Disease Notes

First Report of Oat Cyst Nematode (*Heterodera avenae*) on Barley in Idaho. S. L. Hafez, University of Idaho, Southwest Idaho Research and Extension Center, Parma 83660, and A. M. Golden, Plant Protection Institute, USDA, Beltsville, MD 20705. Plant Disease 69:360, 1985. Accepted for publication 26 November 1984.

The oat cyst nematode (*Heterodera avenae* Wollenweber) was detected in two soil samples from two different barley fields near Parker in Fremont County, Idaho. The samples were collected after harvest as a routine check in preparation for a potato crop the following growing season. Each field had been in barley and potato rotation for several years. Soil samples were received at the nematode clinic laboratory and examined by the first author. Cyst and larvae were identified as the oat cyst nematode and were sent to the second author for confirmation. The oat cyst nematode occurs worldwide and frequently causes economic losses in susceptible cereals. This pest was first reported in the United States in Oregon and has recently been discovered in eastern Washington. This is the first report of the nematode in Idaho.

Reference: Jensen, H. J., et al. Plant Dis. Rep. 59:1, 1975.

First Report of Bacterial Leaf and Flower Spot of Zinnia in Louisiana. G. E. Holcomb, C. Hollier, and H. K. Whitam, Department of Plant Pathology and Crop Physiology, Agricultural Experiment Station, and Cooperative Extension Service, Louisiana State University, Baton Rouge 70803. Plant Disease 69:360, 1985. Accepted for publication 9 December 1984.

A severe leaf and flower spot of *Zinnia elegans* Jacq. was observed in Louisiana State University variety trial plantings and in seedlings sent to the university's Plant Disease Clinic from a commercial grower. Test plot losses were 80–100% in highly susceptible varieties. Plants of cv. Small World Cherry were infected but not killed, and losses in cvs. Peter Pan Princess and Peter Pan Bold were near 50%. July plantings of these three cultivars were nearly disease-free when observed in September. A yellow-pigmented, gram-negative, strictly aerobic bacterium repeatedly isolated from leaf and flower spots was identified as *Xanthomonas campestris* pv. *zinniae* (Hopkins & Dowson) Dye. This bacterium produced leaf spots with chlorotic halos within 10 days after healthy zinnia plants were misted with bacterial suspensions. The pathogen was reported in the United States first from Ohio in 1972 and later from North Carolina and Florida.

Fire Blight of Raspberry Caused by *Erwinia amylovora* in Wisconsin. M. F. Heimann and G. L. Worf, Department of Plant Pathology, University of Wisconsin-Extension, Madison 53706. Plant Disease 69:360, 1985. Accepted for publication 4 January 1985.

A raspberry specimen with symptoms similar to those of fire blight on apple shoots was submitted to the University of Wisconsin Plant Disease Clinic in late August 1983. The specimen had the typical "shepherd's crook" symptom on the terminal portion of the stem, and stem tissue of the blighted areas was dark blue-black. A bacterium isolated from the affected tissue formed smooth red-orange colonies typical for *Erwinia amylovora* (Barr.) Winslow et al on Miller-Schroth medium. A typical culture was sensitive to phage specific for *E. amylovora*. Raspberry plants in the greenhouse were inoculated with a pure culture of this strain. Soft green stem tissue of five plants each of cvs. Latham and June were inoculated by a needle-puncture method. Host response included formation of shepherd's crooks and discoloration of the stem. Cross-inoculations of the raspberry strain to apple and of apple strains to raspberry were negative. Isolations from specimens submitted in 1984 resulted in cultures similar to those obtained previously. To our knowledge, this is the first report of fire blight on raspberry in Wisconsin.

References: Miller, T. D., and Schroth, M. N. Phytopathology 62:1175, 1972. Starr, M., et al. Phytopathology 41:915, 1951.

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Four Previously Unreported Weed Hosts for Tomato Ringspot Virus. M. A. Tuttle and A. R. Gotlieb, Botany Department and Plant & Soil Science Department, University of Vermont, Burlington 05405. Plant Disease 69:360, 1985. Accepted for publication 26 November 1984.

Leaves of 24 common broad-leaved weed species were collected from under the canopy of apple (*Malus domestica* Borkh.) trees infected with tomato ringspot virus (TmRSV) and showing symptoms of apple union necrosis and decline. By use of enzyme-linked immunosorbent assay and mechanical transmission to cucumber (*Cucumis sativus* L. 'Improved Chicago Pickling') seedlings, TmRSV was detected in symptomless leaves from four previously unreported hosts: chicory (*Cichorium intybus* L.), two of two samples infected; healall (*Prunella vulgaris* L.), one of one sample infected; black medic (*Medicago lupulina* L.), one of two samples infected; and moth mullein (*Verbascum blattaria* L.), one of one sample infected. In comparison, TmRSV was detected in four of five samples of wild carrot (*Daucus carota* L.). TmRSV was not detected in samples of 36 plants of broadleaf plantain (*Plantago major* L.), previously reported as a host; this suggests that broadleaf plaintain may not be a suitable indicator host. Knowledge of weed hosts for TmRSV could be utilized in developing a disease management program and in providing a basis for surveying an area for TmRSV.

References: Cummins, J. N., et al. Proc. N.Y. State Hortic. Soc. 123:125, 1978. Powell, C. A., et al. Plant Dis. 68:242, 1984.

Tolerance in *Pseudocercosporella herpotrichoides* to Benzimidazole Fungicides in Washington. G. W. Bruehl, R. Machtmes, and T. Murray, Department of Plant Pathology, Washington State University, Pullman 99164. Plant Disease 69:360, 1985. Accepted for publication 9 December 1984.

Foot rot (*Pseudocercosporella herpotrichoides* (Fron) Deighton) lesions were found on a few stems of winter wheat (*Triticum aestivum* L.) heavily sprayed with benomyl (Benlate) in experimental plots in Pullman, Washington. Single conidial isolates from four of these stems grew on potato-dextrose agar containing 3 μg a.i./ml of benomyl (Benlate), thiabendazole (Mertect 340-F), or thiophanate-methyl (Topsin M). At this concentration, the fungicides were highly fungistatic but not fungicidal; higher concentrations were not tested. The four isolates were virulent when tested on wheat in the greenhouse. All other isolates tested were inhibited in culture by all three fungicides. Benlate has been extensively used in eastern Washington for about 5 years. We have no reports of fungicide failure in farm fields. No survey of farm fields has been made, but we suspect that isolates tolerant to benzimidazoles exist and that the useful life of these fungicides will be curtailed. Alternative, different mode-of-action fungicides should be vigorously sought. Tolerance to these fungicides is a problem in parts of the British Isles where they have been repeatedly applied to wheat for several years, especially with more than one application per crop.

Cytospora Canker on *Acer platanoides* in Southeastern Michigan. E. T. Smiley, J. J. Kielbaso, and T. J. Proffer, Department of Forestry, Michigan State University, East Lansing 48824. Plant Disease 69:360, 1985. Accepted for publication 9 December 1984.

During summer 1984, losses of Norway maple (*Acer platanoides* L.) increased dramatically in the metropolitan Detroit area of Michigan. A survey examining 25% of the 16,185-tree Norway maple population in Dearborn, Michigan, identified 27.6% as symptomatic. Symptoms ranged from twig dieback to death of the entire tree. Dead branches generally retained their leaves. Bark on dead limbs and trunks rapidly split longitudinally. Cankers were often observed exuding reddish brown fluid. Symptomatic trees were mainly 30–45 cm DBH and 25–35 yr old and had shown reduced growth during the previous 3 yr. *Cytospora* pycnidia were present on some dead branches. *Cytospora* sp. was isolated from discolored cambial and xylem tissues in 12 of 18 diseased samples examined in the laboratory. Trees may have been predisposed by two abnormal winters and three summers with extended droughty periods.

***Phytophthora cryptogea* and *P. drechsleri* Associated with Root-Rotted Douglas-Fir Seedlings in British Columbia.** P. B. Hamm and E. M. Hansen, Department of Botany and Plant Pathology, Oregon State University, Corvallis 97331, and J. R. Sutherland, Canadian Forestry Service, Victoria, BC. Plant Disease 69:361, 1985. Accepted for publication 9 December 1984.

In February 1984, 2-yr-old bare-root Douglas-fir (*Pseudotsuga menziesii* (Mirb.) Franco) seedlings with symptoms typical of Phytophthora root rot (stunting, chlorosis, poor root development) were infrequently found in a coastal forest nursery in southwest British Columbia. *Phytophthora cryptogea* Peth. & Laf. and *P. drechsleri* Tucker were isolated from diseased roots using cornmeal agar containing 20 μg/ml pimaricin. This nursery has relatively heavy (clay) soils, characteristic of forest nurseries in Washington and Oregon with Phytophthora root rot problems. This is the first report of Phytophthora root rot in a forest nursery in British Columbia and extends the northern range of this disease on Douglas-fir.

Reference: Hansen, E. M., et al. Plant Dis. Rep. 63:607, 1979.

Stem Canker of Soybean in Texas. N. G. Whitney and G. R. Bowers, Jr., Texas A&M University Agricultural Research and Extension Center, Beaumont 77706. Plant Disease 69:361, 1985. Accepted for publication 18 December 1984.

Stem canker of soybeans (*Glycine max* (L.) Merr.), caused by *Diaporthe phaseolorum* (Cke. & Ell.) Sacc. var. *caulivora* Athow & Caldwell, was observed in Texas for the first time in 1984. The fungus, identified by disease symptoms and cultural characteristics, is thought to be a more aggressive southern biotype than that previously found in the northern and midwestern production areas. The southern form was first found in Mississippi in 1975 and subsequently spread to Alabama, Georgia, Florida, South Carolina, Tennessee, and Louisiana. In Texas, the disease was found primarily on the cultivar Coker 338 in the Gulf Coast soybean-growing area between Houston and Beaumont. Disease incidence was highest in the Chambers County area, where approximately 25% of the soybean acreage was devastated and some fields were total losses. Disease loss in the Gulf Coast area, however, was estimated at less than 5%.

References: Keeling, B. L. Phytopathology 72:807, 1982. Morgan-Jones, G., and Backman, P. A. Phytopathology 74:815, 1984.

Cucumber Vein Yellowing Virus on Cucumber in Jordan. A. M. Al-Musa, S. J. Qusus, and A. N. Mansour, Department of Plant Protection, University of Jordan, Amman. Plant Disease 69:361, 1985. Accepted for publication 9 December 1984.

In the Jordan Valley, a virus isolated from stunted parthenocarpic cucumbers (*Cucumis sativus* L.) showing vein yellowing symptoms was identified as cucumber vein yellowing virus (CVYV). The virus was transmitted by whitefly (*Bemisia tabaci* Genn.) and inefficiently by rub inoculation. The host range was restricted to cucurbitaceous plants, including *C. sativus* var. *marbella, C. melo*, and *C. melo* var. *flexousus; Cucurbita pepo, C. moschata*, and *C. foetidissima*; and *Citrullus lanatus* and *C. colocynthis*. Systemic symptoms produced on these plants ranged from chlorotic or necrotic dots to severe vein yellowing and stunting. Properties in crude sap were DEP = 10^{-2}–10^{-3}, TIP = 50–55°, and LIV = 48 hr. Electron microscopic studies of the virus showed rod-shaped particles 715 nm long. This is the first report of CVYV in Jordan.

References: Cohen, S., and Nitzany, F. E. Phytopathol. Mediterr. 1:44, 1960. Sela, I., et al. Phytopathology 70:226, 1980.

Virulence of *Ceratocystis ulmi* from Wilting Siberian Elms in Minnesota. F. A. Baker and J. G. O'Brien, Department of Plant Pathology, University of Minnesota, St. Paul 55108. Plant Disease 69:361, 1985. Accepted for publication 8 November 1984.

Many Siberian elms (*Ulmus pumila* L.) were diagnosed as having Dutch elm disease in St. Paul, Minnesota, in 1982. Because of the reported resistance of Siberian elms to Dutch elm disease, Siberian elms and American elms (*U. americana* L.) were inoculated with aggressive isolates of *Ceratocystis ulmi* (Buism.) C. Moreau obtained from each host to determine if a more virulent pathogen was present. Sapling-sized American elms (3–15 cm diam) inoculated in the field developed symptoms faster after inoculation with Siberian elm isolates than after inoculation with American elm isolates. Both isolates, however, killed American elms within 3 mo. Two months after inoculation, only isolates from Siberian elm caused symptoms in Siberian elm, a mottling of the foliage on inoculated branches. Siberian elm isolates caused more staining and moved greater distances proximally in the xylem of Siberian elm branches than did American elm isolates. Results suggest the existence of a *C. ulmi* strain more virulent to Siberian elms in Minnesota.

Reference: Gibbs, J. N., and Brasier, C. M. Nature 241:381, 1973.

First Report of Gray Leaf Spot *(Cercospora zeae-maydis)* of Corn in Delaware. J. A. Hawk and R. B. Carroll, Department of Plant Science, University of Delaware, Newark 19717-1303, and F. M. Latterell, Plant Disease Research Laboratory, USDA-ARS, Frederick, MD 21701. Plant Disease 69:361, 1985. Accepted for publication 4 January 1985.

Mature lesions of gray leaf spot were observed during the dough stage (late August 1984) in commercial corn hybrid test fields and growers' fields near Little Creek and Middletown, Delaware. Gray leaf spot has been previously reported in Maryland, Pennsylvania, and Virginia. The Little Creek field was no-till after soybeans and nonirrigated, whereas the Middletown field was chisel-plowed and disked, had been in continuous corn production for several years, and was irrigated with a center-pivot system. Rainfall was above average throughout the growing season. The disease was more extensive at Little Creek, with some leaves at midplant showing over 75% lesion coverage by late September. This field was characterized by poor air drainage and proximity to Delaware Bay and marshlands. Isolates of *Cercospora zeae-maydis* Tehon & Daniels have been cultured and identified from diseased leaves at both locations.

Reference: Latterell, F. M., and Rossi, A. E. Plant Dis. 67:842, 1983.

A New Outbreak of Citrus Canker in Florida. C. L. Schoulties and J. W. Miller, Florida Department of Agriculture & Consumer Services, Gainesville 32602; R. E. Stall, University of Florida, Gainesville 32611; E. L. Civerolo, USDA-ARS, Beltsville, MD 20705; and M. Sasser, University of Delaware, Newark 19711. Plant Disease 69:361, 1985. Accepted for publication 21 January 1985.

In August 1984, leaf spots and twig lesions were found to be widely distributed on citrus in a Florida citrus nursery. Extensive subsequent surveys showed lesser infections in eight other nurseries. Leaf spots were irregular to round, 3–5 mm in diameter, flat, water-soaked, often necrotic in the center, and usually surrounded by a chlorotic halo. Water-soaked, elongate lesions with necrotic centers were observed on twigs. Symptoms were more severe on grapefruit than on other citrus. A yellow-pigmented bacterium consistently isolated from these lesions was identified as *Xanthomonas campestris* pv. *citri* (Hasse) Dye on the basis of morphology, serology, fatty acid analysis, and pathogenicity to inoculated citrus leaves and fruit. Extensive efforts are in progress in Florida to eradicate citrus canker.

A Second Race of *Meloidogyne chitwoodi* Discovered in Washington State. G. S. Santo and J. N. Pinkerton, Washington State University, Irrigated Agriculture Research and Extension Center, Prosser, WA 99350. Plant Disease 69:361, 1985. Accepted for publication 25 January 1985.

The Columbia root-knot nematode (*Meloidogyne chitwoodi* Golden et al) is a serious pest on potato in the Pacific Northwest. Alfalfa, which is commonly grown in rotation with potato, supports no or only slight nematode reproduction and is therefore considered a poor host for *M. chitwoodi*. In 1982, however, following rotation with alfalfa, potato crops from two fields were damaged by *M. chitwoodi*. Greenhouse studies show that this race of *M. chitwoodi* is capable of reproducing on alfalfa. It produced an average of 23.3, 40.4, 29.3, 7.6, 6.6, and 2.2 egg masses per plant on alfalfa cultivars Ranger, Thor, Vernal, Washoe, Gladiator, and Nevada Syn XX, respectively. The wild race reproduced only on Ranger (0.2 egg mass per plant).

References: O'Bannon, J. H., et al. Plant Dis. 66:1045, 1982. Santo, G. S., et al. Plant Dis. 64:951, 1980.