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DECUS NO.	8-326
TITLE	MLWI - Malawi Land Use Survey Analysis
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SOURCE LANGUAGE	FORTRAN D

MLWI - Malawi Land Use Survey Analysis

DECUS Program Library Write-up DECUS No. 8-326

ABSTRACT

This program was developed to undertake the analysis of the data from the Malawi Land Use Survey. It calculates the proportions and areas of land in each of 15 land-use classes, together with their standard errors. The proportions and areas in the broad classes of "cultivated," "uncultivated," and "uncultivatable" are also computed, with their standard errors.

TAPES REQUIRED

1. Form of program tape - The program tape is written in the PDP-8 FORTRAN-D language, and is in the source language. There are separate program tapes for the analysis of map sheets, administrative areas, and natural areas.

2. Form of data tape - The data tape should contain the identification number of the area, the area, and numbers of points falling in the successive land-use classes.

OPERATING INSTRUCTIONS

```
.FORT                Program in high-speed reader
*OUT-S:MLWI
*
*IN-R:
* ↑
↑
*READY               Data tape in low-speed reader
↑
```

If the program has already been compiled onto the disk, it may be called back into core as follows:

```
.FOSL
*IN-S:MLWI
*
*OPT-
*↑
*READY               Data tape in low-speed reader
↑
```

OUTPUT

The program prints the identification number of the area, and the area, followed by the number of points in each successive land-use class. These are followed by the proportions and areas and the standard errors for each land-use class. Finally, the proportions, areas, and standard errors are printed for the groups of "cultivated," "uncultivated," and "uncultivatable" classes.

STORAGE AND LIMITATIONS

Normal for FORTRAN-D.

```
L                                                                    MLWI
C     MALAWI LAND USE SURVEY ANALYSIS BY ADMIN. DISTRICTS
      DIMENSION V(16)
2Ø    TYPE 1ØØ

1ØØ         FORMAT (/,/,/,"ADMIN. DISTRICT AND TOTAL AREA",/)
            ACCEPT 1Ø1, NA, TA
1Ø1         FORMAT (I, E)
            TYPE 1Ø2
1Ø2         FORMAT (/,"NOS OF POINTS IN SUCCESSIVE LAND USE CLASSES",/)
            SUM=Ø.Ø
            DO1  I=1,15
            ACCEPT 1Ø3,V(I)
            SUM=SUM+V(I)
1           CONTINUE
1Ø3         FORMAT(E)
            CULT=V(1)+V(2)+V(3)+V(4)
            UNCD=V(5)+V(6)+V(7)+V(8)+V(9)+V(1Ø)+V(11)
            UNCB=V(12)+V(13)+V(14)+V(15)
            TYPE 1Ø4
1Ø4         FORMAT (/,/,"CLASS PROPORTIONS AREAS AND STANDARD ERRORS")
            DO 11 I=1,15
            P=V(I)/SUM
            A=P*TA
            Q=1.Ø-P
            SEP=P*Q/SUM
            IF(SEP)1Ø,1Ø,9
9           SEP=SQTF(SEP)
1Ø          SEA=SEP*TA
            TYPE 1Ø5, I, P, A, SEP, SEA
1Ø5         FORMAT (/,I,E,E,E,E)
11          CONTINUE
            P=CULT/SUM
            A=P*TA
            Q=1.Ø-P
            SEP=P*Q/SUM
            IF(SEP) 3,3,2

2           SEP=SQTF(SEP

3           SEA=SEP*TA
            TYPE 1Ø6, P, A, SEP, SEA
1Ø6         FORMAT (/,/,"CULT",E,E,E,E)
            P=UNCD/SUM
            A=P*TA
            Q=1.Ø-P

            SEP=P*Q/SUM
            IF(SEP) 4,4,5
```

```
5           SEP=SQTF(SEP)
4           SEA=SEP*TA
            TYPE 1Ø7,P,A,SEP,SEA
1Ø7         FORMAT(/,"UNCD",E,E,E,E)
            P=UNCB/SUM
            A=P*TA
            Q=1.Ø-P
            SEP=P*Q/SUM
            IF (SEP)6,6,7
7           SEP=SQTF(SEP)
6           SEA=SEP*TA
            TYPE 1Ø8,P,A,SEP,SEA
1Ø8         FORMAT(/,"UNCB",E,E,E,E)
            GO TO 2Ø
            END

*
```

```
L                                                              MLWI
C       MALAWI LAND USE SURVEY ANALYSIS BY MAP SHEETS
        DIMENSION V(16)
2Ø      TYPE 1ØØ

1ØØ     FORMAT(/,/,/,"MAP SHEET AND TOTAL AREA",/)
        ACCEPT 1Ø1,NA,TA
1Ø1     FORMAT (I,E)
        TYPE 1Ø2
1Ø2     FORMAT (/,"NOS OF POINTS IN SUCCESSIVE LAND USE CLASSES",/)
        SUM=Ø.Ø
        DO 1 I=1,15
        ACCEPT 1Ø3,V(I)
        SUM=SUM+V(I)
1       CONTINUE
1Ø3     FORMAT(E)
        CULT=V(1)+V(2)+V(3)+V(4)
        UNCD=V(5)+V(6)+V(7)+V(8)+V(9)+V(1Ø)+V(11)
        UNCB=V(12)+V(13)+V(14)+V(15)
        TYPE 1Ø4
1Ø4     FORMAT (/,/,"CLASS PROPORTIONS AREAS AND STANDARD ERRORS")
        DO 11 I=1,15
        P=V(I)/SUM
        A=P*TA
        Q=1.Ø-P
        SEP=P*Q/SUM
        IF(SEP)1Ø,1Ø,9
9       SEP=SQTF(SEP)
1Ø      SEA=SEP*TA
        TYPE 1Ø5,I,P,A,SEP,SEA
1Ø5     FORMAT (/,I,E,E,E,E)
11      CONTINUE
        P=CULT/SUM
        A=P*TA
        Q=1.Ø-P
        SEP=P*Q/SUM
        IF(SEP) 3,3,2

2       SEP= SQTF(SEP)

3       SEA=SEP*TA
        TYPE 1Ø6,P,A,SEP,SEA
1Ø6     FORMAT (/,/,"CULT",E,E,E,E)
        P=UNCD/SUM
        A=P*TA
        Q=1.Ø-P

        SEP=P*Q/SUM
        IF(SEP) 4,4,5
```

```
5           SEP=SQTF(SEP)
4           SEA=SEP*TA
            TYPE 1Ø7,P,A,SEP,SEA
1Ø7         FORMAT(/,"UNCD",E,E,E,E)
            P=UNCB/SUM
            A=P*TA
            Q=1.Ø-P
            SEP=P*Q/SUM
            IF (SEP) 6,6,7
7           SEP=SQTF(SEP)
6           SEA=SEP*TA
            TYPE 1Ø8,P,A,SEP,SEA
1Ø8         FORMAT(/,"UNCB",E,E,E,E)
            GO TO 2Ø
            END

*
```

```
L                                                              MLWI
C       MALAWI LAND USE SURVEY ANALYSIS BY NATURAL AREAS
        DIMENSION V(16)
2Ø      TYPE 1ØØ

1ØØ     FORMAT (/,/,/,"NATURAL AREA AND TOTAL AREA")
        ACCEPT 1Ø1,NA,TA
1Ø1     FORMAT (I,E)
        TYPE 1Ø2
1Ø2     FORMAT (/,"NOS OF POINTS IN SUCCESSIVE LAND USE CLASSES",/)
        SUM=Ø.Ø
        DO 1 I=1,15
        ACCEPT 1Ø3,V(I)
        SUM=SUM+V(I)
1       CONTINUE
1Ø3     FORMAT(E)
        CULT=V(1)+V(2)+V(3)+V(4)
        UNCD=V(5)+V(6)+V(7)+V(8)+V(9)+V(1Ø)+V(11)
        UNCB=V(12)+V(13)+V(14)+V(15)
        TYPE 1Ø4
1Ø4     FORMAT (/,/,"CLASS PROPORTIONS AREAS AND STANDARD ERRORS")
        DO 11 I=1,15
        P=V(I)/SUM
        A=P*TA
        Q=1.Ø-P
        SEP=P*Q/SUM
        IF(SEP)1Ø,1Ø,9
9       SEP=SQTF(SEP)
1Ø      SEA=SEP*TA
        TYPE 1Ø5,I,P,A,SEP,SEA
1Ø5     FORMAT (/,I,E,E,E,E)
11      CONTINUE
        P=CULT/SUM
        A=P*TA
        Q=1.Ø-P
        SEP=P*Q/SUM
        IF(SEP) 3,3,2

2       SEP=SQTF(SEP)

3       SEA=SEP*TA
        TYPE 1Ø6,P,A,SEP,SEA
1Ø6     FORMAT (/,/,"CULT",E,E,E,E)
        P=UNCD/SUM
        A=P*TA
        Q=1.Ø-P

        SEP=P*Q/SUM
        IF(SEP) 4,4,5
```

```
5           SEP=SQTF(SEP)
4           SEA=SEP*TA
            TYPE 1Ø7, P, A, SEP, SEA
1Ø7         FORMAT(/, "UNCD", E, E, E, E)
            P=UNCB/SUM
            A=P*TA
            Q=1.Ø-P
            SEP=P*Q/SUM
            IF (SEP) 6,6,7
7           SEP=SQTF(SEP)
6           SEA=SEP*TA
            TYPE 1Ø8, P, A, SEP, SEA
1Ø8         FORMAT (/, "UNCB", E, E, E, E)
            GO TO 2Ø
            END

*P
```