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A FLEXIBLE COMPUTER PROGRAM FOR THE PRODUCTION OF INSECT LABELS

Carl W. Albrecht¹ and Russell V. Skavaril²

In many instances multiple copies of identical insect labels are needed, either with or without blank spaces, for the purpose of placing collection or determination data with a specimen. One of several ways to produce acceptable insect labels is through the photo-reduction of typewritten copy. Compared to type setting, followed by press printing, this method provides greater flexibility, and often quicker results, especially when labels are needed only in relatively small quantities; also, it may be less expensive than press printing. However, the typing of full sheets of photo-ready copy is a tedious and time consuming process. If one has ready access to an electronic computer, with print-out on paper, this typewriting step may be obviated. The photo-ready copy is printed by the computer under direction of a suitable program which also contains the text needed for a particular label. Such a program, written in FORTRAN language, is presented here along with comments on its adaptation to specific needs.

Overall (1970) has suggested a computer program for producing insect labels, but omits suggestions for the modification or adaptation of his program to meet specific needs. Since many individuals, who may wish to use this program, will have little or no training in the actual writing of computer programs, the program presented here is designed to be as easily changed as possible.

MATERIALS AND METHODS

An IBM system 370/165 installation in the Instructional and Research Computer Center at The Ohio State University, Columbus, Ohio, was used in the preparation and testing of this program. Access to the computer was gained by submitting a deck of punched cards for batch processing at the Computer Center, or by entering the program for background processing through a remote IBM 2741 communications terminal. Over 20 of these terminals are located on the main campus of the University and are connected to the computer by leased telephone lines, providing relatively easy access to the Computer Center. Either method of access can produce equally acceptable results in terms of print-out photo reduction.

A listing of the program appears in Fig. 1.

For batch processing, the program was punched onto standard 80 column, 3 1/4" by 7 3/8" data cards by means of an IBM 029 keypunch machine. Columns 7 through 72 of the cards were used for the program statements; column 1 received the comment symbol, "C"; columns 2 through 5 were used for statement numbers, when needed; and column 6 held the continuation symbol when a statement extended beyond a single card, and had to be divided into sub-statements. In the program described here, the asterisk was used as the only continuation symbol; it appears in column 6 of lines containing label text, and facilitates identification of that part of the program which contains the actual information to be printed in the label. The Job Control Language statements, necessary for the submission of this program for processing, were supplied by the Computer Center; these statements have been omitted from the above program listing because they are installation specific. It is recommended that users of this program consult their own computer centers to acquire the appropriate Job Control Language statements.

For remote processing, the program was entered by typing on the keyboard of an IBM 2741 terminal.

The program for this project was written in FORTRAN because of the widespread use of this language, and the common availability of FORTRAN compilers at computer installations.

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Column nos: 1 3 5 7 9....

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      J=1
C     NOTE: MAKE N=NUMBER OF TIMES TO PRINT A ROW OF LABELS
      N=12
14    J=J+1
      WRITE (6,24)
24    FORMAT (2H /
      *5(22H OHIO:FRANKLIN CO.   )/
      *5(22H COLUMBUS           )/
      *5(22H CARL W. ALBRECHT   )/
      *5(22H JULY               ,1973 )/
      IF (J.GT.N) GO TO 34
      GO TO 14
34    STOP
      END

```

Fig. 1. FORTRAN program for the production of insect label copy.

The computer output from this program was printed on the plain white side of 14 7/8" by 11" paper. This paper is standard with the high speed printers at the Computer Center, as well as on the 2741 terminals. Numerous type faces are available for the 2741 terminal, and give clearly readable copy when printed with a reasonably fresh ribbon and a clean type ball. An example of the output produced by the program listed above is shown reduced in Fig. 2.

The camera-ready copy, resulting from the computer print-out, was photographed with a commercial copy camera at 1/3 of original size and printed onto double-weight paper with a matte finish. After thorough fixing, washing, and drying, this paper was cut up giving strips of labels from which labels could be cut as needed. Four sheets of computer print-out, trimmed of excess margins, were reproduced on 10" by 12" paper when reduced by 2/3. This gave 240 individual labels (each label with 4 lines of 22 characters, including blanks) on each 10" by 12" sheet, using the format provided in this program.

DISCUSSION

The program, as it is given here, directs the computer to print 12 rows of labels, each row with 5 labels extending across the page, and each label with 4 lines of text.

Statements preceded by a "C" are comments and do not affect the operation of the program. Additional comments may be inserted at any point before the "STOP" statement, so long as each statement begins with a "C" in column 1.

As noted in the program, one must dictate the number of rows of labels that will be printed by declaring the value of "N". A simple formula for determining the number of rows needed to fill the 14 7/8" x 11" sheet of print-out is: $N = 60/X + 1$, where X is the number of lines of text within an individual label. In the sample label used in the program example above there are 4 lines of text within each label. Therefore, $X = 4$, and 12 rows of labels are required to fill a sheet of print-out.

The program sub-statements beginning with an asterisk in column 6 contain the actual text for the label, with each line of the label controlled by a separate sub-statement in the program. The text for each label line, as it appears in the program, is bounded on the left by the letter "H", and on the right by a closing parenthesis. The number "22" indicates the number of spaces between the "H" and the closing parenthesis, each of which must be occupied by a letter, number, symbol, or blank. If one wishes to change the length of these lines, one need only change the value of "22". However, the value of this determinant must be the same for each sub-statement in the program if straight right and left margins are to be maintained throughout the print-out.

The number of lines of text within a label may be changed by adding or deleting sub-statements. Each of these sub-statements should begin with an asterisk in column 6,

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Fig. 2. Example of program output, reduced to 1/3 of original size.

and must appear in the program between "24 FORMAT..." and "If (J.GT...." No statement in the program may extend beyond column 72 of a punched card.

The computer used in the preparation of this program has 120 character spaces in each line of print-out. With each line within a label having 22 spaces it is possible to print 5 complete labels across the page. In the program, the numeral "5" following the asterisk in each sub-statement of label text determines the number of times this label line is printed across the page. This number is determined by simply dividing the character length of the label into 120 (the number of spaces available across a sheet), and may be changed if the length of the label lines is increased or decreased. However, the value must be the same for all sub-statements in a single label if complete labels are to be printed throughout.

SUMMARY

A FORTRAN program for the production of camera-ready insect label copy is described with notes concerning the adaptation of this program to the individual needs of the entomologist. The computer print-out may be photographically reduced onto appropriate paper giving insect labels ready for cutting and pinning.

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