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season only comparatively few berries get ripe and the damage is more noticeable.

The crickets damage the strawberries by gnawing holes in the berries, as illustrated in figure No. 2. When green berries are gnawed they are not marketable as a first-class product. The ripe berries that are damaged are a total loss.

Were it not for the mulch necessary for producing a clean, marketable berry, it is believed that no damage would be done by these insects. The mulch most commonly used in southern Mississippi is pine straw. This makes an ideal shelter for the crickets. With good shelter and plenty of berries to feed on, the crickets multiply rapidly and soon can be seen in large numbers.

No definite measures have been worked out for the control of crickets in strawberry fields. It has been observed that strawberries planted in new land with the rows 4 feet apart, and where grass and weeds were kept down, were not damaged to any great extent; whereas plants set in old land where strawberries were grown the previous year, and where grass and weeds were allowed to grow, were severely damaged.

It is recommended, in view of the lack of further information, that growers, insofar as possible, plant in new land in rows 3 1-2 to 4 feet apart, use as little mulch as possible, and keep grass and weeds out during the entire growing and harvesting seasons.

Gladiolus Scab

By

H. H. Wedgworth

The scab disease of the gladiolus is one of the most important leaf and corm diseases of this plant. It has been reported from practically every section of the United States and probably occurs wherever gladioli are grown. The increasing interest in gladioli in this State is demanding quite a large importation of corms each year. Since

a large percent of the corms of many nurseries are infested with scab, this paper is intended primarily to point out the danger of using diseased corms and to report on a preliminary experiment for the control of scab.

Symptoms. The lesions may appear on any part of the leaf but are usually more abundant on the fleshy, basal region. Small reddish-brown, slightly raised specks and usually in large numbers are the first noticeable symptoms of the disease. By enlarging and coalescing, these small spots may produce large dead areas on the leaves. The entire basal portion of the plant may be invaded by the bacteria causing a soft or dry rot depending upon the amount of moisture in the soil. After the tissues in this region are destroyed, the plants may fall over, bending at or near the surface of the soil.

The corms from diseased plants are usually infected. The infection may be so slight that it will escape attention or so severe that the shucks are practically destroyed and the corm covered with circular, sunken spots. In its

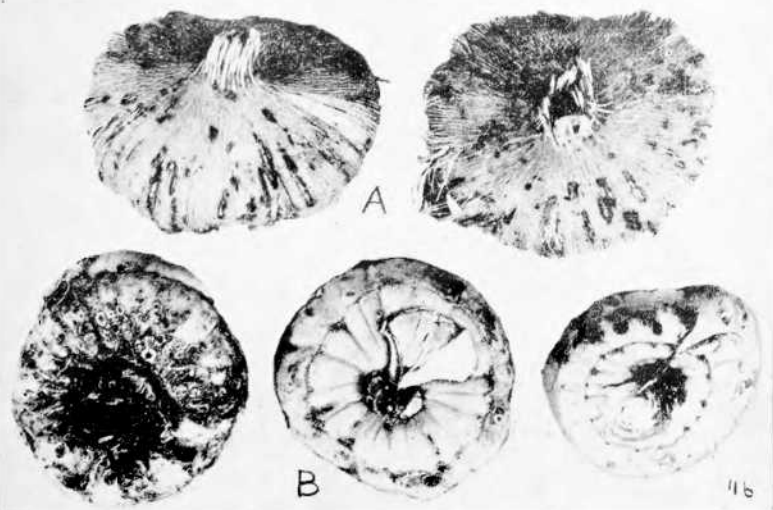


FIG. 3.—Gladiolus scab: A, on shucks; B, on corms.

early stages, the lesions on the shucks are pale yellow to brown in color and circular to oval in shape. These small spots enlarge to more or less elongated, dark-brown to charcoal black spots (Fig. 3, A.). The tissues in these spots are very brittle and in the advanced stages are often split.

In most cases there is a direct relation between shuck and corm lesions, the corm infection occurring just below the shuck infection. The lesions on the corms are at first pale yellow, water-soaked, circular spots becoming yellow-brown or nearly black. The epidermis or outer coating of the corms in these lesions splits or breaks and eventually the lesions become shallow depressions surrounded by a definite and somewhat elevated margin (Fig. 3, B). If the spots are numerous they may coalesce to form large, irregular, sunken areas.

Cause. The disease is caused by a microscopic organism known as *Bacterium marginatum*. The first lesions in the spring are caused by the bacteria that have been carried over the winter in the diseased corms or in the soil. In these lesions the bacteria increase in large numbers and may be washed or splashed to other parts of the plant or to healthy plants and cause secondary infections. Warm, moist weather is most favorable for the development of this organism.

Control. It is known that the organism can remain virulent for at least one year in the soil; therefore, crop rotation should be one of the first considerations in the control of this disease as well as other gladiolus diseases. The next step in the control of the disease is to use clean corms. Slightly scabbed corms may be used if they are thoroughly disinfected just before planting. Apparently clean corms which may be infected with parasitic organisms should also be disinfected. Badly scabbed corms should not be used. To determine the best disinfectant for this purpose, a rather extensive preliminary experiment was conducted during 1927 at the Mississippi Experiment Station.

Experiment for the Control of Scab During 1927

The shucks of 624 slightly scabbed corms were divided into 26 lots of 24 each. Each lot of 24 corms weighed 309 grams (1 pound=454 grams). Six lots of untreated corms were used as checks and four lots were treated with each disinfectant according to the outline given in Table 1. The corms were planted in beds of a rich sandy loam soil on April 2 and the new corms were harvested on September 16. The shucks were removed two days later and the corms were sorted by hand and weighed. The results from this experiment are given in Table 1.

TABLE I.

Influence of Treating *Gladiolus* Corms With Various Disinfectants on the Control of Scab

Treatment	Length of treating	Percent Clean corms	% Scabbed corms		Average weight in grams per plot	
			Slightly	Badly	Cormels	Corms
*Mercuric chloride 1-1000	30 min.	56.3	39.8	3.9	45.0	454.4
*Semesan 1-400	12 hrs.	54.8	13.3	2.9	43.3	478.5
*Semesan 1-400	2 hrs.	34.7	50.5	14.9	51.9	481.3
*Dipdust 1-10	1 min.	45.8	46.9	7.3	47.0	437.6
*Dipdust 1-20	1 min.	10.4	65.6	24.0	43.1	440.3
X Check		13.1	51.7	35.2	30.0	549.2

*Average of four plots. XAverage of six plots.

Although the figures presented in Table 1 are the results of only one season's work, the writer believes that the consistent increases in number and size of corms from the thoroughly disinfected corms over those which were untreated give these data some significance. The increased weight of the small corms or cormels also indicates the value of these treatments.

In choosing between bichloride of mercury and Semesan for 12 hours, the grower must consider the cost and convenience of the disinfectants. Bichloride of mercury is much cheaper but must be used in earthenware or wooden containers.

Recommendations. (1) Remove the shucks from

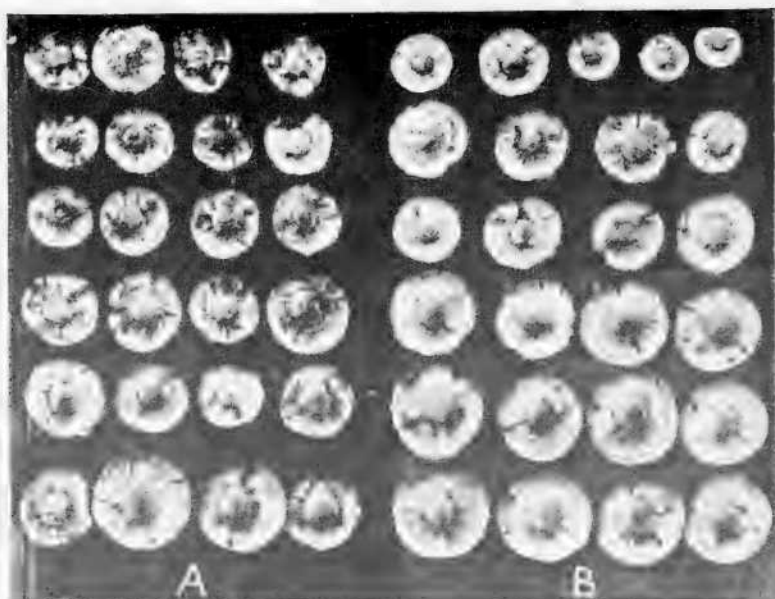


FIG. 4. Effect of disinfecting corms before planting on the development of scab: A. Untreated. B. bichloride of mercury, 1 to 1000, for 30 minutes.

the corms before planting as they are probably more serious as disease carriers than the corms.

(2) Select disease-free corms and treat in a solution of one ounce of bichloride of mercury in 8 gallons of water for one hour. A one hour treatment is being recommended because it has been determined that corms can be treated for two hours without injury, and because one hour will permit greater penetration of the chemical than thirty minutes.

(3) Practice a system of crop rotation in which gladiolus will not appear on the same soil more than once in three or four years.