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Preparing Graphics for Electronic Publishing¹

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This publication explains the protocols for preparing graphics for electronic publishing in IFAS. Types of graphics that can be used in electronic documents include digitized photographs, scanned artwork, equations produced in WordPerfect's Equation Editor, graphs and other drawings produced in computer graphics programs, and text charts that are treated as figures. All graphics must be in digitized form to be used in electronic documents. Therefore, graphics either must be created electronically or must be converted to electronic versions by scanning. Authors whose departments have the equipment and personnel to prepare digitized graphics files may wish to handle preparation of electronic graphic files within their department. Authors who do not have direct access to needed hardware and software can get assistance from the FAIRS office or from IFAS Educational Media and Services.

SIZES OF GRAPHICS USED

Electronic documents for publication in IFAS need to be prepared in WordPerfect, using the add-on electronic toolkit FAST-WP (Florida's Authoring System Tools for WordPerfect). To import a graphics file into the document, first a WordPerfect figure box is created, using the FAST-WP menu, then the graphics file is retrieved into the figure box. The FAST-WP menu allows boxes to be created in three widths: one column wide (3.3"), 1.3 columns wide

(4.5"), or two columns wide (7"). Illustrations should be planned to fit one of these standard widths. If text labels are to be used as part of a graphics file, the size of lettering used should be appropriate for the final size of the illustration.

GRAPHIC FILE FORMATS

Documents on the CD-ROM can be displayed on-screen and also printed to a LaserJet II or compatible printer. These two delivery modes use different resolutions for graphics. Therefore, when a document uses graphics, two sets of graphics files are needed, one for incorporation into the WordPerfect document and one for on-screen display. The WPG graphics format (*.WPG) is recommended for files imported into the WordPerfect document. The PCX format (*.PCX) is required for files to be displayed on the monitor.

PHOTOGRAPHS

The FAIRS CD-ROMs provide high quality reproduction of color slides and photographs on the video display screen. At present, color photographs are limited to on-screen display, and these illustrations are not included in documents printed from the CD-ROM to a laser printer. Black and white photographs can be digitized for printing on a laser printer, but the results may not be satisfactory.

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Color Photographs

Color slides, color photographs, and printed color illustrations can be digitized in the FAIRS office for use on the FAIRS CD-ROM. The digitized color illustrations will be available for display on a computer monitor but will not appear on the pages produced on a laser printer. (As laser printers with color printing capability come into more common use, it may be feasible to print the color illustrations.)

If 35-mm slides are submitted, the original slide not a duplicate, is needed for scanning. Color photographs can also be scanned. Printed color illustrations, such as those found in magazines, can be scanned by FAIRS personnel, and resulting moire patterns can be removed. However, if illustrations are taken from previously printed sources, the author should obtain permission to use copyrighted material.

Black and White Photographs

Black and white photographs can be scanned for inclusion in electronic documents. These illustrations will display satisfactorily on the computer screen. For print reproduction, however, scanned photographs do not reproduce well with current laser printing technology. It may be preferable to substitute line drawings for photographs in the word processing file.

For black and white photos to be scanned, it is best to start with photographs that were shot with black and white film. Black and white prints made from color negatives or color slides tend to lose the middle tones of gray.

GRAPHS AND CHARTS

Graphs are preferable to tables when the emphasis is not so much on individual data entries as on the interpretation of the data. Graphs help to show trends and comparisons at a glance.

Computer-Generated Graphics

Computer-generated graphs produced in other computer programs can often be imported into WordPerfect document files. For example, graphs produced in Harvard Graphics, Lotus 1-2-3, and Lotus Freelance Plus can be imported into WordPerfect, as can graphics in Computer Graphics Metafile format (*.CGM). The WordPerfect Graphics Conversion Program (a utility program that comes with WordPerfect) can be used to convert files from certain formats

such as AutoCAD DXF to a format compatible with WordPerfect.

The WordPerfect GRAB utility can be used with some graphics programs to capture an image from the screen. For example, graphics created in Microsoft Excel and Quattro can be captured in WPG format by GRAB.

The WordPerfect manual lists graphics formats that are supported by WordPerfect, formats that require conversion, and formats that can be used with the GRAB utility.

Hand-drawn Graphs

Graphs which are not in electronic form, such as graphs drawn for photographic reproduction, need to be scanned. (See the following section of this document on Scanned Artwork.)

Text Charts Created in WordPerfect

Charts are appropriately treated as figures in a WordPerfect document. Text can be entered within a WordPerfect figure box to create a chart. An alternative is to create the chart as a separate WordPerfect document, then import the document file into a figure box.

SCANNED ARTWORK

Line drawings and similar artwork created for photographic reproduction need to be scanned to convert the drawing to electronic format. Drawings should be scanned at 300 dpi into the PCX file format. If a size is set for saving the file, it should be approximately the final size of the figure as it will be used in the laser-printed document. Standard widths are one column (3.3"), 1.3 columns (4.5"), or two columns (7") wide, with a limit on length of 9.5". (If precise measurements are needed, the widths inside these graphics boxes to hundredths of an inch are 3.31", 4.48", and 6.98", assuming no inside border space is used.) Scanned artwork should be closely cropped, and borders that are not an intrinsic part of the figure should be omitted.

Before the figure is imported into WordPerfect, it is recommended that the PCX file be converted to WPG format by use of the WordPerfect GRAPHCNV utility. Converting graphics files to the WPG format reduces the size of graphics files, which will reduce the size of documents and alleviate

memory management problems. Incorporate the WPG or PCX file into the WordPerfect document, but *reserve a copy of the PCX file* to submit as a separate file for use in the on-screen version of the document.

If text has been used on artwork that is scanned, it may be advisable to use a graphics program such as Publisher's Paintbrush to erase the scanned text and re-enter text in the file. A sans-serif font such as Helvetica is recommended.

COMPLEX EQUATIONS

Complex equations should be created as a graphics component of a document by using the WordPerfect Equation Editor. When equations are created in the Equation Editor, they are embedded in the document file and will appear in the document when a hardcopy of the file is printed. For on-screen display of document segments from CD-ROM, a separate file of the equation needs to be saved. The equation needs to be created only once; however, it needs to be saved as a separate graphics file by use of the WordPerfect GRAB utility or another screen capture program. The resulting graphics files will be used for on-screen display of equations.

USING GRAPHCNV TO CONVERT FILES TO WPG FORMAT

The WordPerfect graphics conversion program, GRAPHCNV, can be used to convert graphics files from a number of unsupported formats to a supported format. Even if the native format of a graphics file is supported by WordPerfect, as is the case with PCX, HPGL, and TIFF files, it is recommended that the file be converted to the WPG format in order to make the file size smaller. Reducing the file size will alleviate memory management problems when working with long documents and will save space on the CD-ROM. To convert files from other formats (PCX, HPGL, TIFF, etc.) to WPG format, use WordPerfect's Graphics Conversion program, GRAPHCNV.EXE.

The Graphics Conversion program, GRAPHCNV, is part of the WordPerfect utilities. If you have not installed the utility programs included with WordPerfect, you need to do so before you can use the Graphics Conversion program.

The conversion program runs outside of WordPerfect. To use GRAPHCNV, enter the command

graphcnv from a DOS prompt. If the PATH statement in your AUTOEXEC.BAT file does not include the WordPerfect directory, you need to change to the directory where the WordPerfect utility programs are installed before you enter the name of the program. For example, if WordPerfect is installed in a directory WP51 on drive C:, the commands would look like this:

```
C:> cd wp51
C:\WP51> graphcnv
```

The program will prompt for the name of the file to be converted. Enter the full pathname. Then the program will suggest a filename for the output file. You can accept or edit this entry. When the conversion is complete, an OK message will display.

You need to enter the command **graphcnv** each time you make a conversion. When GRAPHCNV is running, you can convert multiple files at one time if your filenames are such that you can use a wildcard. For example, you could convert a series of files named GRAPH1.PCX, GRAPH2.PCX, etc., by entering **graph*.pcx** or **graph?.pcx** as the input filename. (The asterisk replaces multiple characters; the question mark replaces a single character. Use the asterisk if the numbers run into two digits.)

USING GRAB

GRAB is WordPerfect's screen capture program. The program GRAB.COM is part of the WordPerfect utilities. If you have not installed the WordPerfect utility programs, you need to do so before you can use GRAB.

The GRAB utility can be used with various graphics programs to capture an image from the screen. (Refer to the WordPerfect manual for a list of graphics programs that can be used with GRAB.) The GRAB utility can also be used to copy displays of WordPerfect graphics screens such as the Equation Editor and the View Document screen. The example of using GRAB that follows assumes that you are capturing a graphic view of an equation created in WordPerfect.

Example: Capturing an Equation

1. Load the Grab program into memory. To do this, exit any programs that are running and go to DOS. From the DOS prompt, enter the name of the program, **grab**. If the WordPerfect

directory is not in the path statement of your AUTOEXEC.BAT file, you need to change to the directory where the WordPerfect utility programs are installed before you run grab. For example, if WordPerfect is installed in a directory WP51 on drive C:, the commands would look like this:

```
C:> cd wp51
C:\WP51> grab
```

2. Start WordPerfect.
3. Change your screen colors so that the background is white and the character display is black. To do this, use the WordPerfect Setup menu to edit the screen display (**Shift-F1, 2, 1**). If you fail to set the screen colors before capturing the screen display, the graphics file will probably have to be edited later in a graphics program.
4. Retrieve the WordPerfect document that contains the equation(s) you want to capture.
5. Display the graphics image you want to capture on the screen. For a single equation, use the Graphics menu and choose Equation, Edit. For a group of equations that you want to appear together, position the equations and use View Document to display the image.
6. Press **Alt-Shift-F9** to activate the screen capture program. A two-tone chime will indicate that the screen capture program is ready for use.
7. A box will appear on the screen. Position the box to outline the portion of the screen to be captured. Use the arrow keys to move the box on the screen, use Shift-arrow keys to resize the box, and use the Insert key (Ins) to switch between fine and coarse increments in moving and sizing the box.
8. Press **Enter** to capture the contents of the box as a graphics file.

The GRAB utility will name files it creates in sequence: GRAB.WPG, GRAB1.WPG, etc. Files will be saved to the default directory.

Buzz. If you hear a low-pitched buzz instead of a two-tone chime when you press **Alt-Shift-F9**, this is a

signal that the screen capture program cannot perform. Possible problems include the following:

- You are not in graphics mode.
- You have a video adapter that is not supported by the screen capture program.
- Your graphics program or some other TSR (terminate and stay resident) program is incompatible with the screen capture program.

HANDLING GRABBED FILES

The files captured by GRAB.COM will be in WPG format. These files are suitable for incorporation into the WordPerfect document. However, for on-screen display from the FAIRS CD-ROM, the PCX graphics format is required. Various graphics programs will allow you to make the conversion. For example, if you have Microsoft Windows, you can use the Paintshop application to convert the WPG file to a PCX file. Open the file and save it as a PCX file in the 16-color palette. If you have WordPerfect Presentations, you can retrieve the WPG file into Presentations and export it in the PCX format.

If you do not have a conversion program available to convert WPG files to PCX files, publications production specialists in Educational Media and Services or specialists in FAIRS can make the needed conversion. Indicate on the materials submitted for publication that this service is needed.

NAMING CONVENTIONS FOR GRAPHICS FILES

Graphics files submitted with documents should be named in such a way as to identify both the publication and the figure number. To achieve this, it is recommended that the CD-ROM publication number be used as the first five letters of the filename.

When documents are placed on the FAIRS CD-ROM, they receive a five-character codename in addition to the Extension publication number. The first two characters of the CD-ROM publication number indicate the handbook in which the document is found. The next three characters represent the document number within the handbook. For example, the CD-ROM publication number MG056 indicates document 56 in the Master Gardener Handbook, and the CD-ROM publication number HE110

indicates document number 110 in the Home Economics Handbook.

The recommended naming convention for graphics files is to use the CD-ROM publication number followed by the figure number. The figure number is expressed in the form F01, F02, etc., where the *F* stands for *Figure*, and the last two characters are the same as the figure number used in the document, with a zero placed before a one-digit number. This naming convention generates a unique eight-character filename such as MG056F01, assuring that graphics files will be associated with the correct document.

It is not necessary to use an extension such as PCX with the filename. The *F* in the filename designates a figure, and makes an extension unnecessary.

CD-ROM numbers for previously printed documents can be obtained from the index of documents on the FAIRS CD-ROMs or from the FAIRS office. New documents can be assigned a CD-ROM number by phone. Call the FAIRS office at (904) 392-3196.

If the CD-ROM publication number is not known, graphics files can be named according to another plan, but it is important that the filenames be unique. If two files have the same name, one file will overwrite the other in centralized document processing within FAIRS. Therefore, filenames such as FIGURE1 cannot be used. Even filenames such as TREESF01 may be too general. The best practice is

to use a codename. Such a name could be formed by the author's initials plus a temporary document number. Departments submitting a large number of new documents may wish to set up a naming convention within the department to make sure that filenames are unique.

ASSISTANCE WITH GRAPHICS

For questions about requirements for graphics files for CD-ROM publishing and for recommendations on filenames, call the FAIRS office, (904) 392-3196. Assistance with scanning and with format conversions is available both from the FAIRS office and from IFAS Educational Media and Services, (904) 392-2411. For questions about using FAST-WP, see Extension Circular 1069, *FAST-WP: Florida's Authoring System Tools for WordPerfect*. For questions about using WordPerfect graphics features or the WordPerfect utilities GRAB and GRAPHCNV, refer to the WordPerfect manual.

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