

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

Historical Materials from University of Nebraska-
Lincoln Extension

Extension

1970

EC70-1852 Plant Diseases : Fusarium Yellows of Gladiolus

John Weihing

Follow this and additional works at: <http://digitalcommons.unl.edu/extensionhist>

Weihing, John, "EC70-1852 Plant Diseases : Fusarium Yellows of Gladiolus" (1970). *Historical Materials from University of Nebraska-Lincoln Extension*. 4044.

<http://digitalcommons.unl.edu/extensionhist/4044>

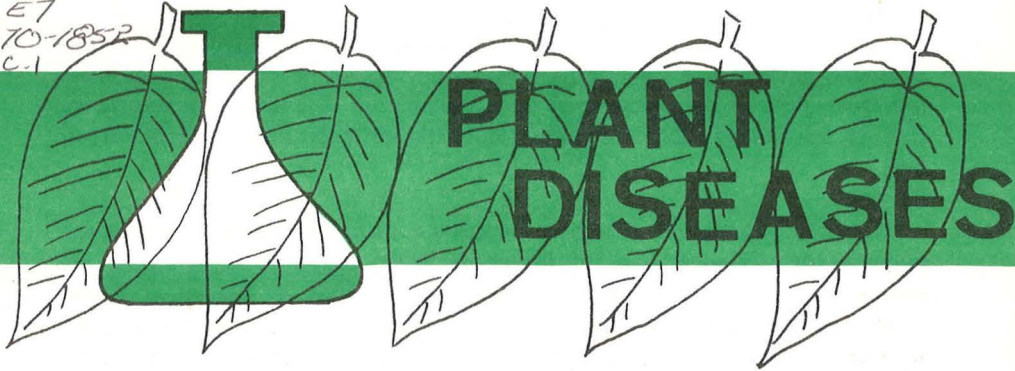
This Article is brought to you for free and open access by the Extension at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Historical Materials from University of Nebraska-Lincoln Extension by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

AGR 1

5
85
E7

E.C. 70-1852

#70-1852
C-1



FUSARIUM YELLOWS OF GLADIOLUS

John L. Wehing
Extension Plant Pathologist

The most common disease of gladiolus in Nebraska is fusarium yellows. Each year this disease causes death of gladiolus plants in flower gardens.

Some varieties are more susceptible than others. This fact is apparent when several varieties are grown together in a garden where the soil is infested with the disease organism.

Symptoms

Leaves turn yellow and die. This may occur at any stage from emergence through flowering. A severely infected corm may have sufficient life to produce some leaves which in a very young stage simply wilt, turn yellow and die. If the plants become quite large before the yellowing and die back, wilting does not occur because of the natural rigidity of the leaves. They do, however, frequently rot at the ground line and fall over after they have been dead for a while.

Corms may or may not have signs of infection. Discernible symptoms vary from a slight discoloration at the base to a complete dry rot of the corm. New corms from an infected plant may appear normal externally but, when cut, usually show a brown core with discolored streaks radiating from the infected center. Surface lesions may or may not be caused by the fusarium disease.

Infected roots at first have brown lesions. As the disease progresses, roots rot away entirely and the organism advances into the corms. When this happens, the central cores of the old and new corms generally become a yellowish brown and there may be evidence of decay.



Cooperative Extension Service, University of Nebraska
College of Agriculture and Home Economics,
and U.S. Department of Agriculture Cooperating
E. F. Frolik, Dean J. L. Adams, Director

Cause

The disease is caused by a soil-borne fungus [*Fusarium oxysporum* f. *gladioli* (Massey) Snyder and Handsen]. New corms can be infected directly from previously infected parent corms or from infested soil. The fungus gains entrance through the fibrous roots, contractile roots and leaf bases near or below the soil line.

Control:

1. *Healing the corms:* The first suggested control measure is to protect the unhealed or wounded areas of the corm. When the corm is first dug, the separation tissue between the old and new corm has not yet formed. If the old corm is torn off immediately after harvest, the unhealed base plate is susceptible to infection from contaminated soil clinging to the corm. This is also true at the leaf and neck attachment sites if the protective shucks are stripped away.

Prompt curing reduces disease losses. Optimum conditions for drying corms are temperatures of 85° to 90°F and a relative humidity between 40 and 50%. Do not cure corms in bulk; spread them out so air can circulate among them. Cleaning should be done one week after digging. "Cleaning" means to remove the roots and the "mother bulb."

2. *Corm Chemical treatments:*

a. Cured and cleaned corms should be dipped promptly in a solution of Morsodren^{1/} or Panogen Turf Spray^{1/} at the rate of 1-1 1/2 fluid ounces (2 to 3 tablespoonfuls) per 5 gallons of water. Soak for 20 minutes and then allow to air dry for 24 hours before storage. No further treatment before planting is necessary.

b. When it is not convenient or possible to go through the curing process, clean the corms at harvest and immediately apply Phaltan dust, 12.5% active, or wait a day after cleaning and dip the corms in a solution of Phaltan 50W (8 level tablespoonfuls per gallon of water) for 15 minutes. Then treat diseased corms again before planting, using a Morsodren or Panogen Turf Spray as mentioned above in No. 2a. The corms may be planted immediately or dried and planted later.

c. Recent research has shown that a fungicide, thiabendazole, sold under trade names of Mertect 160, Thiabendazole and TBZ, acts as a systemic and is more effective than Phaltan, Panogen Turf Spray and Morsodren for fusarium control. Following is a statement by R. O. Magie, who has tested this chemical extensively.

"Thiabendazole (TBZ) gave as good or better flower and corm yields and better control of fusarium corm disease than presently recommended corm treatment fungicides, whether applied to corms after harvest or before planting. TBZ is one of the few effective fungicides so far tested that is safe to use on freshly harvested corms."

^{1/} Morsodren and Panogen Turf Spray are mercury materials and are therefore highly toxic if swallowed or accidentally spilled on the skin. Wash exposed areas immediately. Wear rubber gloves during the treating process and later when handling the treated bulbs.

Thiabendazole is now approved for use on gladiolus. It is recommended as a post-harvest or a pre-plant treatment. It is sold as a 60% wettable powder. Thoroughly mix 1 teaspoonful of Mertect 160 in 1 gallon of water and completely submerge cleaned corms in this suspension.

3. *Rotation*: Rotate the planting so that this disease organism does not build up in the soil. If it is not possible to rotate and fusarium yellows begins to be a problem, treat the soil with Vapam or methyl bromide in fall or early spring before planting. Instructions on the application of Vapam or methyl bromide are on the container or instruction sheet furnished with the product.



Figure 1. Base of a disease plant showing a brownish discoloration of the core of the old corm and newly developing corm.

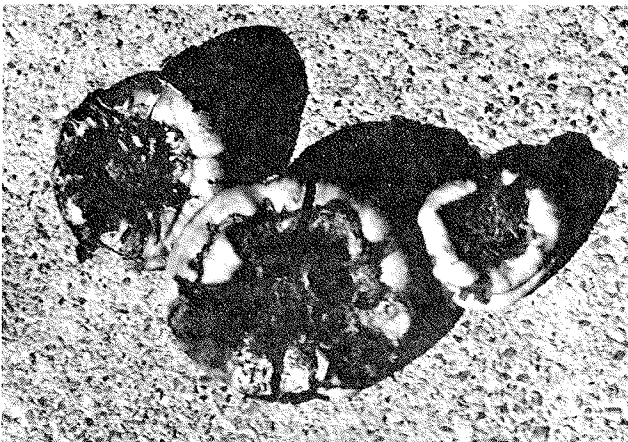


Figure 2. Storage rot phase of Fusarium yellows disease showing development of a dry brown rot of the corms.



Use Pesticides Safely
FOLLOW THE LABEL

U.S. DEPARTMENT OF AGRICULTURE