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G76-322 How to Handle Insect and Plant Specimens for Identification (Revised March 1985)

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NebGuide

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INSTITUTE OF AGRICULTURE AND NATURAL RESOURCES
UNIVERSITY OF NEBRASKA - LINCOLN

G76-322
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How to Handle Insect and Plant Specimens for Identification

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The Nebraska Cooperative Extension Service offers the public a pest/plant identification service. Under this service, insects, weeds, plant diseases, and horticultural plants are identified and, if appropriate, methods for their prevention or control are recommended. Diagnoses of plant problems and control recommendations will be more precise if specimens are handled according to the suggestions offered in this NebGuide.

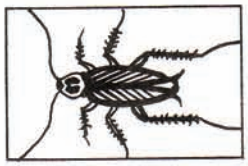
If possible, take specimens to the local extension office. Many pest problems can be solved by the extension agent. However, to confirm the identification and/or control recommendations, the extension staff may send the specimen to the Lincoln offices or to a specialist at the appropriate research and extension center. The extension staff will help package the sample properly, complete the specimen identification form and send the sample to the appropriate university laboratory.

For the identification of plant diseases and information on their control, send plant material to:

Plant Disease Diagnostic Clinic
448 Plant Science
Dept. of Plant Pathology
University of Nebraska
Lincoln, NE 68583-0722

For information on the identification and control of insect pests, send samples to:

Extension Entomology
209 Plant Industry
Dept. of Entomology
University of Nebraska
Lincoln, NE 68583-0816



Send identification and control requests concerning weeds to:

Extension Weed Science
362 Plant Science
Dept. of Agronomy
University of Nebraska
Lincoln, NE 68583-0915

For the identification and/or information on horticultural plants, send the sample to:

Extension Horticulture
377 Plant Science
Dept. of Horticulture
University of Nebraska
Lincoln, NE 68583-0724

Collection Information

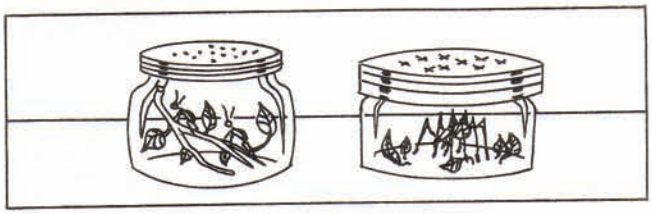
One of the most critical, but often not supplied, aids in identifying pests is written information. Always include the following information: name of collector, location (county or city), date collected, and where it was obtained (field, turf, garden, home, building, etc.). When possible, provide information such as previous cropping history, irrigation procedures and frequency, seed stock source, type and extent of injury, names and varieties of plants damaged, location of adjacent structures, and the use of pesticides or other agricultural chemicals. Any other information related to the problem should also be included.

Photographs (slides or prints) are also a good source of additional information. If possible, take them from several angles. Photographs can show trends, patterns, general appearances, and the location of the plant or affected area. They are particularly helpful in diagnosing turfgrass problems. Free-hand sketches of landscape plantings showing relationships to sidewalks, drains, the home and property lines may also be helpful.

Packaging Procedures for Live Insects

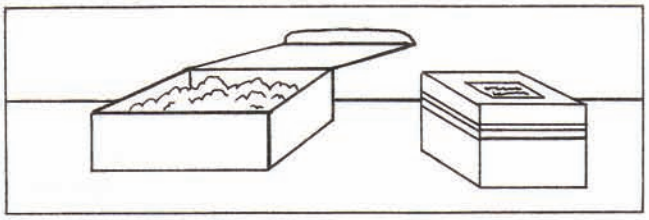
Live adult insects, larvae, and nymphs should be provided with enough of their food material to last until they arrive at their destination. Package insects in crush-proof containers to prevent loss or damage in transit. Containers should be ventilated, particularly if made of glass or plastic. If not ventilated, these materials often allow the buildup of high temperatures and condensation that can result in death and decomposition of the specimen.

Pack live pupae loosely in paper to prevent jarring and abrasion. There are limited characteristics that can be used to successfully identify pupae; therefore, it is usually necessary to let adults emerge. Thus, pupae should not be placed in preservatives.



Packaging Procedures for Dead Insects

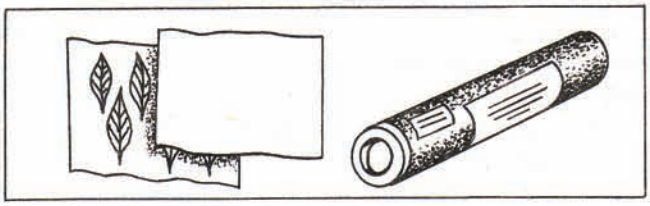
Place hard-bodied insects, butterflies, and moths between layers of cotton or soft tissue paper in sealed containers to prevent breakage and to maintain color patterns on wings. All other insects should be placed in leakproof containers filled with 70 percent alcohol (rubbing alcohol available at the drugstore can be used). Containers should then be placed in suitable mailing cartons with enough packing material to prevent breakage. Adding one part vinegar to three parts of alcohol will often maintain the color of soft-bodied larvae better than alcohol alone. If no alcohol is available, straight vinegar can be substituted.



Packaging Procedures for Plant Material

When packaging a plant sample, don't be afraid to collect a large sample. A small sample may not include all the signs and symptoms needed to make an accurate disease diagnosis. Send a representative sample, including both damaged and apparently healthy tissue. Plant material that has been dead for an extended time is generally useless in determining the identity of the causal agent. For plant identification purposes, include leaves, stems, roots, and flowering or seed bearing portions of the plants. A single leaf or leaflet is not an adequate sample for plant identification purposes.

Place green leaves between dry paper towels and enclose them in a plastic bag *without added moisture*. Carefully shake excess soil from roots. Place roots in a plastic bag with *moist* (not water-logged) wood shavings or a similar material to prevent drying. Wrap fruits separately in paper and mail without adding moisture. Mail samples in cardboard mailing tubes, boxes or envelopes reinforced with cardboard sheets. To lessen the possibility of sample deterioration over the weekend, mail specimens no later than Thursday morning.



Laws Governing Shipment of Specimens

There are federal laws that govern the shipment of certain live insects and diseased plant materials across state lines. In some cases a certificate is required by the state of destination. Within-state shipment of such materials and weed specimens is permitted unless quarantines or special state laws are involved. To determine if a certificate is needed, write to the Bureau of Plant Industry, State Department of Agriculture, P.O. Box 94756, Lincoln, Nebraska 68509. There are no restrictions on shipping dead insects.

Carefully following the procedures outlined in this NebGuide will help us to serve you better by giving you an accurate and swift reply to your inquiries.

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J-1, General

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Leo E. Lucas, Director of Cooperative Extension Service, University of Nebraska, Institute of Agriculture and Natural Resources.

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