

SOME PLANT DISEASES OBSERVED IN MEXICO IN 1958¹

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The following is a report of plant diseases observed and identified in Mexico in 1958 by the authors. Disease problems were more pronounced than usual owing to the abnormally heavy rainfall experienced throughout the Republic during the summer and fall. This list is by no means complete; however, it does present some information on the disease situation.

COTTON

Except as noted, the reports on cotton are limited to the irrigated area of the State of Sonora which comprises the Yaqui Valley.

Damping-off -- Rhizoctonia solani Kuehn. Found generally in the area. Especially affected were the early plantings made in cool weather, many of which had to be replanted in part.

Fusarium wilt -- Fusarium oxysporum Schlecht. f. vasinfectum (Atk.) Snyder & Hansen. Only a few plants were affected. This disease was of minor importance in 1958.

Verticillium wilt -- Verticillium albo-atrum Reinke & Berth. Same as Fusarium wilt. This disease was very destructive in the Laguna region near Torreón, Coahuila.

Texas root rot -- Phymatotrichum omnivorum (Shear) Dug. Only small localized areas were observed in the Yaqui Valley. In Huatabampo and in the Mayo River area larger areas were found, and some farmers lost up to 10 percent of their crop.

Rust -- Puccinia cacabata Arth. & Holw. (P. stakmanii Presley). This disease was of common occurrence throughout the valley. The areas of highest incidence were those adjacent to the prairie where the alternate hosts Bouteloua aristidoides, B. arenosa, B. curtipendula, and B. gracilis are endemic. Since the principal attack of the disease occurred when the plants were almost mature, yields were not affected. The amount of natural inoculum as teliospores on the aforementioned grasses represents a potential danger every year, the actuality depending on rainfall conditions during the early summer.

Leaf blight -- Ascochyta gossypii Woron. The early plantings made during cool, moist weather showed many plants with blighted cotyledons and leaves. In general, these plants recovered with the onset of warmer, drier conditions.

Leaf spot -- Cercospora althaeina Sacc. Of same occurrence and importance as leaf blight.

Anthraxnose -- Glomerella gossypii Edg. This disease appeared at the time of boll formation but was of no economic importance.

Boll rot -- Diplodia gossypina Cke. Bolls located on the lower, shaded parts of the cotton plants were affected; a great number of these were damaged in 1958.

CORN

Seedling blight -- Fusarium sp., Pythium sp. In the Central Mesa and in the Bajío there was some reduction in stand due to seedling blight. For the first time in 10 years seed treatment gave significant improvement in stand.

Leaf blight -- Helminthosporium turcicum Pass. Observed generally throughout Mexico. Was severe on January plantings in Veracruz. H. maydis Nisik. & Miyake was present also in Veracruz but to a minor extent.

Smuts -- Sphacelotheca reiliana (Kuehn) Clint. Was present in the Bajío and in Veracruz. In the Bajío a few farms had up to 40 percent incidence in their corn. This represented a direct loss to the grower. Ustilago maydis (DC.) Cda. was observed in most areas but was of little importance. It is interesting to note that in many areas of Mexico immature corn smut galls are gathered and eaten as a foodstuff.

False smut -- Ustilago viridis (Cke.) Tak. was observed in the Veracruz area but was of no importance economically.

Dry ear rot -- Diplodia zeae (Schw.) Lév. Noted throughout the country, its importance related to the moisture conditions at the time of maturity.

Rust -- Puccinia sorghi Schw. This disease was widespread but caused little economic loss.

Brown spot -- Physoderma maydis Miyabe. This disease was observed in the State of Veracruz but was of minor importance.

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Corn stunt -- The corn stunt disease (virus) was observed both in the northwest and in Veracruz. In the latter area the disease was severe and affected a large percentage of plants in breeding plots; in fields of criollo (native) corns, however, it was of minor importance.

SORGHUM (MILO)

Leaf blight -- Helminthosporium turcicum Pass. Caused almost complete defoliation of a small experimental planting (winter) at Veracruz. This disease was also observed in other areas but was not important.

Smut -- Sphacelotheca reiliana (Kuehn) Clint. Occasional plants were attacked in the irrigated areas of the State of Sonora. Damage was slight. Especially affected were Hegari and Shallu grass.

Rust -- Puccinia purpurea Cke. This disease was found throughout the country where milo was grown, but was of little economic importance.

WHEAT

Stem rust -- Puccinia graminis Pers. f. sp. tritici Eriks. & E. Henn. No stem rust was observed in the northwest area of Mexico owing to the universal use of rust-resistant wheat varieties. In the central (Bajío) region and in the Central Mesa, stem rust was observed in the native (criollo) wheat varieties.

Leaf rust -- Puccinia recondita Rob. (P. rubigo-vera (DC.) Wint.). This disease occurred throughout the wheat-raising areas of Mexico. In general, losses due to this rust were of no great importance. However, leaf rust is now the most important disease of wheat, since varieties resistant to stem and stripe rust are extensively cultivated.

Stripe rust -- Puccinia striiformis West. (P. glumarum (Schm.) Eriks. & E. Henn.) This disease was severe on old "native" wheats at elevations of 3500 feet and above in northern and central Mexico. Rarely found on the coast of Sonora because of unfavorable temperatures.

Bunt -- Tilletia caries (DC.) Tul. Encountered in several of the wheat areas, especially where the old native (criollo) wheats were grown.

Downy mildew -- Sclerospora macrospora Sacc. This was found in low, salty spots in some fields in the Yaqui and Mayo Valleys, but was of little economic importance.

RYE

Leaf scald -- Rhynchosporium secalis (Oud.) J. J. Davis. This disease caused considerable damage in experimental plantings in the Toluca Valley, State of Mexico.

FLAX

Aster yellows -- Some plantings in the Yaqui Valley were observed to be attacked by a virus disease tentatively identified as aster yellows virus.

BARLEY

Smut -- Ustilago spp. All three barley smuts were general throughout the Sonora barley areas. Losses, however, were comparatively light.

SAFFLOWER

Rust -- Puccinia carthami Cda. Was observed on one commercial planting near Ciudad Obregón, Sonora.

Root rot -- Root rot caused by Phytophthora sp. continues to be the principal disease attacking this crop in the northwest of Mexico. Replanting was necessary on some farms.

Mosaic virus -- A mosaic disease was quite severe on January plantings in the Yaqui Valley, Sonora. Subsequent plantings had less of the disease. All varieties are equally susceptible.

ALFALFA

Rust -- Uromyces striatus Schroet. var. medicaginis (Pass.) Arth. was fairly common throughout Mexico. In some seed production lots the disease incidence necessitated their being cut for fodder.

Downy mildew -- Peronospora trifoliorum D By. As is common every year, moderate attacks of this fungus were found throughout Mexico.

Black leaf spot -- Pseudopeziza medicaginis (Lib.) Sacc. Was found throughout the central plains (Bajío) and the Central Mesa. Damage was variable.

POTATOES

Late blight -- Phytophthora infestans (Mont.) D By. Was a serious problem in the important potato-growing areas of the Central Mesa (States of Puebla, Tlaxcala, México, Hidalgo, and Veracruz), and caused partial to total loss in a majority of fields. The total crop was reduced 25 to 30 percent. Late blight appeared for the first time in serious proportions in the Navidad area (State of Nuevo León).

Early blight -- Alternaria solani (Ell. & G. Martin) Sor. Widespread but of minor importance.

Rhizoctoniosis -- Rhizoctonia solani Kuehn. Reduced the stand 10 to 15 percent in the León winter planting. Elsewhere it was sporadic and of minor importance.

Punta morada -- (Virus). Again was widespread and ranks as No. 1 virus problem of potatoes in Mexico. Similar to the U. S. "purple top," it caused direct losses in the Bajío (State of Guanajuato) and affected the seed value of crops grown in the Central Mesa and at Navidad, Nuevo León.

BEANS

Because of the heavy rains in the principal bean-growing areas, diseases were important and widespread. The following diseases were observed:

Circular leaf spot -- Chaetoseptoria wellmanii Stevenson. This disease is becoming more important each year. In 1958 in the Central Mesa area, the Canario-type beans were almost completely defoliated by circular leaf spot. Fortunately, the main attack came after the pod set, so actual losses were not great. Investigations indicate that non-Canario genotypes carry resistance to this disease.

Rust -- Uromyces phaseoli (Reben.) Wint. This disease was widespread throughout the Central Mesa, Bajío, and the Gulf coast. The telial stage, rarely seen in Mexico, was noted widely in the Central Mesa.

Anthraxnose -- Colletotrichum lindemuthianum (Sacc. & Magn.) Scrib. In spite of the continued wet weather, very little anthraxnose was noted.

Bacterial blight -- Pseudomonas phaseolicola (Burkh.) Dows. and Xanthomonas phaseoli (E. F. Sm.) Dows. Both halo blight and common blight were widespread and damaging. The Canario-type varieties were particularly affected.

Stem rot -- Phytophthora parasitica Dast. This was seen in an experimental introduction plot at Chapingo, México, on plants originating from seed from Cuba. It is believed that this is the first authenticated report of the disease in Mexico on beans.

Sclerotinose -- Sclerotinia sclerotiorum (Lib.) D By. Again this year the disease was noted in localized areas of some fields. In one case the beans had been part of a 3-year bean, alfalfa, corn rotation.

Angular leaf spot -- Isariopsis griseola Sacc. This disease was seen again in the Gulf Coast areas and for the first time at higher altitudes in the Central Mesa.

Severe Bean Mosaic Virus -- A severe mosaic virus of beans was again observed in the Veracruz area. A description of the disease and the results of experimentation with this virus is in manuscript form for publication in another journal. Common mosaic and yellow mosaic were also observed in both snap and field beans in the tropics.

PEAS

Powdery mildew -- Erysiphe polygoni DC. This continues to be the principal pest of garden peas in the Central Mesa.

CALABACITAS (Cucurbita pepo L.)

Cottony leak -- Pythium aphanidermatum (Edson) Fitz. This disease was observed as a blossom end rot in summer plantings in the Central Mesa.

PEPPER

Southern bacterial wilt -- Pseudomonas solanacearum E. F. Sm. Probable bacterium isolated from wilted plants in experimental plot at Chapingo, México.

Blight -- Phytophthora capsici Leonian. In the Central Mesa this disease caused great losses, in some cases 100 percent of the planting on a given farm.

ONION

Downy mildew -- Peronospora destructor (Berk.) Casp. Seen throughout the Central Mesa. Damage only slight.

LETTUCE

Downy mildew -- Bremia lactucae Regel. Seen in market and in lettuce fields in the Central Mesa.

TOMATO

Damping-off -- Rhizoctonia solani Kuehn. Caused losses of 10 to 12 percent of small plants in the northwest winter tomato area.

Wilt -- Fusarium oxysporum Schlecht. f. lycopersici Sacc. Present but not of importance in the northwest tomato areas.

Early blight -- Alternaria solani (Ell. & G. Martin) Sor. Same as Fusarium wilt.

Late blight -- Phytophthora infestans (Mont.) D By. Present throughout the Bajío during the summer, causing great losses in tomato plantings.

CARROT

Leaf spot -- Cercospora carotae (Pass.) Solh. Prevalent in summer vegetable plantings in the Central Mesa.

Rots -- Rhizopus sp., Fusarium sp., and Rhizoctonia solani Kuehn caused some damage in over-irrigated plots in the northwest and during the summer plantings in the Central Mesa.

WATERMELON AND MELON

Downy mildew -- Pseudoperonospora cubensis (Berk. & Curt.) Rostow. In the Yaqui Valley, downy mildew was widespread in the spring. Most plantings seen were infected, although losses did not appear to be important.

Powdery mildew -- Erysiphe cichoracearum DC. Same as downy mildew.

Anthracnose -- Colletotrichum lagenarium (Pass.) Ell. & Halst. This disease was common and destructive throughout the Yaqui Valley.

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