A Durable Mount for Preserving Pressed Plant Material for Use in Research, Extension, and Teaching

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Abstract. Photography and dry pressing of plant material are alternative visual methods of communicating descriptions of plant characteristics or injury symptoms when the use of fresh samples is not possible. Each of these methods, though, is limited in its use in agricultural research, extension, and teaching programs. Photographic methods (slides and prints) may not depict textural characteristics in the plant’s morphology or may not be appropriate for “in-the-field” discussion. Dry pressed samples more effectively exhibit textural surfaces but are not durable and usually show only one surface. A simple technique utilizing dry press combined with transparent adhesive paper mounting overcomes some of the preceding limitations. This method allows viewing of both surfaces of the same leaf and is durable and somewhat flexible for long-term use. The method is suited for field presentation to agricultural clientele. Plant morphological and identification parameters and pest or chemical injury can be easily observed on both leaf surfaces.

Introduction

Documenting plant injury, morphological characteristics, and/or species during “trouble shooting” visits by University research and extension specialists to commercial agricultural fields is often desirable for future reference or in-depth study. Photography, resulting in slides or prints, is the most often used method of documentation. A limitation of photography is that only one side of many objects is captured on film. Observation of both the upper and lower surfaces of the plant structure (e.g., leaves) is beneficial in the diagnosis of the causal agent(s) of plant injury or in species identification. Simultaneous bisurface observation of the same object is difficult with photography.

Pressing and mounting of dried plant material is another means of documentation. In general, the desired plants or plant parts are taken fresh from the field and placed between layers of absorbent paper and tension is applied against the paper, resulting in a flattening of the plant material. After the material is pressed to sufficient dryness, it is mounted (affixed) with glue to a paper or cardboard surface [1, 4]. This technique, while widely used for preserving plant specimens for educational uses in herbariums [3], is rarely used for documenting observations on, or of, agricultural crops. One reason for its limited use by agriculturalists is that the dried, pressed, and mounted plant material is fragile and is susceptible to shattering and crumbling. This limits its use at oral presentations, grower field days, and/or short courses. Also, mounting on cardboard or paper does not permit observation of upper and lower surfaces of the material. The following is a relatively simple, durable mounting procedure using transparent one-sided adhesive paper that allows bisurface specimen observation of flat specimens that we have used for incorporating pressed plant material in our agricultural research, extension, and teaching programs.

Procedure

Plant material for pressing is collected from desired locations and placed between layers of newspaper. Recommended pressing procedures include placing the plant material between pages of a heavy book [4], or “sandwiching” the plant samples between corrugated cardboard and placing a heavy object, such as a brick, on top [2, 5]. To press our specimens, we use a relatively inexpensive, commercially manufactured plant press (Carolina Biological Supply Co., Inc., Burlington, N.C.). The plant press is more transportable and provides greater

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protection of the plant material than the other described methods.

After the plant material is sufficiently dried and flattened, it is removed from the press for mounting. Sheets of one-sided transparent adhesive plastic (Con-Tact Brand, Rubbermaid Speciality Products, Inc., Statesville, N.C.) are cut to a desired size, generally 10 to 15 cm (4 to 6 in.) larger than the width and height of the specimen. The plastic is placed on a flat surface, adhesive side upward. The plant material is placed on the plastic so that the bottom flat side of the specimen comes in contact with the adhesive side of the plastic. A second sheet of the plastic is placed on the specimen, adhesive side downward, and the plastic gently pressed to smooth out wrinkles and remove air bubbles between the sheets of plastic and plant material. Labels can be placed on the outside of the plastic or between the two sheets of plastic describing location, date, specimen, and so on, for desired documentation.

Both sides of flat plant material mounted in this manner can be observed. Textural characteristics are also discernible and plant color fading is minimal. The transparent plastic covering is effective in protecting the specimen and is very flexible and durable. Mounted pressed plant material can be stored flat or placed in a rigid binder.

Summary

The durable mounting procedure for pressed plant material that we have described is relatively simple and inexpensive. The transparent one-sided adhesive material can usually be purchased locally. We have mounted pressed plant material that we periodically use at grower meetings that is over 3 years old and is in excellent condition. We feel that this mounting procedure should enhance the use of pressed plant material in agricultural education programs. Pressed plant material can be used in extension, teaching, and research to assist in plant identification, determination of the appropriate plant growth stage for chemical spraying, assessment of chemical or pest injury to plant surfaces; distribution during or after oral presentations to highlight presentation points; and incorporation into poster presentations at professional meetings.

Pressing and mounting are not appropriate techniques for all types of plant material (e.g., fruits, branches, etc.). Other types of collection and preservation methods will need to be utilized for non-pressable specimens. But for plant materials that are appropriate for pressing, this mounting procedure is useful.

References