

A Compilation of Plant Diseases and Disorders In Indiana—1982

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Introduction

The Plant Diagnostic Clinic (PDC) in the Department of Botany and Plant Pathology at Purdue University is a service of the Cooperative Extension Service, Purdue Agricultural Experiment Station. The clinic provides free service for interested persons through the county extension system, for accurate identification of weeds, plant diseases and plant disorders. This paper is a compilation of plant diseases and disorders which were diagnosed in the clinic from January 1 through November 15, 1982. Such a compilation is an invaluable tool in determining the problem areas in which extension personnel need to concentrate. Ultimately, comparisons of yearly disease/disorder compilations could provide additional insight for epidemiological studies in Indiana.

Methods

Plant specimens are submitted to the PDC from county extension agents, homeowners, growers, nursery operators, consultants, and others. Specimens are diagnosed visually or by culturing the pathogen on selected media. Some virus diseases are diagnosed by the ELISA technique or by the leaf dip technique utilizing the electron microscope. Once a disease or disorder is diagnosed, appropriate control measures are suggested. A computerized log system is used to summarize data for epidemiological studies, to provide readily accessible reference materials on samples and for report generation. A summary of the samples diagnosed from January 1 through November 15; 1982 is given in Table 1.

Results

As in previous years (1,2) weather and site related problems were common in Indiana during the 1982 growing season (Table 1). An extremely hard winter, highlighted by record breaking low temperatures in early January and February caused severe cold injury problems throughout the state. Early dry spring weather precluded the development of many infectious diseases and allowed for optimal planting conditions. However, late spring rains enhanced the development of some foliar disease problems.

Overall, with good growth conditions and optimum dry down weather for warm season crops (corn and soybeans), disease losses were relatively light during 1982. However, some isolated infectious diseases did become widespread in drought and heat-stressed plants.

Tables 2-8 show the host plant, the disease or disorder diagnosed, the pathogen or cause of disorder, and the number of samples received.

Shade and Ornamental Trees

Diseases: Early dry spring weather precluded the development of shade tree anthracnose and primary scab on crabapples. However, late spring rain caused some leaf drop on sycamore due to anthracnose and secondary scab on crabapples. As in past years (1,2,3,4), *Diplodia* tip blight continued to be the primary disease

TABLE 1. *Plant Samples received in the Purdue Plant Diagnostic Clinic Jan. 1 through Nov. 18, 1982.*

Plant Specimen	Number of Samples	Disease	Disorder	Chemical	Nutritional
AGRONOMIC (18%)					
Corn	131	88	34	16	4
Soybeans	66	54	7	20	1
Small Grain	40	42	10	1	4
Forage Grasses and Legumes	36	32	4	0	6
Tobacco	1	0	1	0	0
ORNAMENTAL (43%)					
Trees-Shade and Ornamental	435	90	327	17	10
Shrubs and Groundcover	121	54	64	6	1
Flowers	52	38	11	2	1
House plants	31	6	21	1	3
FRUIT (8%)					
Tree Fruit	86	29	50	3	4
Small Fruit	35	24	17	2	0
VEGETABLE (12%)	178	81	52	16	19
TURFGRASS (2%)	34	18	13	1	2
PLANT IDENTIFICATION (13%)	190	—	—	—	—
FORWARDED TO ENTOMOLOGY (4%)	65	—	—	—	—
TOTAL	1501	556	611	85	55

¹Problem caused by an infectious disease causing agent, e.g. fungus, bacterium, virus, mycoplasma, nematode.

²Problem caused by noninfectious environmental stress, e.g. wind, drought, heat, soil compaction.

³Problem caused by herbicide/pesticide misuse.

⁴Problem caused by a nutrient imbalance.

seen on Austrian, red and Scotch pines (Table 2). Occurrence of the recently discovered pine tree disease, pine wilt, caused by the pine wood nematode, *Bursaphelenchus lignicolus*, did not appear to increase. *Verticillium* wilt of maple and redbud and Dutch elm disease were frequently reported during the summer. *Disorders*: Severe winter cold resulted in injury to a number of tree species; most noticeably affected were oriental cherry, redbud, dogwood and English oak. Extensive terminal twig death due to the severe cold was most severe in redbud. Pine, spruce, and hemlock showed extensive needle browning and twig death due to both cold and winter desiccation. The most frequently recorded disorders of maple, oak, and ash were scorch and dieback caused by a combination of stress factors including inadequate soil moisture. Leaf drop and decline were extensive on ash during mid-summer. The cause of this disorder on ash is unknown. Dieback of mountain ash caused by a combination of sun scald, canker, and borers, was frequently recorded. Iron chlorosis of oaks, especially pin oak, remains a problem in those areas of the state with a high soil pH.

Ornamentals

Diseases: As in past years (1,2,3), yew dieback was the most frequently recorded

TABLE 2. *Shade and Ornamental Trees—Diseases and Disorders*

Host Plant Diseases and/or Disorders	Causal Agent	Number of Samples
<i>Abies</i> (FIR)		
Tip Blight	<i>Diplodia pinea</i>	1
Miscellaneous Disorders		
Poor Vigor	Stress factor(s)	2
Winter Damage	Desiccation	1
<i>Acer</i> (MAPLE)		
Anthraxnose	<i>Gloeosporium apocryptum</i>	2
Wilt	<i>Verticillium albo-atrum</i>	2
Canker	<i>Botrydiplodia</i> sp.	1
Leaf Spot	<i>Phyllosticta</i> sp.	2
Leaf Spot	Unidentified fungus	2
Heart Rot	Fungi/stress	1
Miscellaneous Disorders		
Scorch	Heat, wind, and drought	42
Dieback	Stress factor(s)	23
Herbicide Injury	Spray drift	8
Mechanical Injury	Hail	1
Chlorosis	Nutrient deficiency	2
<i>Acer</i> (BOX ELDER)		
Anthraxnose	<i>Gnomonia</i> sp.	1
Leaf Spots	Unidentified fungus	1
Miscellaneous Disorders		
Dieback	Stress factor(s)	1
<i>Betula</i> (BIRCH)		
Leaf Spot	<i>Septoria</i> sp.	1
Miscellaneous Disorders		
Decline	Transplant shock	1
Scorch	Heat, wind, and drought	3
<i>Carya</i> (HICKORY)		
Miscellaneous Disorder		
Scorch	Heat, wind, and drought	3
<i>Catalpa</i> (CATALPA)		
Miscellaneous Disorder		
Scorch	Heat, wind, and drought	1
<i>Celtis</i> (HACKBERRY)		
Miscellaneous Disorder		
Decline	Stress factor(s)	1
<i>Cercis</i> (RED BUD)		
Wilt	<i>Verticillium albo-atrum</i>	2
Miscellaneous Disorders		
Decline	Improper pruning	1
Scorch	Heat, wind, and drought	4
Dieback	Stress factor(s)	1
Winter Injury	Desiccation	2
<i>Cladastris</i> (YELLOW WOOD)		
Miscellaneous Disorder		
Scorch	Heat, wind, and drought	1

TABLE 2.—Continued

Host Plant Diseases and/or Disorders	Causal Agent	Number of Samples
<i>Cornus</i> (DOGWOOD)		
Leaf Spot	<i>Septoria</i> sp.	3
Miscellaneous Disorders		
Scorch	Heat, wind, and drought	8
Dieback	Stress factor(s)	2
Herbicide Injury	Spray drift	1
Decline	Unknown	2
<i>Crataegus</i> (HAWTHORN)		
Fire Blight	<i>Erwinia amylovora</i>	2
Miscellaneous Disorder		
Dieback	Stress factor(s)	2
<i>Elaeagnus</i> (RUSSIAN OLIVE)		
Canker	<i>Fusicoccum elaeagni</i>	4
Miscellaneous Disorder		
Decline	Stress factor(s)	2
<i>Fagus</i> (BEECH)		
Miscellaneous Disorders		
Scorch	Heat, wind, and drought	1
Decline	Stress factors(s)	1
<i>Fraxinus</i> (ASH)		
Petiole Anthracnose	<i>Gloeosporium aridum</i>	1
Miscellaneous Disorders		
Scorch	Heat, wind, and drought	8
Dieback	Stress factor(s)	6
<i>Ilex</i> (HOLLY TREE)		
Miscellaneous Disorder		
Chlorosis	Nutrient imbalance	1
<i>Juglans</i> (WALNUT)		
Downy Spot	<i>Microstroma</i> sp.	1
Leaf Spot	<i>Phyllosticta</i> sp.	1
Leaf Spot	Unidentified fungus	1
Miscellaneous Disorders		
Improper Fruit Set	Poor pollination	2
Scorch	Heat, wind, and drought	2
Herbicide Injury	Spray drift	1
<i>Juniperus virginiana</i> (RED CEDAR)		
Twig Blight	<i>Phomopsis juniperovora</i>	2
Miscellaneous Disorders		
Winter damage	Desiccation	3
Dieback	Stress factor(s)	2
<i>Liriodendron</i> (TULIP TREE)		
Powdery Mildew	<i>Erysiphe polygoni</i>	2
Leaf Spot	<i>Phyllosticta liriodenderi</i>	1
Miscellaneous Disorders		
Sooty mold	<i>Caphodium elongatum</i>	1
Scorch	Heat, wind, drought	5
Leaf Yellowing/Spotting	Natural stress	5
Chemical Injury	Spray drift	2
Decline	Stress factor(s)	2
<i>Magnolia</i> (MAGNOLIA)		
Miscellaneous Disorders		
Winter Damage	Desiccation	1
Scorch	Heat, wind, and drought	1
<i>Malus</i> (CRABAPPLE)		
Canker	Unidentified fungus	1
Firebright	<i>Erwinia amylovora</i>	1

TABLE 2.—Continued

Host Plant Diseases and/or Disorders	Causal Agent	Number of Samples
Miscellaneous Disorders		
Winter Injury	Desiccation	2
Dieback	Stress factor(s)	2
<i>Picea</i> (SPRUCE)		
Canker	<i>Cytospora kunzei</i>	2
Needlecast	<i>Rhizosphaera kalkoffii</i>	1
Miscellaneous Disorders		
Winter Injury	Desiccation	7
Chemical Injury	Improper uses	2
Needle Tip Burn	Heat, wind, and drought	12
Mechanical Damage	Unidentified	2
Decline	Transplant shock	1
Cut Branches	Squirrel damage	1
<i>Pinus</i> (PINE)		
Tip Blight	<i>Diplodia pinea</i>	16
Needle Cast	<i>Lophodermium pinastri</i>	1
Needle Blight	<i>Dothistroma pini</i>	4
Pinewood Nematode	<i>Bursaphelenchus lignicolus</i>	2
Southern Fusiform Rust	<i>Cronartium fusiforme</i>	1
Root Rot	Unidentified fungus	1
Miscellaneous Disorders		
Canker	Animal damage	1
Decline	Poor drainage, site-stress	41
Winter Damage	Desiccation	12
Needle Tip Burn	Heat, wind, and drought	6
Sooty Mold	Insect honeydew secretions	6
Yellowing/Autumn (3rd yrs growth)	Natural	8
Mechanical Damage	Unidentified	1
Herbicide Injury	Spray drift	1
<i>Platanus</i> (SYCAMORE)		
Petiole Anthracnose	<i>Gnomonia veneta</i>	1
Powdery Mildew	<i>Oidium obductum</i>	1
Miscellaneous Disorder		
Scorch	Heat, wind, and drought	1
<i>Populus</i> (POPLAR, ASPEN, COTTONWOOD)		
Dieback	<i>Cytospora</i> sp.	1
Miscellaneous Disorder		
Decline	Site stress factor(s)	2
Twig Fall	Stress factor(s)	1
Scorch	Heat, wind, and drought	1
<i>Prunus</i> (PURPLE LEAF PLUM)		
Brown Rot	<i>Monilinia fructicola</i>	1
Miscellaneous Disorders		
Green Leaves	Genetic	1
Winter Damage	Desiccation	1
Herbicide Injury	Spray drift	1
<i>Prunus</i> (ORIENTAL CHERRY)		
Canker	<i>Cytospora</i> sp.	1
Miscellaneous Disorders		
Decline	Poor site	1
Winter Damage	Desiccation	5
Scorch	Stress factor(s)	1
<i>Pyrus</i> (ORNAMENTAL PEAR)		
Miscellaneous Disorder		
Scorch	Heat, wind, and drought	1

TABLE 2. — Continued

Host Plant Diseases and/or Disorders	Causal Agent	Number of Samples
<i>Quercus</i> (OAK)		
Anthracnose	<i>Gnomonia quercina</i>	1
Miscellaneous Disorders		
Chlorosis (Pin Oak)	Iron deficiency	7
Dieback	Stress factor(s)	11
Scorch	Wind, heat, and drought	8
Chemical Injury	Spray drift	2
Decline	Transplant shock	1
<i>Rhus</i> (SUMAC)		
Wilt	<i>Verticillium</i> sp.	1
Miscellaneous Disorder		
Decline	Winter Injury	1
<i>Robinia</i> (LOCUST)		
Heart Rot	Wood rotting fungi	1
Miscellaneous Disorders		
Scorch	Heat, wind, and drought	3
Decline	Stress factor(s)	3
<i>Salix</i> (WILLOW)		
Leaf Spot	<i>Septogloeum</i> sp.	1
Canker	<i>Cytospora chrysosperma</i>	4
Miscellaneous Disorder		
Decline	Stress factor(s)	3
<i>Sorbus</i> (MOUNTAIN ASH)		
Fire Blight	<i>Erwinia amylovora</i>	1
Leaf Spot	<i>Septoria</i> sp.	3
Miscellaneous Disorders		
Canker	Sunscald/fungi complex	5
Scorch	Heat, wind, and drought	6
Dieback	Stress factor(s)	1
<i>Tamarisk</i> (TAMARIX)		
Miscellaneous Disorders		
Winter Damage	Desiccation	1
Scorch	Heat, wind, and drought	1
Decline	Stress factor(s)	2
<i>Thuja</i> (ARBOR VITAE)		
Nursery Blight	<i>Phomopsis</i> sp.	1
Miscellaneous Disorders		
Inner Needle Browning/Autumn	Natural	4
Winter Injury	Desiccation	1
<i>Tilia</i> (LINDEN)		
Miscellaneous Disorder		
Scorch	Heat, wind, and drought	2
<i>Tsuga</i> (HEMLOCK)		
Miscellaneous Disorder		
Winter Damage	Desiccation	6
Decline	Stress factor(s)	3
<i>Ulmus</i> (ELM)		
Dutch Elm Disease	<i>Ceratocystis ulmi</i>	4
Black Spot	<i>Gnomonia ulmea</i>	5
Miscellaneous Disorders		
Dieback	Stress factor(s)	1
Scorch	Heat, wind, and drought	1

ornamental problem (Table 3). The cause of dieback was related to a root and/or crown rot mostly commonly associated with poorly drained, wet sites in conjunc-

tion with *Phytophthora* spp. *Rhizoctonia* root rot was the most frequently recorded soilborne disease afflicting a variety of plants. Rust and twig blight were the main diseases found on juniper. Crown gall was frequently reported on spreading *Euonymus* during the early spring. Frequent summer rains enhanced a petal blasting caused by *Botrytis* sp. on a number of annual and perennial flowers, especially marigolds, peonies, and roses. Fungal and bacterial corm rots of gladiolus were common throughout the year. *Fusarium* stem canker and bacterial diseases were often found on greenhouse chrysanthemum samples.

Disorders: Cold weather injury was common on many ornamental shrubs. Barberry showed extensive twig death and dieback due to cold injured stem tissue. Forsythia bloom was very sparse, occurring only on lower, snow covered twigs. Boxwood, *Azalea*, *Cotoneaster*, and *Pyracantha* were other shrubs that showed extensive cold damage. Scorch, decline, and dieback occurred on a number of ornamental species. The cause of these disorders was frequently related to poor site location, transplanting shock, and a variety of other stress factors (Table 3).

TABLE 3. *Ornamentals—Diseases and Disorders.*

Host Plant Diseases and/or Disorders	Causal Agent	Number of Samples
<i>Ajuga</i> (BUGLE WEED)		
Root Rot	<i>Rhizoctonia</i> sp.	1
<i>Althaea</i> (HOLLYHOCK)		
Rust	<i>Puccinia malvacearum</i>	1
Miscellaneous Disorder		
Leaf Curl	Environmental	1
<i>Amaryllis</i> (AMARYLLIS)		
Red Blotch	<i>Stagnospora curtisii</i>	1
<i>Antirrhinum</i> (SNAPDRAGON)		
Root Rot	<i>Rhizoctonia</i> sp.	1
<i>Asarum</i> (WILD GINGER))		
Root Rot	<i>Rhizoctonia</i> sp.	1
Miscellaneous Disorder		
Scorch	Environmental	1
<i>Berberis</i> (BARBERRY)		
Miscellaneous Disorder		
Dieback	Improper site/poor drainage	2
<i>Boxus</i> (BOXWOOD)		
Miscellaneous Disorder		
Winter Injury	Desiccation	1
<i>Callistephus</i> (CHINA ASTER)		
Aster Yellows	Virus	1
Wilt	<i>Fusarium oxysporum</i>	1
Miscellaneous Disorder		
Leaf Chlorosis	Environmental	1
<i>Chlorophytum</i> (SPIDER PLANT)		
Miscellaneous Disorder		
Root Rot	Improper cultural practices	1
<i>Chrysanthemum</i> (CHRYSANTHEMUM)		
Bacterial Blight	<i>Erwinia chrysanthemi</i>	1
Bacterial Leaf Spot	<i>Pseudomonas chitorrii</i>	2
Leaf Distortion	Chrysanthemum "B" virus	1
Miscellaneous Disorder		
Root Rot	Improper cultural practices	2

TABLE 3.—Continued

Host Plant Diseases and/or Disorders	Causal Agent	Number of Samples
<i>Cotoneaster</i> (COTONEASTER)		
Twig Blight	<i>Cytospora</i> sp.	1
Leaf Spot	<i>Phyllosticta</i> sp.	1
Leaf Spot	<i>Botrytis</i> sp.	1
<i>Crassula argentea</i> (JADE PLANT)		
Miscellaneous Disorder		
Odema	Overwatered	1
Leaf Spot	Improper cultural care	1
<i>Cydonia</i> (QUINCE)		
Fire Blight	<i>Erwinia amylovora</i>	1
<i>Cyperus</i> (UMBRELLA PLANT)		
Root Rot	<i>Pythium</i> sp.	1
<i>Dianthus</i> (SWEET WILLIAM)		
Root Rot	<i>Rhizoctonia</i> sp.	1
<i>Dieffenbachia</i> (DIEFFENBACHIA)		
Miscellaneous Disorder		
Leaf Spot	Improper cultural care	2
<i>Dracaena</i> (DRACEANA)		
Miscellaneous Disorder		
Leaf Spot	Fluoride toxicity	1
Leaf Spot	Environmental	1
<i>Euonymus</i> (BURNING BUSH)		
Crown Gall	<i>Agrobacterium tumefaciens</i>	1
Leaf Spot	<i>Phyllosticta</i> sp.	1
Miscellaneous Disorders		
Dieback	Stress factor(s)	3
Herbicide Injury	Spray drift	1
Adventitious Roots	Wet site	2
<i>Euphorbia</i> (GOPHER SPURGE)		
Root Rot	<i>Thaelaviopsis</i> sp.	1
<i>Euphorbia pulcherrima</i> (POINSETTIA)		
Crown/Stem Canker	Unidentified bacteria	1
<i>Ficus</i> (RUBBER PLANT)		
Miscellaneous Disorders		
Root Rot	Improper cultural conditions	1
Leaf Spot	Sunscald	2
<i>Forsythia</i> (GOLDEN BELLS)		
Miscellaneous Disorders		
Herbicide Damages	Spray drift	2
Dieback	Stress factor(s)/cold	1
<i>Freesia</i> (FREESIA)		
Corm Rot	<i>Fusarium</i> sp.	1
<i>Gladiolus</i> (GLADIOLUS)		
Corm Rot	<i>Fusarium oxysporum</i> f. <i>gladioli</i>	2
Corm Rot	<i>Curvularia trifolii</i> f. <i>gladioli</i>	1
Corm Rot	<i>Penicillium</i> spp.	3
Scab	<i>Pseudomonas marginata</i>	3
White Break Mosaic	Virus	
Miscellaneous Disorder		
Corm Rot	Storage breakdown	2
<i>Hedera</i> (ENGLISH IVY)		
Bacterial Leaf Spot	<i>Xanthomonas hederae</i>	2
<i>Helianthus</i> (SUNFLOWER)		
Miscellaneous Disorder		
Scorch	Environmental	1

TABLE 3.—Continued

Host Plant Diseases and/or Disorders	Causal Agent	Number of Samples
<i>Hemerocallis</i> (DAYLILLY)		
Leaf Blight	<i>Kabatiella</i> sp.	1
Leaf Spot	<i>Heterosporium gracilis</i>	2
<i>Hydrangea</i> (HYDRANGEA)		
Flower Blight	<i>Botrytis</i>	1
Miscellaneous Disorder		
Decline	Stress factor(s)	2
<i>Ilex</i> (HOLLY)		
Berry Blight	<i>Botrytis</i> sp.	1
Miscellaneous Disorders		
Winter damage	Desiccation	2
Chlorosis	Iron deficiency	1
Scorch	Site Stress	1
<i>Impatiens</i> (IMPATIEN)		
Root Rot	<i>Rhizoctonia solani</i>	1
<i>Ipomoea</i> (MORNING GLORY)		
Miscellaneous Disorders		
Leaf Chlorosis	Nutrient imbalance	1
Scorch	Heat, wind, and drought	1
<i>Iris</i> (IRIS)		
Leaf Spot	<i>Heterosporium iridis</i>	3
Crown Rot	<i>Botryotinia convoluta</i>	1
Basal Rot	<i>Fusarium</i> spp.	1
<i>Juniperus</i> (JUNIPER)		
Twig Blight	<i>Phomopsis juniperovora</i>	5
Cedar—Apple Rust	<i>Gymnosporangium juniperi-virginianae</i>	1
Twig Dieback	<i>Kabatina</i> sp.	1
Miscellaneous Disorders		
Dieback	Shading out/stress	4
Winter Damage	Desiccation	2
<i>Ligustrum</i> (PRIVET)		
Miscellaneous Disorders		
Dieback	Heat, wind, and drought	2
Winter Injury	Desiccation	2
Herbicide Damage	Spray drift	1
<i>Narcissus</i> (DAFFODIL)		
Leaf Blight	<i>Botrytis cinerea</i>	1
<i>Orchid</i> (ORCHID)		
Leaf Spot	Virus	1
<i>Pachysandra</i> (PACHYSANDRA)		
Leaf Blight	<i>Volutella pachysandrae</i>	2
<i>Paeonia</i> (PEONY)		
Botrytis Blight	<i>Botrytis cinerea</i>	1
<i>Parthenocissus</i> (BOSTON IVY)		
Leaf Spot	<i>Guignardia bidwelli</i>	1
<i>Pelargonium</i> (GERANIUM)		
Blackleg	<i>Pythium</i> sp.	1
Bacterial Blight	<i>Xanthomonas pelargonii</i>	1
Leaf Spot	<i>Alternaria</i> sp.	1
Miscellaneous Disorder		
Oedema	Improper cultural conditions	1
<i>Peperomia</i> (PEPEROMIA)		
Miscellaneous Disorder		
Oedema	Improper cultural conditions	1

TABLE 3.—Continued

Host Plant Diseases and/or Disorders	Causal Agent	Number of Samples
<i>Petunia</i> (PETUNIA) Root Rot	<i>Rhizoctonia</i> sp.	1
<i>Philadelphus</i> (MOCK ORANGE) Miscellaneous Disorders Canker	Stress factor(s)	1
<i>Physocarpus</i> (DWARF NINEBARK) Powdery Mildew	<i>Sphaerotheca macularis</i>	1
<i>Polypodium</i> (FERN) Miscellaneous Disorder Leaf Tip Burn	Low humidity	1
<i>Polyscias fruticosa</i> (MING ARALIA) Miscellaneous Disorder Chlorosis	Improper cultural conditions	1
<i>Pothos</i> (POTHOS) Miscellaneous Disorder Leaf Spot	Improper cultural conditions	1
<i>Prunus</i> (BUSH CHERRY) Miscellaneous Disorders Dieback	Stress factor(s)	1
<i>Prunus</i> (PLUM BUSH) Bacterial Leaf Spot	<i>Xanthomonas pruni</i>	1
<i>Pyracantha</i> (FIRETHORN) Scab	<i>Fusicladium pyracanthae</i>	3
Miscellaneous Disorder Winter Damage	Desiccation	2
<i>Rhamnus</i> (TALL HEDGE) Miscellaneous Disorder Leaf Scorch	Stress factor(s)	1
<i>Rhododendron</i> (AZALEA AND RHODODENDRON) Leaf Gall (Azalea)	<i>Exobasidium vaccinii</i>	1
Crown Rot (Rhododendron)	<i>Phytophthora</i> spp.	1
Miscellaneous Disorder Winter Scorch	Desiccation	3
Dieback	Transplant shock	3
Dieback	Mouse damage	1
<i>Rosa</i> (ROSE) Powdery Mildew	<i>Sphaerotheca</i> sp.	1
Blossom Blight	<i>Botrytis cinerea</i>	1
Miscellaneous Disorders Herbicide Injury	Spray drift	1
Leaf Scorch	Nutrient imbalance	1
Dieback	Poor graft union	2
<i>Saintpaulia</i> (AFRICAN VIOLET) Miscellaneous Disorder Root Rot	Soluble salt injury	1
<i>Schefflera</i> (AUSTRALIAN UMBRELLA TREE) Miscellaneous Disorder Oedema	Improper cultural conditions	2
Chemical Injury	Improper use	1
Root Rot	Overwatering	1
<i>Senecio mikanioides</i> (GERMAN IVY) Miscellaneous Disorder Dieback	Excess fertilizer	1

TABLE 3.—Continued

Host Plant Diseases and/or Disorders	Causal Agent	Number of Samples
<i>Syringa</i> (LILAC)		
Leaf Spot	<i>Phyllosticta</i> sp.	1
Miscellaneous Disorder		
Small Leaves	Site stress	1
<i>Tagetes</i> (MARIGOLD)		
Leaf Spot	<i>Alternaria</i> sp.	2
Leaf Spot	<i>Septoria</i> sp.	1
Flower Blight	<i>Botrytis cinerea</i>	2
Miscellaneous Disorder		
Herbicide Injury	Spray drift	1
<i>Taxus</i> (YEW)		
Root Rot—Dieback	<i>Phytophthora</i> —poor drainage complex	14
Miscellaneous Disorder		
Herbicide Injury	Spray drift	2
Winter Damage	Desiccation	2
Dieback	Drought	2
<i>Thuja</i> (ARBORVITAE)		
Twig Blight	<i>Pestalotia funerea</i>	4
Miscellaneous Disorders		
Dieback	Transplant shock	2
Winter Injury	Desiccation	6
Inner Leaf Browning/Autumn	Natural phenomenon	2
<i>Viburnum</i> (VIBURNUM)		
Leaf Rust	<i>Coleosporium viburni</i>	1
Miscellaneous Disorder		
Dieback	Stress factor(s)	2
<i>Vinca</i> (PERIWINKLE)		
Stem/Leaf Blight	<i>Phoma exigua</i> var. <i>exigua</i>	1
Stem Canker	<i>Rhizoctonia</i> sp.	1
<i>Yucca</i> (YUCCA)		
Leaf Spot	<i>Coniothyrium concentricum</i>	1
Miscellaneous Disorder		
Leaf Spot	Improper cultural conditions	1

Tree Fruits

Diseases: Apple scab was not a problem in most orchards due to early dry spring weather (Table 4). As in previous years (1,2) fire blight was sporadic, with localized outbreaks occurring in a number of orchards located in the southern half of the state. Blister spot of apple, a bacterial disease generally confined to the variety Mutsu, was observed for the first time on Stayman and Cortland varieties. The sudden increase in blister spot was attributed to wet weather which occurred shortly after petal fall. The most frequently recorded stone fruit disease was bacterial spot on peach, nectarine, apricot, and plum leaves (Table 4). Plum brown rot was reported from a number of backyard plantings.

Disorders: Severe winter cold periods killed peach, nectarine, and apricot fruit buds and resulted in a complete loss of those crops. Cold damage to trees was severe in many areas of the state. Many peach trees were killed while those that survived showed extensive death of individual stems and were late in leafing out. Leaf scorch on pear and apple caused by a combination of cold-injured tissue and dry, windy weather was common throughout the growing season. Russet-

TABLE 4. *Fruit Trees—Diseases and Disorders.*

Host Plant Diseases and/or Disorders	Causal Agent	Number of Samples
<i>Citrus</i> (ORANGE)		
Fruit Rot	<i>Botrytis</i>	1
<i>Malus sylvestris</i> (APPLE)		
Crown Rot	<i>Phytophthora cactorum</i>	1
Scab	<i>Venturia inaequalis</i>	1
Cedar-Apple Rust	<i>Gymnosporangium juniperi-virginianae</i>	2
Fireblight	<i>Erwinia amylovora</i>	4
Blister Spot	<i>Pseudomonas syringae</i>	2
Apple Blotch	<i>Phyllosticta</i> sp.	2
Bookers Disease	<i>Phoma</i> sp.	1
Pox	<i>Helminthosporium papulosum</i>	1
Miscellaneous Disorders		
Bud Death	Cold injury	1
Leaf Chlorosis	Nutrient imbalance	1
Measles	Manganese toxicity	1
Chemical Injury	Improper use	1
Adventitious Growth	Bur Knot	1
Twig Cankers	Hail	1
Scorch	Heat, wind, and drought	8
Fruit Russet	Environmental	1
Necrotic Leaf Blotch (Yellow Delicious)	Stress factor(s)	1
Bitter Pit	Physiological	4
<i>Prunus americana</i> (PLUM)		
Bacterial Leaf Spot	<i>Xanthomonas pruni</i>	3
Brown Rot	<i>Monilinia fructicola</i>	2
Black Knot	<i>Dibotryon morbosum</i>	3
Plum Pockets	<i>Taphrina deformans</i>	1
Miscellaneous Disorders		
Cold Injury	Low temperature	5
Canker	Animal damage	1
Chemical Injury	Improper use	1
Fruit Spot	Extreme heat	1
<i>Prunus armeniaca</i> (APRICOT)		
Bacterial Leaf Spot	<i>Xanthomonas pruni</i>	2
Miscellaneous Disorder Dieback	Stress factor(s)	3
<i>Prunus avium</i> (CHERRY)		
Miscellaneous Disorders		
Root Rot	Wet site location	4
Dieback	Stress factor(s)	7
Fruit Spot	Hail damage	4
<i>Prunus persica</i> (PEACH)		
Bacterial Spot	<i>Xanthomonas pruni</i>	3
Scab	<i>Cladosporium carpophilum</i>	1
Miscellaneous Disorders		
Root Rot	Wet side location	1
Herbicide Damage	Spray drift	1
Dieback	Cold injury	1
Chlorotic Leaves	Nutrient imbalance	1
<i>Prunus persica</i> var. <i>nectarina</i> (NECTARINE)		
Leaf Curl	<i>Taphrina deformans</i>	1
Bacterial Leaf Spot	<i>Xanthomonas pruni</i>	1
<i>Pyrus communis</i> (PEAR)		
Fire Blight	<i>Erwinia amylovora</i>	1
Scab	<i>Venturia pyrina</i>	1

TABLE 4.—Continued

Host Plant Diseases and/or Disorders	Causal Agent	Number of Samples
Miscellaneous Disorders		
Decline	Cold injury	2
Scorch	Heat, wind, and drought	8
Chemical Injury	Improper use	4
Dieback	Boron deficiency	1

ting, a weather related skin blemish of golden delicious apples, was severe in most areas of the state. Also prominent on golden delicious was leaf yellowing and drop, a disorder thought to be caused by summer heat stress.

Small Fruits

Diseases: Strawberry root diseases were reported throughout Indiana in 1982 (Table 5). Black root rot, caused by an undetermined complex of soilborne pathogens, was frequently recorded during late summer. A contributing factor to the increased frequency of reports of black root rot was thought to be cold injury. Gray mold fruit rot of strawberry and brambles was severe in localized areas of the state due to cool, wet weather at harvest time and just prior to harvest. Cane blight, anthracnose and spur blight, fungal stem diseases, were widespread on brambles, especially red and black raspberries. The increase in bramble stem

TABLE 5. *Small Fruits—Diseases and Disorders*

Host Plant Diseases and/or Disorders	Causal Agent	Number of Samples
<i>Fragaria grandiflora</i> (STRAWBERRY)		
Black Root Rot	Fungal Complex (specific pathogens unknown)	4
Leaf Spot	<i>Mycosphaerella fragariae</i>	2
Gray Mold Rot	<i>Botrytis cinerea</i>	1
Slime Mold	<i>Physarum cinereum</i>	1
Red Steele	<i>Phytophthora fragariae</i>	2
Miscellaneous Disorders		
Scorch	Heat, wind, and drought	2
Root Rot	Cold injury/wet site	2
Wilt	Transplant shock	1
<i>Rubus</i> (RASPBERRY)		
Cane Blight	<i>Leptosphaeria coniothyrium</i>	2
Anthracnose	<i>Elsinoe veneta</i>	2
Rust	<i>Gymnoconia peckiana</i>	3
Spur Blight	<i>Didymella applanata</i>	1
Miscellaneous Disorders		
Poor Fruit Set/Decline	Cold injury	4
<i>Vaccinium</i> (BLUEBERRY)		
Twig Canker	<i>Phomopsis</i> sp.	2
Miscellaneous Disorder		
Dieback	Stress factor(s)	4
<i>Vitis</i> (GRAPE)		
Dead Arm Canker	<i>Phomopsis</i> sp.	1
Spot Anthracnose	<i>Elsinoe ampelina</i>	2
Miscellaneous Disorders		
Herbicide Injury	Spray drift	1
Poor Fruit Set	Cold	1
Poor Flowering	Stress factor(s)	1

diseases was due in part to cold injury which predisposed stem tissue to infection. Also noted was an increase in stem diseases of blueberries. Downy mildew of grape was severe on susceptible varieties in portions of southern Indiana during early summer. Powdery mildew of grape was observed during the fall.

Disorders: Strawberries and brambles were injured from the cold winter temperatures. Root and crown tissues of strawberries planted in exposed areas which had no snow cover or had not been mulched were extensively damaged. Numerous reports were received of strawberry plants which suddenly collapsed and died near harvest time. Cold injury symptoms on brambles appeared as a severe dieback of the plant and/or sudden collapse and withering of developing fruit. Such symptoms were most apparent on blackberries and non-hardy cultivars of red and black raspberries.

Turfgrasses

Diseases: *Helminthosporium* leaf spot and *Fusarium* blight were the most widespread and serious diseases of Kentucky bluegrass (Table 6). *Fusarium* blight and *Rhizoctonia* brown patch, coupled with excessive thatch and environmental stress, were responsible for killing large areas of turf in many lawns. Red thread (*Corticium fuciforme*) was diagnosed in several samples of bluegrass during the summer months and stripe smut (*Ustilago striiformis*), blackened lawns and caused some respiratory discomfort in late fall.

Disorders: Hot, dry weather resulted in poor root development and often caused plant death, especially where plants were further stressed by excessive thatch.

Vegetables

Vegetable Diseases/Disorders: As in previous years (1,2,3) specimens of cucurbit crops, soybean, tomato, and potato comprised the bulk of vegetable samples received (Table 7).

Diseases—Melons: Melons in Indiana were plagued by numerous problems in 1982. In southwestern Indiana, reports of *Fusarium* wilt were received shortly after

TABLE 6. *Turf—Diseases and Disorders.*

Host Plant Diseases and/or Disorders	Causal Agent	Number of Samples
<i>Agrostis tenuis</i> (BENTGRASS)		
Snowmold	<i>Typhula itoana</i>	2
Rhizoctonia (cool weather)	<i>Rhizoctonia</i> sp.	3
<i>Lolium perenne</i> (RYEGRASS)		
Miscellaneous Disorder		
Scorch	Improper cultural care	1
<i>Poa pratensis</i> (BLUEGRASS)		
Leaf Spot	<i>Helminthosporium</i> spp.	4
Fusarium Blight	<i>Fusarium roseum</i> complex	4
Stripe Smut	<i>Ustilago striiformis</i>	3
Rhizoctonia (warm weather)	<i>Rhizoctonia solani</i>	3
Red Thread	<i>Corticium fuciforme</i>	2
Fairy Ring	Basidiomycetes	1
Miscellaneous Disorders		
Chemical Injury	Improper use	1
Excessive Thatch	Improper cultural care	6
Scorch	Drought	4
Dieback	Nutrient deficiency	2

TABLE 7. *Vegetables—Diseases and Disorders.*

Host Plant Diseases and/or Disorders	Causal Agent	Number of Samples
<i>Asparagus officinalis</i> (ASPARAGUS)		
Needle Blight	<i>Cercospora asparagi</i>	1
<i>Beta vulgaris</i> (BEETS)		
Miscellaneous Disorder		
Wilt	Environmental stress	2
<i>Brassica oleracea</i> var. <i>acephala</i> (KALE)		
Miscellaneous Disorder		
Chlorosis	Nutrient imbalance	1
<i>Brassica oleracea</i> var. <i>botrytis</i> (CAULIFLOWER)		
Black Rot	<i>Xanthomonas campestris</i>	1
Head Blight	<i>Alternaria brassicae</i>	1
<i>Brassica oleracea</i> var. <i>capitata</i> (CABBAGE)		
Black Rot	<i>Xanthomonas campestris</i>	2
Miscellaneous Disorders		
Tip Burn	Physiological	2
Chemical Injury	Spray drift	1
<i>Brassica ruvo</i> (BROCCOLI)		
Head Blight	<i>Alternaria brassicae</i>	1
Wirestem	<i>Rhizoctonia solani</i>	1
Miscellaneous Disorder		
Leaf Spot/Oedema	Physiological	1
<i>Capsicum frutescens</i> (PEPPER)		
Wirestem	<i>Rhizoctonia solani</i>	1
<i>Citrullus vulgaris</i> (WATERMELON)		
Fusarium Wilt	<i>Fusarium oxysporum</i>	1
Leaf Spot	<i>Alternaria cucumerina</i>	1
Miscellaneous Disorders		
Scorch	Improper fertilizer application	1
Leaf Damage	Wind injury	2
Chlorosis	Nutrient deficiency	1
<i>Cucumis melo</i> (CANTALOUPE)		
Downy Mildew	<i>Pseudoperonospora cubensis</i>	1
Bacterial Wilt	<i>Erwinia tracheiphila</i>	4
Fusarium Wilt	<i>Fusarium oxysporum</i>	4
Miscellaneous Disorders		
Chlorosis	Nutrient imbalance	2
Leaf Damage	Wind injury	3
Chemical Injury	Spray drift	1
Scorch	Improper fertilizer application	1
<i>Cucumis sativus</i> (CUCUMBER)		
Bacterial Wilt	<i>Erwinia tracheiphila</i>	1
Angular Leaf Spot	<i>Pseudomonas syringae</i>	3
Miscellaneous Disorder		
Corky Rind	Environmental stress	1
<i>Cucurbita moschata</i> (PUMPKIN)		
Miscellaneous Disorder		
Chlorosis	Nutrient imbalance	1
<i>Cucurbita pepo</i> (ZUCCHINI)		
Mosaic	Cucumber mosaic virus	1
Miscellaneous Disorder		
Leaf Scorch	Heat, wind	2
<i>Ipomoea batatas</i> (SWEET POTATO)		
Scurf	<i>Monilochaetes infuscans</i>	1
Storage Rot	<i>Fusarium</i> sp.	1

TABLE 7.—Continued

Host Plant Diseases and/or Disorders	Causal Agent	Number of Samples
<i>Lactuca sativa</i> var. <i>crispa</i> (LEAF LETTUCE)		
Miscellaneous Disorder		
Scorch	Environmental stress	1
<i>Lycopersicon esculentum</i> (TOMATO)		
Septoria Leaf Spot	<i>Septoria Lycopersici</i>	14
Early Blight	<i>Alternaria solani</i>	4
Verticillium Wilt	<i>Verticillium albo-atrum</i>	1
Black Dot Root Rot (Hydroponics)	<i>Colletotrichum coccodes</i>	1
Southern Wilt	<i>Sclerotium rolfsii</i>	1
Bacterial Spot	<i>Xanthomonas vesicatoria</i>	1
Bacterial Speck	<i>Pseudomonas syringae</i>	3
Anthracnose	<i>Colletotrichum coccodes</i>	1
Double Streak Virus	Tobacco Mosaic Virus + Potato Virus X	1
Gray Mold (Hydroponics)	<i>Botrytis</i> sp.	2
Mosaic	Cucumber Mosaic Virus	1
Mosaic	Tobacco Mosaic Virus	1
Miscellaneous Disorders		
Chemical Injury	Spray Drift	7
Chlorosis	Nutrient imbalance	3
Purpling	Phosphorous deficiency	1
Blossom End Rot	Physiological	1
Walnut Wilt	Juglone toxin	2
Poor Fruit Set	Improper pollination	1
Stem Canker	Hail	1
Catface	Environmental stress	3
Leaf Curl/Neerosis (Hydroponics)	Nutrient imbalance	4
Corky Root	High soluble salt level	1
Fruit Injury	Sunscald	2
Leaf Roll	Physiological	4
Leaf Spot (Hydroponic)	Improper management	2
Fruit Rot	Excess water	1
<i>Phaseolus lunatus</i> (LIMA BEAN)		
Miscellaneous Disorder		
Leaf Scorch	Heat, wind	1
<i>Phaseolus vulgaris</i> (SNAP BEAN)		
Root Rot	<i>Rhizoctonia solani</i>	1
Root Rot	<i>Fusarium</i> sp.	2
Anthracnose	<i>Colletotrichum lindemuthianum</i>	1
Angular Leaf Spot	<i>Isariopsis griseola</i>	2
Stem Rot	<i>Sclerotinia sclerotiorum</i>	3
Rust	<i>Uromyces phaseoli</i>	1
Mosaic	Cucumber Mosaic Virus	1
Miscellaneous Disorders		
Chemical Injury	Spray Drift	2
Leaf/Root Burn	Fertilizer burn	3
Leaf Scorch	Wind injury, sunscald	11
<i>Pisum sativum</i> (PEA)		
Miscellaneous Disorder		
Chemical Injury	Spray drift	1
<i>Raphanus sativus</i> (RADISH)		
Scab	<i>Streptomyces scabies</i>	1
<i>Rheum</i> spp. (RHUBARB)		
Anthracnose Leaf Spot	<i>Colletotrichum erumpens</i>	1
Miscellaneous Disorder		
Scorch	Site stress	1

TABLE 7.—Continued

Host Plant Diseases and/or Disorders	Causal Agent	Number of Samples
<i>Solanum tuberosum</i> (POTATO)		
Tuber Rot	<i>Fusarium</i> sp.	1
Early Blight	<i>Alternaria solani</i>	2
Common Scab	<i>Streptomyces scabies</i>	1
Verticillium Wilt	<i>Verticillium albo-atrum</i>	1
Miscellaneous Disorders		
Leaf Curl	Herbicide drift	1
Seed Piece Decay	Normal	1

muskmelons and watermelons were transplanted. Yield reduction in several of the more seriously affected fields was estimated to be more than 50%. Incidence of bacterial wilt of muskmelon was greater in 1982 than in previous years. The increase was attributed to an unusually large and early increase in striped cucumber beetle populations. Powdery mildew was observed throughout the state, but its effect on yield was minimal because disease became established relatively late in the season. Downy mildew, anthracnose, and gummy stem blight were also reported in 1982. A few severe cases of these diseases were observed, but the statewide incidence was generally very low. The most troublesome foliage disease was *Alternaria* leaf blight. This disease occurred wherever less vigorous plants were grown. Stress that predisposed muskmelons to *Alternaria* could be attributed to several factors, including the presence of other diseases, extremes of high or low water availability, and nitrogen deficiency caused by leaching or excessive fruit load.

Disorders: A foliage blight that appeared in many fields where sandy ridges existed has been linked to a deficiency of available magnesium in the soil. Symptoms are somewhat similar to those of downy mildew, but more closely resemble descriptions of magnesium deficiency.

Diseases—Tomatoes: Tomatoes in commercial fields and home gardens were infected by early blight throughout most of the season. The occurrence of stem lesions increased the severity of disease development in 1982. Where stem lesions were established early, very thin stands resulted. Stem lesions that developed later in the season weakened plants to the extent that foliage was more prone to infection by *Alternaria*. This usually resulted in premature ripening and dropping of fruit and increased sunscald. Higher incidence of fruit lesions and anthracnose usually accompanied severe early blight defoliation. *Septoria* leaf spot was commonly diagnosed on plants suffering from early blight. Bacterial spot and speck presented problems in a few commercial fields early in the season. Reports of bacterial canker were rare, and, because symptoms appeared late in the season, yield loss to canker was negligible.

Disorders: As in previous years (1,2), a high number of tomato samples were diagnosed as having chemical injury (spray drift). Environmental factors, such as sunscald and water fluctuations caused foliage and fruit disorders. Nutrient deficiencies and physiological disorders were also diagnosed.

Diseases—Other Vegetable Crops: Black rot, caused by *Xanthomonas campestris* was rampant among crucifers of all types (cabbage, broccoli, cauliflower, and Brussels sprouts). Only varieties most resistant to black rot escaped damage. Many garden plantings and several commercial fields were completely destroyed.

Phytophthora blight of pepper and *Verticillium* wilt of okra and eggplant were common (some cases were very severe) in northwestern Indiana.

Although onion purple blotch, caused by *Alternaria porii* was frequently observed in muck areas of northern Indiana, damage was generally slight.

Agronomic Crops

Agronomic Diseases/Disorders: Damaging weather conditions were directly or indirectly related to an increased severity of several diseases and disorders of agronomic crops (Table 8).

TABLE 8. *Agronomic Crops—Diseases and Disorders*

Host Plant Diseases and/or Disorders	Causal Agent	Number of Samples
<i>Triticum</i> (WHEAT)		
Take-All	<i>Ophiobolus graminis</i>	6
Fusarium Root Rot	<i>Fusarium</i> spp.	4
Wheat Spindle Streak	Wheat Spindle Streak Virus	2
Barley Yellow Dwarf	Barley Yellow Dwarf Virus	3
Spring Blight	<i>Ceratobasidium</i> spp.	6
Leaf Rust	<i>Puccinia recondita</i> f. sp. <i>tritici</i>	
Stem Rust	<i>Puccinia graminis</i> f. sp. <i>tritici</i>	
Septoria Leaf Blotch	<i>Septoria tritici</i>	2
Septoria Glume Blotch	<i>Septoria nodorum</i>	2
Helminthosporium Leaf Spot	<i>Helminthosporium sativum</i>	1
Tan Spot	<i>Pyrenophora trichostoma</i>	2
Scab	<i>Gibberella zeae</i>	6
Miscellaneous Disorders		
Improper Root Development	Broadcast planting onto crop residue	6
Chlorosis	Nutrient imbalance	4
Chlorosis	Drought	1
<i>Avena</i> (OAT)		
Barley Yellow Dwarf	Barley Yellow Dwarf Virus	7
Miscellaneous Disorders		
Chlorosis	Chemical injury	1
Improper Root Development	Broadcast planting onto crop residue	1
Leafspot	Physiogenic	1
Mold	Improper drying	1
<i>Elymus</i> (RYE)		
Ergot	<i>Claviceps purpurea</i>	1
<i>Zea</i> (DENT CORN)		
Gibberella Seedling Blight	<i>Gibberella zeae</i>	1
Anthracnose Leaf Blight	<i>Colletotrichum graminicola</i>	14
Northern Corn Leaf Spot	<i>Bipolaris carbonum</i> (Race II)	10
Southern Leaf Blight	<i>Bipolaris maydis</i> (Race 0)	12
Common Leaf Rust	<i>Puccinia sorghi</i>	10
Stewart's Blight	<i>Erwinia stewartii</i>	2
Common Smut	<i>Ustilago maydis</i>	1
Fusarium Kernel Rot	<i>Fusarium moniliforme</i>	2
Gibberella Kernel Rot (grown 1981)	<i>Gibberella zeae</i>	40
Gibberella Kernel Rot (1982)	<i>Gibberella zeae</i>	1
Pythium Seedling Blight	<i>Pythium aphanidermatum</i>	2
Kernel Rot	<i>Aspergillus glaucus</i>	2
Kernel Rot	<i>Aspergillus flavus</i>	1
Kernel Rot	<i>Cephalosporium</i> sp.	1
Kernel Rot	<i>Diplodia zeae</i>	2
Fusarium Stalk Rot	<i>Fusarium moniliforme</i>	2
Gib Stalk Rot	<i>Gibberella zeae</i>	4
Helminthosporium Stalk Rot	<i>Bipolaris carbonum</i>	1
Anthracnose Stalk Rot	<i>Colletotrichum graminicola</i>	6
Fusarium Stalk Rot	<i>Fusarium</i> spp.	2

TABLE 8.—Continued

Host Plant Diseases and/or Disorders	Causal Agent	Number of Samples
Miscellaneous Disorders		
Fungal Growth (Rotted Stalk)	<i>Typhula</i> sp.	2
Leaf Purpling	Environmental stress	4
Leaf Spot	Paraquat spray drift	1
Root Restriction/Stunting	Soil compaction	4
Reduced Root Growth	Chemical Injury	4
Leaf Spot	Physiogenic	1
Leaf Scorch	Chemical Injury	3
Wilt	Drought	1
Chlorosis	Environmental stress	3
Rolled in Shoot	Herbicide/mechanical damage	3
<i>Glycine</i> (SOYBEAN)		
Rhizoctonia Root Rot	<i>Rhizoctonia solani</i>	15
Phytophthora Root Rot	<i>Phytophthora megasperma</i> var. <i>sojae</i>	6
Pythium Root Rot	<i>Pythium aphanidermatum</i>	1
Bacterial Blight	<i>Pseudomonas glycinea</i>	2
Pod and Stem Blight	<i>Diaporthe phaseolorum</i> var. <i>sojae</i>	2
Brown Stem Rot	<i>Cephalosporium gregatum</i>	2
Anthracnose	<i>Collectotrichum graminicola</i>	1
Charcoal Rot	<i>Macrophomina phaseolina</i>	4
Brown Spot	<i>Septoria glycines</i>	12
Soybean Cyst Nematode	<i>Heterodera glycines</i>	4
Stem Rot	<i>Sclerotinia sclerotiorum</i>	4
Downy Mildew	<i>Peronospora manshurica</i>	4
Miscellaneous Disorders		
Chemical Injury	Various causes	20
Chlorosis	Nutrient deficiency	1
Root Restriction	Soil compaction	2
Leaf Discoloration	Sunscald	2
Stunted Growth	Environmental factors	3
Thick Hypocotyl	Planted too deep	1
<i>Trifolium</i> (CLOVER)		
Mosaic Virus	Clover Mosaic Virus	2
Root Rot	<i>Fusarium</i> spp.	1
<i>Medicago sativa</i> (ALFALFA)		
Root Rot	<i>Phytophthora megasperma</i>	5
Downy Mildew	<i>Peronospora trifoliorum</i>	1
Root Knot Nematode	<i>Meloidogyne</i>	1
Spring Blackstem	<i>Phoma medicaginis</i>	1
Summer Blackstem	<i>Cercospora medicaginis</i>	1
Leptosphaerulina Leaf Spot	<i>Leptosphaerulina trifoliana</i>	3
Crown Root Rot	Fungal complex	6
Common Leaf Spot	<i>Pseudopeziza medicaginis</i>	5
Stemphylium Leaf Spot	<i>Stemphylium botryosum</i>	3
Rust	<i>Uromyces striatus</i>	1
Miscellaneous Disorders		
Slow Growth	Nutrient imbalance	2
Leaf Discoloration	Environmental factors	2
White spots on leaves/curling	Frost	1
Leaf Purpling	Boron deficiency	2
Stunting	Compaction	2
<i>Nicotiana</i> (TOBACCO)		
Miscellaneous Disorder		
Leaf Spot	Nutrient imbalance	1

Diseases—Wheat: Significant yield losses occurred from infectious diseases in 1982, but yield losses from disease were not as great as in 1981 even though state

average yields were much lower. Powdery mildew and *Septoria* leaf blotch of wheat were prevalent diseases throughout the state, but rarely did they advance to the point of killing the flag leaf. Leaf rust, which appeared earlier than usual, was very widespread. However, severe levels of infection did not develop until late in the season and therefore, yield losses were relatively slight. *Septoria* glume blotch and head scab were widespread and significantly contributed to reduced yields and reduced seed quality. *Rhizoctonia* spring blight was found in many areas of the state. The disease may be easily confused with winter killing, and therefore it may have been more widespread than indicated. Barley Yellow Dwarf Virus was widespread in the state. Take-all was much more evident in 1982 than in 1981 and was more prevalent in the northern part of the state.

Disorders: Winter killing of wheat was a significant problem in Indiana during 1981-82. The damage was especially severe in the northeastern quarter of the state, and many fields in this area were plowed and planted to another crop.

Disease—Oats: Barley Yellow Dwarf Virus was especially damaging to oats in the northern half of the state.

Diseases - Soybeans: Soybean seedling blights caused by *Rhizoctonia*, *Pythium*, and *Phytophthora* were widespread. *Rhizoctonia* seedling blight and later root rot were probably more severe this year than previously reported. *Septoria* brown spot caused defoliation of soybeans in some fields early in the growing season. In most areas of the state, dry conditions during August reduced the potential yield losses from this disease. Downy mildew was widespread in 1982 and some seed infection was observed. Charcoal root rot was extensive and, in many cases, severe in the southwestern quarter of the state. Estimated yield losses of 10 to 15 bushels per acre from this disease were common in Gibson County. *Sclerotinia* stem rot was observed in scattered individual fields in the central and northeastern portion of the state for the second successive year (2). Brown stem rot was commonly found in the northern half of the state. *Sclerotinia* and brown stem rot significantly reduced yields in those fields where the disease occurred. Injury from the soybean cyst nematode continued to increase in frequency and severity. Occurrence of the nematode was documented in Crawford County for the first time. Charcoal root rot, *Sclerotinia* stem rot, brown stem rot, and soybean cyst nematode pose a threat to soybean production in Indiana in the future years.

Diseases—Corn: Leaf blights of corn were common throughout the state during 1982, but yield losses from these diseases were minimal. Early season anthracnose leaf blight was more severe in eastern Indiana than in any previous year. In many cases the disease killed the first four to six leaves of plants. By the time the plants reached the six to eight leaf stage, disease progression decreased markedly. Southern corn leaf blight, *Kabatiella* eye spot, northern corn leaf blight (races 1 and 2), northern corn leaf spot, and common rust were diseases commonly found in Indiana corn fields in 1982. However, yield losses from these diseases were minimal. The top kill phase of anthracnose was observed throughout the state. Stalk rots became severe in many fields as corn reached maturity. *Gibberella* and *Fusarium* stalk rots were common throughout the state. Charcoal stalk rot was severe in some southwestern Indiana fields, and *Diplodia* stalk and ear rots were severe in some fields in Orange and Washington counties. *Diplodia* stalk and ear rots appeared to be severe only in those fields where corn followed corn and where reduced tillage operations were used. Ear rots were generally very light in 1982, although in addition to the individual cases of *Diplodia* ear rot, some minor *Gibberella* and *Fusarium* ear rots were observed.

Disorders: Vivipary (germination of corn kernels *in situ*) was observed in three

widely separated fields. The cause of this malady is unknown. Environmental stress caused numerous cases of leaf purpling, spotting, and chlorosis (Table 8). At one point during early summer, corn plants in several different fields exhibited rolling of the leaves. Possible causal factors were listed as environmental, chemical, and herbicidal stress. However, no precise diagnosis was possible.

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