NORTH CENTRAL FOREST EXPERIMENT STATION

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A CONVENIENT HOLDER FOR MAILING AND STORING LEAF SPECIMENS

Robert W. Stack, *Associate Professor,*
Department of Plant Pathology,
North Dakota State University,
Fargo, North Dakota
Michael E. Ostry, *Plant Pathologist,*
St. Paul, Minnesota,
and **Larry J. Littlefield,** *Professor,*
Department of Plant Pathology,
North Dakota State University,
Fargo, North Dakota,

ABSTRACT.—Describes and illustrates a technique to mail and store diseased leaf samples to prevent deterioration or damage.

KEY WORDS: Leaf disease, shipping package, sample preservation.

Leaf samples collected from distant locations are frequently desired by plant pathologists for research on foliar diseases, by mycologists studying leaf-inhabiting fungi, by physiologists for analysis, or by botanists for taxonomic or other studies. One of the problems accessory to such collections is that of returning the leaves to the investigator promptly in usable condition without mechanical damage, total dessication, or molding. The latter is especially important in studies of foliar pathogens because growth of molds or secondary facultative parasites may obscure the role of the primary pathogen or prevent its recovery. Mycoparasitic molds may also degrade or destroy pathogen structures (such as rust pustules) already present.

Guidelines have been published for shipping insect and disease specimens but the suggestions are frequently unsuitable for detailed studies of fresh leaves.[1] When leaves are placed in plastic bags, they almost always get moldy if transport requires more than 1 day. When leaves are placed between paper towels, they have less mold but are subject to abrasion between the sheets of paper. A method is needed to allow return of fresh leaf specimens in good condition without these problems. This report describes such a method.

The leaf holders described are inexpensive, made from readily available materials, require no special tools to make, and are easy to use. They can be made up in advance and distributed to cooperators. Self

[1] *Hoffard, W. H.; Anderson, R. L.; Sites, W. H. How to collect and prepare forest insect and disease organisms and plant specimens for identification. Gen. Rep. SA-GR13. Broomall, PA: U.S. Department of Agriculture, Forest Service, Southeastern Area, State and Private Forestry; 1980. 13 p.*

addressed printed labels can be attached to the envelopes before they are distributed to assure correct and timely delivery to the investigator.

Each holder described here requires the following materials: one 6 by 9 inch manila clasp envelope, two 5 by 8 inch heavy file cards, four paper clips, and nylon screening (two pieces approximately 5 by 8 inches). All but the last are standard stationery items. The nylon screening should be heavy gauge and approximately 1/8-inch mesh. (Heavyweight nylon screen fabric 'NITEX' in many sizes is available from Pesco, Inc., Minneapolis, MN. Similar nylon fabric is also available from bio medical and scientific suppliers.[2]) Nylon screening can be safely washed in common detergents and can be sterilized, if necessary, by alcohol or bleach, by dipping in boiling water, or by steam autoclave.

The 1/8-inch mesh size is adequate for support yet allows plenty of air circulation. Heavy weight screening is made from large diameter filaments that confer stiffness and also make the surface uneven, which prevents slipping of leaves between the screens. (Plastic window screening is too flexible and smooth to prevent slipping and bending and will melt. Metal hardware cloth may corrode and is so stiff that it may cut the leaves.)

To use the holders, leaves should be free of surface moisture. Place leaves between the pieces of screening and secure the screening together with paper clips (fig. 1). (Freshly collected leaves can be placed in the screens and left in open air or dried between paper towels overnight.) Place only a single layer of leaves between the screening. Then place the screen-leaf packet between the cards and slip everything into the envelope (fig. 2). Write the collection data on one of the cards or on a separate sheet. Cards can even be printed or stamped with instructions, spaces for collection data, etc.

[2]*Mention of trade names does not constitute endorsement of the products by the USDA Forest Service.*

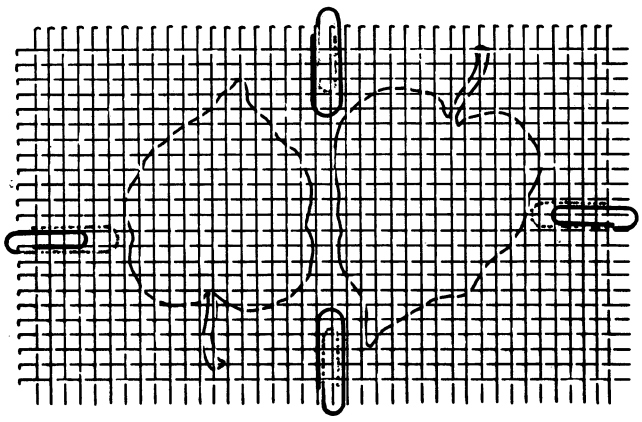

Figure 1.—*Placement of leaves in nylon screens.*

The assembled holder can be mailed or shipped by other means. Shipment of live pathogens requires a permit from the Animal and Plant Health Inspection Service (APHIS). Information and permits are available from USDA-APHIS, Hyattsville, MD 20782, or from designated State and Federal offices.

Acknowledgment

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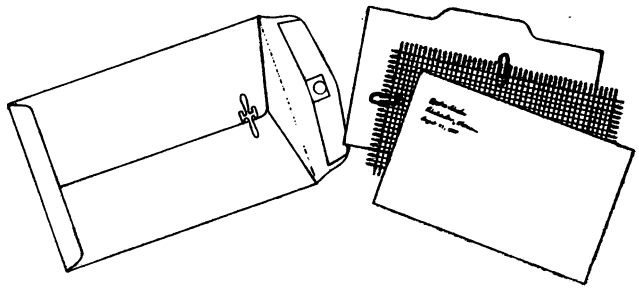

Figure 2.—*Assembly of the holder.*

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