

OCCURRENCE OF CERTAIN PLANT DISEASES  
IN KENTUCKY IN 1964

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During most of the growing season rainfall was below normal in most areas of the State. Temperatures in early spring were slightly below normal whereas during the summer drouth they were higher than normal.

Tobacco Plant Bed Diseases

Fertilizer or Soluble Salts Injury. Because of prolonged drouth conditions and failure by the growers to water beds, injury to tobacco seedlings by soluble salts was more prevalent than usual. Affected small tobacco plants turned yellow and when touched broke off at the surface of the soil. Many affected plants died. Often areas in the bed, where this injury developed, had a white coating over the soil surface made up of salts testing high in nitrate nitrogen, which had been carried to the surface by the rapid evaporation of water during the prolonged drouth.. This condition usually results when the grower applies too much fertilizer to the surface of the bed before seeding or from the accumulation of excess potash salts following burning the bed with wood.

Cold injury symptoms were present in tobacco beds throughout the state when the plants were about the size of a dime to a quarter. Recovery was rapid and little or no damage occurred.

Angular leaf spot (Pseudomonas angulata (Fromme and Murray) Holland), a disease that about 10 to 15 years ago occurred in almost all untreated burley tobacco beds and in some dark tobacco beds, was present in very few burley tobacco beds.

Wildfire (Pseudomonas tabaci (Wolf and Foster) Stevens) occurred rarely. Much of the burley now grown is resistant to wildfire but there was little wildfire in dark varieties which are susceptible.

Anthracnose (Colletotrichum destructivum O'Gara) was possibly the most prevalent disease in tobacco beds but only in a few isolated areas was there great damage. The disease is still not destructive enough, in most areas of the state, to require chemical control measures.

Blue mold (Peronospora tabacina Adams) occurred in a few beds just prior to or after setting. So little damage occurred that most growers were not aware of the presence of blue mold.

Liverwort (Hepatica sp.) a weed was observed in burley tobacco beds in 2 separated counties. The liverwort plants, which were well distributed over the beds, were not numerous enough to compete with the small tobacco plants.

#### Diseases of Field Tobacco

Pythium soft rot (Pythium sp.) occurred, following setting, in only a few fields. In past years pythium soft rot occurred only shortly after setting. This year a pythium-induced rotting was observed in a few fields as late as a month after setting.

Manganese toxicity was the most prevalent disease of tobacco in the field. The disease appeared as early as 3 weeks following setting and as late as the first week in September. Affected plants occurred only on soils with reactions of pH 3.9 to 5.2. Acidity appears to occur more often in fields where heavy annual applications of commercial fertilizers are made to fields used for several successive tobacco crops.

Black root rot (Thielaviopsis basicola (Berk. and Br.) Ferr) was present and reduced yields in a few fields. Most of the burley varieties now grown appear to have sufficient resistance to most races of the pathogen.

Black shank (Phytophthora parasitica Dast. var. nicotianae (Breda de Haan) Tucker) appeared to be slightly more prevalent than last year. Burleys 37, 11A and 11B give satisfactory yields in most infested fields especially if used in rotations.

Anthracnose appeared in a few fields a short time after setting. Spots usually occurred on lower leaves only and little injury resulted.

Wildfire and angular leaf spot occurred rarely.

Blue mold appeared in a few burley fields in mid-May but caused little damage even though sporulation was heavy for a few days.

Organic matter toxicity which often occurs in tobacco soon after setting when cover crops or strawy manure are turned under too late for complete decay, appeared to be more prevalent than usual. Drouth

conditions prevailing when fields were plowed for tobacco probably prevented decay of organic matter. As in other years, organic matter toxicity was not observed after there was sufficient time for complete decay.

False broom rape appeared to be much more prevalent than at any time since its appearance in the state in 1952. The galls on the roots of affected plants were larger than any seen in the past. Affected plants were received from 20 counties. The disease had not been previously reported in several of these counties.

Broom rape (Orobanche ramosa L) was observed in 3 counties. In one county 3 fields showed considerable injury from the parasite.

Bacterial black stalk occurred in late August in a few plants in a few burley tobacco fields.

Frogeye (Cercospora apii Frees) was not prevalent because of drouth conditions during most of the growing season.

#### Corn

Maize Dwarf Mosaic (virus) previously reported from Kentucky as corn stunt<sup>1, 2, 3</sup> was observed in river valleys of the following counties: Lewis, Mason, Bracken, Campbell, Gallatin, Carroll, Trimble, Jefferson, Hancock, Henry, Crittenden, Carlisle and Franklin. Johnson grass with distinct mottling was observed in or adjacent to maize dwarf mosaic-affected fields. Affected fields showed damage of a trace to as much as 50 per cent. The disease is potentially a very destructive one but so far

it has not involved a substantial acreage of corn in Kentucky except in some river bottoms. The virus is readily mechanically transmissible to corn from corn and Johnson grass.

Stewart's disease (Bacterium stewartii E. F. Sm.) was present early in sweet corn in different areas. In mid-season the disease was identified in several fields of hybrid field corn but damage was slight.

Manganese toxicity occurred in corn in fields where the pH varied from 4.8 to 5.2. Affected corn plants appeared to recover more slowly than tobacco affected with manganese toxicity.

#### Apple and Pear

Fireblight (Erwinia amylovora Burrill) was more prevalent than it has been for years. Neglected pear and apple trees, with a high per cent of the leaves dead were common sights throughout the state. Flowering crab and firethorn often were damaged greatly.

#### Strawberry

A destructive root rot, possibly black root rot, was prevalent in most areas of the state. So many plants died in some plantings that the patches will no longer be profitable. Pocahontas appeared to be more susceptible than other varieties.

Red Stele (Phytophthora fragariae Hickman) was identified in a few plantings.

### American Elm

Dutch elm disease (Ceratocystis ulmi Buism) C. Moreau was identified by isolation of the causal fungus from American elm trees in Fayette, Jessamine, Jefferson and Franklin counties.

### White Pine

Emergence Tip Burn, whose cause is not known, was present and caused injury to tips of branches in door yard and forest plantings of white pine in different areas of the state. Affected trees were unsightly.

### Alfalfa

Downy Mildew (Peronospora trifoliorum D. By) appeared to be more prevalent and caused more damage than usual.

A leaf spot, apparently caused by Stemphyllium botryosum Wallr. was present and caused some damage in a few fields.

Southern Anthracnose (Colletotrichum trifolii Bain and Essary) was identified in a few fields.

### Tomato

Verticillium Wilt (Verticillium albo-atrum Reinke and Berthold) , a rare disease of outdoor tomatoes in Kentucky, was identified by isolation of the causal fungus from 2 plantings, one a large commercial field and the other a back yard garden.

1. E. M. Johnson and W. D. Valleau, 1963. Corn Stunt Virus Disease. Plant Disease Reporter. 47:1109.
  
2. \_\_\_\_\_, C. C. Litton and R. A. Reinert. 1964. Occurrence of Certain Plant Diseases in Kentucky in 1963. Plant Disease Reporter 48:111-113.
  
3. \_\_\_\_\_, Frank Loeffel, James Shane, and Bobby Pass. 1964. Corn Stunt Virus Disease in Kentucky. Plant Disease Reporter 48:742.