

Processing of Census of Agriculture Data

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The acquired Census of Agriculture data was interpolated and summed using the program 'Build_land_use_ss0711' (see below). It is a Fortran program original written by Dick Luckey and modified by Duane Woodard to compute acres of irrigated and dryland crops for the 27 CALMIT 1997 land use classifications shown below:

Irrigated Corn
Irrigated Sugar Beets
Irrigated Soybeans
Irrigated Sorghum
Irrigated Dry Edible Beans
Irrigated Potatoes
Irrigated Alfalfa
Irrigated Small Grains
Rangeland
Urban Land
Open Water
Riparian Woodland
Wetlands
Other Agricultural Lands

Irrigated Sunflowers
Summer Fallow
Roads
Dryland Corn
Dryland Soybeans
Dryland Sorghum
Dryland Dry Edible Beans
Dryland Alfalfa
Dryland Small Grains
Dryland Sunflowers
Dryland Sugar Beets
Dryland Potatoes
Irrigated Hay

'Build_land_use_ss0711' program

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Last change: DAW 6 Jul 2011 7:57 am
! Program to read Census of Agriculture spreadsheet and reformat into
form needed by Rich Kern
! Richard R. Luckey
! October 31, 2002
! Modified by DAW in May, 2009 to include irrigated hay modified June
2011 to include census years 2002 & 2007
IMPLICIT NONE
CHARACTER
Buffer*500,County*20,County_2*20,Land_use*50,Cntyname(17)*20,Cropname(30)*50
REAL
Census_45,Census_50,Census_54,Census_59,Census_64,Census_69,Census_74,Census_
78, &

Census_82,Census_87,Census_92,Census_97,Census_02,Census_07,CALMIT_97,CALMIT_
adj
REAL
Corn_total(58),Corn_irr(58),Corn_dry(58),SB_total(58),SB_irr(58),SB_dry(58),S
oy_total(58),Soy_irr(58),Soy_dry(58), &

Sorg_total(58),Sorg_irr(58),Sorg_dry(58),DEB_total(58),DEB_irr(58),DEB_dry(58
),Pot_total(58),Pot_irr(58),Pot_dry(58), &

Alf_total(58),Alf_irr(58),Alf_dry(58),SG_total(58),SG_irr(58),SG_dry(58),SF_t
otal(58),SF_irr(58),SF_dry(58), &

Fallow(58),Hay_Total(58),Hay_irr(58),Past_irr(58),cropsum(58),pasture(58),SUM
crop(58),diff(58),totalcrop(58)
REAL Rangeland/-
9999./,Urban,Water,Riparian,Wetland,Other_ag,Roads,County_area
REAL DATASET(43,58,30)
INTEGER N,J
INTEGER
I,I_len,I_county,I_rec/0/,J_rec/0/,I_year/58/,Years(58)/1950,1951,1952,1953,1
954,1955,1956,1957,1958,1959,1960,1961,&

1962,1963,1964,1965,1966,1967,1968,1969,1970,1971,1972,1973,1974,1975,1976,19
77,1978,1979,1980,1981,1982,1983,1984, &

1985,1986,1987,1988,1989,1990,1991,1992,1993,1994,1995,1996,1997,1998,1999,20
00,2001,2002,2003,2004,2005,2006,2007/
DATA
Cntyname/'Arthur','Buffalo','Custer','Dawson','Frontier','Hall','Hamilton','H
oward', &

'Kearney','Keith','Lincoln','McPherson','Merrick','Nance','Phelps','Platte','
Polk'/
DATA Cropname/'Irrigated Corn','Irrigated Sugar Beets','Irrigated
Soybeans','Irrigated Sorghum', &
'Irrigated Dry Edible Beans','Irrigated Potatoes','Irrigated
Alfalfa','Irrigated Small Grains', &
'Rangeland','Urban Land','Open Water','Riparian
woodland','Wetlands','Other Agricultural Lands', &
'Irrigated Sunflowers','Summer Fallow','Roads','Dryland
Corn','Dryland Soybeans','Dryland Sorghum', &
'Dryland Dry Edible Beans','Dryland Alfalfa','Dryland Small
Grains','Dryland Sunflowers','Dryland Sugar Beets', &
'Dryland Potatoes','Irrigated Hay','Sum','County
Area','Difference'/
5 WRITE (*,*) 'Enter name for Census of Agriculture "csv" file'

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READ (*,'(a)') Buffer
I_len = LEN_TRIM (Buffer)
IF (Buffer(I_len-2:I_len).eq.'csv'.OR. Buffer(I_len-2:I_len).eq.'CSV')
THEN
    ELSE
    Buffer(I_len+1:I_len+4)='.csv'
    END IF
    OPEN (UNIT=11,FILE=Buffer,STATUS='OLD',ERR=5)
    WRITE (*,*) 'Opened file ',Buffer(1:50)
6    WRITE (*,*) 'Enter name for CALMIT-area "csv" file'
    READ (*,'(a)') Buffer
    I_len = LEN_TRIM (Buffer)
    IF (Buffer(I_len-2:I_len).eq.'csv'.OR. Buffer(I_len-2:I_len).eq.'CSV')
    THEN
        ELSE
        Buffer(I_len+1:I_len+4)='.csv'
        END IF
        OPEN (UNIT=12,FILE=Buffer,STATUS='OLD',ERR=6)
        WRITE (*,*) 'Opened file ',Buffer(1:50)
7    WRITE (*,*) 'Enter name for Output spreadsheet "csv" file'
    READ (*,'(a)') Buffer
    I_len = LEN_TRIM (Buffer)
    IF (Buffer(I_len-2:I_len).eq.'csv'.OR. Buffer(I_len-2:I_len).eq.'CSV')
    THEN
        ELSE
        Buffer(I_len+1:I_len+4)='.csv'
        END IF
        OPEN (UNIT=13,FILE=Buffer,STATUS='NEW',ERR=7)
        WRITE (*,*) 'Opened file ',Buffer(1:50)
        WRITE (13,100)'County','CropName',Years
100    FORMAT (A6,',',',A8,',',',58(I5,',','))
8    WRITE (*,*) 'Enter name for Output DataBase "csv" file'
    READ (*,'(a)') Buffer
    I_len = LEN_TRIM (Buffer)
    IF (Buffer(I_len-2:I_len).eq.'csv'.OR. Buffer(I_len-2:I_len).eq.'CSV')
    THEN
        ELSE
        Buffer(I_len+1:I_len+4)='.csv'
        END IF
        OPEN (UNIT=14,FILE=Buffer,STATUS='NEW',ERR=8)
        WRITE (*,*) 'Opened file ',Buffer(1:50)
        WRITE (14,110)'Years','County','CropName','Acres'
110    FORMAT (A6,',',',A8,',',',A8,',',',A8)
! Read and discard first line of Census of Agriculture file
    READ (11,'(a)') Buffer
    I_rec=I_rec+1
! Read and discard first line of CALMIT-area file
    READ (12,'(a)') Buffer
    J_rec=J_rec+1
! Loup for counties
! Corn
    DO 200 I_county=1,17      ! 43 counties in the COHYST area
    READ (11,'(a)') Buffer
    READ (11,'(a)') Buffer
    READ (11,'(a)') Buffer
    READ (11,'(a)') Buffer
    READ (11,'(a)') Buffer
    READ (11,'(a)') Buffer
    READ (11,'(a)') Buffer
    READ (11,'(a)') Buffer
    I_rec=I_rec+8
    READ (11,*)
County, Land_use, Census_45, Census_50, Census_54, Census_59, Census_64, Census_69, C
ensus_74, Census_78, &

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Census_82,Census_87,Census_92,Census_97,Census_02,Census_07
  IF (Land_use.ne.'All_Corn_(total)') THEN
    WRITE (*,*) 'Unexpected data at record',I_rec,County,Land_use
    WRITE (*,*) 'Expected "All_Corn_(total)"'
    Stop
  END IF
  I_rec=I_rec+1
  CALL
Interpret(Census_50,Census_54,Census_59,Census_64,Census_69,Census_74,Census_
78, &

Census_82,Census_87,Census_92,Census_97,Census_02,Census_07,Corn_total)
  READ (11,*)
County,Land_use,Census_45,Census_50,Census_54,Census_59,Census_64,Census_69,C
ensus_74,Census_78, &

Census_82,Census_87,Census_92,Census_97,Census_02,Census_07
  IF (Land_use.ne.'All_Corn_(irrigated)') THEN
    WRITE (*,*) 'Unexpected data at record',I_rec,County,Land_use
    WRITE (*,*) 'Expected "All_Corn_(irrigated)"'
    Stop
  END IF
  I_rec=I_rec+1
  CALL
Interpret(Census_50,Census_54,Census_59,Census_64,Census_69,Census_74,Census_
78, &

Census_82,Census_87,Census_92,Census_97,Census_02,Census_07,Corn_irr)
  DO I=1,I_year
    Corn_dry(I)=Corn_total(I)-Corn_Irr(I)
  END DO
! Sorghum
  READ (11,'(a)') Buffer
  READ (11,'(a)') Buffer
  READ (11,'(a)') Buffer
  READ (11,'(a)') Buffer
  I_rec=I_rec+4
  READ (11,*)
County,Land_use,Census_45,Census_50,Census_54,Census_59,Census_64,Census_69,C
ensus_74,Census_78, &

Census_82,Census_87,Census_92,Census_97,Census_02,Census_07
  IF (Land_use.ne.'All_Sorghum_(total)') THEN
    WRITE (*,*) 'Unexpected data at record',I_rec,County,Land_use
    WRITE (*,*) 'Expected "All_Sorghum_(total)"'
    Stop
  END IF
  I_rec=I_rec+1
  CALL
Interpret(Census_50,Census_54,Census_59,Census_64,Census_69,Census_74,Census_
78, &

Census_82,Census_87,Census_92,Census_97,Census_02,Census_07,Sorg_total)
  READ (11,*)
County,Land_use,Census_45,Census_50,Census_54,Census_59,Census_64,Census_69,C
ensus_74,Census_78, &

Census_82,Census_87,Census_92,Census_97,Census_02,Census_07
  IF (Land_use.ne.'All_Sorghum_(irrigated)') THEN
    WRITE (*,*) 'Unexpected data at record',I_rec,County,Land_use
    WRITE (*,*) 'Expected "All_Sorghum_(irrigated)"'
    Stop
  END IF

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        I_rec=I_rec+1
        CALL
Interpret(Census_50,Census_54,Census_59,Census_64,Census_69,Census_74,Census_
78, &
Census_82,Census_87,Census_92,Census_97,Census_02,Census_07,Sorg_irr)
        DO I=1,I_year
        Sorg_dry(I)=Sorg_total(I)-Sorg_Irr(I)
        END DO
! Small Grains
        READ (11,'(a)') Buffer
        READ (11,'(a)') Buffer
        READ (11,'(a)') Buffer
        READ (11,'(a)') Buffer
        READ (11,'(a)') Buffer
        READ (11,'(a)') Buffer
        READ (11,'(a)') Buffer
        READ (11,'(a)') Buffer
        I_rec=I_rec+8
        READ (11,*)
County,Land_use,Census_45,Census_50,Census_54,Census_59,Census_64,Census_69,C
ensus_74,Census_78, &
Census_82,Census_87,Census_92,Census_97,Census_02,Census_07
        IF (Land_use.ne.'All_Small_Grains_(total)') THEN
        WRITE (*,*) 'Unexpected data at record',I_rec,County,Land_use
        WRITE (*,*) 'Expected "All_Small_Grains_(total)"'
        Stop
        END IF
        I_rec=I_rec+1
        CALL
Interpret(Census_50,Census_54,Census_59,Census_64,Census_69,Census_74,Census_
78, &
Census_82,Census_87,Census_92,Census_97,Census_02,Census_07,SG_total)
        READ (11,*)
County,Land_use,Census_45,Census_50,Census_54,Census_59,Census_64,Census_69,C
ensus_74,Census_78, &
Census_82,Census_87,Census_92,Census_97,Census_02,Census_07
        IF (Land_use.ne.'All_Small_Grains_(irrigated)') THEN
        WRITE (*,*) 'Unexpected data at record',I_rec,County,Land_use
        WRITE (*,*) 'Expected "All_Small_Grains_(irrigated)"'
        Stop
        END IF
        I_rec=I_rec+1
        CALL
Interpret(Census_50,Census_54,Census_59,Census_64,Census_69,Census_74,Census_
78, &
Census_82,Census_87,Census_92,Census_97,Census_02,Census_07,SG_irr)
        DO I=1,I_year
        SG_dry(I)=SG_total(I)-SG_Irr(I)
        END DO
! Soybeans
        READ (11,*)
County,Land_use,Census_45,Census_50,Census_54,Census_59,Census_64,Census_69,C
ensus_74,Census_78, &
Census_82,Census_87,Census_92,Census_97,Census_02,Census_07
        IF (Land_use.ne.'Soybeans_for_beans_(total)') THEN
        WRITE (*,*) 'Unexpected data at record',I_rec,County,Land_use
        WRITE (*,*) 'Expected "Soybeans_for_beans_(total)"'
        Stop

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        END IF
        CALL
Interpret(Census_50, Census_54, Census_59, Census_64, Census_69, Census_74, Census_
78, &

Census_82, Census_87, Census_92, Census_97, Census_02, Census_07, Soy_total)
        I_rec=I_rec+1
        READ (11,*)
County, Land_use, Census_45, Census_50, Census_54, Census_59, Census_64, Census_69, C
ensus_74, Census_78, &

Census_82, Census_87, Census_92, Census_97, Census_02, Census_07
        IF (Land_use.ne.'Soybeans_for_beans_(irrigated)') THEN
            WRITE (*,*) 'Unexpected data at record', I_rec, County, Land_use
            WRITE (*,*) 'Expected "Soybeans_for_beans_(irrigated)"'
            Stop
        END IF
        I_rec=I_rec+1
        CALL
Interpret(Census_50, Census_54, Census_59, Census_64, Census_69, Census_74, Census_
78, &

Census_82, Census_87, Census_92, Census_97, Census_02, Census_07, Soy_irr)
        DO I=1, I_year
            Soy_dry(I)=Soy_total(I)-Soy_Irr(I)
        END DO
! Dry edible beans
        READ (11,*)
County, Land_use, Census_45, Census_50, Census_54, Census_59, Census_64, Census_69, C
ensus_74, Census_78, &

Census_82, Census_87, Census_92, Census_97, Census_02, Census_07
        IF (Land_use.ne.'Dry_edible_beans_(total)') THEN
            WRITE (*,*) 'Unexpected data at record', I_rec, County, Land_use
            WRITE (*,*) 'Expected "Dry_edible_beans_(total)"'
            Stop
        END IF
        CALL
Interpret(Census_50, Census_54, Census_59, Census_64, Census_69, Census_74, Census_
78, &

Census_82, Census_87, Census_92, Census_97, Census_02, Census_07, DEB_total)
        I_rec=I_rec+1
        READ (11,*)
County, Land_use, Census_45, Census_50, Census_54, Census_59, Census_64, Census_69, C
ensus_74, Census_78, &

Census_82, Census_87, Census_92, Census_97, Census_02, Census_07
        IF (Land_use.ne.'Dry_edible_beans_(irrigated)') THEN
            WRITE (*,*) 'Unexpected data at record', I_rec, County, Land_use
            WRITE (*,*) 'Expected "Dry_edible_beans_(irrigated)"'
            Stop
        END IF
        I_rec=I_rec+1
        CALL
Interpret(Census_50, Census_54, Census_59, Census_64, Census_69, Census_74, Census_
78, &

Census_82, Census_87, Census_92, Census_97, Census_02, Census_07, DEB_irr)
        DO I=1, I_year
            DEB_dry(I)=DEB_total(I)-DEB_Irr(I)
        END DO
! Sugar beets

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      READ (11,*)
County, Land_use, Census_45, Census_50, Census_54, Census_59, Census_64, Census_69, C
ensus_74, Census_78, &

Census_82, Census_87, Census_92, Census_97, Census_02, Census_07
  IF (Land_use.ne. 'Sugar_beets_(total)') THEN
    WRITE (*,*) 'Unexpected data at record', I_rec, County, Land_use
    WRITE (*,*) 'Expected "Sugar_beets_(total)"'
    Stop
  END IF
  I_rec=I_rec+1
  CALL
Interpret(Census_50, Census_54, Census_59, Census_64, Census_69, Census_74, Census_
78, &

Census_82, Census_87, Census_92, Census_97, Census_02, Census_07, SB_total)
  READ (11,*)
County, Land_use, Census_45, Census_50, Census_54, Census_59, Census_64, Census_69, C
ensus_74, Census_78, &

Census_82, Census_87, Census_92, Census_97, Census_02, Census_07
  IF (Land_use.ne. 'Sugar_beets_(irrigated)') THEN
    WRITE (*,*) 'Unexpected data at record', I_rec, County, Land_use
    WRITE (*,*) 'Expected "Sugar_beets_(irrigated)"'
    Stop
  END IF
  I_rec=I_rec+1
  CALL
Interpret(Census_50, Census_54, Census_59, Census_64, Census_69, Census_74, Census_
78, &

Census_82, Census_87, Census_92, Census_97, Census_02, Census_07, SB_irr)
  DO I=1, I_year
    SB_dry(I)=SB_total(I)-SB_Irr(I)
  END DO
! Potatoes
  READ (11,*)
County, Land_use, Census_45, Census_50, Census_54, Census_59, Census_64, Census_69, C
ensus_74, Census_78, &

Census_82, Census_87, Census_92, Census_97, Census_02, Census_07
  IF (Land_use.ne. 'Potatoes_(total)') THEN
    WRITE (*,*) 'Unexpected data at record', I_rec, County, Land_use
    WRITE (*,*) 'Expected "Potatoes_(total)"'
    Stop
  END IF
  I_rec=I_rec+1
  CALL
Interpret(Census_50, Census_54, Census_59, Census_64, Census_69, Census_74, Census_
78, &

Census_82, Census_87, Census_92, Census_97, Census_02, Census_07, Pot_total)
  READ (11,*)
County, Land_use, Census_45, Census_50, Census_54, Census_59, Census_64, Census_69, C
ensus_74, Census_78, &

Census_82, Census_87, Census_92, Census_97, Census_02, Census_07
  IF (Land_use.ne. 'Potatoes_(irrigated)') THEN
    WRITE (*,*) 'Unexpected data at record', I_rec, County, Land_use
    WRITE (*,*) 'Expected "Potatoes_(irrigated)"'
    Stop
  END IF
  I_rec=I_rec+1

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CALL
Interpret(Census_50,Census_54,Census_59,Census_64,Census_69,Census_74,Census_
78, &

Census_82,Census_87,Census_92,Census_97,Census_02,Census_07,Pot_irr)
DO I=1,I_year
Pot_dry(I)=Pot_total(I)-Pot_Irr(I)
END DO
! Alfalfa and Irrigated hay
READ (11,'(a)') Buffer
I_rec=I_rec+1
READ (11,*)
County, Land_use, Census_45, Census_50, Census_54, Census_59, Census_64, Census_69, C
ensus_74, Census_78, &

Census_82,Census_87,Census_92,Census_97,Census_02,Census_07
IF (Land_use.ne.'All_hay_(irrigated)') THEN
WRITE (*,*) 'Unexpected data at record',I_rec,County, Land_use
WRITE (*,*) 'Expected "All_hay_(irrigated)"'
Stop
END IF
I_rec=I_rec+1
CALL
Interpret(Census_50,Census_54,Census_59,Census_64,Census_69,Census_74,Census_
78, &

Census_82,Census_87,Census_92,Census_97,Census_02,Census_07,Hay_irr)
READ (11,*)
County, Land_use, Census_45, Census_50, Census_54, Census_59, Census_64, Census_69, C
ensus_74, Census_78, &

Census_82,Census_87,Census_92,Census_97,Census_02,Census_07
IF (Land_use.ne.'Alfalfa_(total)') THEN
WRITE (*,*) 'Unexpected data at record',I_rec,County, Land_use
WRITE (*,*) 'Expected "Alfalfa_(total)"'
Stop
END IF
I_rec=I_rec+1
CALL
Interpret(Census_50,Census_54,Census_59,Census_64,Census_69,Census_74,Census_
78, &

Census_82,Census_87,Census_92,Census_97,Census_02,Census_07,Alf_total)
READ (11,*)
County, Land_use, Census_45, Census_50, Census_54, Census_59, Census_64, Census_69, C
ensus_74, Census_78, &

Census_82,Census_87,Census_92,Census_97,Census_02,Census_07
IF (Land_use.ne.'Alfalfa_(irrigated)') THEN
WRITE (*,*) 'Unexpected data at record',I_rec,County, Land_use
WRITE (*,*) 'Expected "Alfalfa_(irrigated)"'
Stop
END IF
I_rec=I_rec+1
CALL
Interpret(Census_50,Census_54,Census_59,Census_64,Census_69,Census_74,Census_
78, &

Census_82,Census_87,Census_92,Census_97,Census_02,Census_07,Alf_irr)
DO I=1,I_year
Alf_dry(I)=Alf_total(I)-Alf_Irr(I)
Past_irr(I)=Hay_irr(I)-Alf_Irr(I)
END DO
! Sunflowers

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      READ (11,*)
County, Land_use, Census_45, Census_50, Census_54, Census_59, Census_64, Census_69, C
ensus_74, Census_78, &

Census_82, Census_87, Census_92, Census_97, Census_02, Census_07
      IF (Land_use.ne.'Sunflowers_(total)') THEN
        WRITE (*,*) 'Unexpected data at record', I_rec, County, Land_use
        WRITE (*,*) 'Expected "Sunflowers_(total)"'
        Stop
      END IF
      I_rec=I_rec+1
      CALL
Interpret(Census_50, Census_54, Census_59, Census_64, Census_69, Census_74, Census_
78, &

Census_82, Census_87, Census_92, Census_97, Census_02, Census_07, SF_total)
      READ (11,*)
County, Land_use, Census_45, Census_50, Census_54, Census_59, Census_64, Census_69, C
ensus_74, Census_78, &

Census_82, Census_87, Census_92, Census_97, Census_02, Census_07
      IF (Land_use.ne.'Sunflowers_(irrigated)') THEN
        WRITE (*,*) 'Unexpected data at record', I_rec, County, Land_use
        WRITE (*,*) 'Expected "Sunflowers_(irrigated)"'
        Stop
      END IF
      I_rec=I_rec+1
      CALL
Interpret(Census_50, Census_54, Census_59, Census_64, Census_69, Census_74, Census_
78, &

Census_82, Census_87, Census_92, Census_97, Census_02, Census_07, SF_irr)
      DO I=1, I_year
        SF_dry(I)=SF_total(I)-SF_Irr(I)
      END DO
! Fallow
      READ (11, '(a)') Buffer
      READ (11, *)
County, Land_use, Census_45, Census_50, Census_54, Census_59, Census_64, Census_69, C
ensus_74, Census_78, &

Census_82, Census_87, Census_92, Census_97, Census_02, Census_07
      IF (Land_use.ne.'Fallow') THEN
        WRITE (*,*) 'Unexpected data at record', I_rec, County, Land_use
        WRITE (*,*) 'Expected "Fallow"'
        Stop
      END IF
      I_rec=I_rec+1
      CALL
Interpret(Census_50, Census_54, Census_59, Census_64, Census_69, Census_74, Census_
78, &

Census_82, Census_87, Census_92, Census_97, Census_02, Census_07, Fallow)
      READ (11, '(a)') Buffer
      READ (11, '(a)') Buffer
      READ (11, '(a)') Buffer
      READ (11, '(a)') Buffer
      READ (11, '(a)') Buffer
      READ (11, '(a)') Buffer
      READ (11, '(a)') Buffer
      READ (11, '(a)') Buffer
      I_rec=I_rec+8
! CALMIT fixed fields and county area
      READ (12, '(a)') Buffer

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READ (12,'(a)') Buffer
READ (12,'(a)') Buffer
READ (12,'(a)') Buffer
READ (12,'(a)') Buffer
READ (12,'(a)') Buffer
READ (12,'(a)') Buffer
READ (12,'(a)') Buffer
READ (12,'(a)') Buffer
J_rec=J_rec+9
! Urban Land
READ (12,*) County_2,Land_use,CALMIT_97,CALMIT_adj
IF (Land_use.ne.'Urban_Land') THEN
  WRITE (*,*) 'Unexpected data at record',J_rec,County_2,Land_use
  WRITE (*,*) 'Expected "Urban_Land"'
  Stop
END IF
IF (County.ne.County_2) THEN
  WRITE (*,*) 'Census of Agriculture and CALIMT files are out of
sync'
  WRITE (*,*) 'Census County and record number: ',County,I_rec
  WRITE (*,*) 'CALMIT County and record number: ',County_2,J_rec
  Stop
END IF
Urban = CALMIT_adj
J_rec=J_rec+1
! Open water
READ (12,*) County_2,Land_use,CALMIT_97,CALMIT_adj
IF (Land_use.ne.'Open_Water') THEN
  WRITE (*,*) 'Unexpected data at record',J_rec,County_2,Land_use
  WRITE (*,*) 'Expected "Open_Water"'
  Stop
END IF
IF (County.ne.County_2) THEN
  WRITE (*,*) 'Census of Agriculture and CALIMT files are out of
sync'
  WRITE (*,*) 'Census County and record number: ',County,I_rec
  WRITE (*,*) 'CALMIT County and record number: ',County_2,J_rec
  Stop
END IF
Water=CALMIT_adj
J_rec=J_rec+1
!Riparian forest
READ (12,*) County_2,Land_use,CALMIT_97,CALMIT_adj
IF (Land_use.ne.'Riparian_Forest_and_Woodlands') THEN
  WRITE (*,*) 'Unexpected data at record',J_rec,County_2,Land_use
  WRITE (*,*) 'Expected "Riparian_Forest_and_Woodlands"'
  Stop
END IF
IF (County.ne.County_2) THEN
  WRITE (*,*) 'Census of Agriculture and CALIMT files are out of
sync'
  WRITE (*,*) 'Census County and record number: ',County,I_rec
  WRITE (*,*) 'CALMIT County and record number: ',County_2,J_rec
  Stop
END IF
Riparian=CALMIT_adj
J_rec=J_rec+1
! Wetlands
READ (12,*) County_2,Land_use,CALMIT_97,CALMIT_adj
IF (Land_use.ne.'Wetlands') THEN
  WRITE (*,*) 'Unexpected data at record',J_rec,County_2,Land_use
  WRITE (*,*) 'Expected "Wetlands"'
  Stop
END IF

```

```

        IF (County.ne.County_2) THEN
sync'      WRITE (*,*) 'Census of Agriculture and CALIMT files are out of
            WRITE (*,*) 'Census County and record number: ',County,I_rec
            WRITE (*,*) 'CALMIT County and record number: ',County_2,J_rec
            Stop
        END IF
        Wetland=CALMIT_adj
        J_rec=J_rec+1
! Other agricultural lands
        READ (12,*) County_2,Land_use,CALMIT_97,CALMIT_adj
        IF (Land_use.ne.'Other_Agricultural_Lands') THEN
            WRITE (*,*) 'Unexpected data at record',J_rec,County_2,Land_use
            WRITE (*,*) 'Expected "Other_Agricultural_Lands"'
            Stop
        END IF
sync'      IF (County.ne.County_2) THEN
            WRITE (*,*) 'Census of Agriculture and CALIMT files are out of
            WRITE (*,*) 'Census County and record number: ',County,I_rec
            WRITE (*,*) 'CALMIT County and record number: ',County_2,J_rec
            Stop
        END IF
        Other_ag=CALMIT_adj
        J_rec=J_rec+1
        READ (12,'(a)') Buffer
        READ (12,'(a)') Buffer
        J_rec=J_rec+2
! Roads
        READ (12,*) County_2,Land_use,CALMIT_97,CALMIT_adj
        IF (Land_use.ne.'Roads') THEN
            WRITE (*,*) 'Unexpected data at record',J_rec,County_2,Land_use
            WRITE (*,*) 'Expected "Roads"'
            Stop
        END IF
sync'      IF (County.ne.County_2) THEN
            WRITE (*,*) 'Census of Agriculture and CALIMT files are out of
            WRITE (*,*) 'Census County and record number: ',County,I_rec
            WRITE (*,*) 'CALMIT County and record number: ',County_2,J_rec
            Stop
        END IF
        Roads=CALMIT_adj
        J_rec=J_rec+1
        READ (12,'(a)') Buffer
        READ (12,'(a)') Buffer
        READ (12,'(a)') Buffer
        READ (12,'(a)') Buffer
        READ (12,'(a)') Buffer
        READ (12,'(a)') Buffer
        READ (12,'(a)') Buffer
        READ (12,'(a)') Buffer
        READ (12,'(a)') Buffer
        READ (12,'(a)') Buffer
        J_rec=J_rec+10
! County area
        READ (12,*) County_2,Land_use,CALMIT_97,CALMIT_adj
        IF (Land_use.ne.'County') THEN
            WRITE (*,*) 'Unexpected data at record',J_rec,County_2,Land_use
            WRITE (*,*) 'Expected "County"'
            Stop
        END IF
        IF (County.ne.County_2) THEN

```

```

WRITE (*,*) 'Census of Agriculture and CALIMIT files are out of
sync'
WRITE (*,*) 'Census County and record number: ',County,I_rec
WRITE (*,*) 'CALIMIT County and record number: ',County_2,J_rec
  Stop
END IF
County_area=CALIMIT_adj
J_rec=J_rec+1
READ (12,'(a)') Buffer
J_rec=J_rec+1
! Compute Pasture
DO I=1,I_year
  pasture(I)=0.0
  sumcrop(I)=0.0

sumcrop(I)=Corn_irr(i)+SB_irr(i)+Soy_irr(i)+Sorg_irr(i)+DEB_irr(i)+Pot_irr(i)
+Alf_irr(i)+SG_irr(i)+ &

Urban+Water+Riparian+Wetland+Other_ag+SF_irr(i)+Corn_dry(i)+Soy_dry(i)+Sorg_d
ry(i)+DEB_dry(i)+ &

Alf_dry(i)+SG_dry(i)+SF_dry(i)+SB_dry(i)+Pot_dry(i)+Past_irr(i)+Fallow(i)+Roa
ds
  Pasture(i)=County_area-sumcrop(i)
  totalcrop(I)=sumcrop(i)+Pasture(i)
  diff(i)=County_area-totalcrop(I)
END DO
! Output in "csv format"
WRITE (13,101) County,"Irrigated Corn",Corn_irr
WRITE (13,101) County,"Irrigated Sugar Beets",SB_irr
WRITE (13,101) County,"Irrigated Soybeans",Soy_irr
WRITE (13,101) County,"Irrigated Sorghum",Sorg_irr
WRITE (13,101) County,"Irrigated Dry Edible Beans",DEB_irr
WRITE (13,101) County,"Irrigated Potatoes",Pot_irr
WRITE (13,101) County,"Irrigated Alfalfa",Alf_irr
WRITE (13,101) County,"Irrigated Small Grains",SG_irr
WRITE (13,101) County,"Rangeland",Pasture
WRITE (13,101) County,"Urban Land",(Urban,I=1,58)
WRITE (13,101) County,"Open Water",(Water,I=1,58)
WRITE (13,101) County,"Riparian Woodland",(Riparian,I=1,58)
WRITE (13,101) County,"Wetlands",(Wetland,I=1,58)
WRITE (13,101) County,"Other Agricultural Lands",(Other_ag,I=1,58)
WRITE (13,101) County,"Irrigated Sunflowers",SF_irr
WRITE (13,101) County,"Summer Fallow",Fallow
WRITE (13,101) County,"Roads",(Roads,I=1,58)
WRITE (13,101) County,"Dryland Corn",Corn_dry
WRITE (13,101) County,"Dryland Soybeans",Soy_dry
WRITE (13,101) County,"Dryland Sorghum",Sorg_dry
WRITE (13,101) County,"Dryland Dry Edible Beans",DEB_dry
WRITE (13,101) County,"Dryland Alfalfa",Alf_dry
WRITE (13,101) County,"Dryland Small Grains",SG_dry
WRITE (13,101) County,"Dryland Sunflowers",SF_dry
WRITE (13,101) County,"Dryland Sugar Beets",SB_dry
WRITE (13,101) County,"Dryland Potatoes",Pot_dry
WRITE (13,101) County,"Irrigated Hay",Past_irr
WRITE (13,101) County,"Sum",totalcrop
WRITE (13,101) County,"County area",(County_area,I=1,58)
WRITE (13,101) County,"Difference",diff
101  FORMAT (A,' ',A,' ',58(f9.1,' '))
WRITE (*,*) 'Finished ',County,' County'
! Build Dataset array
DO I=1,I_year
DO N=1,30
  Dataset(I_county,I,N)=0.0

```

```

END DO
Dataset(I_county,I,1)=Corn_irr(I)
Dataset(I_county,I,2)=SB_irr(I)
Dataset(I_county,I,3)=Soy_irr(I)
Dataset(I_county,I,4)=Sorg_irr(I)
Dataset(I_county,I,5)=DEB_irr(I)
Dataset(I_county,I,6)=Pot_irr(I)
Dataset(I_county,I,7)=Alf_irr(I)
Dataset(I_county,I,8)=SG_irr(I)
Dataset(I_county,I,9)=Pasture(I)
Dataset(I_county,I,10)=Urban
Dataset(I_county,I,11)=Water
Dataset(I_county,I,12)=Riparian
Dataset(I_county,I,13)=Wetland
Dataset(I_county,I,14)=Other_ag
Dataset(I_county,I,15)=SF_irr(I)
Dataset(I_county,I,16)=Fallow(I)
Dataset(I_county,I,17)=Roads
Dataset(I_county,I,18)=Corn_dry(I)
Dataset(I_county,I,19)=Soy_dry(I)
Dataset(I_county,I,20)=Sorg_dry(I)
Dataset(I_county,I,21)=DEB_dry(I)
Dataset(I_county,I,22)=Alf_dry(I)
Dataset(I_county,I,23)=SG_dry(I)
Dataset(I_county,I,24)=SF_dry(I)
Dataset(I_county,I,25)=SB_dry(I)
Dataset(I_county,I,26)=Pot_dry(I)
Dataset(I_county,I,27)=Past_irr(I)
Dataset(I_county,I,28)=totalcrop(I)
Dataset(I_county,I,29)=County_area
Dataset(I_county,I,30)=diff(I)
END DO
! End of county data
200 END DO
! Write Dataset array
DO I=1,43
DO N=1,30
DO J=1,I_year
WRITE (14,102)Years(J),cntyname(I),Cropname(N),Dataset(I,J,N)
102 FORMAT (I6,',',',',A20,',',',',A50,',',',',F9.1)
END DO
END DO
END DO
ENDFILE (UNIT=14)
ENDFILE (UNIT=13)
CLOSE (UNIT=11)
CLOSE (UNIT=12)
CLOSE (UNIT=13)
Stop
END PROGRAM
SUBROUTINE
Interpret(Census_50,Census_54,Census_59,Census_64,Census_69,Census_74,Census_
78, &
Census_82,Census_87,Census_92,Census_97,Census_02,Census_07,Data2)
! Subroutine to interpolate Census of Agriculture spreadsheet
! Richard R. Luckey
! November 4, 2002
!
IMPLICIT NONE
REAL
Census_45,Census_50,Census_54,Census_59,Census_64,Census_69,Census_74,Census_
78, &

```

```

Census_82,Census_87,Census_92,Census_97,Census_02,Census_07,DATA2(58)
INTEGER I
DO I=1,58
DATA2(I)=0.0
END DO
DATA2(1) = Census_50 ! 1950
DATA2(2) = 0.7500*Census_50+0.2500*Census_54 ! 1951
DATA2(3) = 0.5000*Census_50+0.5000*Census_54 ! 1952
DATA2(4) = 0.2500*Census_50+0.7500*Census_54 ! 1953
DATA2(5) = Census_54 ! 1954
DATA2(6) = 0.8000*Census_54+0.2000*Census_59 ! 1955
DATA2(7) = 0.6000*Census_54+0.4000*Census_59 ! 1956
DATA2(8) = 0.4000*Census_54+0.6000*Census_59 ! 1957
DATA2(9) = 0.2000*Census_54+0.8000*Census_59 ! 1958
DATA2(10) = Census_59 ! 1959
DATA2(11) = 0.8000*Census_59+0.2000*Census_64 ! 1960
DATA2(12) = 0.6000*Census_59+0.4000*Census_64 ! 1961
DATA2(13) = 0.4000*Census_59+0.6000*Census_64 ! 1962
DATA2(14) = 0.2000*Census_59+0.8000*Census_64 ! 1963
DATA2(15) = Census_64 ! 1964
DATA2(16) = 0.8000*Census_64+0.2000*Census_69 ! 1965
DATA2(17) = 0.6000*Census_64+0.4000*Census_69 ! 1966
DATA2(18) = 0.4000*Census_64+0.6000*Census_69 ! 1967
DATA2(19) = 0.2000*Census_64+0.8000*Census_69 ! 1968
DATA2(20) = Census_69 ! 1969
DATA2(21) = 0.8000*Census_69+0.2000*Census_74 ! 1970
DATA2(22) = 0.6000*Census_69+0.4000*Census_74 ! 1971
DATA2(23) = 0.4000*Census_69+0.6000*Census_74 ! 1972
DATA2(24) = 0.2000*Census_69+0.8000*Census_74 ! 1973
DATA2(25) = Census_74 ! 1974
DATA2(26) = 0.7500*Census_74+0.2500*Census_78 ! 1975
DATA2(27) = 0.5000*Census_74+0.5000*Census_78 ! 1976
DATA2(28) = 0.2500*Census_74+0.7500*Census_78 ! 1977
DATA2(29) = Census_78 ! 1978
DATA2(30) = 0.7500*Census_78+0.2500*Census_82 ! 1979
DATA2(31) = 0.5000*Census_78+0.5000*Census_82 ! 1980
DATA2(32) = 0.2500*Census_78+0.7500*Census_82 ! 1981
DATA2(33) = Census_82 ! 1982
DATA2(34) = 0.8000*Census_82+0.2000*Census_87 ! 1983
DATA2(35) = 0.6000*Census_82+0.4000*Census_87 ! 1984
DATA2(36) = 0.4000*Census_82+0.6000*Census_87 ! 1985
DATA2(37) = 0.2000*Census_82+0.8000*Census_87 ! 1986
DATA2(38) = Census_87 ! 1987
DATA2(40) = 0.6000*Census_87+0.4000*Census_92 ! 1989
DATA2(39) = 0.8000*Census_87+0.2000*Census_92 ! 1988
DATA2(41) = 0.4000*Census_87+0.6000*Census_92 ! 1990
DATA2(42) = 0.2000*Census_87+0.8000*Census_92 ! 1991
DATA2(43) = Census_92 ! 1992
DATA2(44) = 0.8000*Census_92+0.2000*Census_97 ! 1993
DATA2(45) = 0.6000*Census_92+0.4000*Census_97 ! 1994
DATA2(46) = 0.4000*Census_92+0.6000*Census_97 ! 1995
DATA2(47) = 0.2000*Census_92+0.8000*Census_97 ! 1996
DATA2(48) = Census_97 ! 1997
DATA2(49) = 0.6000*Census_97+0.4000*Census_02 ! 1998
DATA2(50) = 0.8000*Census_97+0.2000*Census_02 ! 1999
DATA2(51) = 0.4000*Census_97+0.6000*Census_02 ! 2000
DATA2(52) = 0.2000*Census_97+0.8000*Census_02 ! 2001
DATA2(53) = Census_02 ! 2002
DATA2(54) = 0.8000*Census_02+0.2000*Census_07 ! 2003
DATA2(55) = 0.6000*Census_02+0.4000*Census_07 ! 2004
DATA2(56) = 0.4000*Census_02+0.6000*Census_07 ! 2005
DATA2(57) = 0.2000*Census_02+0.8000*Census_07 ! 2006
DATA2(58) = Census_07 ! 2007

```

```
Census_50=0.0  
Census_54=0.0  
Census_59=0.0  
Census_64=0.0  
Census_69=0.0  
Census_74=0.0  
Census_78=0.0  
Census_82=0.0  
Census_87=0.0  
Census_92=0.0  
Census_97=0.0  
Census_02=0.0  
Census_07=0.0  
Return  
END SUBROUTINE
```