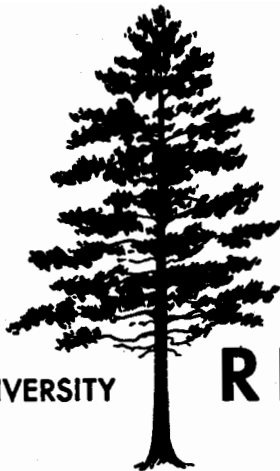


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STANDARD INPUT FOR COMPUTER PROCESSING OF FOREST INVENTORY DATA

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A standardized format for data input is one of the first accomplishments in the development of the MTU Computer Program for Forest Inventory. This is to be a standard program whose principle objective is to compute and analyze inventory and growth data for Continuous Forest Inventory (CFI) projects. However, procedures developed are appropriate for any data from research or inventory plots; and growth analyses from any series of individually numbered trees on which repeat-measurements have been made.

A study of CFI projects disclosed that, though similar data were collected, the physical presentation of that data varied widely. It was therefore decided that the program would be developed for use of a single standard format. This seeming inflexibility was countered by the inclusion in the layout of a wide range of variables.

The program is being written for high speed, large scale machines. Since magnetic tape is the most efficient medium for data input, a preliminary step to the use of the standard program is the conversion of punch-card data to magnetic tape. This conversion is best accomplished by a simple program -- run on a small data processor such as the IBM 1401. Because of the variety of punch-card formats and codes in present use, these conversion programs can not be standardized.

However, the objectives of the converting programs are common to all. They are:

1. Convert punch-card data to magnetic tape.
2. Re-arrange and enter data into appropriate fields.
3. Convert user's codes into standard codes, where necessary.
4. Perform a simple error check for blank columns, double punches, and legitimate codes.

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Although it is not necessary for a user to adopt standardized codes or classifications for his variables; some standardization of coding is helpful to the working of the system. For example, standard species codes are used internally in the program. This procedure aids standardization of certain error check procedures and is necessary to the operation of a volume computing segment wherein a single composite table can be used with correction factors for individual species.

Since the simple adjustments and standardizations are performed in the card-to-tape process, program operation is simplified; yet there is no serious limitation on the data that the program will accept.

Figures 1 and 2 are the suggested standard formats for individual tree and plot data, respectively. Though presented in card form for ease of understanding, these are meant to be primarily tape formats.

A number of CFI projects were analyzed to develop standard lists of variables. Approximately half the variables listed herein were encountered in virtually every one of over two dozen cases studied. To this common base, selections were added that were relatively common or that were judged significant. The "Variables A, B, C" fields are available for special non-standard tree or plot classes. It is not necessary to use all the fields.

Standardization of input provides an important working base for the development of standardized procedures for the total system. The format presented herein is not final. It is subject to study and revision as the rest of the system is developed.

We suggest that those who are considering future use of the standard program should study the enclosed figures, determine whether or not their individual projects could be handled within the prescribed formats, and report their findings to the Ford Forestry Center.

TREE DESCRIPTION VARIABLES

TREE	Tree Number
SP	Species
DBH	Diameter breast height
SAWL	Sawtimber
CDWD	Cordwood
UL	Usable Length
SO	Soundness (percent)
TST	Tree Status
MP or MGP	Management Potential
V or VIG	Vigor
Q or QUAL	Quality
PR or PRD: (K)	Product (Kind)
(N)	Number of Specialty Bolts
AGE	Age Class (tree age)
HT or TOT. HT.	Total Height
CR or CROWN: CL	Crown Class
L	Crown Length
HT	Crown Height (or height to live crown).
VAR or VARBL	Other Variables A, B, C.
MRT	Mortality
O	Old data (i.e. Measurement M-1)
N	New data (i.e. Measurement M-2)

Figure 1a. Tree class names made available to users of the standard program provide a system suitable to a wide range of needs. It is anticipated that few users will utilize every field.

AREA (PLOT) DESCRIPTION VARIABLES

PLOT	Plot Number
FOR/ST	Forest or State
DIST MGU	District or Management Unit
CTY TWP	County or Township
SOIL	Soil Type
S or SI: Q	Site Quality
I	Site Index
SL or SLOPE: AS	Aspect
P	Slope Position
G or GR	Slope Gradient (or percent)
T or TOP	Topography Class
LJ or LND UC	Land Use or Land Class
AC or ACC	Accessibility
C or COV TY	Cover Type
S	Size Class
D	Density Class
LO CV	Low Cover Type or Understory Classification
SIL or SL TR	Silvicultural Treatment
AG CL	Age Class (stand age)
CP or CTP	Cutting Period
OP	Operability
TR or TRT: H	Treatment (or cutting or planting) History
DA	Treatment Date (or range in %)
PL	Plantability
O VAR	Other Variables A, B, C, D.
MI	Measurement Interval (in years)
M	Measurement Number

Figure 2a. Area classifications provided should satisfy the requirements of most users. The use of all fields is not necessary to the operation of the program. In fact, it is anticipated that few will use more than half the above fields.