THE PLANT DISEASE REPORTER

Issued By

PLANT DISEASE EPIDEMICS
and
IDENTIFICATION SECTION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

SOME NEW AND IMPORTANT PLANT DISEASE OCCURRENCES AND DEVELOPMENTS IN THE UNITED STATES IN 1953

Supplement 229 December 15, 1954

The Plant Disease Reporter is issued as a service to plant pathologists throughout the United States. It contains reports, summaries, observations, and comments submitted voluntarily by qualified observers. These reports often are in the form of suggestions, queries, and opinions, frequently purely tentative, offered for consideration or discussion rather than as matters of established fact. In accepting and publishing this material the Plant Disease Epidemics and Identification Section serves merely as an informational clearing house. It does not assume responsibility for the subject matter.

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PLANT DISEASE EPIDEMICS AND IDENTIFICATION SECTION

Horticultural Crops Research Branch Plant Industry Station, Beltsville, Maryland

SOME NEW AND IMPORTANT PLANT DISEASE OCCURRENCES AND DEVELOPMENTS IN THE UNITED STATES IN 1953

Compiled by Nellie W. Nance

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As in previous years this summary of outstanding plant disease occurrences in the United States has been taken for the most part from reports to the Plant Disease Epidemics and Identification Section and from articles in Phytopathology. Some 1952 records that had not appeared when the 1952 summary was completed are included. Reports listed in the tables are not generally listed in the text.

WEATHER OF 1953. General. -- Severe drought was the most notable and costly weather feature of 1953. Beginning in the western portions of the lower Great Plains during the spring months, it expanded over most of the Southern Interior by midsummer and over most of the remainder of the Country by early autumn. Losses to crops, pastures, and livestock and the added expenses caused by declining water supplies amounted to hundreds of millions of dollars. Despite the drought, however, total crop production was above the average owing to several favorable factors, among which were plentiful subsoil moisture in most northern areas during the growing season, adequate irrigation water in the far West, abundant rainfall in the far Southeast, early crop maturity, ideal harvesting weather, and the absence of damaging fall frosts.

A second outstanding feature was the great damage done by a record number of tornadoes, the paths of many of them running through large cities and densely populated areas in the Northeast. Among the unfortunate cities struck by these destructive storms were Waco, Tex., Flint, Mich., Cleveland, Ohio, and Vicksburg, Miss.

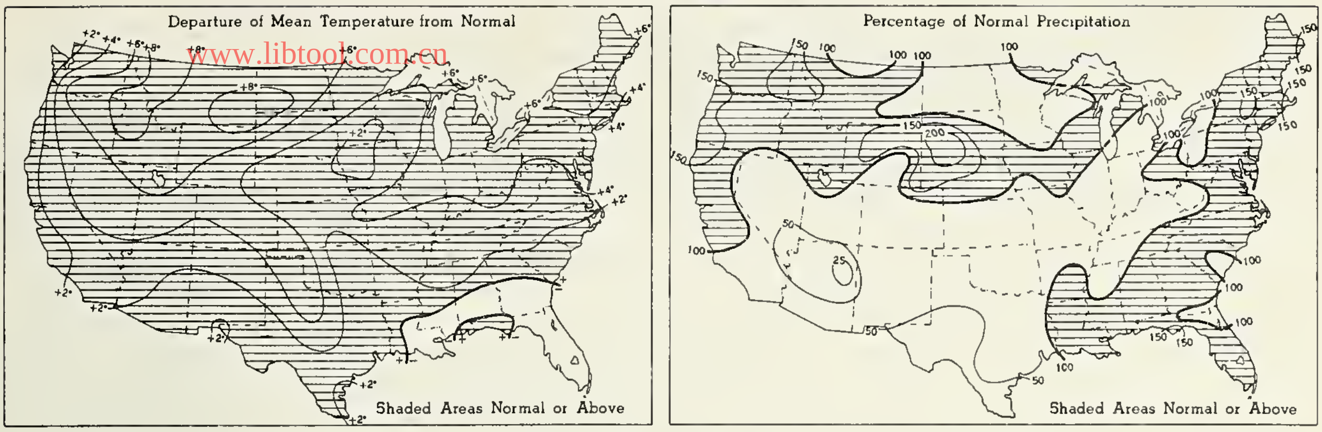
The nationwide precipitation average was more than an inch and one-half below normal, even though monthly averages were above normal in January, March, April, May, and December. The yearly averages were above normal in the Pacific Northwest, northern Great Plains, extreme upper Great Lakes, the Gulf region, extreme Southeast, and scattered sections along the Atlantic Coast. Excesses were greatest in the northern Great Plains where totals for the year ranged up to 150 percent of normal. In contrast, the year's precipitation was less than 15 percent of normal in the far southwestern desert areas, under 50 percent in all of southern California and parts of south-central and southwestern Texas, and less than 75 percent in a large midwestern area including western and southern Ohio, southern Indiana, southern Illinois, Missouri, southern Iowa, northern Arkansas, southern and eastern Kansas, and southeastern Nebraska.

The 1953 temperature for the United States averaged more than a degree above the long-term mean, with below average departures only from western Oregon southward through the central portion of California to Bakersfield, and in the San Diego area, eastern Arizona, west-central New Mexico, and parts of the extreme Southeast. The greatest positive departures, up to 4°, occurred in regions near the Canadian Border east of the Continental Divide. The nationwide average temperature was above normal for every month in the year, except April, May, and December.

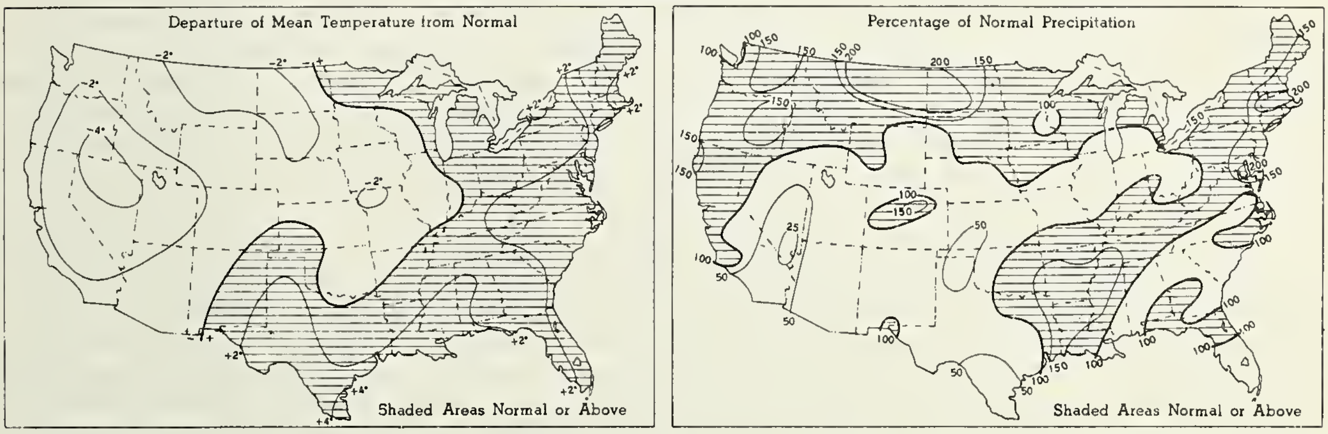
The first 3 months of the year were unseasonably warm, particularly January for which the nationwide temperature average was the highest on record. The ground remained unusually free of snow, and navigation began early in many northern lakes and streams. Precipitation during this period was about normal or slightly above. April and May were cold and wet. Growth of vegetation was retarded, farmwork delayed, and widespread frosts and freezes caused light to locally severe fruit damage in the far West and some damage in middle and southern areas east of the Rocky Mountains. Cooler than usual weather persisted through August in the Pacific States, although dry, sunny weather after June enabled crops to make good recovery from the cold, wet weather of spring. Heat and drought prevailed over large sections of the Country from June until late November when a return to near or above normal precipitation ended the drought in virtually all areas, although subsoil moisture and water supplies

TEMPERATURE AND PRECIPITATION

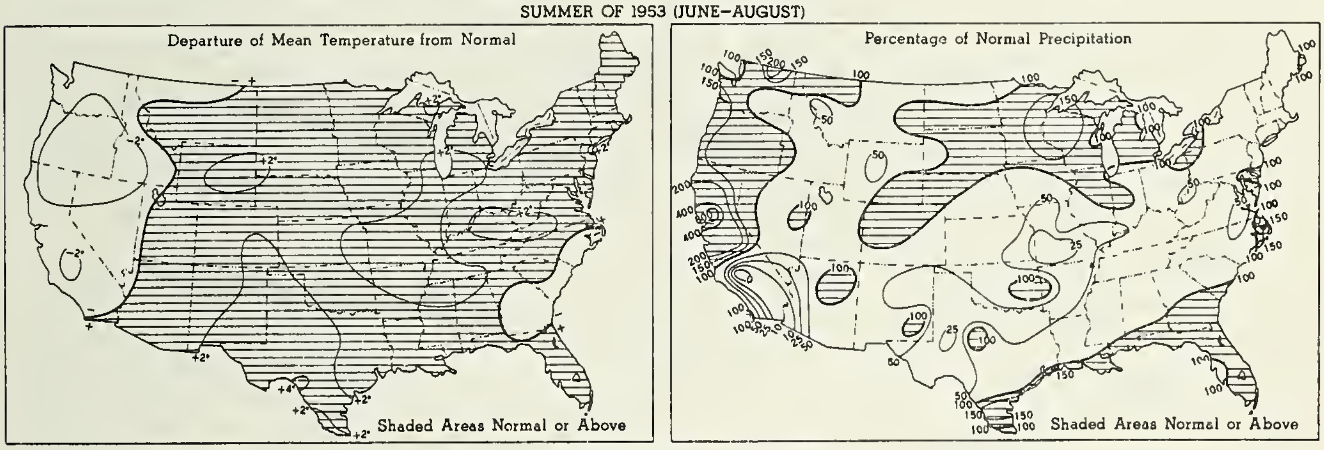
WINTER OF (DECEMBER–FEBRUARY) 1952–53



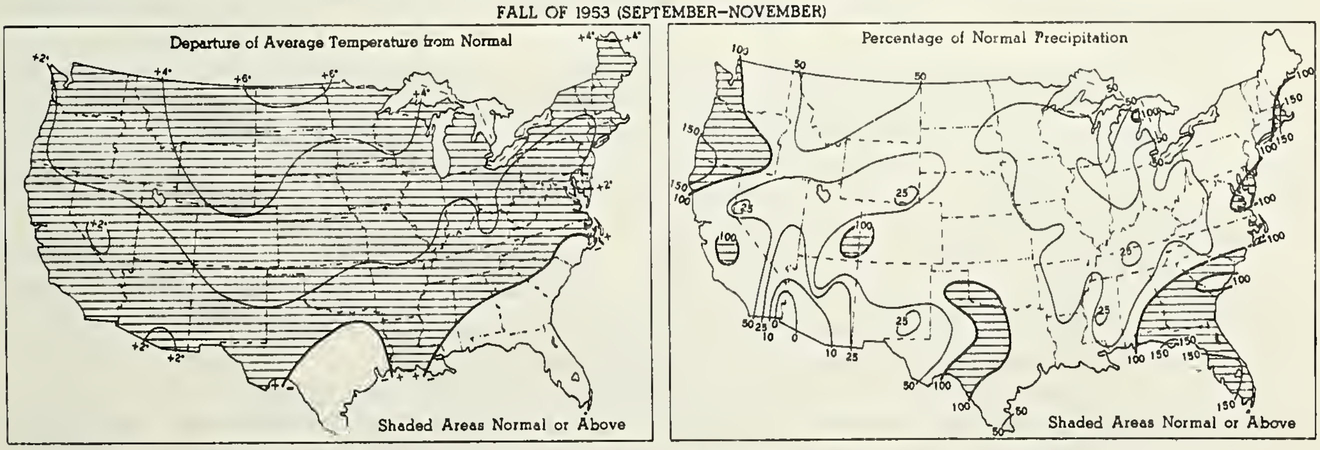
SPRING (MARCH–MAY) 1953



SUMMER OF 1953 (JUNE–AUGUST)



FALL OF 1953 (SEPTEMBER–NOVEMBER)



(From Weekly Weather and Crop Bulletin National Summary, Volume 40, 1953).

remained low in several sections from the east-central Great Plains eastward through the Ohio Valley and western Pennsylvania.

DROUGHT. -- The 1953 drought was notable for its complexity, After becoming intense in an area of significant size it would be broken, only to reappear later in the same area or to develop with similar intensity elsewhere. Drought first developed during the spring in the Southwest where scanty rainfall was a continuation of the dryness of the two previous years. A period of unusually hot, dry weather in the lower Mississippi Valley and east-central areas from May 19 to July 6 extended the drought coverage over practically the entire southern interior portion of the Country and it steadily increased in severity. For this 7-week period less than one-tenth of the normal rainfall was received in extreme southern, northern, and western Texas, some far southwestern districts, most of Oklahoma and Arkansas, extreme western Tennessee, and northwestern Mississippi. Pastures, small grains, corn, cotton, and other crops suffered severely in most of this region. Showers from June 27 to 29 brought limited relief to eastern Texas, Louisiana, and southern Mississippi; but it was not until after the first week of July that general showers over the Southern Interior brought considerable relief to most of this area, and it was yet later (with the heavy rains the last part of August and the first week of September) that the prolonged drought in the Rio Grande Valley was effectively broken.

The July and August rains generally missed the area from southeastern Nebraska and eastern Kansas eastward to Maryland, Virginia, and the Carolinas, resulting in a gradual build-up of severe droughty conditions in most of this region. The centers of severe dryness in this region were Missouri, the Ohio and middle Mississippi Valleys, West Virginia, and the central portions of Virginia and the Carolinas where pastures and other crops, especially corn, were damaged considerably, an extremely high fire hazard was created, and subsoil moisture and water supplies were seriously reduced.

Another hot, dry period from early September to mid-October intensified and extended the drought over practically the entire Country, except the far Southeast, middle and northern Pacific coastal sections, and a few local areas. During this period about one-half the total area of the Country received less than 25 percent of normal rainfall and some sections less than 10 percent. This severely afflicted area included the Ohio and middle Mississippi Valleys, most of Missouri and Iowa, a narrow belt extending from southern Minnesota southwestward to northern Nevada, extreme southern California and Arizona, and southwestern New Mexico.

Widespread rains in late October alleviated the drought from Virginia northward through New England and brought limited relief to an area extending from northern Mississippi, Arkansas, and Missouri to Michigan, western portions of the northern Great Plains, and middle Rocky Mountain sections. Moderate to heavy precipitation from the eastern Great Plains to the Atlantic Coast during the third week of November and the first week of December replenished topsoil moisture and improved water supplies, but in many sections from the east-central Great Plains eastward through the Ohio Valley into western Pennsylvania subsoil remained low and water hauling continued at the end of the year.

DESTRUCTIVE STORMS. -- The year 1953 was the severest on record for tornadoes. Of the seven outstanding tornadoes (see preliminary tabulation below), the one that struck in central and eastern Massachusetts on June 9 caused greater damage (expressed in dollars) than any other single tornado in the history of the United States. Total tornado damage for the year was about $224,000,000, a new record. These storms caused over 500 deaths and nearly 5,000 injuries, most of which occurred in March, April, May, June, and December. The greatest monthly toll was in June when 244 deaths, 2,644 injuries, and $96,000,000 property damage were reported.

Outstanding storms other than tornadoes included: Two violent windstorms which caused $12,000,000 damage in Kansas City, Mo., on June 21; one of the most destructive hailstorms on record, which caused $6,000,000 damage to standing wheat in the southwestern portion of the Nebraska Panhandle on July 2; $4,250,000 hail damage in Iowa on July 5; and a general cyclonic windstorm that resulted in more than $10,000,000 damage along the north Atlantic Coast on November 6 and 7.

The worst winter-type storm of snow, glaze, sleet, etc., occurred in the Northeast from January 7 to 11 when severe glaze caused losses estimated at more than $4,000,000. Other storms included a $250,000 snowstorm in New England on April 13 and 14, and glaze that resulted in $450,000 damage in southeastern Missouri on April 18.

At the end of April 1953, the mountain snowpack in the far West was generally above normal in northern areas where snowfall was heavier than usual in March and April, but was below normal in most southern sections. In eastern areas last winter's snowfall was below normal, except slightly above along the Canadian Border.

Floods during 1953 were rather local. Heavy rains in the Pacific Northwest caused flooding in northwestern California and western Oregon in January and October that resulted in several million dollars damage. Spring floods occurred in March in New England ($12,000,000 damage), in May from eastern Texas to Georgia ($100,000,000 damage in Louisiana), in June in Montana, Minnesota, and Iowa ($50,000,000 in Iowa), in August in Minnesota and southeastern Texas, and in October in southern Florida ($9,000,000). (From the Weekly Weather and Crop Bulletin National Summary for week ending February 15, 1954).

The Maps on page 123 show the temperature and precipitation for the winter of 1952-53, spring, summer, and fall of 1953.

Table 1. Diseases reported in States where they had not been found or reported on a particular host until 1953.

Host Disease (Cause)	Where found	Remarks
CORN Crazy top (Cause unknown)	New York	Observed for the first time in New York State on September 18, 1953. About 50 percent of the plants were found diseased in a five-acre field of corn growing in Limestone, Cattaraugus County. (PDR 38: 370)
WHEAT Glume blotch (*Septoria nodorum*)	Florida	Has been found effecting wheat extensively in the Southeastern Coastal Plain. This is the first observation of this fungus in Florida. (PDR 37: 310)
ARRHENATHERUM ELATIUS Eyespot (*Selenophoma donacis* var. *stomaticola*)	Washington	(PDR 38: 277)
CRABGRASS (DIGITARIA (ISCHAEMUM and D. SANGUINALIS) Rust (*Puccinia oahuensis*)	Louisiana	Apparently the first record of this fungus in Louisiana. Found in Sept. 1953 on *D. ischaemum*. (PDR 38: 120)
JOHNSON GRASS (SORGHUM HALEPENSE) *Sclerospora macrospora*	Louisiana	Grasses growing in the vicinity of infected sugarcane were examined for the disease. Findings indicated that Johnson grass is susceptible to attacks by the organism causing the Sclerospora disease of sugarcane. (PDR 37: 446)
APPLE Black pox (*Helminthosporium papulosum*)	Georgia	Found in Rabun and Fannin Counties. (PDR 37: 446)
CITRUS spp. Exocortis (Bud-transmissible virus)	Florida	Scaling of trifoliate butts was first reported in Fla. during the summer of 1952. Experiences of growers with losses from exocortis suggest

Table 1. (Continued)

Host Disease (Cause)	Where found	Remarks
Citrus spp. (continued)	Florida	that in Fla. trifoliate orange should not be resorted to except on a limited or experimental basis until more is known about the occurrence of the trouble in the citrus varieties of the State. (PDR 38: 12)
PEACH Wart (Virus)	New Mexico	Found during the late summer of 1952 in San Juan County. The disease was introduced into the County on Candoka nursery stock. Apparently no vector of the virus was present in this area. (PDR 38: 329)
Western X-disease (Virus)	Arizona	First experimental evidence confirming the existence of the disease in Ariz. In 1952 defoliated Elberta peach trees in an orchard in the Oak Creek Canyon area were found to be infected. (PDR 37: 508)
SWEET CHERRY (PRUNUS AVIUM) Verticillium wilt (*V. albo-atrum*)	California	During the 1952 and 1953 seasons symptoms of Verticillium wilt were observed in sweet cherry varieties growing in the Davis, Santa Clara and Stockton areas in California. (PDR 38: 438)
PECAN *Articularia quercina*	Oklahoma	The fungus was found in the Stillwater area in 1951, 1952 and 1953.
Microstroma juglandis var. *robustum*	Oklahoma	In May 1953, a catkin blight was found throughout the east-central pecan-growing area of Okla., occurring with varying intensity on all important pecan varieties and on many native pecans. (PDR 37: 511)

Table 2. Diseases found or reported in this country for the first time in 1953= *; diseases found on new hosts=**.

Host Disease (Cause)	Where found	Remarks
ALFALFA Root rot** Phytophthora sp.	California	In 1952 an undescribed root rot of alfalfa was observed in four counties of Calif. A Phytophthora sp. was isolated from diseased plants. The fungus was tentatively identified as P. cryptogea. (Phytopath. 43: 586)
BIG TREFOIL (LOTUS ULIGINOSUS) Southern blight** (Sclerotium rolfsii)	Georgia	First recognized as part of the big trefoil blight complex at Tifton in July 1953. This fungus attacks leaves and stems where free moisture is present during hot humid weather. (PDR 37: 521)
BIRDSFOOT TREFOIL (LOTUS CORNICULATUS) Stemphylium loti n. sp.	New York	Found in Northeastern U. S. in 1951. In the New York survey in 1952 it was found in all fields examined. No highly resistant plants were found. (Phytopath. 43: 577)
GRASSES Blast (Spermospora subulata) Leaf rust (Puccinia poae-sudeticae) Leaf streak (Scolecotrichum graminis) Scald (Rhynchosporium orthosporum) (R. secalis) Stripe rust (Puccinia glumarum)	Washington	Grass diseases observed in 1953 on new hosts in the Pullman Unit of the Soil Conservation Nurseries located at Pullman, Washington. (PDR 38: 277)
Dwarf bunt (Tilletia caries)	Oregon	New grass host records and life history observations of dwarf bunt in eastern Oregon. (PDR 38: 345).
CITRUS New virus disease	California	Induces vein swelling and enations on the lower leaf surface. Symptoms most pronounced on sour orange and Mexican lime. This

Table 2. (Continued)

Host Disease (Cause)	Where found	Remarks
(Citrus continued)		new virus is distinct from quick decline and is transmitted by at least one species of aphis. (Calif. Citrogr. 38: 180)
FIG Walnut branch wilt** (*Hendersonula toruloidea*)	California	Reported on fig about 20 miles from the severely damaged walnuts in Fresno County. (PDR 38: 238)
PEACH Fruit rot (*Diplodina persicae* n. sp.)	Louisiana	All varieties of peaches tested were found to be susceptible when inoculated under artificial conditions. Southland and Burbank Early Elberta were the most susceptible whereas Sunhigh was the least susceptible. (Phytopath. 44: 134)
STRAWBERRY Dematophora root and crown rot** (*Rosellinia necatrix*)	California	Observed in a planting of the Shasta variety in Santa Cruz County on land land recently cleared of old apple trees. (PDR 38: 72)
STRAWBERRY (FRAGARIA CHILOENSIS var. ANANASSA) Buckeye rot** (*Phytophthora parasitica*)	Tennessee	The fungus was found causing rot of several late appearing berries of the Aberdeen variety on July 19. (PDR 37: 527)
CARNATION (DIANTHUS CARYOPHYLLUS) Pimple (*Xanthomonas oryzae* new. var.)	Colorado	Isolated from pimple-like spots on leaves and stems. The bacterium has been transmitted to two carnation vars. and to *D. barbatus*. (PDR 37: 634)
CASTORBEAN (RICINUS COMMUNIS) Bacterial leaf spot* (*Xanthomonas ricinicola*)	Maryland Oklahoma Texas	This disease, new to the United States, was observed in commercial fields in Oklahoma and Texas in 1950, 1951, and 1952, and in varietal yield test plots in Mary-

Table 2. (Continued)

Host Disease (Cause)	Where found	Remarks
Castorbean continued)		land and Texas in 1952. The disease is believed to be widespread throughout the castor oil producing areas of the southern Great Plains. (PDR 37: 477)
CHRYSANTHEMUM MORIFOLIUM Bacterial blight Erwinia chrysanthemi	Massachusetts Florida North Carolina Ohio Connecticut Pennsylvania	Reports and specimens of this disease were received in 1951 and 1952; a hitherto unreported disease of greenhouse chrysanthemums. (Phytopath. 43: 522)
COCKSCOMB (CELOSIA ARGENTEA var. CRISTATA) Damping off** (Phytophthora parasitica)	Tennessee	Damping-off of a cockscomb plant about one foot in height was found to be due to the buckeye rot fungus. (PDR 37: 527)
JUNIPER MISTLETOE PHORADENDRON JUNIPERINUM) Rust** (Uredo phoradendri)	New Mexico	Collection made January 1953. The rust was not common at this location in the Sandia Mountains near Albuquerque. (PDR 37: 258)
LAMBSQUARTERS GOOSEFOOT (CHENOPODIUM ALBUM) Potato calico** (Virus)	Maine	Found in plants growing with infected potatoes in a short row in 1953. (PDR 38: 370)
LILY (LILIUM REGALE) Buckeye rot** (Phytophthora parasitica)	Tennessee	Observed early in July, as a top rot, causing collapse. Bulbs finally rotted completely. (PDR 37: 527)
PHILODENDRON CORDATUM Sclerotium rolfsii**	California	Found on P. cordatum grown under glass in southern California. (PDR 38: 530)

Table 2. (Continued)

Host Disease (Cause)	Where found	Remarks
TOBACCO "False broomrape" (Cause undet.)	Kentucky	New disease found in 1951 on the roots of burley tobacco. In 1952 diagnosed as broomrape; however, the "broomrape" did not get above ground. This summer a few leaves had gotten above ground and turned green. The trouble has been reported from nine counties. (PDR 37: 538)
	Florida	Appeared in Alachua County, Florida in 1951 and again in 1952. Descriptive details follow those given concerning the trouble in Kentucky. (PDR 37; 131)
Leaf curl* (?virus)	Kentucky	Identical in appearance with that found in India. Disease is graft-transmitted, and has been found in seven counties. (PDR 37: 538)
DOUGLAS FIR (PSEUDOTSUGA TAXIFOLIA) Lumber staining Endoconidiophora coerulescens f. douglasii n. form	Central Rocky Mountain	Apparently confined to Douglas fir, covers the sapwood with a black surface growth of mycelium and stains the wood below it light to dark gray. (Mycologia 45: 579)
FAN PALM (WASHINGTON FILIFERA) Phytophthora trunk rot** (Tentatively identified as P. parasitica)	California	A new disease of native fan palm has been found on numerous trees in yard plantings at Palm Springs. Leaves die rapidly and the trunks. are almost completely rotted. (Phytopath. 43: 469)
QUERCUS AGRIFOLIA Q. CHRYSOLEPIS Oak wilt** (Endoconidiophora fagacearum)	Illinois	Incubation periods of 20 to 28 days were required when inoculations were made by injection of conidia with a hypodermic syringe at the base of the new growth. (PDR 37: 527)

Table 2. (Continued)

Host Disease (Cause)	Where found	Remarks
QUERCUS ILICIFOLIA Oak wilt (*Endoconidiophora fagacearum*)	Pennsylvania	The infected tree was found in Bedford County. This discovery increases the number of species of oak found infected in nature in the State to eight. (PDR 37: 567)
SALT-CEDAR (TAMARIX PENTANDRA) Bacterial parasite	Arizona New Mexico Texas	The first bacterial parasite to be reported for tamarisks. Remarkably resistant to heat. Salt-cedar is a most obnoxious weed. Natural enemies would be desirable. (PDR 37: 524)
CABBAGE Autogenous necrosis**	Wisconsin	This hitherto unreported disease of cabbage was described. It was found in certain inbred lines of cabbage. The disease appeared after midseason under Wisconsin conditions. (Phytopath. 43: 415)
LETTUCE Leaf spot (*Stemphylium botryosum* f. *lactucum,* forma nova)	California	Has been observed for 20 years in the Colma vegetable-growing district of San Mateo County. The pathogen is the imperfect stage of *Pleospora herbarum* f. *lactucum,* forma nova, pathogenic on and causing a leaf spot disease of lettuce (Phytopath. 44: 175)
LETTUCE Strain of tobacco-ringspot virus	California	In October 1953, a hitherto unreported disease of lettuce was observed in the Salinas Valley in a 15-acre field of the Great Lakes Variety. (PDR 38: 150)
PEPPER CAPSICUM FRUTESCENS Leaf disease ("velvet spot") (*Cercospora unamunoi*)	Florida Texas California	Colonies of *C. unamunoi* were found parasitized in some areas by *Botrytis yuae* sp. nov. (Phytopath. 44: 233)

Table 2. (Continued)

Host Disease (Cause)	Where found	Remarks
TOMATO		
New virus disease (V-52-1)	Illinois	A virus (designated V-52-1) with some properties of common tobacco mosaic virus (TMV) has been identified as the cause of a new virus disease. Symptoms were described (Phytopath. 43: 480)
WATERMELON		
Watermelon mosaic virus (Marmor citrulli sp. nov.) Yellow watermelon mosaic virus (Marmor citrulli flavidanum var. nov.)	Florida	Both strains were transmitted by Myzus persicae. Host range: all tested cucurbits except Momordica charantia. (Phytopath. 44: 198)

DISEASES OF CEREAL CROPS

Futrell and Atkins reported diseases of small grains in Texas in 1953. The crop season was one of great extremes resulting in a near failure over the majority of the wheat-producing areas, with a bumper crop in other areas. Extreme drought has persisted in the major-wheat-producing area of West Texas for three years. Total wheat production in Texas in 1953 was less than half the ten-year average. By contrast conditions were, for the most part, favorable for oats, which are largely grown in Central Texas, and the estimated crop was considerably above the ten-year average. (PDR 38: 167).

E. D. Hansing summarized 1953 tests of new compared with older fungicides for the control of cereal smuts (Tilletia spp., Ustilago avenae, U. kolleri and Sphacelotheca sorghi) in Kansas in 1953. (PDR 38: 389).

AVENA SATIVA. OATS: Moseman and others reported the reaction of winter oat varieties and selections to soil-borne viruses in southeastern United States. (PDR 37: 226-229). An improved method of inoculating seed of oats and barley with smut was reported by W. Popp and W. J. Cherewick. (Phytopath 43: 697). Earhart and Moseman reported that new oat introductions carrying resistance both to the prevalent races of rust and to soil-borne mosaic viruses should help plant breeders in developing varieties for the Southeast. (PDR 37: 597).

Erysiphe graminis, powdery mildew. Schafer and Caldwell reported that powdery mildew could not be found on winter oats early in the season in Indiana, but by mid-June it was abundant in the Lafayette nursery although on oats it developed less vigorously than on either wheat or barley. This was believed to be the first report of powdery mildew on oats in the field in Indiana. (PDR 37: 569).

Helminthosporium victoriae, blight. N. C. Finkner reported inheritance of susceptibility to Helminthosporium victoriae in crosses involving Victoria and other crown rust (Puccinia coronata) resistant oat varieties. No indication of linkage was detected between the Victoria type of crown rust resistance and susceptibility to H. victoriae. (Agron. Jour. 45: 404).

Puccinia graminis, stem rust, was present in all winter-sown fields examined in southern Illinois. Prevalence ranged from 21 to 64 percent (average 51.4 percent) and severity averaged 0.05 percent. (G. H. Boewe, PDR 37: 411).

S. S. Ivanoff described spikelet-drop, cause unknown, of oats in Mississippi. He stated that it was difficult to state whether this "spikelet drop" is a new disease, or a little-observed symptom of an already known disease. (PDR 38: 275).

HORDEUM VULGARE. BARLEY: Erysiphe graminis var. hordei, powdery mildew. J. G. Moseman reported reaction of barley varieties and selections to physiological races of powdery mildew. (PDR 38: 163).

Viruses. H. H. McKinney summarized the results of studies to facilitate the rapid detection of seed-borne virus in Glacier barley. (PDR 38: 152).

LINUM USITATISSIMUM. FLAX: H. H. Flor reported on the epidemiology of flax rust, Melampsora lini, in the North Central States. Flax rust differs from the rusts of cereals in a number of important respects that affect its epidemiology. (Phytopath. 43: 624).

SECALE CEREALE. RYE: Puccinia rubigo-vera secalis, leaf rust, was present on rye examined in Illinois as far north as the central part of the State. In the southern part it was present on all the plants and averaged 20 percent severity on all plants. (G. H. Boewe, PDR 37: 411).

SORGHUM spp. SORGHUM: Seventeen fungicidal chemicals were tested on smut-infested seed of Sharon kafir and Leoti sorgo with regard to their effect on emergence in steamed and in infested soils, on field stands, and on control of covered kernel smut. (Leukel and Webster, PDR 37: 585).

Results of the 1953 sorghum seed-treatment tests for covered-kernel smut (Sphacelotheca sorghi) control in Colorado were reported by R. H. Porter. (PDR 38: 88).

SORGHUM HALEPENSE. JOHNSON GRASS: In Louisiana L. L. Farrar reported a downy mildew (Sclerospora ? macrospora) on Johnson grass, and discussed its possible relationship with downy mildew on sugarcane. (PDR 37: 446).

TRITICUM AESTIVUM. WHEAT: Tests reported by Alvin Overland and W. L. Nelson, from Washington, indicated that copper carbonate slurry is injurious to wheat seed, particularly under low temperature conditions. With respect to varieties, the winter wheats were more adversely affected by the copper carbonate slurry treatment than the spring wheats. This was especially true at 3° C. (PDR 38: 25).

Anguina tritici, wheat nematode. J. M. Raeder proved that the wheat nematode can remain viable and active over a period of 14 years of dormancy. (PDR 38: 268).

Erysiphe graminis, powdery mildew, according to Schafer and Caldwell, developed abundantly and early on winter wheat throughout Indiana in 1953. (PDR 37: 569).

Helminthosporium sativum, root rot. The dryland root rot complex of winter wheat was widespread in eastern New Mexico in 1953, according to C. H. Hsi, who discussed the factors that favored its occurrence. H. sativum was most frequently isolated from the diseased roots. (PDR 38: 270).

H. tritici-vulgaris, leaf spot, was present on all plants and very severe on some varieties in southern Illinois, according to G. H. Boewe. (PDR 37: 411).

Puccinia graminis tritici, stem rust. Tests demonstrated that certain of the sulfa drugs will control wheat stem rust when applied as a post-infection spray at a rate as low as 5 lbs. per acre. This control can be counteracted by para-amino benzoic acid and folic acid, allowing the rust to recover. These acids apparently are vitamins in the metabolism of P. graminis tritici. (Phytopath. 43: 659).

Puccinia rubigo-vera tritici, leaf rust, was conspicuous by its absence in southern Illinois, according to G. H. Boewe. The first leaf rust (one pustule) was observed in Pulaski County on April 30. The extremely dry weather last summer and fall, the cool weather in April and most of May, and the use of resistant varieties may account for the light leaf rust development as moisture was plentiful in the spring. (PDR 37: 411).

J. E. Livingston reported that 179 chemicals were tested to determine their value as chemotherapeutic agents in control of P. rubigo-vera on wheat. Calcium sulfamate was the most effective chemical for stopping the development of pustules of P. rubigo-vera and P. graminis tritici in the tissue of wheat leaves in field trials. (Phytopath. 43: 496).

Septoria nodorum, glume blotch. R. W. Earhart reported reaction of wheat varieties to Septoria nodorum in Florida. (PDR 37: 436). This fungus infected every wheat planting in the south-eastern Coastal Plain, Florida, during the 1953 growing season. Leaves and leaf sheaths were primarily infected but only minor damage was observed on the glumes.

Tilletia brevifaciens, dwarf bunt. The results of preliminary trials conducted at Ithaca, New York indicated that a straw covering during the winter was favorable to the development of dwarf bunt of winter wheat and that inoculum applied to the soil was consistently more effective under the prevailing conditions of light snowfall and repeated thawing than that applied directly to the seed. (L. J. Tyler and N. F. Jensen. PDR 37: 465).

T. caries, bunt. Holton and Woo reported results of tests with several standard seed-treatment fungicides and experimental chemical materials to determine their relative effectiveness in controlling seed-borne common bunt of winter and spring wheat at Pullman, Washington in 1952-1953. (PDR 37: 583).

Typhula spp. and Fusarium nivale, snow mold. Roderick Sprague reported results of tests with fungicides for control of this disease. (PDR 37: 360).

Wayne M. Bever reported that eight races of Ustilago tritici were isolated from 56 loose-smut collections made in 1947. A total of 19 races have been described. Race 1 is still the most prevalent. The results indicated that new varieties of wheat, constituting different germ plasm, shift the prevalence of the different physiologic races of U. tritici. Kawvale was resistant to all races and should be an excellent parent in breeding for resistance to loose smut. (Phytopath. 43: 681).

Mosaic Viruses.

Recognition of widespread occurrence of the soil-borne wheat mosaic viruses in Virginia was associated with the recent general use of susceptible varieties, according to C. W. Roane and others. (PDR 38: 14). J. G. Moseman and others reported reaction of wheat varieties and selections to the soil-borne viruses in the Southeast. (PDR 38: 19). Yield comparisons between wheat varieties grown on mosaic-virus-infested and noninfested soil in Illinois was reported by Beaver and Pendleton. (PDR 38: 266).

A virus disease transmitted by the leafhopper Endria inimica was found on winter and late spring wheat in South Dakota in 1950-51, according to J. T. Slykhuis. "Striate mosaic" is the name proposed for this disease because the symptoms include fine chlorotic streaks along the veins of the leaves. Nymphs and adults of this leafhopper function as vectors. Some individual leafhoppers transmit the virus only once while others transmitted it many times before they died. The virus overwinters on winter wheat. Striate mosaic on wheat in South Dakota has several characteristics in common with two virus diseases reported on wheat and oats in the U.S.S.R. (Phytopath. 43: 537).

ZEA MAYS. CORN: Bacterium stewartii, Stewart's disease or bacterial wilt, of corn was predicted to occur over most of Illinois and be more destructive much farther north in the State than it was in the summer of 1952. Since this was the warmest winter in Illinois since that of 1931-32, damage and loss from the disease was expected to be the heaviest it had been in the past 21 years. This forecast, the fifth for the State, was based on the close relationship that appears to exist between the amount of disease which develops during the summer and the temperature of the preceding winter. (G. H. Boewe, PDR 37: 311). Stewart's disease was killing 0.3 percent of the plants in an early planted field of corn in Alexander County, Illinois on May 28. This is the earliest record of the occurrence of the disease on field corn. The corn was about knee high. (G. H. Boewe. PDR 37: 411). In a review of the corn disease situation in Illinois in 1953, Benjamin Koehler stated that a considerable number of sweet-corn fields were ruined by Stewarts' disease during June, even though wilt resistant hybrids had been used for the most part. In view of the mild temperatures of the preceding winter, total damage was not as great as had been anticipated. For the State as a whole, damage to yield was estimated at about 2.8 percent, the highest since 1938. (Univ. Ill. Agr. Expt. Sta. Bull. 571: 10).

Fusarium moniliforme, ear rots caused concern in some parts of Illinois, but on the whole damage was lower than it had been for several years, according to Koehler (Univ. of Ill. Agr. Expt. Sta. Bull. 571: 12).

Helminthosporium turcicum, northern leaf blight. According to Koehler, in Illinois only traces of this leaf blight were found in some test fields and none in others. (Univ. of Ill. Agr. Expt. Sta. Bull. 571: 12).

H. turcicum and Puccinia sorghi, leaf blight and rust. In inaugurating a breeding program for resistance to these two diseases, A. L. Hooker reported that it seemed desirable to obtain data on the relative efficacy of various methods of inducing field infections in central Iowa with the two pathogens. He has furnished a brief description of them and a summary of the pertinent results. (PDR 38: 173).

Macrophomina phaseoli, charcoal rot, was more abundant than it had been for many years in the hot dry areas of Illinois, which included most of the lower two-thirds of the State. (Univ. of Ill. Agr. Expt. Sta. Bull. 571: 12).

P. A. Young reported that meadow nematodes, (Pratylenchus) had been observed to be the cause of considerable damage to corn in east Texas. Early cultivation to aerate cold wet soil around the roots of corn seedlings probably will minimize damage from the nematodes. (PDR 37: 599). J. M. Good and others reported results of experiments to determine the effect of crop rotation on populations of meadow nematodes (P. leiocephalus) in Florida. The lowest infestation following corn occurred in the two-year rotation with intermediate numbers occurring where corn, the most susceptible plant, was grown two years and peanuts one. (PDR 38: 178).

Ustilago maydis, smut, was considerably more prevalent than usual in Illinois. For the State as a whole, smut was estimated to have cut yield 1.7 percent. This is the highest loss since 1940 when damage was 4 percent. (Koehler, Univ. Ill. Agr. Expt. Sta. Bull. 571: 12).

DISEASES OF FORAGE AND COVER CROPS

Estimated crop losses due to some diseases of forage legumes and grasses in New York, in 1953 were reported by Daniel A. Roberts and others. (PDR 38: 30). Experimental studies of the host ranges of Pratylenchus vulnus and P. penetrans were reported by Harold J. Jensen. Trials designed to discover cover crops non-susceptible to P. penetrans involved 33 different kinds of plants. All of the plants used in these trials were found to be hosts for this nematode. The major differences in the experimental host ranges of the two species presented in these data were that P. penetrans was attracted to the Gramineae while P. vulnus apparently avoids them. (PDR 37: 384).

BROMUS MARGINATUS. BROME GRASS: Ustilago bullata, head smut. Meiners and Dietz reported seed treatment trials for control of head smut in 1953. On the basis of two years' results which were nearly identical, Ceresan M and Panogen were recommended for treatment of mountain brome seed to control head smut. Ceresan M may be used either as a dust or a slurry, and Panogen may be used in concentrated or dilute form. (PDR 37: 595).

DACTYLIS GLOMERATA. ORCHARD GRASS: John R. Hardison and H. J. Jensen reported a nematode (Anguina) seed-gall disease of orchard grass in Oregon. Three malformed panicles bearing nematode galls in place of seeds were found in May 1947, on the Oregon Agricultural Experiment Station farm at Granger. (PDR 37: 388).

POA spp. BLUEGRASS: Puccinia graminis, stem rust. In a lawn at Manhattan, Kansas Merion bluegrass was found to be heavily infected on October 22, 1953. Because of the increasing interest in Merion bluegrass, it seemed desirable to record its susceptibility to stem rust. (Rogerson and King, PDR 38: 57).

Puccinia rubigo-vera, leaf rust, was reported in August 1953 in a lawn of Merion bluegrass in Lincoln, Nebraska. It had been seeded in the early spring of 1953. Weather prior to the outbreak of the rust consisted of fairly cool nights with heavy dews, and warm, sunny days with relatively high humidity. This combination of conditions coupled with frequent watering apparently favored the development of this outbreak of leaf rust. (W. W. Ray, PDR 37: 578).

Cereal yellow dwarf virus was shown by studies at the University of California to have a wide host range in the grass family. Severe epiphytotics of the disease are promoted by a warm, continuously wet winter, favoring rank growth of wild grasses and rapid reproduction of the aphid vectors. Eventual control depends on the development of resistant strains. (Oswald and Houston, Phytopath. 43: 309).

LEGUMES

E. W. Hanson gave an account of the prevalence and severity of diseases of red clover, Ladino clover, lucerne, and sweet clover (Melilotus spp.) in Wisconsin during the years 1946 to 1952 inclusive, based on State-wide surveys. (PDR 37: 467).

Belonolaimus gracilis, sting nematode. Holdeman and Graham discussed the effects of various plants on the maintenance and increase of the sting nematode populations. Field observations revealed that soybean and cowpea increased the severity of the trouble on the next crop. Crab grass was largely responsible for maintaining an infestation. (PDR 37: 497).

GLYCINE MAX. SOYBEAN: John Dunleavy reported occurrence of soybean diseases in Iowa in 1953. (PDR 38: 89).

Pellicularia filamentosa, Rhizoctonia aerial blight, for three consecutive years, 1950-52, was observed in soybean nurseries and nearby test fields at Baton Rouge, Louisiana. The disease first appeared during the summer and persisted during the fall. In 1951 and 1952 microsclerotia were produced abundantly under field conditions. Varietal differences in susceptibility were observed. (Phytopath. 44: 215).

Peronospora manshurica, downy mildew. S. G. Lehman reported that the results of greenhouse tests in the spring of 1952 demonstrated the existence in North Carolina of another physiologic race, designated as race 4, of P. manshurica, in addition to the three previously known. (Phytopath. 43: 292).

LOTUS ULIGINOSUS, BIG TREFOIL: During 1952 and 1953, systemic observations were made on diseases of big trefoil in Georgia. Diseases observed were: summer blight (Rhizoctonia solani), blackpatch (blackpatch fungus), anthracnose (Colletotrichum truncatum), and southern blight (Sclerotium rolfsii). The first three diseases had been reported on big trefoil, but southern blight had not been reported previously. (Homer D. Wells, PDR 37: 521).

MEDICAGO SATIVA. ALFALFA: The Armstrongs reported that cross-inoculation experiments demonstrated that wilt-producing Fusaria from cotton and cassia as well as alfalfa will infect alfalfa. (PDR 38: 221).

Peronospora trifoliorum, downy mildew, An unusual epidemic was present in the southern part of Illinois. Approximately 50 percent of the plants were diseased. In about 5 percent of the plants, all the tip leaves were diseased and severely dwarfed and deformed. (G. H. Boewe, PDR 37: 412).

Etiology and epidemiology of the leaf spot of alfalfa caused by Stemphylium botryosum were studied in the field and greenhouse, and the perfect stage of the organism was identified as Pseudoplea briosiana. Relative humidity of 100 percent for at least 12 hours was essential for initial infection, and temperatures from 16^{o} to 25^{o} C were most conducive to further development of the disease. When these conditions occur the disease can be epidemic in Minnesota.

There are pathogenic races of the pathogen. (Kernkamp and Nelson, Phytopath. 43: 477).

Lucerne witches' broom virus spreads more rapidly in small, thin stands than in larger, dense plantings, according to Menzies (Phytopath. 32: 564). From observations in the Methow Valley of Washington it appeared that the normally slow spread of infection into new plantings may be effectively prevented by the area wide removal of old, diseased fields, followed by reseeding and the maintenance of dense, productive stands through rational cultural practices.

TRIFOLIUM PRATENSE. RED CLOVER: *Sclerotinia trifoliorum*, crown rot. A technique for field inoculation of red clover with *S. trifoliorum* was described by J. H. Graham and R. G. Hanson. (PDR 37: 518).

TRIFOLIUM REPENS. WHITE CLOVER: A cyst-forming nematode identified as *Heterodera schachtii* var. *trifolii* has been found widely distributed in Illinois in association with *T. repens* in old pastures, lawns, and roadsides. It probably is not a recent introduction. (Phytopath. 43: 603).

Houston and Oswald reported the mosaic virus disease complex of Ladino clover (*Trifolium repens* var. *Ladino*) in California. (Phytopath. 43: 271).

DISEASES OF FRUIT CROPS

J. M. Ogawa and others reported the results of a survey for brown rot (*Monilinia* spp.) of stone fruits in California. No major change had occurred in the distribution of the brown-rot organisms in California since the previous survey in 1939. *M. fructicola* was found in the additional counties of Madera, Napa, and Solano, and *M. laxa* in San Diego County. *M. fructicola* is important as a cause of fruit rot of peach, whereas *M. laxa* is primarily a blossom-and twig-blighting organism on almonds and apricots. Direct infections of young apricot shoots by *M. laxa* were found extensively in California for the first time in 1953. (PDR 38: 254).

CITRUS spp. CITRUS: Erdman West and others reported that brown rot of citrus fruit on the tree, caused by *Phytophthora* spp., was found in three different citrus-growing areas in Florida in October 1953. The organism is probably *P. parasitica*. This fungus has been known for years in Florida as the cause of foot rot of trees and decay of fruits on the ground but had previously not been observed to attack fruit on the tree. In California such infection has been known for many years. (PDR 38: 120).

Crinkle-scurf. Results of transmission trials with crinkle-scurf of citrus in Florida indicate that the disorder does not behave like an infectious disease. However, symptoms are propagable in shoots from affected buds. Prospective bud sources should be examined for crinkle-scurf and trees found affected should be avoided in the interest of maintaining varieties true to type. (L. C. Knorr, PDR 37: 503).

Scaly bark. According to Knorr and Thompson scaly bark, formerly widespread, is now to be found only in a few neglected groves on the East Coast of Florida. On the basis of spray trials it was concluded that Florida scaly bark can be economically, thoroughly and safely controlled by a single yearly spraying with wettable sulfur. Results support the hypothesis that mites (*Brevipalpus*) are involved in the development of the disease. (PDR 38: 143).

Spreading decline. H. W. Ford reported the effect of spreading decline disease on the distribution of feeder roots of orange and grapefruit trees on rough lemon rootstock in Florida (Proc. Amer. Soc. Hort. Sci. 61: 68). Ford also reported changes in rate of respiration and catalase activity associated with spreading decline of citrus trees (Proc. Amer. Soc. Hort. Sci. 61: 73). Evidence reported by R. F. Suit and E. P. DuCharme indicated that the burrowing nematode (*Radopholus similis*) is the cause of the spreading decline disease of citrus trees in Florida. Several other parasitic nematodes were found associated with citrus feeder roots. *Aphelenchus avenae* apparently is not a factor in spreading decline since it was found also in healthy groves free from disease. This is the first time that this nematode has been reported as associated with citrus roots in the United States. *Hoplolaimus coronatus*, *P. pratensis*, *Trichodorus* sp., *Xiphinema americanum*, and *Hemicycliophora* sp. probably are not related to spreading decline, although these nematodes have been found associated with citrus feeder roots. The type and extent of injury they cause has not as yet been determined. (PDR 37: 379).

Stem pitting, a symptom of quick decline, was first observed in California citrus orchards in 1952. The appearance in the State was anticipated. Stem pitting and tristeza in South Africa and Brazil were shown to be interrelated, probably symptom expressions of the same virus complex. (Bitters, W. P., Calif. Agriculture 7 (1): 9, 14. Jan. 1953).

Winter Haven decline, a serious malady, has caused a considerable loss to citrus in the Winter Garden district of Texas. The disease has been observed only on trees ten years old or older and on a number of different rootstocks. Of the 41 root and soil samples taken from the root-zone area of affected and adjacent healthy trees 38 yielded *Pythium ultimum*. Since the fungus appeared to be active in this area in both winter and summer it may be partly responsible for the disease in combination with shallow soil and recurring periods of excessive and deficient soil moisture. (Bailey Sleeth, PDR 37: 425).

FRAGARIA spp. STRAWBERRY: *Aphelenchoides fragariae*, strawberry dwarf, was reported by W. L. Yount, in a 2-acre area of strawberries near Stevens, Pennsylvania. Plants of eight varieties were found to be affected by the disease. (PDR 37: 429).

Botrytis cinerea, gray mold. In Illinois according to Dwight Powell, captan gave good control of gray mold rot on strawberries and increased yield as well. (PDR 38: 209).

Phytophthora fragariae, red stele. G. F. Waldo reported sources of red stele root disease resistance in breeding strawberries in Oregon. (PDR 37: 236).

Viruses:

J. P. Fulton reported results of studies confirming Posnette's report that the virus content of infected strawberry plants can be modified by heat and that in some cases the plants can be rendered virus-free. It seems logical to assume that a method can be developed which will consistently yield virus-free strawberry plants. (PDR 38: 147). Miller and Darrow reported that two wild roses (*R. nutkana* and *R. rubiginosa*) have been found to be hosts for the common strawberry aphid (*Capitophorus fragaefolii*). Collections of the aphids were made during the summer and fall of 1953 from wild roses growing along the highways and fence rows in six different locations near Corvallis, Oregon and one in Washington. (PDR 38: 70).

Strawberry latent virus. This virus has been found to occur in the East Malling clone of *F. vesca* and in plants of *F. bracteata* originating in California. In combination with a second virus a more severe disease resulted than would be caused by either virus alone. The virus from *F. vesca* was designated strain A, and that from *F. bracteata* as strain B, of the strawberry latent virus. The virus has been transmitted only by grafting. (Norman W. Frazier, PDR 37: 606).

According to P. W. Miller, the hot-water treatment of virus-infected strawberries is not a commercial method of control, but may prove to be a possible means of obtaining virus-free clones of certain varieties now completely infected. (PDR 37: 609).

MALUS SYLVESTRIS. APPLE: Copper 8-quinolinolate (Bioquin 1), according to Dwight Powell, was compared with a number of commercial fungicides in field tests on apples and pears. It was excellent against bitter rot (*Glomerella cingulata*), sooty blotch (*Gloeodes pomigena*), and fly speck (*Leptothyrium pomi*); good against apple scab (*Venturia inaequalis*), apple blotch (*Phyllosticta solitaria*) and leaf spot (*Fabraea maculata*); and fair in the control of cedar rust (*Gymnosporangium juniperi-virginianae*). It was not satisfactory in controlling fire blight (*Erwinia amylovora*). Bioquin 1 was not phytotoxic at concentrations suitable for disease control. (PDR 38: 76).

Erwinia amylovora, fireblight. At the Ohio Agricultural Experiment Station, Wooster, experiments for the control of apple fireblight were carried out in 1952 and 1953. Three to five sprays of streptomycin or Terramycin on successive days were effective in preventing infection on young Jonathan apple trees in the greenhouse when twigs were needle-inoculated on the day of the last spray. Trees inoculated seven days after the last spray, however, developed 100 percent infection. Trees given three applications of streptomycin at 60 and 120 p.p.m. with 2 oz. Triton B-1956 were in excellent condition 17 days after inoculation with only a few infections, the unsprayed being severely blighted. (Winter and Young, PDR 37: 463).

Podosphaera leucotricha, powdery mildew. According to Roderick Sprague, 1953 is the fifth year of a series of spray trials at Wenatchee, Washington. In studying results of spraying attention should be given to the amount of overwintered mildew in a block. In their plots it varied appreciably. Relatively effective sprays included Polysulfide Compound, lime-sulfur, and Karathane. There was much less mildew etching on the fruit of sprayed trees than in the unsprayed checks. (PDR 37: 601).

Venturia inaequalis, scab. In Connecticut during 1953, an early warm, wet spell caused the discharge of most of the ascospores of the apple scab fungus before the opening of the apple buds. Most scab development was from conidial infection. During the three or four years prior to 1953 unsprayed McIntosh trees were almost completely defoliated by scab. In 1953, however, comparable trees, although about 50 percent infected, retained most of their foliage. (Saul Rich, PDR 37: 636).

The previously unrecognized conidial stage of *Microthyriella rubi* has been isolated from the flyspecks on apples from California and Virginia, according to R. D. Durbin and others. This dermatiaceous fungus, *Zygophiala jamaicensis*, originally described on banana and recently reported to cause greasy blotch of carnation, has a wide host range. (Phytopath. 43: 470).

In Rhode Island, Shutak and others reported the role of cutin in storage scald of apple, and the effect of mineral oil on storage scald. (Proc. Amer. Soc. Hort. Sci. 61: 228-236).

PERSEA AMERICANA. AVOCADO: *Phytophthora cinnamomi*, root rot. In California G. A. Zentmyer reported progress on avocado root rot research. Investigations on control under way at Riverside, in co-operation with the University of California and the Agricultural Extension Service, include a search for resistant stocks among collections made in swampy locations in Central America and Mexico, replanting infested soil with resistant crops, the compilation of the host list of the fungus, experiments on various soil treatments and amendments and on irrigation methods, investigation of the occurrence of the pathogen in indigenous soils, and a study of the biology of *P. cinnamomi* itself. (Calif. Citrogr. 38: 256).

Spreading decline. Citrus groves in Florida rendered unprofitable by spreading decline are frequently replaced with avocado trees. Investigation showed that the burrowing nematode, *Radopholus similis*, attacks avocado as well as citrus, in which it causes spreading decline. In addition to *R. similis* and *Pratylenchus pratensis*, *Aphelenchus avenae*, *Criconemoides citri*, *Trichodorus* sp. and various *Dorylaimids* were also found associated with avocado roots. (DuCharme and Suit, PDR 37: 427).

PRUNUS spp. CHERRY: The special care needed to prevent introduction of viruses in symptomless host carriers was emphasized in J. A. Milbrath's account of the "Eckelrader" disease in cherry importations from Europe. (PDR 38: 258).

PRUNUS PERSICA. PEACH: Peter A. Ark discussed some important sources of crown gall bacteria (*Agrobacterium tumefaciens*) in California, where crown gall is a serious problem in many peach, almond, and prune orchards. (PDR 38: 207).

Cladosporium carpophilum, scab, Incidence of peach scab was markedly reduced on whitewashed trees, in Georgia experiments, according to a report by KenKnight and Jones. (PDR 37: 509).

Clitocybe tabescens, root rot. Arthur S. Rhoads discussed the presence and reasons for the spread of Clitocybe root rot in peach orchards in South Carolina and Georgia. (PDR 38: 42).

Fusicoccum amygdali, large leaf spot and canker, according to Emil F. Guba has become prevalent in the North Atlantic region during the past ten years. The fungus winters over in the cankers and apparently in infected leaves. Successful control of the disease was obtained in southeastern Massachusetts. Orchards that were on the verge of being abandoned are being rehabilitated by fungicidal protection throughout the season, beginning with lime sulfur at delayed dormant. Protection of the trees with fungicide up to the middle of October is necessary. (PDR 37: 560).

Monilinia fructicola, brown rot. Tests of organic fungicides for brown rot control on peaches in South Carolina were reported by H. H. Foster. (Phytopath. 43: 290).

Xanthomonas pruni, bacterial spot. Small scale experiments in 1951-52 indicated that fall applications of copper sulfate, if applied at the proper time, would eliminate the source of primary infection for peach bacterial spot in the spring, but H. W. Anderson reported disappointing results secured in the 1953 season in Illinois. In none of the experiments was there any evidence of reduction of either spring canker development of primary infection on the foliage over that found in the unsprayed trees. (PDR 37: 493). Results of limited experiments reported by John C. Dunegan and others indicated that after injections of the antibiotic Terramycin into peach trees infection with bacterial spot was reduced and defoliation delayed. (PDR 37: 604).

Phony disease (virus). Lee M. Hutchins and others reported the transmission of phony disease virus from tops of certain affected peach and plum trees. (Phytopath. 43: 691).

Ring spot (virus). The peach ring spot virus did not seem to be present in the variety collection at the U. S. Horticultural Station, Fort Valley, Georgia, according to tests reported by Glenn KenKnight and Julian F. Jones. (PDR 37: 346).

PYRUS COMMUNIS. PEAR: *Erwinia amylovora*, fire blight. An epiphytotic of pear fire blight occurred in California during the spring of 1953, according to P. A. Ark. In a control trial on Bartlett trees bentonite dust containing 240 p.p.m. streptomycin base gave 83.8 percent control without fruit russeting when applied four times during March and April. A copper-dust-treated plot developed light to severe fruit russetting, whereas the streptomycin-treated trees produced russet-free fruit. (PDR 37: 404).

RUBUS spp. RASPBERRY: *Erwinia amylovora* f. sp. *rubi*, bacterial fire blight. Donald Folsom reported evidence indicating that inoculum carried by the raspberry cane maggot (*Phorbia rubivora* or *Hylemyia rubivora* or *Pegomya rubivora*) was responsible for new infections by the raspberry fire blight bacterium in Maine. (PDR 38: 338).

RUBUS spp. WILD BLACKBERRY: *Elsinoe veneta*, anthracnose. R. A. Jehle and others reported additional records of spot anthracnose in Maryland. (PDR 37: 372).

RUBUS IDAEUS. RED RASPBERRY: The technique employed for indexing red raspberry plants for viruses in Washington was described by Glenn A. Huber. This method of indexing both raspberry and strawberry plants has been in use during the past two seasons. (PDR 38: 68).

VACCINIUM AUSTRALE. BLUEBERRY: *Pseudomonas* sp. was shown to be the cause of a serious stem canker of blueberry which has been under observation in western Oregon during the past five years. The only canes affected are those produced the previous season. All the buds in the cankered area are killed and the stem may be girdled. Some hybrids proved to be highly resistant. (Stace-Smith and others. Phytopath. 43: 588).

VACCINIUM CORYMBOSUM. BLUEBERRY: Ringspot, a virus disease of the cultivated highbush blueberry in New Jersey, was described by Hutchinson and Varney. (PDR 37: 260).

Elsinoë ampelina, anthracnose. R. A. Jehle and others reported additional records of spot anthracnose in Maryland. (PDR 37: 372).

Pierce's disease (virus). Stoner reported that Pierce's disease virus infection was a cause of grape degeneration in Florida. *Carneocephala flaviceps* was a hitherto unrecorded vector. (Phytopath. 43: 293). Freitag and Frazier reported natural infectivity of leafhopper vectors of Pierce's disease virus of grape in California. (Phytopath. 44: 7).

DISEASES OF NUT CROPS

P. W. Miller reported on nut diseases in Oregon in 1953. (PDR 38: 80).

CARYA PECAN. PECAN: *Cladosporium effusum*, scab. J. R. Large reported the results of aeroplane spraying for pecan scab control at Monticello, Florida. (PDR 37: 266).

John R. Cole reported diseases causing partial or total losses to pecan trees or nuts in the Southeastern States where no control measures were employed. The most severe of all these was scab, *Cladosporium effusum*. The weather in 1953 favored the development and spread of the fungus, probably causing a loss of 5 to 10 million pounds of nuts on susceptible varieties. *Cephalothecium roseum*, pink rot, was present on many of the scabby nuts. Among other diseases of less economic importance was crown gall (*Agrobacterium tumefaciens*), which attacks the crown and lateral roots of the tree. Foliage diseases causing minor to serious damage to the pecan crops were downy spot (*Mycosphaerella caryigena*); peach leaf blotch (*Mycosphaerella dendroides*); powdery mildew (*Microsphaera alni*); brown leaf spot (*Cercospora fusca*). Where growers are spraying to control scab the same spray materials and applications will also control these foliage diseases. Rosette (zinc deficiency) and leaf scorch (cause unknown) were the most important nutritional diseases. (PDR 37: 510).

DISEASES OF ORNAMENTALS

Damping-off fungi, such as *Rhizoctonia solani* and *Pythium ultimum*, cause considerable damage to various nursery ornamentals when the plants are in the early seedling stages. Panogen (methyl-mercury-dicyan-diamide) showed considerable toxicity to damping-off fungi such as the two mentioned, according to Ark and Sibray. (PDR 38: 204).

Kenneth F. Baker and others described a grafting failure of ornamental plants caused by *Thielaviopsis basicola*. Grafting failure caused by *T. basicola* appears not to have been previously reported. (PDR 37: 526).

Observations on natural infection of ornamental flowering plants with the curly-top virus (*Ruga verrucosans*) in southern New Mexico were summarized by Philip J. Leyendecker. (PDR 37: 552).

CAMELLIA spp. CAMELLIA: The transmission of leaf and flower variegation in camellias by grafting was reported by A. G. Plakidas. (Phytopath. 44: 14).

Baxter and Plakidas reported results of a study of dieback and canker of camellia caused by *Glomerella cingulata*. (Phytopath. 44: 129).

CHRYSANTHEMUM spp. CHRYSANTHEMUM: Brierley and Smith reported detection of Noordam's B virus of chrysanthemum in the United States (PDR 37: 280).

DIANTHUS spp. CARNATION: W. D. Thomas, Jr. reported a flower malformation of Hercules carnation caused by aster yellows virus in commercial greenhouses in the Denver and Colorado Springs areas, Colorado. (PDR 37: 284).

GLADIOLUS spp., GLADIOLUS: Both bacterial scab, *Pseudomonas marginata,* and fungus diseases of gladiolus corms can be controlled by certain fungicide-insecticide mixtures, according to Roy A Young, reporting investigations in Oregon. (PDR 38: 55).

Western aster yellows virus. Floyd F. Smith and Philip Brierley reported that inoculation with the western aster yellows virus reproduced symptoms of grassy top in gladiolus. (PDR 37: 547).

HEDERA HELIX. ENGLISH IVY: *Sphaceloma hederae*, English ivy scab. R. A. Jehle and others reported additional records for Maryland. (PDR 37: 372).

HELIANTHUS ANNUUS. SUNFLOWER: The culture of *Erysiphe cichoracearum* on sunflower crown gall (*Agrobacterium tumefaciens*) tissue was reported by J. M. Heim and G. A. Gries. (Phytopath. 43: 343).

C. E. Yarwood described a quick rubbing method for inoculation with viruses. (PDR 37: 501).

IRIS sp. IRIS: Topple disease. A previously unreported topple disease in the Wedgewood variety of Dutch iris has been observed on two occasions, according to Frank A. Haasis. At Babylon, Long Island, New York in December 1942 approximately 30 percent of the 50,000 Wedgewood plants growing in flats were affected with topple. At Castle Hayne, North Carolina in November 1952, 14 percent of the plants in flats in a greenhouse were affected. (PDR 37: 558).

LILIUM spp. LILY: *Aphelenchoides fragariae,* foliar nematode. According to Oregon tests reported by Jensen and Caveness control of foliar nematodes in Bellingham Hybrid lilies can be obtained with hot water-formaldehyde bulb treatment or with foliage spray of Systox. Control by these methods was achieved with no apparent injury to the lilies. (PDR 38: 181).

LOBULARIA MARITIMA. SWEET ALYSSUM: Association of various fungi with poor germination of the 1953-crop sweet alyssum seed was reported by Crosier and Heit. (PDR 38: 286).

NARCISSUS sp. NARCISSUS: *Botrytis polyblastis,* rare foliage disease. The occurrence of this fungus in 1953 in laboratory plots at Sumner, Washington was of special interest, as it was the first general appearance since 1934 when the disease was epidemic over the entire Puyallup Valley. Since then most of the commercial narcissus-bulb growers had sprayed the the foliage regularly with Bordeaux mixture. On the other hand fungicides had rarely been used in the laboratory plots at Sumner, which consequently served as an indicator of the absence of this disease in the intervening period. In general, there was no appreciable amount of infection in commercial narcissus plantings in Washington this season. (Charles F. Doucette, PDR 37: 556).

PELARGONIUM HORTORUM. GERANIUM: *Xanthomonas hortorum,* bacterial stem rot, is limiting field production of geraniums in southern California, according to D. E. Munnecke. Observations indicated rapid spread by rain and overhead sprinkling. Field experiments were in progress to control the disease by selection of stock plants, field rotation, and sanitation in harvesting and handling of cuttings. (Phytopath. 43: 588).

PEPEROMIA OBTUSIFOLIA var. VARIEGATA: This ornamental is desired for its attractive foliage, and is grown on a large scale in southern California nurseries. For the past two years several troubles have been observed in this crop.

Rhizoctonia solani, cutting rot. Cuttings attacked by Rhizoctonia, the most frequent cause of this trouble, have brown water soaked areas in the petioles that sometimes extend into the leaf blades.

Oedema, presumably of virus origin, is typified by the appearance of small raised areas that give the leaf a pimply appearance. Satisfactory control was obtained by carefully roguing infected plants and selecting clean cuttings from healthy stock plants for propagation.

A perplexing disorder, which has been called "gray leaf" or "dirty leaf" was first noted in the summer of 1951. The disorder appeared gradually and occurred sporadically in the commercial houses.

Slugs feeding on the leaves caused large irregular brown areas over the surface. Excellent control was obtained with 15% metaldehyde dust at approximately 1 pound per 1000 sq. ft. (Munnecke and Chandler, PDR 37: 434).

ROSA spp. ROSE: Chalaropsis thielavioides, black mold, occurred for the first time in southern California in 1952-53, causing severe root injury in a glasshouse and a nursery, according to K. F. Baker. Infection originated in a nursery field, the root rot being aggravated by prolonged storage of the plants in wet moss and by excessive watering after planting in the glasshouse. Affected plants made satisfactory recovery when grown under drier conditions. (PDR 37: 430).

Cylindrocladium scoparium, crown canker. In Delaware, R. S. Cox reported 75 percent loss this year involving 24 acres. A loss of 10 percent is usual, due to failure of the cuttings to root for one reason or another. Thus the 1953 loss exceeded the normal 10 percent by 40 to 65 percent. The seriousness is appreciated when it is realized that the potential value of the planting on an acre basis is 10 to 16 thousand dollars. Apparently this is the first report of crown canker on roses in the field. (PDR 37: 447).

In the bulletin on roses for the home, Emsweller, McClellan and Smith stated in the well-illustrated section on diseases that black spot, Diplocarpon rosae, is the most serious and prevalent; control is effected by spraying or dusting with sulphur, sulphur lead arsenate, or ferbam. These sprays also control powdery mildew, Sphaerotheca spp., and rust, Phragmidium spp. (Home Gard. Bull. 25. 38 pp.).

Sphaceloma rosarum, rose anthracnose. R. A. Jehle and others reported additional records of spot anthracnose in Maryland. (PDR 37: 372).

SYRINGA spp. LILAC: Witches'-broom virus. Transmissibility of the lilac witches'-broom by grafting has been demonstrated by Paul Lorentz and Philip Brierley. This witches'-broom virus of Japanese lilac (S. japonica) has been found infectious to common lilac (S. vulgaris) and apparently also to Regel privet (Ligustrum obtusifolium var. regelianum). Because the source Japanese lilac grew for years in Takoma Park with no evidence of virus spread to other plants, it seems unlikely that an effective vector is present in this area. The virus cannot be considered a threat to lilacs unless such a vector appears. (PDR 37: 555).

VIBURNUM OPULUS var. ROSEUM. SNOWBALL: Sphaceloma viburni, snowball anthracnose. R. A. Jehle and others reported additional records of spot anthracnose in Maryland. (PDR 37: 372).

DISEASES OF SHRUBS AND TREES

Thorn and Zentmyer listed hosts reported for Phytophthora cinnamomi, first described in 1922 on cinnamon trees in Sumatra. Since then it has been reported on a wide variety of trees and shrubs in many different parts of the workd. (PDR 38: 47).

ACER spp. MAPLE: Tarjan and Howard reported detrimental effects of copper sprays to Norway maple (Acer platanoides) in Rhode Island. (PDR 38: 58).

In Vermont, Sproston and Scott reported Valsa leucostomoides as the cause of decay and discoloration in tapped sugar maples (Acer saccharum). (Phytopath. 44: 12).

ARECASTRUM ROMANZOFFIANUM. QUEEN PALM: (COCOS PLUMOSA) Ganoderma sulcatum, butt rot. The queen palm is widely planted in Florida and is relatively free of parasitic diseases. However, when surrounded by shrubs or planted in damp locations, it may be subject to butt rot. Childs and West describe this butt rot which is associated with G. sulcatum. (PDR 37: 632).

BETULA LUTEA. YELLOW BIRCH: Canker and decay of living yellow birch caused by Poria laevigata in the Monongahela National Forest was reported by R. P. True and others. (Phytopath. 43: 487).

CORNUS FLORIDA. DOGWOOD: Elsinoë corni, spot anthracnose. Driver and Plakidas reported that in April 1953, specimens of spot anthracnose of flowering dogwood were received from Monroe, Louisiana, along with a report that a similar condition had been observed on the same plants for the past three years. Specimens were later collected in the Baton Rouge area. (PDR 37: 448).

CRATAEGUS OXYACANTHA ROSEA. ENGLISH HAWTHRON: An English hawthorn tree which is annually defoliated during late summer in New Jersey by the leaf spot organism (Fabraea maculata) was selected for testing seven different fungicides. Data taken on September 3 showed partial disease control by captan and apparent suppression of the leaf spot disease by zineb and Manzate. (Dochinger and Bachelder, Phytopath. 44: 110).

JUGLANS REGIA. PERSIAN WALNUT: Phytophthora cinnamomi, cinnamon fungus. G. Flippo Gravatt warned of the menace constituted by this fungus to trees of the Pacific Coast. (PDR 38: 214).

LIGUSTRUM OVALIFOLIUM. PRIVET: Ringspot (virus). In 1948 ringspot symptoms were observed on a California privet hedge in College Station, Texas. The three transmission trials gave inconclusive results because of the lack of controlled greenhouse facilities. (PDR 37: 636).

LIQUIDAMBAR STYRACIFLUA. SWEETGUM: Investigations were reported on two diseases of sweetgum that resemble each other in some respects. Garren reported on leader dieback; and Young and others reported on the status of sweetgum blight in 1953. (PDR 38: 91, 93).

PINUS ELLIOTTI, SLASH PINE: Fomes annosus, a widely distributed root-killing fungus that attacks a variety of coniferous hosts, was found in 1952 in South Carolina on slash pine. Campbell and Hepting suggested that the fungus may become a factor of much importance. (PDR 38: 217).

PINUS STROBUS. WHITE PINE: The suggestion that Corticium galactinum may be the cause of white pine needle blight is not borne out by research by Richard J. Campana. (PDR 38: 297).

POPULUS spp. POPLAR: Various aspects of surface sterilization of poplar cuttings for disease control are discussed in two reports: Waterman and Aldrich (PDR 38: 96) reported results of investigations on methods of treatment and on efficacy and toxicity of fungicidal materials; Ford and Waterman reported effects on survival and growth of field-planted cuttings. (PDR 38: 101).

In Fresno County, California the walnut branch wilt organism, Hendersonula toruloidea, was isolated from dead poplar trees (P. fremontii) and from dead branches on living poplar trees. The symptoms on poplar were similar to those described on other hosts. (PDR 38: 238).

QUERCUS spp. OAK: Endoconidiophora fagacearum, oak wilt. T. W. Bretz reported that sterile distilled water was a useful medium for routine isolation of the oak wilt fungus (PDR 37: 630). More than one hundred different media were tested by Robert N. Campbell and David W. French in an attempt to find a selective medium for the slow-growing oak wilt fungus. A diamalt-oxgall formulation proved best. (PDR 37: 407).

The fungus was isolated from a wilting scrub oak (Quercus ilicifolia) in Pennsylvania. Scrub oak is not a commercial timber tree, but it has considerable economic importance in soil conservation and wild life (Fergus and Yount, PDR 37: 567). In experimental work in Illinois, two western oaks, the California live oak (Q. agrifolia) and the canyon live oak (Q. chrysolepis), were found to be susceptible (Hoffman, PDR 37: 527).

B. M. Zuckerman and E. A. Curl in Illinois reported proof that the fungus pads on oak wilt-killed trees are a growth form of E. fagacearum. (Phytopath. 43: 287). Charles L. Fergus reported results of Pennsylvania studies on the compatibility types isolated from single mycelial mats and from numerous mats formed on a single tree. Since all of the mats formed on each of the trees tested were of the same compatibility type, the logical assumption is that only one compatibility type mycelium was present in the wood of the infected tree. This evidence strengthens the conclusion that very few infected trees contain mycelium of both compatibility types of E. fagacearum. Results of this study support the hypothesis that some agent, perhaps an insect is necessary for spermatization and subsequent perithecial formation in nature, (see below), and offer additional proof that the mycelial pads are a growth form of E. fagacearum, since cultures from them developed typical endoconidia, perithecia, and ascospores. (PDR 37: 565). Both A and B strains of the oak wilt fungus were present in most areas from which isolates were obtained during the 1951-52 Pennsylvania oak wilt survey. The great majority of single tree isolates were of one strain only, but an occasional isolate was mixed, according to W. L. Mount. (PDR 38: 293). Barnett and Jewell reported evidence from West Virginia supporting the conclusion that only one compatibility type of the oak wilt fungus survives in most naturally infected trees. (PDR 38: 359). Oren W. Spilker reported Ohio studies on the sexuality of Endoconidiophora fagacearum. One isolate functioned only as a male in all tests. (PDR 37: 448). In the spring of 1953, a white mutant was isolated from the normally dark West Virginia culture No. 645, which was obtained from an oak wilt tree in 1951. The isolation of an albino form from a naturally infected tree strengthens the idea that the fungus is quite variable in nature as well as in pure culture. It is suggested that this mutant is capable of existing in nature and that its virulence may be as great as or greater than that of the fungus from which it arose. (Barnett, True and Brown. PDR 38: 121).

Dale M. Norris, Jr. in Iowa, and G. K. Dorsey and others in West Virginia reported successful experimental transmission of the oak wilt fungus by means of nitidulid beetles. (PDR 37: 417, 419). Experiments in West Virginia reported by Frederick F. Jewell showed that conidia of the oak wilt fungus survived passage through the intestinal tract of nitidulid beetles. (PDR 38: 53). According to experiments reported by John S. Boyce, Jr. nitidulid beetles reinfested oak wilt fungus mats over distances up to 500 feet at least. (PDR 38: 212). At the Ohio Agricultural Experiment Station endospores of the fungus were found on the legs and in the intestinal tract of several adults of Drosophila melanogaster that had fed upon and deposited eggs on sporulating mycelial mats. There was also reason to believe that Pseudopityophthorus minutissimus and P. pruinosus are concerned in the transmission of the disease. (Jour. Econ. Ent. 46: 708).

Results of limited experimental investigations on the relation of wounding to natural infection of oak trees by the oak wilt fungus were reported by F. C. Craighead et al. Wounded trees that became infected were all near diseased trees on which mycelial mats bearing fertile perithecia were produced during the period when the wounds were open (PDR 37: 483). Field observations in Pennsylvania in 1953 indicated that wounds made during the period of spring wood formation were of considerable importance in the primary spread of oak wilt. Wounds were incurred during various construction operations, from lightning injury, or from storm damage. The type of wound seemed to make little difference as long as the bark is injured sufficiently to expose the cambium. (Arthur R. Jeffery, PDR 37: 568). In Illinois greenhouse experiments on the relation of type and age of wound to infection, it was found that the longer the time between the making of the wound and the arrival of inoculum the less likely is infection to take place. Wounds not more than 24 hours old were most favorable. Infection occurred through torn or broken bark, torn leaf blades, and wounds made by breaking off the leaf stems at the point of attachment. No infection took place through wounded or broken-off buds. Infection through torn leaves suggests that leaf-feeding insects may sometimes act as vectors. (Bert M. Zuckerman, PDR 38: 290).

QUERCUS STELLATA. POST OAK: According to Campbell and Miller no definite cause was found for the deteriorated condition of the foliage of post oaks in the Southeast. Several trees that lost many leaves early in the season put out a new crop in September. The main symptoms were suggestive of drought injury, but other oaks usually considered more susceptible to drought than post oak appeared normal or nearly so even when growing in close association with post oak. Frost injury probably accounted for the crop of small deformed leaves early in the spring. (PDR 37: 628).

 ULMUS spp. ELM: Ceratostomella ulmi, Dutch elm disease. D. S. Welch reported that studies at Cornell University, on this disease have shown that when elms are cut they are immediately invaded by bark beetles (Scolytus multistriatus and Hylurgopinus rufipes), coming from considerable distances. Control by timely removal of diseased trees and other beetle-breeding sources is practicable only if the lumber and landscape value justify the cost. Otherwise, in forest areas where the disease becomes established the prompt removal of all valuable elm in the immediate vicinity is necessary as soon as possible as no practical protection of timber under such conditions is known. (Jour. For. 51: 641, 643). During 1953, 495 new cases of Dutch elm disease were detected in 28 localities in 12 counties in Illinois. The disease was found in six new counties within the general area of distribution of the disease in 1952. Spread of the disease was accelerated by the large numbers of standing dead elms killed by the phloem necrosis virus disease. (PDR 38: 356).

DISEASES OF SPECIAL CROPS

ARACHIS HYPOGAEA. PEANUT: Heiberg and Ramsey reported fungi associated with diseases of peanuts on the market. About 2000 carloads of shelled peanuts are unloaded in Chicago each year, mostly Spanish and Runner types but with occasional lots of Virginia. At intervals during the past ten years samples of damaged peanuts from approximately 100 cars were studied to determine the cause of discoloration and decay of peanuts on the market. (Phytopath. 43: 474).

Puccinia arachidis, rust. Inspection of the field at the Georgia Plain Experiment Station in which rust occurred showed the area of infection small but the injury serious within the area. In Irwin County the damage was much more extensive and just as serious. (Harvey W. Rankin, PDR 37: 528).

BETA VULGARIS. SUGAR BEET: Ruga verrucosans, curly top virus. Thornberry and Takeshita reported the finding of the curly top virus in sugarbeets as well as in the leafhopper vector (Circulifer tenellus) in Illinois. Since the virus can attack many other crops and plants, its presence in association with the vector is of potential importance in the State and in the region. They discussed the relation of the virus to horseradish brittle root. (PDR 38: 3). Curly top of sugar beets has been known in Kansas but has been of little importance. In 1953 a severe epiphytotic was reported in the Garden City-Scott City irrigated growing areas. Tonnage was reduced approximately 50 percent per acre but percentage of plant infection was higher. Resistant varieties were not being grown in the area. The vector was found in some abundance at different times. During the spring high winds leafhoppers apparently were blown in from the southwest or else possibly picked up enroute from some of the many known available natural hosts. (W. H. Sill and others, PDR 38: 57).

N. J. Giddings reported two recently isolated strains of curly top virus. An extremely virulent strain was discovered in sugar beets and in field collections of beet leafhoppers. It is most prevalent in southern Idaho but was also found in southern California. It has been designated as strain 11. (Phytopath. 44: 123). According to C. F. Lackey, investigations at the Division of Sugar Plant Investigation, Riverside, California, revealed that the vascular bundles of sugar-beet leaves and petioles exert an external attraction for the leafhopper, Circulifer tenellus and for haustoria of dodder, Cuscuta spp. (Amer. Jour. Bot. 40: 221).

GOSSYPIUM spp. COTTON: Losses from disease: In an article on plant disease loss estimates (PDR 37: 171), Paul R. Miller critized the erroneous and inadequate estimates of cotton losses due to diseases in the United States for the period from 1909 to 1939 published by the Bureau of Agricultural Economics. In comparison with the figures issued in the Plant Disease Survey's Crop Loss Estimates for the period from 1917 to 1939, the former estimates were too small, geographical and seasonal differences were not considered, and a wrong impression was given of the importance of disease in cotton production. Attention was called to the danger of publishing such unreliable information in view of its possible consequences to research and it was urged that the value of disease losses should be considered by pathologists as a necessary part of their investigations. Figures in obtaining estimates should be reliable and up-to-date.

Tabulated summaries of the reductions in cotton yield due to diseases were compiled by the Cotton Disease Council's Committee on Disease Losses in 1952 (PDR 37: 176), and 1953 (PDR 38: 223). Verticillium albo-atrum caused the greatest loss.

Evaluation of control chemicals: C. H. Arndt reported a new sand-culture technique developed at the Clemson, South Carolina Agricultural Experiment Station for evaluating chemicals as cotton seed and seedling protectants, using Rhizoctonia solani as a test organism. (PDR 37: 397).

Ascochyta gossypii, blight. In Georgia, J. H. Miller reported a preliminary study of tribasic copper in control of Ascochyta blight. (Phytopath. 43: 292).

C. H. Arndt reported survival of Colletotrichum gossypii on cotton seeds in storage. (Phytopath. 43: 220).

James M. Epps and others reported that during the period 1951-53 the average annual loss in Tennessee from cotton wilt (Fusarium vasinfectum and Verticillium albo-atrum) damage was estimated at 9, 209 bales valued at $1, 197, 000. Of this loss 62 percent was due to Fusarium wilt and the balance to Verticillium wilt. This loss did not include acreage abandoned because of disease or the effects of wilted cotton on grade. Significant average annual losses occurred in the five Delta counties of Lauderdale, Tipton, Shelby, Lake, and Dyer, and in the upland cotton-producing counties of Crockett, McNairy, Gibson, Madison, and Fayette. Losses in nine other counties of West Tennessee were not significant for the county as a whole but may have been of importance on individual farms heavily infested with wilt. (PDR 38: 304).

Thielaviopsis basicola, black root rot. L. M. Blank and others reported that the absence of nematodes in steamed artificially-infested soil, or their presence in naturally-infested field soil, did not alter the pathogenicity of T. basicola on American-Egyptian cotton seedlings grown at several soil temperatures in the greenhouse. With average soil temperatures of 69°, 77°, and 79° F. the disease expression was most severe at the lowest temperature. At higher temperatures, stunting of the plant was the characteristic above-ground symptom. (PDR 37: 473). Root rot or "internal collar rot" due to T. basicola was observed in cotton at the Shafter California Field Station in the fall of 1953. The symptoms were typical of those occurring on mature plants. (J. T. Presley, PDR 38: 529).

Tylenchorhynchus dubius, stylet nematode, a root parasite, has been found to be of economic importance in the Southwest. Results of experiments with the stylet nematodes suggest that the control of these and possibly other ectoparasitic nematodes, rather than a nitrogen transformation in the soil, accounts for much of the increase in growth, obtained from soil fumigation. (Reynolds and Evans, PDR 37: 540).

Verticillium albo-atrum, wilt. (See also under losses and under Fusarium, above). Surveys during the summer of 1953 showed that Verticillium wilt of cotton was considerably more prevalent in Arizona than had been realized, according to Ross M. Allen. (PDR 38: 36). The concentration of salt in the soil seemed to be a factor in severity of cotton Verticillium wilt, according to observations reported from Texas by P. D. Christensen and others. (PDR 38: 309).

Xanthomonas malvacearum, bacterial blight, occasionally appears in epiphytotic form in the Pecos Valley of New Mexico. A three-year study was made of the role of carry-over of the causal organism from season to season in initiating epiphytotics. Infected seedlings were found in two of three plantings in 1951, in one of two plantings in 1952, and in both of two plantings in 1953. It is evident that the bacteria can survive through the winter in the soil under New Mexico conditions and infect the following season's crop. (Blank and Hunter, Proc. So. Agri. Workers, p. 156, 1954).

Nub rot, an apparently undescribed seedling disease of cotton as expressed in the mature plant. Widespread losses were noted in 1952 and 1953 in Texas. In the field the first symptom of the disease is a sudden wilting. (Robert and Whitehead. Proc. So. Agri. Workers, p. 156, 1954).

P. B. Marsh and others summarized published information on the effect of pre-harvest weathering on the properties of cotton fibers and presented certain new information on the subject. (PDR 38: 106).

HIBISCUS CANNABINUS. KENAF: Colletotrichum hibisci, dieback. Thomas E. Summers reported the existence of three physiologic races of C. hibisci on kenaf in Florida in 1953. In the separation of these races pure line selections of kenaf were used. (PDR 38: 483). C. hibisci causes a serious disease which menaces commercial plantings of kenaf in southern Florida. J. B. Pate reported the development of lines of kenaf that seemed to be highly resistant. (Phytopath. 43: 647).

MENTHA spp. MINT: Effects of several nematodes found closely associated with or causing disease in mints in Western Oregon, during 1952 and 1953, were reported by Horner and Jensen. (PDR 38: 39).

Puccinia menthae, rust, was observed for the first time in eastern Washington in July 1953. The disease was found only in one planting of spearmint (*M. spicata*), in a small portion irrigated by an overhead sprinkler. Rust was severe within the area covered by the sprinkler but was not found in the rest of the field until October. This observation was significant because a rapid increase in acreage of spearmint and peppermint (*M. piperita*) has occurred in the irrigated areas following damaging outbreaks of mint rust in the important growing section on the Pacific Coast. (J. D. Menzies, PDR 38: 314).

NICOTIANA spp. TOBACCO: E. E. Clayton reported that sources of resistance to the major diseases are available in *N. tabacum*, but that so far it has proved impracticable to utilize even half this material in the development of commercial varieties, the non-usable portion having been consistently defective in plant type, yield, or quality. Except for its reaction to Ambalema mosaic virus, the inheritance of resistance obtained within *N. tabacum* is polygenic. Notwithstanding those handicaps an entire series of valuable commercial varieties has been produced, carrying different degrees of resistance to black root rot (*Thielaviopsis basicola*), black shank (*Phytophthora parasitica* var. *nicotianae*), bacterial wilt (*Pseudomonas solancearum*) and Fusarium wilt (*F. oxysporum* var. *nicotianae*). Immunity from or very high resistance to the principal diseases of the crop has further been found in various wild species of *Nicotiana*. Transfers to tobacco of simple monogenic dominant immunity from mosaic and wildfire (*P. tabacum*) have already been accomplished, while great progress has been made in the incorporation of root rot immunity and the resistance to blue mold (*Peronospora tabacina*) carried by *N. debneyi*. The author pointed out that there is every indication that transfers from such distant relatives, once established in tobacco, can be used far more rapidly and with fewer complications affecting type, yield, and quality than is the case with any resistance found within the cultivated species itself. (Phytopath. 43: 239).

In North Carolina, Apple and Lucas pointed out the effectiveness of various field inoculation procedures in testing tobacco for black shank resistance. (Phytopath. 43: 289).

Oidium sp., powdery mildew, was observed on the leaves of burley tobacco plants growing in a greenhouse at Lexington, Kentucky. The disease did not spread over the plants as they grew and was not observed on older plants. The inoculum was apparently provided by a nearby hybrid, *Nicotiana bonariensis* x *N. alata*, that was thoroughly covered by powdery mildew. (R. A. Chapman,PDR 37: 528).

Peronospora tabacina, blue mold. In further studies at the University of Delaware Experimental Farm on aerial dissemination of tobacco blue mold, infection was found on June 15, 1953, in a new plant bed, according to R. A. Hyre. The nearest plant beds, about 20 miles away near Homeville, Pennsylvania, were free from the disease on June 16 and only one bed with blue mold was reported from Lancaster County. A planting of an ornamental species of *Nicotiana* at Newark was not affected. It was concluded that inoculum for the infection at Newark was again wind-borne for at least 20 miles. (PDR 37: 447).

Lucas and Person described the procedure by which they obtained germination of oospores of the tobacco blue mold fungus. (PDR 38: 343).

W. D. Valleau reported that there are two known ways in which the blue mold fungus survives from year to year; one is on live plants that survive the winter in Georgia, and the other is by means of oospores in beds used a second year. Elimination of these two means of overwintering in Georgia should immediately eliminate the fungus in that area. In the Tennessee-Kentucky area, which is out of the direct line of spore movement north from Georgia, the fungus is dependent almost entirely on oospores for survival and is not able to maintain itself year after year. The Carolina-Virginia area is subject to spore showers from the South as well as infection from overwintering oospores; consequently the fungus persists year after year. Presumably the elimination of spore showers from the South in the Carolinas would result in the gradual disappearance of the fungus there just as in the Tennessee-Kentucky area. The proposal to use new beds and destroy over-wintering tobacco plants is practical in view of the well organized extension service in the States concerned. (Phytopath. 43: 616).

Blue mold, according to reports to the Plant Disease Warning Service was widespread in practically all of the tobacco-growing area of Georgia, North Carolina, and throughout the southern part of the flue-cured area of Virginia. It was also reported from Florida, Kentucky, Maryland, South Carolina, and Tennessee. It was found on shade tobacco in one field in Hartford County, Connecticut. There was practically no measurable damage in 1953 and plants were plentiful. G. S. Taylor reported the control of tobacco blue mold by root application of zineb and ferbam. (Phytopath. 43: 486).

W. D. Valleau reported a probable solution of the calcium cyanamide problem in tobacco bed weed control in Kentucky. The present program for wildfire (Pseudomonas tabaci) control, of using the same site year after year, sowing the bed to soybeans or some other fast growing cover immediately after the crop is set, plowing the bed in the fall, and treating for weed control, should fit into the cyanamide weed control program perfectly. (PDR 37: 410).

Tylenchorhynchus claytoni, tobacco stunt nematode, an ectoparasitic species, occurred generally in tobacco soils in eastern South Carolina. It was present in 67 percent of 175 soil samples collected from fields where tobacco was stunted (1951 through 1953), and proved to be parasitic on tobacco in the greenhouse and field trials. (T. W. Graham, (Phytopath. 44: 332).

Paul D. Keener reported natural infection of non-cultivated datura (Datura meteloides) and tree tobacco (N. glauca) with a strain of the tobacco mosaic virus in Arizona. Perhaps some unrecognized vector exists. A recent report confirmed the fact that at least some mealybug species are capable of transmitting tobacco mosaic virus. (PDR 38: 330).

"False broomrape" as described by Valleau from Kentucky (PDR 37: 538) had been noticed in Alachua County, Florida in 1951 and again in 1952. The disease at first glance had all the appearances of the broomrape parasite but more detailed examination showed no indications of that plant. Many possible explanations have been offered.. (PDR 38: 122).

Moorhead and Price reported a new serological test for tobacco mosaic virus devised at the Plant Virus Laboratory, University of Pittsburgh, Pennsylvania. (Phytopath. 43: 73).

The relation of host nutrition to multiplication of viruses in Nicotiana was reported by Pound and Weathers for turnip virus 1 in Nicotiana glutinosa and N. multivalvis. (Phytopath. 43: 669). and by Weathers and Pound for tobacco mosaic virus in tobacco. (Phytopath. 44: 74).

PARTHENIUM ARGENTATUM. GUAYULE: Fusarium solani, root rot, on guayule was described by Don C. Norton. The disease was found in 1951, 1952, and 1953 in Texas. Inoculation tests and field observations indicated that the pathogen is not highly virulent under customary growing conditions. (PDR 38: 500).

RICINUS COMMUNIS. CASTORBEAN: Observations on diseases of castorbean in 1953 were reported by D. Donald Poole. Castorbeans were grown on over 100,000 acres in Texas and Oklahoma in 1953. The Connor variety, which is susceptible to bacterial leaf spot (Xanthomonas ricinicola), was planted on 75 percent of this acreage. The disease was found in 66 counties in Texas and 12 in Oklahoma. It reached almost epiphytotic proportions in some areas of southern and eastern Texas and southcentral Oklahoma and serious losses occurred. Variety observation plots planted in Louisiana, Alabama, Maryland, and two locations in Florida revealed the presence of the pathogen in every instance. (PDR 38: 218).

SACCHARUM OFFICINARUM. SUGARCANE: Evidence for the occurrence of a hitherto unrecognized growth-retarding disease of sugarcane showed up in Louisiana, according to E. V. Abbott. The symptoms resembled those of ratoon-stunting virus disease in Australia. (Phytopath. 43: 289).

SESAMUM spp. SESAME: G. M. Armstrong reported two new locations for Fusarium wilt of Sesame. During the summer the county agent at Savannah, Georgia, sent in specimens. A new location for the sesame breeding work at Clemson was established last summer, 1952. In August 1953 Fusarium wilt was found. (PDR 38: 57).

DISEASES OF VEGETABLE CROPS

In two articles on vegetable seed treatment, V. R. Wallen reported tests with seed treatment materials for improved emergence (PDR 37: 620); and the best strength of Panogen to use for vegetable seed treatment (p. 623). Results of vegetable seed treatments in Louisiana were reported by W. J. Martin and J. G. Atkins. (PDR 38: 348). Kendrick and Middleton reported results of a study designed to test certain fungicides against a wide variety of soil-borne pathogens and against some citrus and tomato fruit pathogens. They also described a technique used in their tests of certain chemicals for use as fungicides. (PDR 38: 350). Tests on the practicability of using solid materials as carriers for soil fumigants in nematode control were reported in two articles: Taylor and Golden (PDR 38: 63) reported results of experiments with D-D Hi-Sil; and Sasser and Nusbaum gave results with vermiculite as a carrier for various compounds. (PDR 38: 65).

ALLIUM ASCALONICUM. SHALLOT: Pyrenochaeta terrestris, pink root. E. C. Tims has given a general discussion of pink root, a serious soil-borne disease in southern Louisiana shallot-growing area, with results of studies and observations over a ten-year period. The amount of disease can be greatly reduced by selecting pink root-free sets or green transplants. (PDR 37: 533).

ALLIUM CEPA. ONION: Alternaria porri, purple blotch, has become one of the limiting factors in onion production in the Arkansas Valley of Colorado. Estimated losses in field and storage often have ranged from 30 to 50 percent and have sometimes been as high as 100 percent. (Phytopath. 43: 409).

Urocystis cepulae, smut. According to Larson and Walker most of the better upland soils in the Racine-Kenosha area of Wisconsin are contaminated with the smut fungus, and with many successive crops of onion this fungus has increased to such an extent that without the use of adequate control measures, onion sets cannot be grown profitably. Six years of experimentation in this area demonstrated that onion smut can be effectively controlled by the use of thiram in onion set plantings. (Phytopath. 43: 596).

APIUM GRAVEOLENS. CELERY: Deficiency diseases. Heredity and nutrition in relation to magnesium deficiency chlorosis in celery was discussed by Pope and Munger. Several celery varieties growing in organic soils in New York developed a severe chlorosis, which was remedied by spraying affected plants with magnesium sulphate solution. In genetical experiments crossing a chlorotic variety with a normal one showed that a single dominant gene conditioned the utilization of magnesium. (Proc. Amer. Soc. Hort. Sci. 61: 472). These authors also reported the inheritance of susceptibility to boron deficiency in celery. (Proc. Amer. Soc. Hort. Sci. 61: 481). According to Davis and McCall magnesium deficiency in celery was observed for the first time in Michigan in 1946. The disturbance, which occurs in most of the main celery-producing areas in the State, is characterized by the progressive mottling and yellowing of the tips, margins and the interveinal areas of the older leaves. Necrotic areas appear later and often much of the blade becomes dead and dry. In experiments carried out at Muck Experimental Farm spray applications of magnesium sulphate at 10-day intervals throughout the growing season appeared to control deficiency in Utah 10-B variety and to increase yield. This was the most susceptible variety whereas Summer Pascal was much less so, and Utah 15 showed no symptoms. (Quart. Bull. Mich. Agr. Exp. Sta. 35: 324).

Swank and Perry reported control of diseases (Rhizoctonia solani, Pythium sp. and Fusarium sp.) in celery seedbeds with methyl bromide at Sanford, Florida. (Fla. Agri. Sta. Circ. S-55, 8 pp.).

On the basis of 41 contributions to the literature, Munger and Newhall discussed two aspects of breeding celery and cucurbits for resistance to specific diseases, namely, the best sources of resistance for use in a breeding program and the possibilities of transferring resistance from one variety to another. (Phytopath. 43: 254).

BRASSICA OLERACEA var. BOTRYRIS. BROCCOLI, CAULIFLOWER: Smith and Ramsey reported that in February 1952, specimens of diseased broccoli from a carlot grown in the vicinity of Oceano, California were received at Chicago, Illinois. The inspection showed that 25 percent of the bunches in some crates were diseased. After much study this disease was considered identical with Pseudomonas maculicola. (Phytopath. 34: 583).

Lee Campbell summarized results of tests with various chemicals for the control of club root, Plasmodiophora brassicae, on cauliflower, in Washington. (PDR 38: 283).

BRASSICA OLERACEA var. CAPITATA. CABBAGE: Peronospora parasitica, downy mildew. Huey I. Borders summarized results of tests with fungicides for the control of downy mildew of cabbage seedlings in Georgia. (PDR 37: 363).

CAPSICUM FRUTESCENS. PEPPER: The results of a survey reported by R. S. Cox indicated that the bacterial leaf spot (Xanthomonas vesicatoria) epiphytotic in Delaware in 1953 was the result of primary inoculum introduced from Georgia with transplants. The previous crop had no effect on disease incidence. (PDR 38: 83).

Internal mold, a marketing problem of sun-dried chile produced in New Mexico, is caused primarily by species of Alternaria, Fusarium and Hormodendrum. The disease was reduced by spray application of fungicides. Phygon XL gave the best control, followed by Zerlate, Dithane, and Copper-Hydro. One application applied the day after frost gave the best results. (PDR 38: 32).

Ringspot (virus). Doolittle and Zaumeyer reported that sweet pepper in New Jersey, Maryland, Delaware, and adjacent States was affected with a mosaic disease characterized by mild green mottling of the foliage accompanied by large chlorotic rings and oak-leaf markings on the older leaves and concentric yellow rings on the fruits. This ringspot, caused by strains of cucumber mosaic virus from pepper and alfalfa, often caused appreciable damage in some fields. (Phytopath. 43: 333).

CITRULLUS VULGARIS. WATERMELON: Pimples, sometimes referred to as bumps, meales, sandbumps, or warts. David W. Rosberg reported association of a strain of the tobacco ringspot virus with the pimples disease of watermelon fruit in Texas. This disease has increased annually in the State during the last few years. Similarity of pimples to early fruit lesions of anthracnose (Colletotrichum lagenarium) has been found to be a major problem in grading for shipment. (PDR 37: 392).

CUCURBITS. CUCUMBER, MELON, SQUASH: Cladosporium cucumerinum, cucumber scab, was rather severe in certain fields in Connecticut, just as it had been in the 1952 growing season, according to Saul Rich. (PDR 37: 636).

Colletotrichum lagenarium, anthracnose, in Sumter County, Florida, seemed to be rather uniformly distributed throughout the entire cucumber area, causing more damage than any other disease, and appeared to be much more severe than in previous years. Eighty percent of the fields had from 20 to 30 percent infection. One 4-acre field showed 100 percent infection. (Owen and Connell, PDR 37: 327). In North Carolina, Libby and Ellis reported the transmission of the anthracnose fungus, of cucumber by the spotted cucumber beetle (Diabrotica undecimpunctata). They found no other reference in the literature to the transmission of C. lagenarium by cucumber beetles. (PDR 38: 200).

Pseudomonas lachrymans, bacterial leaf spot, of Zucchini squash was reported in the Colma area, near San Francisco, California. This seemed to be the first report of this organism on field-grown squash, according to Peter A. Ark. (PDR 38: 201).

Pseudoperonospora cubensis, downy mildew, of cucumber in Sumter County, Florida, appeared to be well under control in fields where growers were spraying twice weekly with nabam and zinc sulfate, or dusting with zineb. In fields where growers were alternating with zineb and copper dusts or were not following a rigid spray program, downy mildew infection ranged on the average from 10 to 20 percent. Only one field had 100 percent infection. (Owen and Connell, PDR 37: 327). Cucurbit downy mildew occurred again in 1953 but damage was slight according to reports received by the Plant Disease Warning Service. It caused moderate losses in local watermelon plantings in South Carolina but was not a serious financial factor on cantaloupes in the same State, as the crop was extremely short because of the hot, dry weather of May and heavy infestations of the root knot nematode.

DAUCUS CAROTA. CARROT: Alternaria dauci, Alternaria blight, frequently causes substantial damage in certain sections of Eastern Pennsylvania and may cause some damage in New Jersey. Fungicide tests have shown statistically significant increases in yield of 7 to 8 tons per acre with manganese ethylene bisdithiocarbamate, and 5 to 6 tons per acre with zineb. (Weber and others, Phytopath. 44: 112).

IPOMOEA BATATAS. SWEETPOTATO: A disease of Porto Rico sweetpotato roots in Louisiana, known as circular spot, was recently found to be due to Sclerotium rolfsii and not connected with soil rot (Streptomyces ipomoea), with which the disease was thought for years to be associated, or with surface rot (Fusarium sp.) or mottle necrosis (Pythium sp.). (Phytopath. 43: 432).

Internal cork (virus). L. J. Kushman and M. T. Deonier reported the results of a survey of internal cork of sweetpotatoes in Mississippi in 1952. Some was present in more than 80 percent of the Porto Rico stocks sampled, and it was serious in about one-fourth of them. The disease was found in all sections of the State sampled. (PDR 37: 614). G. D. Freazell reported reaction of sweetpotato varieties and seedlings to internal cork disease in Louisiana. (Phytopath. 43: 290). Nielson and Person reported experimental data and observations that demonstrated spread and increase of the internal cork disease in North Carolina. The rate of spread and increase suggested that an insect vector (or vectors) was present in all sweetpotato growing areas. Rankin reported Myzus persicae to be a vector in Georgia. (PDR 38: 326).

Mosaic (virus). Borders and Radcliff reported a mosaic of sweetpotato in plant beds and fields in Georgia. In early fall of 1952 inspectors found a number of sweetpotato fields in which almost 100 percent of the vines were infected by what appeared to be a virus. The results of one season's experiment indicated that the virus is not soil-borne but is carried by an insect vector. (PDR 38: 6).

LACTUCA SATIVA. LETTUCE: Results of cross-inoculations and pathogenicity tests with New Jersey isolates of Sclerotinia sclerotiorum, S. minor, and S. trifoliorum were reported by Victor M. Held and C. M. Haenseler. (PDR 37: 515).

Big vein (virus) was not so generally severe this year in Connecticut as it had been in previous years. In at least one field, however, about 85 percent of the plants showed symptoms of big vein. (Saul Rich, PDR 37: 637). Results of studies reported by C. E. Yarwood suggested a connection between tobacco-necrosis virus and lettuce big vein in California. (PDR 38: 263).

Mosaic (virus). G. W. Bohn reported that mosaic caused important losses in the late fall and early winter crops of lettuce in the Imperial Valley, California, and the Yuma Valley, Arizona, during the 1952-53 growing season. The unusual prevalence of the disease appeared to be correlated with an unusual abundance of aphids and other insects. Temperatures averaged about 10° F. above normal. Probably this was an important factor in the build-up and activity of the insect population. There is proof that this disease can be controlled by planting mosaic-free seed. (PDR 37: 134).

Lettuce injury from 2, 4-D has been found over extensive areas in the Salinas Valley, California, according to E. R. de Ong. (PDR 37: 410).

LYCOPERSICON ESCULENTUM. TOMATO: George Swank, Jr. reported the perfect stage of Colletotrichum phomoides on tomato to be Glomerella phomoides Swank sp. nov. (Phytopath. 43: 285).

Fusarium oxysporum f. lycopersici, Fusarium wilt, was more common on field tomatoes in Connecticut than it has been in previous years. (Saul Rich, PDR 37: 637).

Fusarium oxysporum f. lycopersici, wilt. The cause of epinastic symptoms in Fusarium wilt of tomatoes was discussed by Dimond and Waggoner. (Phytopath. 43: 663).

Meloidogyne incognita, root-knot nematode. Increased photoperiods and warm temperatures resulted in abundant production of egg masses by the root-knot nematode, according to A. C. Tarjan and B. E. Hopper (PDR 37: 313).

Phytophthora infestans, late blight, see also under potato. The distribution of potato and tomato late blight as reported to the Plant Disease Warning Service in 1953 was somewhat widespread particularly on potato, but severity on both crops was relatively light. In many States blight did not appear at all or appeared in one or two scattered fields. Two occurrences of blight on tomato transplants were reported, in Charleston County, South Carolina, and in central Indiana where tomato blight was widespread despite the hot, dry weather. Rigorous spray schedules, the absence of inoculum owing to the prolonged hot, dry weather of the early summer, and adequate amounts and availability of fungicides were factors in preventing the appearance or distribution of blight in 1953. Late blight caused no damage to tomatoes in Connecticut, according to Saul Rich. (PDR 37: 637). The occurrence of a virulent race, not present in previous seasons, of P. infestans on late blight resistant tomato stock was reported by Conover and Walter in Florida. (Phytopath. 43: 344).

Sclerotium rolfsii, southern blight. An epiphytotic of southern blight occurred near Jacksonville, Texas, in 1953. Uncontrolled by crop rotation with corn and cotton, southern blight killed 55 percent of 1748 tomato plants in one acre and 91 percent of 1533 tomato plants in another acre. It also killed 89 to 100 percent of the plants of ten varieties of tomatoes in a yield test. Chlorobromopropene gave good control. (Phytopath. 44: 334).

Robert A. Conover reported good control of bacterial spot (Xanthomonas vesicatoria) on tomato and pepper in Florida with Agrimycin. (PDR 38: 405).

Internal browning. Saul Rich reported negative results from attempts to induce tomato internal browing in the field in Connecticut. The cause of the trouble is still obscure. (PDR 37: 614).

Potato virus Y. Infection by potato virus Y, either alone or in combination with tobacco mosaic virus, has occurred in Florida tomato fields in most seasons since 1947. The combined effect of the viruses is much more severe than that produced by either alone: plants practically cease growing and fruit production is greatly reduced, the leaves show a pronounced yellow mottle and are stunted and distorted, and the fruits are misshapen. The 1952 spring crop suffered severe losses, some 3,000 to 4,000 acres of tomatoes being affected. It was suggested that weeds are one of the primary sources of virus Y. (Conover and Fulton, PDR 37: 460).

Sandstorm damage. About May 1 an unprecedented and most unusual sand storm blew across the sandy tomato land at Yoakum, Texas. It riddled all of the fruit on tomato vines in its path and in numerous instances completely destroyed the plants. Estimated damage to the crop was set at 50 percent. (E. M. Hildebrand, PDR 37: 445).

PHASEOLUS VULGARIS. BEAN: In greenhouse and field trials at the Plant Industry Station, Beltsville, Maryland, streptomycin sulphate sprays gave good control of bean halo blight (Pseudomonas medicaginis f. phaseolicola). Two applications would probably be sufficient for practical farm use. (Seed World, 73: 38). John W. Mitchell and others reported the absorption and translocation of streptomycin by bean plants and its effect on the halo and common blight (Xanthomonas phaseoli) organisms. (Phytopath. 44: 25).

The white mold (Sclerotinia sclerotiorum) disease is considered an important disease in Idaho. Current season infection by mycelium of the fungus may occur on bean plants from infested soil, from sclerotia, from decayed bean seed and from decayed stem and leaves of bean plants. The fungus was not able to survive the winter and cause infection by vegetative growth after overwintering in the soil 2, 4, and 6 inches deep. There was some seed borne disease. (Hungerford and Pitts, Phytopath. 43: 519).

Uromyces phaseoli var. typica, bean rust, In 1952 Fisher reported the reaction of 30 races of rust, on differential bean varieties. During the same year collections of bean rust were made in three areas of pinto bean production in New Mexico. Two of the collections were identified as a new race to be called race 31. (W. P. Sappenfield, PDR 38: 282).

Alfalfa mosaic virus. Isolation of strains of alfalfa mosaic virus causing a systemic mottle in beans from snap beans growing in Idaho and Washington showed that they are responsible for some of the leaf mottling observed in the field. Preliminary data suggested that the reddish-brown blemish of bean pods observed in this area may be caused by strains of alfalfa mosaic virus. (H. R. Thomas, PDR 37: 390).

C. E. Yarwood reported that zinc increases susceptibility of bean leaves to tobacco mosaic virus. (Phytopath. 44: 230).

PHASEOLUS LIMENSIS. LIMA BEAN: In California, L. D. Leach and others reported that 33 field trials were conducted in 1950, 1951, and 1952, to obtain information concerning the efficacy of certain combination fungicide-insecticide seed treatments. In nearly all of the trials, stands were materially improved by the use of a good fungicide. Soil insects were of minor importance in all trials except two. (PDR 38: 193).

PISUM SATIVUM. PEA: Frank P. McWhorter discussed the virus disease complex in canning peas. He reported evidence indicating that mingling of viruses may extend the host range of a single virus. All recent data from field studies and greenhouse analysis point to an interrelation of alfalfa and aphids as the explanation of present virus problems in peas in the in the Northwest. (PDR 38: 453)

RAPHANUS SATIVUS. RADISH: Fusarium oxysporum f. conglutinans race 2, Fusarium wilt. This destructive wilt in Wisconsin, as reported by Pound and Fowler, was characterized by chlorosis, necrosis, and abscission of the foliage, vascular discoloration of the roots, stems, petioles and marked stunting of the root. (Phytopath. 43: 277).

RHEUM RHAPONTICUM. RHUBARB: Ringspot-like virosis. Yale and Vaughan described symptoms, including chlorotic spots and rings, as well as necrotic stippling and rings, observed on the leaves of rhubarb in the Willamette Valley of Oregon. The virus was transmitted to healthy rhubarb and other hosts. Inoculation tests showed that this virus occurs in naturally infected curly dock in the field. (Phytopath. 44: 118).

SOLANUM TUBEROSUM. POTATO: Phytophthora infestans, late blight, see also under tomato. Studies to determine whether solutions of certain antibiotics will prevent infection of potato plants by the late blight fungus were reported by Reiner Bonde. None of the antibiotics when applied to the soil prevented or reduced infection. (Phytopath. 43: 463).

R. A. Hyre reported that an improved method had been developed for forecasting late blight of potato and tomato, based on an analysis of rainfall and temperature data by means of moving graphs. Predictions for Connecticut would have been 83 percent correct in the 52-year period of 1902-53, inclusive. More important, blight would have been predicted every year that it occurred. Use of this method would have predicted late blight of potato at Ithaca, New York, in 1928, and late blight of tomato on the west coast of Florida in 1945-46, when occurrence was attributed to cool nights with heavy dew, and to long periods of high humidity, respectively. (PDR 38: 245).

According to Iowa experiments reported by W. J. Hooker, soil treatment with pentachloronitrobenzene gave good control of scab (Streptomyces scabies) and scurf (Rhizoctonia solani). (PDR 38: 187).

Synchytrium endobioticum, wart. According to R. A. Hyre the total destruction procedure used in the eradication of potato wart by the Pennsylvania Department of Agriculture, which was successful in limited tests, consisted in keeping the land clean and cultivating it frequently for the first two years, applying copper sulfate the first and an equal amount of lime the second, growing several varieties of vegetables the third year, and potatoes the fourth. R. E. Hartman compiled a tabulated summary, giving the progress made since 1952 and plans for the future. (PDR 37: 453).

Calico (virus). Donald Folsom reported occurrence of the potato calico virus disease in Maine. Potato calico virus and tuber necrosis virus both spread to potatoes from alfalfa and Ladino clover fields. (PDR 37: 347).

Curly top virus. Potato "haywire" in some sections resulted from tuber infection by the curly top virus, according to observations reported by W. S. Gardner in Utah. "Haywire" has not been reported from the Pacific States where curly top has been identified. (PDR 38: 323). A curly top virus strain that readily infects commercial potato varieties was first obtained from eastern Washington in 1950 and from potato fields in southern California during 1952. It is also highly virulent in tomato. Tests from potatoes indicated that the virus concentration was rather low in them. This virus has been designated as strain 12. (N. J. Giddings, Phytopath. 44: 123).

Glassy-end and jelly-end rot (non-parastic). B. A. Friedman and Donald Folsom described these rots of potato tubers as observed in the Northeast in 1949 and 1952. During both years the growing seasons were characterized by hot, dry weather followed by ample rainfall. (PDR 37: 455).

Stevenson and Akeley reported control of diseases of potato by disease resistance. Resistance to a number of diseases in both the wild and cultivated species has been found. (Phytopath. 43: 245).

PLANT DISEASE EPIDEMICS AND IDENTIFICATION SECTION