAT(* ERROR FILE, ITOT .NE. TOTAL IN FILES, JH=*
     2 I2* NH()=*6I6*  ITOT=*I7)
      JH=JH-3
      IF(JH.LT.1.OR.JH.GT.6) GO TO 99
      NH(JH)=NH(JH)+1
      JNH=NH(JH)
C INCREMENT TOTAL FILE SIZE ITOT AND LOAD AT END OF JH FILE.
C JNH NOW HOLDS THE TOTAL NUMBER IN FILE=NH(JH), AFTER INSERTION.
C
      ITOT=ITOT+1
C
C OVERLOAD PROTECTION FOR IN(), VEN() FILE STORAGE.
      IF(ITOT-KRS3) 400, 400, 1387
C
 400  IATRIB(6)=JH+3
C        PROVIDE FILE SPACE AT JNH OF FILE JH BY PUSHING ONE COLUMN
      IF(JH-2) 1,2,303
1     NP=ITOT-NH(1)
      GO TO 704
2     NP=ITOT-NH(1)-NH(2)
      GO TO 704
303   IF(JH-4) 3, 4, 505
3     NP=ITOT-NH(1)-NH(2)-NH(3)
      GO TO 704
4     NP=ITOT-NH(1)-NH(2)-NH(3)-NH(4)
      GO TO 704
505   IF(JH-6) 5, 6, 99
5     NP=ITOT-NH(1)-NH(2)-NH(3)-NH(4)-NH(5)
      GO TO 704
6     NP=0
      GO TO 504
704   DO 410 K=1,NP
      DO 402 I=1,3
 402  IN(I,ITOT-K+1)=IN(I,ITOT-K)
      DO 403 II=1,2
 403  VEN(II,ITOT-K+1)=VEN(II,ITOT-K)
 410  CONTINUE
C PLACE ATTRIBUTES IN FILE SPACE PROVIDED BY PUSHING, COLUMN=ITOT-NP
C
 504  IN(1,ITOT-NP)=IATRIB(1)*1000000000+IATRIB(2)*100000000+
     2 IATRIB(3)*10000000+IATRIB(4)*100000+IATRIB(5)
```

```
      IN(2,ITOT-NP)=IATRIB(6)*1CCCCCOOOOOOOO+IATRIB(7)*
     2  1OOCOOOCOCOC+IATRIB(8)*1CCCCCC+IATRIB(9)
      IN(3,ITOT-NP)=IATRIB(10)*1OOOOOOOCOOOC+IATRIB(11)*
     2  1OOCOOO+IATRIB(12)
      VEN(1,ITCT-NP)=ATRIB(1)
      VEN(2,ITCT-NP)=ATRIB(2)
888   DO 88 IK=1,12
88    IATRIB(IK)=0
      DO 89 IKK=1,4
 89   ATRIB(IKK)=0.
      N1=NH(1)
      N2=N1+NH(2)
      N3=N2+NH(3)
      N4=N3+NH(4)
      N5=N4+NH(5)
      N6=N5+NH(6)
      RETURN
 99   JH=JH+3
      WRITE(ND,98) JH,NCWT
 98   FORMAT(* ERROR FILEM, JH REQUESTED HOUSE=*I4* ,NCWT=*I8)
      WRITE(ND,1399) (IATRIB(I),I=1,12)
1399  FORMAT(4X*IATRIB(1-12)=*12I7)
          CALL CUT(IN,VEN,1,ITCT,161399.9)
      RETURN
1387  WRITE(NW,1389) KRS3, NCWT, ITCT
1389  FORMAT(1H2/////*  ANIMALS TOTAL IS GREATER THAN THE*
     2* DIMENSIONED SIZE OF  IN(3,I),VEN(2,I)  WHERE I=*I8/
     3*       PROGRAM STOP AT DAY=*I5*,  TOTAL ANIMALS=*I10)
      STOP
      END
```

```
REMOV
      SUBROUTINE REMOV(IN,VEN,KC)
C
      COMMON /INIT/NR,NW,NC,NT7,NT8,NCAT,NS1,NS2
     4 /GEN/ITOT,ISIZE,NOWT,NOWY,NDAYS,NRUNS,IATRIB(18),ATRIB(4)
     5 /HOUSE/ NH(6),N1,N2,N3,N4,N5,N6
      DIMENSION IN(3,1), VEN(2,1)
C
      KOL=KC
C REMOVES FILE COLUMN KOL, DECREMENT NH(KOL) BY ONE.
C     ATTRIBUTES PUT INTO IATRIB(), AND ATRIB().
C     ITOT (TOTAL ENTRIES IN FILE) DECREMENTED.
C
      IF(KOL)88,88,200
  200 IF(KOL-ITOT)333,333,88
  333 IF(KOL-N1)1,1,20
    1 KF=1
      GO TO 555
   20 IF(KOL-N2)2,2,30
    2 KF=2
      GO TO 555
   30 IF(KOL-N3)3,3,40
    3 KF=3
      GO TO 555
   40 IF(KOL-N4)4,4,50
    4 KF=4
      GO TO 555
   50 IF(KOL-N5)5,5,60
    5 KF=5
      GO TO 555
   60 IF(KOL-N6)6,6,88
    6 KF=6
555   IATRIB(1)=IN(1,KOL)/10000000000
      IATRIB(2)=MOD(IN(1,KOL)/100000000,10)
      IATRIB(3)=MOD(IN(1,KOL)/10000000,10)
      IATRIB(4)=MOD(IN(1,KOL)/10000,1000)
      IATRIB(5)=MOD(IN(1,KOL),10000)
C WORD NO. 2
      IATRIB(6)=IN(2,KOL)/100000000000000
      IATRIB(7)=MOD(IN(2,KOL)/10000000000,100)
      IATRIB(8)=MOD(IN(2,KOL)/100000,100000)
      IATRIB(9)=MOD(IN(2,KOL),100000)
C WORD NO. 3
      IATRIB(10)=IN(3,KOL)/100000000000000
      IATRIB(11)=MOD(IN(3,KOL)/10000000,1000000)
      IATRIB(12)=MOD(IN(3,KOL),10000000)
C ATRIB()
      ATRIB(1)=VEN(1,KOL)
      ATRIB(2)=VEN(2,KOL)
C
C PUSH DOWN FILES, BRING /HOUSE/ COMMON UP TO DATE.
      DO 300 K=KOL,ITOT
      DO 302 I=1,4
  302 IN(I,K)=IN(I,K+1)
      DO 304 II= 1,2
  304 VEN(II,K)=VEN(II,K+1)
  300 CONTINUE
      NH(KF)=NH(KF)-1
      ITOT=ITOT-1
      N1=NH(1)
      N2=N1+NH(2)
```

```
      N3=N2+NH(3)
      N4=N3+NH(4)
      N5=N4+NH(5)
      N6=N5+NH(6)
      RETURN
   88 WRITE(ND,87)KCL,NCWT
   87 FORMAT(* ERROR RECOV, KCL REQUESTED=*I4*   ,NCWT=*I8)
      RETURN
      END
```

FIND

```
      SUBROUTINE FIND(NXVA,MXCOD,J,JAT,KCO,IN,VEN)
C LOCATES THE COLUMN CALLED KCOL IN FILE JH.
C DESIGNATE AN MXCODE RELATIONSHIP TO VALUE XVAL  FROM-
C FOLLOWING OPTIONS,  .LT. 10= FOR IATRIB(),  .GT. 10 FOR ATRIB().
C MXCODE=1,11 MAX GREATER THAN XVAL
C        2,12 MIN GREATER THAN XVAL
C        3,13 MAX LESS THAN XVAL
C        4,14 MIN LESS THAN XVAL
C        5,15 VALUE EQUAL TO XVAL
C        6,16 FIRST FIND GREATER THAN XVAL
C        7,17 FIRST FIND LESS THAN XVAL
C JATT IS THE ATTRIBUTE NUMBER  I  IN IATRIB(I) OR ATRIB(I).
C KCOL IS THE COLUMN NUMBER OF THE LOCATED ENTRY,  SEE P. 70 GASPII.
C
      DIMENSION IN (3,1), VEN(2,1),IA(18)
      COMMON /INIT/NR,NW,NC,NT7,NT8,NCAT,NS1,NS2
     4 /GEN/ITOT,ISIZE,NOWT,NOWY,NDAYS,NRUNS,IATRIB(18),ATRIB(4)
     5 /HOUSE/ NH(6),N1,N2,N3,N4,N5,N6
      EQUIVALENCE(NVAL,XVA)
      NVAL=NXVA
      MXCODE=MXCOD
      JH=J-3
      JATT=JAT
      KCOL=KCO
C
C
C HANDLE INTEGERS OF IATRIB HERE, REAL IN SECTION GO TO NO. 1000.
C        BEST CANDIDATE COLUMN IS KBEST.
      KBEST=0
C        NEXT TO CONSIDER IS NEXTK
      NHH=0
      DO 500 KK=1,JH
 500  NHH=NHH+NH(KK)
      NH1=NHH-NH(JH)+1
      NEXTK=NH1
      IF(NH(JH).LE.0) GO TO 160
      IF(MXCODE.GT.10) GO TO 1000
      IF(NEXTK)160,10,2
10    KCO=KBEST
      RETURN
2     GO TO(1,102,3,104,5,106,7,8,109,110,111,112)JATT
 1    IA(1)=IN(1,NEXTK)/10000000000
      GO TO 21
 102  IA(2)=MOD(IN(1,NEXT)/1000000000,10)
      GO TO 21
 3    IA(3)=MOD(IN(1,NEXTK)/100000000,10)
      GO TO 21
 104  IA(4)=MOD(IN(1,NEXTK)/10000000,1000)
      GO TO 21
 5    IA(5)=MOD(IN(1,NEXTK),100000)
      GO TO 21
 106  IA(6)=IN(2,NEXTK)/100000000000000
      GO TO 21
 7    IA(7)=MOD(IN(2,NEXTK)/100000000000,100)
      GO TO 21
 8    IA(8)=MOD(IN(2,NEXTK)/10000000,100000)
      GO TO 21
109   IA(9)=MOD(IN(2,NEXTK),10000000)
      GO TO 21
110   IA(10)=IN(3,NEXTK)/100000000000
```

```
      GO TO 21
111   IA(11)=MOD(IN(3,NEXTK)/1000000,1000000)
      GO TO 21
112   IA(12)=MOD(IN(3,NEXTK),1000000)
      GO TO 21
 21   GO TO (11,12,13,14,11,16,17) MXCODE
 11   MGRNV=1
      NMAMN=1
      GO TO 20
 12   MGRNV=1
      NMAMN=-1
      GO TO 20
 13   MGRNV=-1
      NMAMN=1
      GO TO 20
 14   MGRNV=-1
      NMAMN=-1
      GO TO 20
 16   IF(IA(JATT).GT.NVAL) GO TO 15
 166  NEXTK=NEXTK+1
      IF(NEXTK-NHH)2,2,666
666   KCO=0
      GO TO 160
 17   IF(IA(JATT).LT.NVAL) GO TO 15
      GO TO 166
20    IF(MGRNV*(IA(JATT)-NVAL))4,201,66
C WHEN EQUALITY OBTAINED, TEST FOR MXCODE=5
 201  IF(MXCODE-5)4,15,4
 66   IF(MXCODE-5)6,4,6
 6    IF(KBEST) 160,80,70
70    IF(NMAMN*(IA(JATT)-KBHLD))4,4,80
 80   KBEST=NEXTK
      KBHLD=IA(JATT)
 4    NEXTK=NEXTK+1
      IF(NEXTK-NHH)2,10,10
15    KCO=NEXTK
      RETURN
 160  WRITE(ND,1305)KBEST,NEXTK,MXCODE,JH,JATT,KCOL,NHH
1305  FORMAT(* ERROR FIND, KBEST=*I8* NEXTK=*I8* PARMS=*5I8)
C REAL COMPARISONS FOR THE ARRAY VEN()
      RETURN
1000  XVAL=XVA
      MXCODE=MXCODE-10
      GO TO (1100,1200,1300,1400,1100,1600,1700)MXCODE
1100  RNV=1.
      AMN=1.
      GO TO 2000
1200  RNV=1.
      AMN=-1.
      GO TO 2000
1300  RNV=-1.
      AMN=1.
      GO TO 2000
1400  RNV=-1.
      AMN=-1.
2000  IF(RNV*(VEN(JATT,NEXTK)-XVAL))400,2100,6600
2100  IF(MXCODE-5)400,15,400
6600  IF(MXCODE-5)600,400,600
 600  IF(KBEST) 1600,800,700
700   IF(AMN*(VEN(JATT,NEXTK)-VEN(JATT,KBEST)))400,400,800
800   KBEST=NEXTK
400   NEXTK=NEXTK+1
      IF(NEXTK-NHH)2000,10,10
```

```
1600   IF(VEN(JATT,NEXTK).GT.XVAL) GC TO 15
1660   NEXTK=NEXTK+1
       IF(NEXTK-NHH)1600,1600,666
1700   IF(VEN(JATT,NEXTK).LT.XVAL) GC TO 15
       GC TC 1660
       END
```

```
      SUBROUTINE ZRCSUM(SUM,JVARBL)
C*****************************************************************STATPK
C                  ZROSUM(SUM,JVARBL)                    -INITIATION
C                  COLLT(SUM,JVARBL,X)                   -COLLECTION
C                  STATS(SUM,JVARBL,AVE,VAR,STD)         -CALCULATION
C EACH COLUMN -JVARBL- WILL HANDLE STATISTICS FOR ONE VARIABLE.
C DECLARE AN ACTUAL ARRAY LIKE -SUM()-  IN THE CALL PROGRAM TO (5,J)
C        WHERE     5 IS ABSOLUTE
C                  J= MAXIMUM NUMBER OF VARIABLES FOR COLLECTION.
C INITIATE BY CALLING ZRCSUM(SUM,JVARBL) WITH JVARBL= 1,2,... FOR THE
C        FIRST,SECOND, ETC. VARIABLE TO BE INITIATED.
C CALL COLLT(SUM,JVARBL,X) TO COLLECT THE OBSERVATION -X-.
C CALL STATS(SUM,JVARBL,AVE,VAR,STD) FOR CALCULATION OF AVE,VAR,STD.
C        MIN,MAX,SUM X'S,SUM SQS, AND NO. OBS ARE IN -SUM()- ANYTIME.
C*****************************************************************
      DIMENSION SUM(5,1)
      SUM(1,JVARBL)=0.
      SUM(2,JVARBL)=0.
      SUM(3,JVARBL)=0.
      SUM(4,JVARBL)=1.E25
      SUM(5,JVARBL)=-1.E25
      RETURN
      END
```

COLLT

```
      SUBROUTINE COLLT(SUM,JVARBL,X)
      DIMENSION SUM(5,1)
      SUM(1,JVARBL)=SUM(1,JVARBL)+X
      SUM(2,JVARBL)=SUM(2,JVARBL)+X*X
      SUM(3,JVARBL)=SUM(3,JVARBL)+1.
      SUM(4,JVARBL)=AMIN1(SUM(4,JVARBL),X)
      SUM(5,JVARBL)=AMAX1(SUM(5,JVARBL),X)
      RETURN
      END
```

```
      SUBROUTINE STATS(SUM,JVARBL,AVE,VAR,STD)
      COMMON /INIT/NR,NW,NC,NT7,NT8,NDAT,NS1,NS2
      DIMENSION SUM(5,1)
      XS=SUM(1,JVARBL)
      XSS=SUM(2,JVARBL)
      XN=SUM(3,JVARBL)
      AVE=XS/XN
      IF(XN.LE.1.) GO TO 1
      VAR=((XN*XSS)-(XS*XS))/(XN*(XN-1.0))
      IF(VAR)1,1,7
7     STD=VAR**.5
      RETURN
 1    VAR=0.
      STD=0.
      RETURN
      END
C*************************************************END OF STATPK**
```

```
RANUM
      FUNCTION RANUM(DUMMY)
C
C RANDOM NUMBER RETURNED AS VALUE OF RANUM =.0-1. FROM SOURCE-
C         -RANF(0),  SYSTEM FUNCTION,  IF NRNOPT=1
C         -TAPE OF RANDOM NUMBERS IF NRNOPT=2,  REQUIRES REQUEST I.E.
C                   -REQUEST(TAPE50,987,MT,HI,READ) IN CONTROL CARDS.
      COMMON /RAN/RRN(54),KRANUM,RLIMIT,NRNOPT,ITAPE
      IF(NRNOPT-1)2,2,20
    2 RANUM=RANF(0)
      RETURN
 20   KRANUM=KRANUM+1
      IF(KRANUM-55)28,26,28
   26 KRANUM=1
   28 IF(KRANUM-1)50,40,50
   40 READ(ITAPE)RRN
      IF(ECF,ITAPE) 41, 50
 41   REWIND ITAPE
      GO TO 40
   50 RANUM=RRN(KRANUM)
      RANUM=RANUM/RLIMIT
      RETURN
      END
```

```
      FUNCTION RNORM(RMEAN,STD,RMIN,RMAX)
C ASSIGNS TRUNCATED RANDOM NORMAL DEVIATE TO FUNCTION NAME  RNORM,
C         ASSIGNS THE VALUE  RMIN  OR  RMAX,  NOT REDRAWN WHEN
C         OUTSIDE THE RANGE   RMIN,   RMAX.
C WHEN STD.=0., RNORM IS SET= RMEAN LEAVING MIN AND MAX INEFFECTIVE.
      IF(STD)99, 99, 1
1     RA=RANUM(D)
      RB=RANUM(D)
      V=(-2.0*ALOG(RA))**0.5*COS(6.283*RB)
      RNORM=V*STD+RMEAN
      IF(RNORM-RMIN) 6, 7, 8
 6    RNORM=RMIN
 7    RETURN
 8    IF(RNORM-RMAX) 7, 7,9
 9    RNORM= RMAX
      RETURN
99    RNORM=RMEAN
      RETURN
      END
```

```
OUT
      SUBROUTINE OUT (IN,VEN,ISTART,ISTOP,IDENT)
C PRINT INVENTORY LOCATIONS FROM ISTART TO ISTOP, DEBUGGING TOOL
      COMMON/INIT/NR,NW,DUMY,NT7,NT8,NDAT,NS1,NS2,NOWD
     4/GEN/ ITOT,ISIZE,NOWT,NOWY,NDAYS,NRUNS,IATRIB(18),ATRIB(4)
     5/CLEAN/ DUM(5),KL4
     5 /HOUSE/ NH(6),N1,N2,N3,N4,N5,N6
     5/RPT5/ IAAS,IAAE,IAAN,IAAFN,IAAM,IAAB,IAAFR
      DIMENSION IN(3,1),VEN(2,1)
C
C
C CHECK ISTART=7777 IMPLIES ANIMAL ATTRIBUTE PRINTING BY BLD.
      INTEGER SHFTR
      IF(ISTART-7777) 70, 500, 70
70    ND=NT7
      INN=SHFTR(IDENT,48)
      IF(INN.EQ.0) GO TO 900
      WRITE(ND,80)NOWT,(NH(I),I=1,6),N6,IDENT
 80   FORMAT(* OUT,NOWT=*I5*  NH(I)=*6I3*  N6=*I5*  IDENT=*F15.3)
      GO TO 12
 900  WRITE(ND,90)NOWT,(NH(I),I=1,6),N6,IDENT
 90   FORMAT(* OUT,NOWT=*I5*  NH(I)=*6I3*  N6=*I5*  IDENT=*I15)
 12   WRITE(ND,299)
299   FORMAT(2X*1---234--5---- 67-8----9----- 1011----12---- 1314*
     2 *----15---- 1---------.--- 2---------.---*)
      DO 30 K=ISTART,ISTOP
30    WRITE(ND,300)(IN(I,K),I=1,3),(VEN(II,K),II=1,2),K
300   FORMAT(1X,3I15,15X,2F15.3,I8)
      RETURN
C
C
C ANIMAL ATTRIBUTE PRINTING HOUSE BY HOUSE REQUEST.
C
500   IF(IAAS-NOWT) 502, 502, 899
502   IF(IAAE-NOWT) 899,504, 504
C        HEADING FOR NOWT DAILY ANIMAL ATTRIBUTES
504   NH2=NH(2)
      NH4=NH(4)
      NH3=NH(3)
      NH5=NH(5)
      NH1=NH(1)
      WRITE(NT7,5004) NOWT,NH2,NH4,NH3,NH5,NH1
5004  FORMAT(1H1,///,5X*DIAGNOSTIC REPORT OF ANIMAL ATTRIBUTES*
     2* AT END OF DAY*I5/10X*INVENTORY IS- NURSERY=*I4
     3*, FINISHING=*I5*, SOW MAINTENANCE=*I4*,  *I3* BOARS, AND*
     4* FARROWING=*I4)
C NURSERY WRITE ATTRIBUTES
      N777=0
      IF(IAAN) 700, 700, 550
550   IF(NH2) 700, 700, 552
552   WRITE(NT7,5552)
5552  FORMAT(/5X*NURSERY BLD., SEX CLASS J=2 IS FEMALE, J=3 IS MALE,*
     2*  SUBCLASS K=1 IS NEVER OVULATED.*)
      WRITE(NT7,5005)
5005  FORMAT(15X*HERD NO.=      AGE=    SEX J=    SUB.K=  DAY SIM.*
     2*    BRTWT=      WT.=      GAIN= *)
      NI=N1+1
      NF=5
      N77=NH2
706   DO 559 I=1,N77
      CALL REMOV(IN,VEN,NI)
```

```
      R11=IATRIB(11)
      BRTWT=R11/100.
      WRITE(NT7,5559) IATRIB(5), IATRIB(1),IATRIB(2),IATRIB(3),
     2 IATRIB(9),BRTWT,ATRIB(1),ATRIB(2)
5559  FORMAT(12X,5I10,3F10.2)
      CALL FILEM(IN,VEN,NF)
559   CONTINUE
      IF(N777) 700, 700, 600
C FINISHING HOUSE WRITE ATTRIBUTES
700   IF(IAAFN) 600, 600, 702
702   IF(NH4) 600, 600, 704
704   WRITE(NT7, 5704)
5704  FORMAT(/5X*FINISHING BLD., SEX CLASS J=2 IS FEMALE, J=3 IS*
     2* MALE,  SUBCLASS K=1 IS NEVER OVULATED.*)
      WRITE(NT7,5005)
C        USE NURSERY LOOP ABOVE, GO TO MAINTENANCE AFTER
      NI=N3+1
      NF=7
      N77=NH4
      N777=1
      GO TO 706
600   IF(IAAM) 800, 800, 602
602   IF(NH3) 6900, 6900, 604
604   WRITE(NT7,5604)
5604  FORMAT(/5X*MAINTENANCE BLD., SEX CLASSJ=2 IS FEMALE, SUBCLASS*
     2* K=1 IS NEVER OVULATED, K=2 IS*/8X*OVULATING OPEN, K=3 IS*
     3* GESTATION, K=4 IS LACTATION,  LTAL= NO. DAYS IN ABOVE SUB*
     4*CLASS,*/8X*PIGS= NO. OF PIGS AT BIRTH, LEST= NO. DAYS IN*
     5* ESTRUS CYCLE,  LGST= NO. DAYS FOR THIS GESTATION*)
      WRITE(NT7,5606)
5606  FORMAT(7X*HERD NO.=      AGE=    SEX J=    SUB.K=     LTAL=*
     2*     PIGS=     LEST=     LGST= DAY SIM.      WT.=     GAIN=*)
      DO 659 I=1,NH3
      CALL REMOV(IN,VEN,N2+1)
      WRITE(NT7,5669) IATRIB(5),IATRIB(1),IATRIB(2),IATRIB(3),
     2 IATRIB(4),IATRIB(8),IATRIB(10),IATRIB(11),IATRIB(9),
     3ATRIB(1),ATRIB(2)
5669  FORMAT(5X,9I9,2F9.2)
      CALL FILEM(IN,VEN,6)
659   CONTINUE
6900  NH6=NH(6)
      WRITE(NT7,6905) NH6
6905  FORMAT(5X*CULL PEN HAS*I5* SOWS FOR SALE IN ADDITION*
     2* TO THOSE IN MAINT. BLD.*)
      IF(NH6) 800, 800, 6958
6958  DO 6959 I=1,NH6
      CALL REMOV(IN,VEN,N5+1)
      WRITE(NT7,5669) IATRIB(5),IATRIB(1),IATRIB(2),IATRIB(3),
     2IATRIB(4),IATRIB(8),IATRIB(10),IATRIB(11),
     3IATRIB(9),ATRIB(1),ATRIB(2)
      CALL FILEM(IN,VEN,9)
6959  CONTINUE
800   IF(IAAB) 400, 400 ,802
802   IF(NH5) 400, 400, 804
804   WRITE(NT7,5804)
5804  FORMAT(/5X*BOARS, SEX CLASS J=1 WITH SUBCLASS K=1 FOR NEW*
     2* K=2 FOR YOUNG, K=2 FOR MATURE,  LTAL=DAYS IN*/8X*SUBCLASS*
     3* K   WEEK=6 DIGIT USE WITH RIGHTMOST RECENT DAY, ETC., *
     4* SERVS= TOTAL SERVICES TO DATE*)
      WRITE(NT7,5806)
5806  FORMAT(7X*HERD NO.=      AGE=    SEX J=    SUB.K=     LTAL=     *
     2*WEEK=    SERVS= DAY SIM.=     WT.=     GAIN*)
      DO 859 I=1,NH5
```

```
      CALL REMCV(IN,VEN,N4+1)
      WRITE(NT7,5889)IATRIB(5),IATRIB(1),IATRIB(2),IATRIB(3),
     2IATRIB(4),IATRIB(11),IATRIB(12),IATRIB(9),ATRIB(1),ATRIB(2)
5889  FORMAT(5X,8I9,2F9.2)
      CALL FILEM(IN,VEN,8)
859   CONTINUE
400   IF(IAAFR) 788, 788, 402
402   IF(NH1) 788, 788, 404
404   WRITE(NT7,5404)
5404  FORMAT(/5X*FARROWING BLD., SEX CLASS J=2 FOR FEMALE, J=3 *
     2*IS MALE, SUBCLASS K=4 FOR SOWS IN LOCATATION,*/8X*K=1 OR C FOR*
     3* BABY PIGS,  LTAL= NO. DAYS IN SUBCLASS K FOR SOW BUT=0*
     4* FORM PIGS,  PIGS/DAM=*/8X*NO. PIGS AT BIRTH FOR SOW,*
     5* BUT HERD NO. OF DAM IF A PIG.  BRTHWT= WT. AT BIRTH,*
     6*=0 FOR SOWS*)
      WRITE(NT7,5406)
5406  FORMAT(7X*HERD NO.=      AGE=    SEX J=    SUB.K=     LTAL=*
     2* PIGS/DAM DAY SIM.= BRTHWT=     WT.=     GAIN=*)
      DO 459 I=1,NH1
      CALL REMOV(IN,VEN,1)
      R11=IATRIB(11)
      BRW=R11/100.
      WRITE(NT7,5449)IATRIB(5),IATRIB(1),IATRIB(2),IATRIB(3),
     2IATRIB(4),IATRIB(8),IATRIB(9),BRW,ATRIB(1),ATRIB(2)
5449  FORMAT(5X,7I9,3F9.2)
      CALL FILEM(IN,VEN,4)
459   CONTINUE
788   WRITE(NT7,6788)
6788  FORMAT(5X*END ANIMAL ATTRIBUTES DIAGNOSTIC REPORT*
     2* FROM SUBROUTINE OUT*//)
899   RETURN
      END
```

```
REPT1
      SUBROUTINE REPT1 (IN,VEN)
C REPORT SUMMARY FOR HERD BASIS
      COMMON/INIT/NR,NW,ND,NT7,NT8,NCAT,NS1,NS2,NCWD
     2 /RAN/ IRN(54),KRANUM,RLIMIT,NRNOPT,ITAPE
     3 /STAT/ SUM(5,20),SUM2(5,10),SUM3(5,10),SUM4(5,10)
     4 /GEN/ITOT,ISIZE,NCWT,NOWY,NDAYS,NRUNS,IATRIB(18),ATRIB(4)
     5/HOUSE/NH(6),N1,N2,N3,N4,N5,N6,NXTFAR,MX1,MX2,MX3,MX4
     6/WRT1/KW
     1/RPT1/ISMYP,ISMB,ISMBG,ISMF,ISMW,ISMS,ISMM
     4/BRED4/KBRD,KSWGT(4),NCNB(4),NCNBK(4)
     4/GAIN2/SCP(6),HCP(6),SSLD(6),HSLD(6),SEND(6),HEND(6)
     6/SALES/MDSELL,WTS,NXTSAL,NSLD(4),WTSLD(4),VSLD(4),PRIH,PRIS
      COMMON/CLEAN/D(5),KL4
      DIMENSION IN(3,1),VEN(2,1)
C
C SEND TO KW TYPE OF REPORT.
C       =2 IS FARROWING SEASON REPORT.
      IF(KW-3) 2000, 3000, 40
40    IF(KW-5) 4000, 5000, 60
60    IF(KW-7) 6000, 7000, 4
4     RETURN
C
C
C
C SEASONAL FARROWING REPORT  CD. 55 CELL 4 IS  ON.
2000  WRITE(ND,501) NCWT,NCWY,NCWD
501   FORMAT(////5X*SEASONAL FARROWING REPORT ON DAY=*I4/
     25X,95(1H=)/10X*YEAR=*I2*, DAY OF YEAR=*I3*, THE FARROWING*
     3* HOUSE WAS CLEANED TODAY, SEE (1)*)
      WRITE(ND,503)
503   FORMAT(/10X*--------ITEM--------  -----MEAN-----  ---ST. DEV.---*
     2*  ---MINIMUM---     ---MAXIMUM---*)
C
C KW=2 IMPLIES SEASONAL FARROWING REPORT IN SUM2()
C     SUM2( ,1)=LITTER SIZE SEASON, NO. OBS.=NO. LITTERS.
C     SUM2( ,2)=DATE OF BIRTH.
C     SUM2( ,3)=PERCENTAGE BLD. IS FILLED.
C     SUM2( ,4)=BIRTH WEIGHTS PIGS.
C     SUM2( ,5)=NO. PIGS LOST FOR BLD. NOT CLEAN.
C     SUM2( ,6)=NO. PIGS LOST FOR EXCEEDING CAPACITY.
      NL=SUM2(3,1)
      WRITE(ND,505) NL
505   FORMAT(/6X*FARROWED*I3* LITTERS IN FARROW BLD.*)
C
C
      IF(NL)504, 504, 506
504   IF(NCWT-10) 1505, 1505, 530
1505  WRITE(ND,508)
508   FORMAT(/20X*ZERO OBSERVATIONS, LITTERS WERE BORN*
     2* BEFORE DAY ZERO OF SIMULATION, REPORT TERMINATED*)
      GO TO 530
506   CONTINUE
      CALL STATS(SUM2,1,ASIZ,VAR,SSIZ)
      MNSIZ=SUM2(4,1)
      MXSIZ=SUM2(5,1)
      WRITE(ND,507)ASIZ,SSIZ,MNSIZ,MXSIZ
507   FORMAT(10X*LITTER SIZE ALIVE=  *F13.3,F16.3,2I16)
      CALL STATS(SUM2,2,ADAT,VAR,SDAT)
      MNDAT=SUM2(4,2)
      MXDAT=SUM2(5,2)
      WRITE(ND,509) ADAT,SDAT,MNDAT,MXDAT
```

```
509   FORMAT(10X*DATE OF BIRTH=      *F13.3,F16.3,2I16)
      CALL STATS(SUM2,3,ACAP,VAR,SCAP)
      RNCAP=SUM2(4,3)
      RXCAP=SUM2(5,3)
      WRITE(ND,511) ACAP, SCAP, RNCAP, RXCAP
511   FORMAT(10X*CAPACITY BLD., PCT.=*F13.3,F16.3,2F16.3)
      CALL STATS(SUM2,4,AWT,VAR,SWT)
      RNWT=SUM2(4,4)
      RXWT=SUM2(5,4)
      WRITE(ND,513) AWT,SWT,RNWT,RXWT
513   FORMAT(10X*BIRTH WEIGHT OF PIGS=*F12.3,3F16.3)
      NL=SUM2(3,5)
      WRITE(ND,515) NL
515   FORMAT(/6X*LOST*I3* LITTERS, BLD. NOT CLEANED*)
      IF(NL) 520, 520, 516
516   CALL STATS(SUM2,5,ALOS,VAR,SLOS)
      MNL=SUM2(4,5)
      MXL=SUM2(5,5)
      WRITE(ND,517) ALOS,SLOS,MNL,MXL
517   FORMAT(10X*LITTER SIZE LOST=    *F13.3,F16.3,2I16)
520   NL=SUM2(3,6)
      WRITE(ND,521) NL
521   FORMAT(/6X*LOST*I3* LITTERS, DUE TO BLD. OVERFLOW*)
      IF(NL) 530, 530, 523
523   CALL STATS(SUM2,6,ALOS,VAR,SLOS)
      MNL=SUM2(4,6)
      MXL=SUM2(5,6)
      WRITE(ND,527) ALOS,SLOS,MNL,MXL
527   FORMAT(10X*LITTER SIZE LOST=    *F13.3,F16.3,2I16)
530   WRITE(ND,531)
531   FORMAT(/6X*END SEASONAL FARROWING REPORT*65(1H=))
C
C  ZERO COLLECTING ARRAYS FOR NEXT SEASON.
      DO 561 I=1,6
561   CALL ZROSUM(SUM2,I)
      RETURN
C
C
C
C SEASONAL BREEDING REPORT
C     START SEASON IN SUB. SELECT FOR INVENTORY OF SOWS AVAIL.
C       KBRD IS AVAILABLE= TOTAL NO. EXPOSED (TARGET NO. TO BREED)
C            DURING THE SEASON.
C       KSWGT() 1=OPEN GILTS, 2=OPEN SOWS, 3= OTHERS., 4= DAY
C SUB. BREED COLLECTS STATS FOR CONCEIVING SOWS AND GILTS
C       SUM2( ,7)=AGE OF SOW AT FARROWING.
C       SUM2( ,8)=ASSIGNED LITTER SIZE.
C       SUM2( ,9)= DAY OF CONCEPTION.
C       COUNT NON CONCEIVING IN ARRAY NONB().
C       NONB() 1= NO. REFUSED BECAUSE MAX PREVIOUSLY REACHED.
C              2= NO. FOR LACK OF BOARS, 3= NO. FAILING PROB. TEST.
C              4= DAY TARGET REACHED, -999 IF NOT REACHED.
3000  WRITE(ND,3501) NOWT, NOWY, NOWD
3501  FORMAT(/////5X*SEASONAL BREEDING REPORT ON DAY=*I4/5X,
     295(1H=)/10X*YEAR=*I2*, DAY OF YEAR=*I3*, BREEDING*
     3* SWITCH TURNED OFF TODAY.*)
      ITO=0
      DO 3505 I=1,3
3505  ITO=ITO+KSWGT(I)
      WRITE(ND,3507)ITO,KSWGT(4),KSWGT(1),KSWGT(2),KSWGT(3)
3507  FORMAT(/6X*AFTER GILT SELECTION MAINTENANCE BLD. HAD*I3
     2* FEMALES ON DAY=*I5/10X*OPEN GILTS*9X*=*I4/10X*OPEN SOWS*
```

```
     31CX*=*I4/10X*CTHERS, MAINT. BLD.=*I4)
C
C GEST STATS ON BREEDINGS AND PRINT THEM OUT.
      NB=SUM2(3,7)
      WRITE(ND,3509) NB
3509  FORMAT(/6X*BREEDINGS RESULTED IN*I4* CONCEPTIONS*)
      IF(NB) 3516, 3516, 3510
3510  IF(NCNB(4)+999) 3598, 3592, 3598
3592  WRITE(ND,3593)
3593  FORMAT(1H+,48X*  TARGET NO. NOT REACHED*)
      GO TO 3599
3598  WRITE(ND,3597) KBRD, NCNB(4)
3597  FORMAT(1H+,44X*, TARGET NO. EXPOSED=*I4* REACHED DAY=*I6)
3599  WRITE(ND,503)
      CALL STATS(SUM2,7,AAG,VAR,SAG)
      AMN=SUM2(4,7)
      AMX=SUM2(5,7)
      WRITE(ND,3511)AAG,SAG,AMN,AMX
3511  FORMAT(/10X*AGE OF SOW AT FARROWING=*F9.3,3F16.3)
      CALL STATS(SUM2,8,ALS,VAR,SLS)
      MN=SUM2(4,8)
      MX=SUM2(5,8)
      WRITE(ND,3513) ALS,SLS,MN,MX
3513  FORMAT(10X*ASSIGNED LITTER SIZE=*F12.3,F16.3,2I16)
      CALL STATS(SUM2,9,ADY,VAR,SDY)
      MN=SUM2(4,9)
      MX=SUM2(5,9)
      WRITE(ND,3515) ADY,SDY,MN,MX
3515  FORMAT(10X*DAY OF BREEDING=*F17.3,F16.3,2I16)
C       NON CONCEIVING SECTION, NCNB(4)=DAY MAX REACHED.
3516  ITO=0
      DO 3517 I=1,3
3517  ITO=ITO+NCNB(I)
      WRITE(ND,1319) ITO, NCNB(1),NCNB(2),NCNB(3)
1319  FORMAT(/6X*SOWS IN HEAT BUT NOT BRED*24X*=*I8/6X
     2*  DUE TO- TARGET PREVIOUSLY REACHED*14X*=*I8/16X
     3*LACK OF BOARS*26X*=*I8/16X*FAILING PROBABILITY OF*
     4* CONCEPTION TEST =*I8)
      WRITE(ND,1321)
1321  FORMAT(/5X*END SEASONAL BREEDING REPORT*67(1H=))
      DO 1329 I=1,3
      NCNB(I)=0
1329  CALL ZROSUM(SUM2,I+6)
      NCNB(4)=-999
      RETURN
C
C
C
C BUILDING USE PERIODIC REPORT.
C  KW=4 CALL,   CALCULATION IS IN SUB. MGT3 WITH OVERFLOW CHECKS.
C      SUM4( ,1)= NURSERY STATS ON PERCENT CAPACITY
C      SUM4( ,2)= FINISHING BUILDING STATS
C      SUM4( ,3)= MAINTENANCE STATS
C      SUM4( ,4)= FARROW CRATES STATS
C
4000  LDAY=NOWT-ISMYP
      WRITE(NW,4003) NOWT,LDAY,NOWO,NOWY
4003  FORMAT(/////5X*BUILDING USE PERIODIC REPORT ON DAY=*I4/
     25X,95(1H=)/10X*PREVIOUS REPORT WOULD HAVE BEEN DUE ON DAY*
     3I4*, TODAY IS DAY*I4* OF YEAR*I2)
      WRITE(NW,4005) ISMYP
4005  FORMAT(/20X*(NO.TODAY)*10X*PERCENT OF MAXIMUM CAPACITY OVER*
     2I4* DAYS*)
```

```
      WRITE(NW,4007)
4007  FORMAT(21X*-------- *68(1H-))
      WRITE(NW,503)
C        NURSERY
      CALL STATS(SUM4,1,AVE,VAR,STD)
      RMIN=SUM4(4,1)
      RMAX=SUM4(5,1)
      WRITE(NW,4011) NH(2),AVE,STD,RMIN,RMAX,MX2
4011  FORMAT(/10X*NURSERY       (*I3*)=*F10.2,3F16.2
     2 /12X*CAPACITY=*I4)
C        FINISHING
      CALL STATS(SUM4,2,AVE,VAR,STD)
      RMIN=SUM4(4,2)
      RMAX=SUM4(5,2)
      WRITE(NW,4015) NH(4),AVE,STD,RMIN,RMAX,MX4
4015  FORMAT(10X*FINISHING    (*I3*)=*F10.2,3F16.2/12X*CAPACITY=*I4)
C         MAINTENANCE
      CALL STATS(SUM4,3,AVE,VAR,STD)
      RMIN=SUM4(4,3)
      RMAX=SUM4(5,3)
      WRITE(NW,4021) NH(3),AVE,STD,RMIN,RMAX,MX3
4021  FORMAT(10X*MAINTENANCE  (*I3*)=*F10.2,3F16.2/12X*CAPACITY=*I4)
C       FARROWING CRATES
      CALL STATS(SUM4,4,AVE,VAR,STD)
      RMIN=SUM4(4,4)
      RMAX=SUM4(5,4)
      WRITE(NW,4027) KL4,AVE,STD,RMIN,RMAX,MX1
4027  FORMAT(10X*FARROW CRATES(*I3*)=*
     2F10.2,3F16.2/12X*CAPACITY=*I4)
      WRITE(NW,4029)
4029  FORMAT(5X*===END BUILDING USE REPORT*69(1H=))
C SET SUM4, 1-4 =ZERO
      DO 4031 I=1,4
4031  CALL ZROSUM(SUM4,I)
      RETURN
C
C
C
C KW=5 PERIODIC BREEDING REPORT
C  SUM3() 7,8 USED FOR AGE AND LITTER SIZE.
C  NONBK() 1-3 ARE MAX REACHED,  LACK BOARS, FAILS PROB.,
C      BUT 4 IS COUNTER FOR NO IN SEASON.
C
5000  CONTINUE
      WRITE(NW,5501)NOWT,NOWD,NOWY
5501  FORMAT(///5X*PERIODIC BREEDING REPORT ON DAY=*I4/5X,
     2 95(1H=)/10X*TODAY IS DAY*I4* OF YEAR* I2)
      NB=SUM3(3,7)
      WRITE(NW,5509)NB
5509  FORMAT(/6X*BREEDINGS RESULTED IN*I8* CONCEPTIONS.*)
      IF(NB) 5516, 5516, 5510
5510  WRITE(NW,503)
C       AGE OF SOW
      CALL STATS(SUM3,7,AAG,VAR,SAG)
      AMN=SUM3(4,7)
      AMX=SUM3(5,7)
      WRITE(NW,3511) AAG,SAG,AMN,AMX
C      SIZE OF LITTERS
      CALL STATS(SUM3,8,ALS,VAR,SLS)
      MN=SUM3(4,8)
      MX=SUM3(5,8)
      WRITE(NW,3513) ALS,SLS,MN,MX
```

```
5516  ITC=0
      DO 5517 I=1,4
5517  ITC=ITC+NONBK(I)
      WRITE(NW,1319) ITC,NONBK(1),NONBK(2),NONBK(3)
      WRITE(NW,5519) NONBK(4)
5519  FORMAT(16X*SEASON CLOSED*26X*=*I8)
      WRITE(NW,5321)
5321  FORMAT(/5X*END PERIODIC BREEDING REPORT*67(1H=))
      DO 5329 I=1,4
5329  NONBK(I)=0
      CALL ZROSUM(SUM3,7)
      CALL ZROSUM(SUM3,8)
      RETURN
C
C
C
C PERIODIC FARROWING REPORT
C     KW=6,  SUM3() WITH AS IN SEASONAL REPORT
C
6000  WRITE(NW,6501) NOWT,NOWD,NOWY
6501  FORMAT(1H1,5X*FARROWING PERIODIC REPORT ON DAY=*I5/5X,
     295(1H=)/10X*TODAY IS DAY* I4* OF YEAR*I2)
      NL=SUM3(3,1)
      WRITE(NW,503)
      WRITE(NW,505) NL
C       LITTER SIZE
      IF(NL) 6533, 6533, 6505
6505  CALL STATS(SUM3,1,ASIZ,VAR,SSIZ)
      MNSIZ=SUM3(4,1)
      MXSIZ=SUM3(5,1)
      WRITE(NW,507)ASIZ,SSIZ,MNSIZ,MXSIZ
C       CAPACITY
      CALL STATS(SUM3,3,ACAP,VAR,SCAP)
      RNCAP=SUM3(4,3)
      RXCAP=SUM3(5,3)
      WRITE(NW,511) ACAP,SCAP, RNCAP, RXCAP
C       BIRTH WTS.
      CALL STATS(SUM3,4,AWT,VAR,SWT)
      RNWT=SUM3(4,4)
      RXWT=SUM3(5,4)
      WRITE(NW,513)AWT,SWT,RNWT,RXWT
C       LOST LITTERS
6533  NL=SUM3(3,5)
      WRITE(NW,515) NL
      IF(NL) 620, 620, 616
616   CALL STATS(SUM3,5,ALOS,VAR,SLOS)
      MNL=SUM3(4,5)
      MXL=SUM3(5,5)
      WRITE(NW,517) ALOS,SLOS,MNL,MXL
620   NL=SUM3(3,6)
      WRITE(NW,521) NL
      IF(NL) 630, 630, 623
623   CALL STATS(SUM3, 6,ALOS,VAR,SLOS)
      MNL=SUM3(4,6)
      MXL=SUM3(5,6)
      WRITE(NW,527) ALOS, SLOS, MNL,MXL
630   WRITE(NW,631)
631   FORMAT(/6X*END PERIODIC FARROWING REPORT*65(1H=))
      DO 635 I=1,6
      CALL ZROSUM(SUM3,I)
635   CONTINUE
      RETURN
C
```

```
C
C
C
C WEIGHT GAINS PERICDIC REPCRT,  END INVENTCRY TAKEN HERE.
C
C       COMMCN USED IS  4/GAIN2/...
7000   IF(ISMW.GT.0) WRITE(NW,7501)NCWT,NOWD,NOWY
7501   FCRMAT(/////5X*WEIGHT GAINS PERICDIC REPCRT CN DAY=*I4/5X,
     2 95(1H=)/10X*TODAY IS DAY*I4* CF YEAR* I2)
C
C CALCULATE AN ENDING INVENTCRY WT., USE IT,  THEN
C     COPY IT TO CPENING ANC ZERC THE COUNTERS  OF
C     ARRAY (1)=NO., (2)= WT., (3)= VALUE
C
C SALES ARE ADDED IN SUB. SELL
C CRIGINAL CPENING INVENTCRY FOUNC IN SUB. CPEN.
C
       DC 7009 I=1,ITCT
       ICHK=IN(1,I)/10000000000
       IF(ICHK-240) 7001, 7005, 7005
C HCGS AND PIGS .LT. 240 DAYS CF AGE
7001   HEND(1)=HEND(1)+1.
       HEND(2)=HEND(2)+VEN(1,I)
       HEND(3)=HEND(3)+VEN(1,I)*PRIH/100.
       GC TC 7009
C SCWS AND BCARS OVER 240 CAYS CF AGE
7005   SEND(1)=SEND(1)+1.
       SEND(2)=SEND(2)+VEN(1,I)
       SEND(3)=SEND(3)+VEN(1,I)*PRIS/100.
7009   CCNTINUE
C    WT.= ENC INV. + SALES - CPENING INV.
C     HCGS LESS THAN 240 DAYS.
       IF(ISMW)7077, 7077, 7010
7010   NW1=HEND(1)+HSLD(1)-HCP(1)
       W2=HEND(2)+HSLD(2)-HCP(2)
       W3=HEND(3)+HSLD(3)-HCP(3)
       WRITE(NW,7011)
       WRITE(NW,7013)
7011   FCRMAT(/6X*PRODUCTICN NET CF INVENTCRY CHANGE-*)
7013   FCRMAT(/30X*-------NUMBER-------  ---WEIGHT LBS.----*
     2*  ----VALUE DOL.----*)
       WRITE(NW,7015)NW1,W2,W3
7015   FCRMAT(/10X*HCGS LNDER 240 DAYS =*I11,2F20.1)
C SCWS I.E. OLCER THAN 239 CAYS CF AGE.
       NW1=SEND(1)+SSLD(1)-SCP(1)
       W2=SEND(2)+SSLD(2)-SCP(2)
       W3=SEND(3)+SSLD(3)-SCP(3)
       WRITE(NW,7017) NW1, W2, W3
7017   FCRMAT(10X*SCWS(ALL 240 ANC UP)=*I11,2F20.1)
       WRITE(NW,7019)
7019   FCRMAT(//6X*ENDING INVENTCRY-*)
       NHENC=HENC(1)
       WRITE(NW,7015) NHEND, HEND(2), HEND(3)
       NSEND=SEND(1)
       WRITE(NW,7017) NSEND,SEND(2),SEND(3)
       WRITE(NW,7021)
7021   FCRMAT(/5X*END WEIGHT GAINS PERIODIC REPCRT*63(1H=) )
C
C
C  CALL REPT2  FOR COSTS AND RETURNS SUMMARY.
C       COUNTERS ARE ZERCED THERE.
7077   CALL REPT2(IN,VEN)
```

```
RETURN
END
```

```
      SUBROUTINE REPT2(IN,VEN)
      COMMON/INIT/NR,NW,ND,NT7,NT8,NDAT,NS1,NS2,NOWD
     3/STAT/SUM(5,20),SUM2(5,10),SUM3(5,10),SUM4(5,10),SUM5(5,10)
     4/GEN/ITOT,ISIZE,NOWT,NOWY,NDAYS,NRUNS,IATRIB(18),ATRIB(4)
     5/HOUSE/NH(6),N1,N2,N3,N4,N5,N6,NXFAR,MX2,MX3,MX4
     6/SALES/D(15),PRIH,PRIS
     5/COST/FCS,FCB,CLAB,TFAR,TNUR,TSOW,TFIN,VAR(3),COST(30)
     1/RPT1/ISMYP
     2/RPT2/ISMYC,ISMCS,ISMCH,ISML,ISMSS,ISMSH,ISMGR
     4/GAIN2/SOP(6),HOP(6),SSLD(6),HSLD(6),SEND(6),HEND(6)
      DIMENSION IN(3,1),VEN(2,1)
C
C
C  COST AND RETURNS SUMMARY REPORT
C     COLLECTED IN SUB. MGT3,  CALLED FROM REPT1 PERIODICALLY.
C     GAINS ARRAYS ZEROED HERE.
C COST() 1=T. SOW DAYS, 2=FARROW BLD. MINUTES, 3=NURSERY BLD. MIN.,
C   4=MAINT. BLD + CULL MIN., 5= FINISHING BLD. MIN.
C
      IF(ISMYC) 898, 898, 801
801   WRITE(NW,803) NOWT, NOWD, NOWY, ISMYP
803   FORMAT(1H1,5X*COSTS AND RETURNS PERIODIC REPORT ON DAY=*I4/
     2 5X,95(1H=)/10X*TODAY IS DAY*I4* OF YEAR*I2*    PERIOD*
     3* COVERED=*I5* DAYS*)
C  FEED COST SOWS  C1
      C1=COST(1)*FCS
      IF(ISMCS)8200, 8200, 8100
8100  WRITE(NW,8105) C1, FCS
8105  FORMAT(/10X*FEED COSTS SOWS=*F8.2* DOL. AT*F4.2* PER DAY PER SOW*
C  FEED COST PER 100 LBS. HOGS PRODUCED.
8200  G=(HEND(2)+HSLD(2)-HOP(2))/100.
      CH=G*FCB
      IF(ISMCH)8300, 8300, 8201
8201  WRITE(NW,8205) CH, FCB
8205  FORMAT(/10X*FEED COSTS HOGS=*F8.2* DOL. AT*F6.2* PER*
     2* 100 LBS. PRODUCED*)
C LABOR COSTS BY BLD.
8300  C2=COST(2)/60.*CLAB
      IF(ISML) 8400, 8400, 8301
8301  WRITE(NW,8305) CLAB, C2
8305  FORMAT(/6X*LABOR COSTS BY BUILDING INCLUDING CULL PEN AT*
     2F5.2* DOL. PER HOUR*/10X*FARROWING=*F20.2)
8400  C3=COST(3)/60.*CLAB
      C4=COST(4)/60.*CLAB
      C5=COST(5)/60.*CLAB
      WRITE(NW,8309) C3, C4, C5
8309  FORMAT(10X*NURSERY=*F22.2/10X*SOWS MAINT. +CULLS=*F11.2/
     210X*FINISHING=*F20.2)
C
C VALUE PRODUCED
      S2=(SEND(2)+SSLD(2)-SOP(2)) / 100.
      VS2= S2* PRIS
      IF(ISMSS) 8500, 8500, 8401
8401  WRITE(NW,8405) S2, VS2
8405  FORMAT(/6X*SOWS PRODUCED=*F12.1* CWT.    AT VALUE OF*
     2F14.2* DOL.*)
8500  H2=(HEND(2)+HSLD(2)-HOP(2)) /100.
      VH2= H2* PRIH
      IF(ISMSH) 8600, 8600, 8501
8501  WRITE(NW,8505) H2, VH2
8505  FORMAT(/6X*HOGS PRODUCED=*F12.1* CWT.    AT VALUE OF*
```

```
     2F14.2* DOL.*)
C COSTS AND RETURNS NUTSHELL SUMMARY.
C      USE ABOVE CALCULATIONS FOR TABLE
8600   IF(ISMGR) 8650, 8650, 8601
8601   WRITE(NW,8603) ISMYP, NOWD,NOWY
8603   FORMAT(///5X*COSTS AND RETURNS SUMMARY OVER A*
      2I5* DAY PERIOD.*/10X*TODAY IS DAY*I4* OF YEAR*I2)
       WRITE(NW,8605)
8605   FORMAT(/41X*-------SOWS-------  -------HOGS-------  ----*
      2*TOTAL HERD----*/32X,3(17X,3H($)))
       TV2=VS2+VH2
       WRITE(NW,8611) VS2, VH2, TV2
8611   FORMAT(44X*(1)*/10X*PRODUCTION NET OF INVENTORY *
      2*CHANGE*F9.2,2F20.2)
       TCF=C1+CH
       WRITE(NW,8617) C1,CH,TCF
8617   FORMAT(19X*(2)*/10X*FEED COST*14X,3F20.2)
       C24=C2+C4
       C35=C3+C5
       TCL=C24+C35
       WRITE(NW,8621) C24, C35, TCL
8621   FORMAT(20X*(3)*/10X*LABOR COST*13X,3F20.2)
       RS=VS2-C1-C2-C4
       RH=VH2-CH-C3-C5
       GR=TV2-TCF-TCL
       WRITE(NW,8631)RS,RH,GR
8631   FORMAT(/10X*RETURN OVER FEED AND LABOR*F17.2,2F20.2)
       WRITE(NW,8641)
8641   FORMAT(6X,93(1H-)/6X*(1) SOWS INCLUDE ANIMALS 240 DAYS OF*
      2* AGE AND OVER, OTHERWISE THEY WHERE CLASSED AS HOGS AND PIGS.*
      3/6X*(2) FEED COST FOR SOWS BASED ON DAYS OF MAINTENANCE*
      4 * (INC. CULL PEN) AND LACTATION.*/6X*(3) LABOR COST BASED*
      5* ON BUILDING OCCUPANCY, ALL FARROWING HOUSE LABOR WAS*
      6* ASSIGNED TO SOWS.*)
8650   WRITE(NW,8651)
8651   FORMAT(5X*===END COSTS AND RETURNS SUMMARIES*61(1H=))
C  ZERO COST ARRAY
C
898    DO 8801 I=1,5
8801   COST(I)=0.
C
C  ZERO GAIN ARRAYS.
       DO 899 I=1,3
       HOP(I)=0.
       SOP(I)=0.
       HSLD(I)=0.
       SSLD(I)=0.
       HOP(I)=HEND(I)
       SOP(I)=SEND(I)
       HEND(I)=0.
899    SEND(I)=0.
       RETURN
       END
```

APPENDIX D

INPUT DATA

547231146	1	478.
362231096	2	370.
367231136	3	363.
110823 996	4	524.
744231146	5	498.
1106231046	6	486.
748231036	7	487.
92923 996	8	555.
928231116	9	485.
54623 996	10	425.
360231126	11	395.
922231136	12	499.
929231136	13	469.
749231016	14	471.
359231036	15	384.
1106231136	16	550.
74823 996	17	525.
358231096	18	388.
542231106	19	421.
359231146	20	408.
349231046	21	397.
751231096	22	507.
355231006	23	389.
1110231046	24	502.
65023 996	25	489.
650231096	26	479.
545231006	27	514.
545231006	28	498.
54523 996	29	457.
36523 996	30	389.
6666		
18230 07	31	188.
18021 07	32	174.
18330 07	33	204.
18321 07	34	210.
18330 07	35	224.
17921 07	36	208.
17921 07	37	196.
17830 07	38	260.
17821 07	39	196.
17830 07	40	226.
17621 07	41	230.
17621 07	42	204.
17621 07	43	216.
17530 07	44	228.
17521 07	45	216.
17530 07	46	212.
17330 07	47	206.
17321 07	48	200.
17321 07	49	182.
17221 07	50	224.
16721 07	51	196.
16630 07	52	236.
16630 07	53	182.
16621 07	54	196.
16321 07	55	198.
18221 07	56	206.
18321 07	57	160.
18321 07	58	198.
18321 07	59	198.
17830 07	60	232.

17630	07	61	208.
17521	07	62	206.
17530	07	63	198.
17321	07	64	200.
17321	07	65	174.
17330	07	66	210.
17321	07	67	194.
17330	07	68	238.
17330	07	69	248.
17321	07	70	208.
17230	07	71	244.
17230	07	72	210.
16721	07	73	202.
16730	07	74	226.
16721	07	75	190.
16621	07	76	192.
16621	07	77	172.
16621	07	78	196.
16621	07	79	158.
17130	07	80	218.
18030	07	81	202.
18330	07	82	228.
18321	07	83	202.
17930	07	84	216.
17830	07	85	231.
17830	07	86	264.
17821	07	87	234.
17621	07	88	228.
17630	07	89	225.
17530	07	90	224.
17521	07	91	220.
17521	07	92	186.
17321	07	93	208.
17330	07	94	174.
17121	07	95	184.
16721	07	96	200.
16730	07	97	210.
16621	07	98	204.
16621	07	99	206.
16630	07	100	222.
16621	07	101	182.
16630	07	102	240.
16621	07	103	176.
16330	07	104	196.
18221	07	105	192.
18231	07	106	184.
18231	07	107	206.
18021	07	108	206.
18321	07	109	202.
18330	07	110	228.
17921	07	111	228.
17930	07	112	232.
17830	07	113	222.
17830	07	114	200.
17621	07	115	224.
17630	07	116	202.
17621	07	117	225.
17621	07	118	212.
17621	07	119	206.
17630	07	120	228.
17521	07	121	192.
17330	07	122	190.
17130	07	123	222.

17121	07	124	220.
17121	07	125	186.
16730	07	126	232.
16621	07	127	174.
16321	07	128	204.
16330	07	129	214.
18221	07	130	208.
17921	07	131	216.
17621	07	132	212.
17330	07	133	206.
17230	07	134	234.
17121	07	135	202.
16730	07	136	236.
16721	07	137	158.
16730	07	138	234.
16730	07	139	224.
16630	07	140	214.
16621	07	141	200.
16621	07	142	202.
16630	07	143	210.
16621	07	144	164.
16621	07	145	200.
16630	07	146	198.
16621	07	147	198.
16621	07	148	202.
16621	07	149	202.
18230	07	150	188.
18021	07	151	174.
18330	07	152	204.
18321	07	153	210.
18330	07	154	224.
17921	07	155	208.
17921	07	156	196.
17830	07	157	260.
17821	07	158	196.
17830	07	159	226.
17621	07	160	230.
17621	07	161	204.
17621	07	162	216.
17530	07	163	228.
17521	07	164	216.
17530	07	165	212.
17330	07	166	206.
17321	07	167	200.
17321	07	168	182.
17221	07	169	224.
16721	07	170	196.
16630	07	171	236.
16630	07	172	182.
16621	07	173	196.
16321	07	174	198.
18221	07	175	206.
18321	07	176	160.
18321	07	177	198.
18321	07	178	198.
17830	07	179	232.
17630	07	180	208.
17521	07	181	206.
17530	07	182	198.
17321	07	183	200.
17321	07	184	174.
17330	07	185	210.

17321	07	186	194.
17330	07	187	238.
17330	07	188	248.
17321	07	189	208.
17230	07	190	244.
17230	07	191	210.
16721	07	192	202.
16730	07	193	226.
16721	07	194	190.
16621	07	195	192.
16621	07	196	172.
16621	07	197	196.
16621	07	198	158.
17130	07	199	218.
18030	07	200	202.
18330	07	201	228.
18321	07	202	202.
17930	07	203	216.
17830	07	204	231.
17830	07	205	264.
17821	07	206	234.
17621	07	207	228.
17630	07	208	225.
17530	07	209	224.
17521	07	210	220.
17521	07	211	186.
17321	07	212	208.
17330	07	213	174.
17121	07	214	184.
16721	07	215	200.
16730	07	216	210.
16621	07	217	204.
16621	07	218	206.
16630	07	219	222.
16621	07	220	182.
16630	07	221	240.
16621	07	222	176.
16330	07	223	196.
18221	07	224	192.
18231	07	225	184.
18231	07	226	206.
18021	07	227	206.
18321	07	228	202.
18330	07	229	228.
17921	07	230	228.
17930	07	231	232.
17830	07	232	222.
17830	07	233	200.
17621	07	234	224.
17630	07	235	202.
17621	07	236	225.
17621	07	237	212.
17621	07	238	206.
17630	07	239	228.
17521	07	240	192.
17330	07	241	190.
17130	07	242	222.
17121	07	243	220.
17121	07	244	186.
16730	07	245	232.
16621	07	246	174.
16321	07	247	204.
16330	07	248	214.

18221 07 249 208.
7777

```
STANDARD CONTROL DATA AS OF 9-17-72
51.     365.    1.      14.     1.      1950.
    1.      15.
10.     1.      180.    260.    1.      300.    350.    0.      730.    450.
14.     15.     2.      0.
15.     125.    1.
    16.     80.
17.     240.    1.
8.      14.     215.    20.5    17.     .50
13.     .14     11.75   3.      6.5     .21     .8      .005
    20.     3.      10.     3.      15.     2.      60.     180.    260.
12.     -.10    -.05
11.     10.     2.      1600.   20.     20.     730.    60.
3.      .10     .10     .035    .05     .015    .015    .015    .075
     4.     .05     20.7    2.1     16.0    25.0    .75     .60     -C0.5   0.
2.      21.     17.     28.     18.     82.
     5.  114.0    2.0   110.0   118.0    .040    .035    .020
     6.    9.5    3.0     4.0    16.0      3.    0.47    1.25     5.0
     7.   0.45   0.58    0.75    1.25    1.70    15.0
     9.    1.0     .2    -0.5     1.0       5.      .5
53.     365.    1.      1.      1.      1.      1.      1.
54.     1.      1.      1.      1.      1.      1.      1.
55.     0.      0.      0.      0.
56.     -1.     -1.     0.      0.      0.      0.      0.      0.      0.
57.     -1.     -1.     0.      0.      0.      0.      0.
58.     0.      0.
8888.
```