




THE UNIVERSITY OF GEORGIA
COOPERATIVE EXTENSION

College of Agricultural and Environmental Sciences
College of Family and Consumer Sciences

2005 GEORGIA PLANT DISEASE LOSS ESTIMATES

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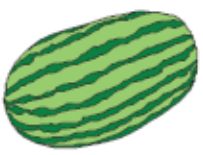

2005 Georgia Plant Disease Loss Estimates

It is estimated that 2005 plant disease losses, including control costs, amounted to approximately $537.44 million. The value of the crops used in this estimate was approximately $4377.6 million, resulting in a 12.28 percent total disease loss across all crops included in this summary.

The estimated values for most crops used to compute these disease losses are summarized in: Georgia Agricultural Statistics Service, Georgia Farm Report 6, No. 1 and the 2005 Georgia Farm Gate Value Report (AR-06-01). Estimates for tobacco are based on Market News Service figures for growers' net sales and do not include warehouse resales. Some estimates for grapes, ornamentals and turfgrass rely on specialists' knowledge of the industry and industry sources for information.

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2005 PLANT DISEASE CLINICS ANNUAL SUMMARY

Extension Plant Pathology maintains three clinics as educational resources for county extension agricultural faculty to use to aid their clients in diagnosing and correcting disease-related plant problems. Plant samples are submitted directly to the county extension faculty who, at their discretion, forward samples to the appropriate clinic. Commercial fruits, legume forage crops, forestry, Christmas tree, and commercial ornamental greenhouse, nursery, and landscape samples are sent to the Plant Disease Clinic in Athens. Diagnoses of and control recommendations for commercial samples of field crops, grain forages, pecans and vegetables are handled by the Plant Disease Clinic at the Rural Development Center in Tifton, Georgia. Commercial turf and all non-commercial homeowner plant samples are sent to the Plant Disease and Homeowner IPM Clinics in Griffin for disease diagnoses and recommendations. Diagnoses and educational recommendations are returned to the county faculty. The clinics maintain a computerized database of samples and their diagnoses, as well as a reference library for use by extension agents, specialists, researchers, and students.

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CLINIC SUMMARIES: 2005 PLANT SPECIMEN DIAGNOSES

Crop	Commercial Samples	Homeowner IPM Clinic	Total
Field Crops	259	8	267
Vegetables	265	58	323
Fruits & Nuts	93	64	157
Herbaceous Ornamentals	213	111	324
Woody Ornamentals	195	190	385
Trees	148	232	380
Turf	151	282	433
Miscellaneous	15	26	41
TOTAL	**1339**	**971**	**2310**

APPLE

Apples had a moderate to high disease pressures in 2005. This was due to exceptionally wet conditions from bloom throughout the entire season. Fire blight was prevalent if antibiotic sprays were not applied. As usual, bitter rot was a major issue; fungicides for bitter rot were not effective enough when wet conditions were observed, and rainy weather sometimes made fungicide application difficult. There is still a strong need for more efficacious fungicides for control of bitter rot and other summer rot diseases. In addition, though not yet observed, we are concerned that streptomycin antibiotic resistance may yet become an issue; currently, streptomycin is the only effective antibiotic for fire blight. If we lose this antibiotic due to resistance, apple production will be much more difficult. Cost of control included increased pesticide usage for fire blight as well as increased pruning costs as a result of fire blight and summer rot control measures.

Disease	% Reduction in Crop Value	Damage ($ Thousands)	Cost of Control ($ Thousands)	Total ($ Thousands)
Fire Blight	5.0	184.9	70.0	254.9
Bitter Rot	5.0	184.9	100.0	284.9
Bot Rot	1.0	37.0	52.0	89.0
Black Rot	0.1	3.7	33.0	36.7
Alternaria Leaf Spot	0.1	3.7	0.0	3.7
Powdery Mildew	0.1	3.7	11.5	15.2
Sooty Blotch	0.1	3.7	0.0*	3.7
Fly Speck	0.1	3.7	0.0*	3.7
Cedar Apple Rust	0.1	3.7	0.0*	3.7
Scab	0.05	1.8	0.0*	1.8
Other Diseases	0.05	1.8	1.0	1.8
Total	**11.7**	**432.6**	**267.5**	**699.1**

* Controlled with fungicides applied for other diseases.

Estimate by Phil Brannen, Extension Plant Pathologist

BLUEBERRY

In 2005, disease losses were minimal despite heavy rainfall. Where spray programs were not applied effectively, mummy berry (both primary shoot blight and mummified fruit) was observed at very high levels, but this was rare. Likewise, Botrytis blight was prevalent when fungicides were not used during bloom. In southern highbush cultivars, problems due to foliar diseases and dieback were also observed, but the use of fungicides helped reduce these diseases when they were used. Rust was also prevalent on some varieties. Phytophthora root rot and other root rots were more prevalent as a direct result of excessive moisture.

Disease	% Reduction in Crop Value	Damage ($ Thousands)	Cost of Control ($ Thousands)	Total ($ Thousands)
Mummy Berry	0.2	65.2	250.0	315.2
Botrytis Blight	0.2	65.2	50.0	115.2
Foliar Disease	1.0	326.2	20.0	346.2
Dieback	1.0	326.2	10.0	336.2
Phytophthora Root Rot	0.1	32.6	5.0	37.6
Total	**2.5**	**815.4**	**335.0**	**1,150.4**

Estimate by Phil Brannen, Extension Plant Pathologist

BUNCH GRAPE

Disease pressure was low to moderate among bunch grape vineyards in 2005, despite a very wet year with high disease potential. Disease control methods have obviously improved, largely as a result of educational efforts and grower adoption. Pathological issues, foliage diseases and rots resulted in minor losses in 2005. Where adequate spray programs were maintained, near 0 percent losses were observed in many cases. The degree of loss was directly correlated with the accuracy and intensity of the fungicidal spray program. When used correctly, fungicides and spray programs were very effective in disease control.

Disease	% Reduction in Crop Value	Damage ($ Thousands)	Cost of Control ($ Thousands)	Total ($ Thousands)
Botrytis	1.0	25.5	30.0	55.5
Downy Mildew	1.0	25.5	20.0	45.5
Black Rot	1.0	25.5	20.0	45.5
Powdery Mildew	1.0	25.5	5.0	30.5
Phomopsis Cane Blight	1.0	25.5	5.0	30.5
Crown Gall	0.1	2.6	5.0	7.6
Pierce's Disease	0.1	2.6	5.0	7.6
Total	**5.2**	**132.7**	**90.0**	**222.7**

Estimate by Phil Brannen, Extension Plant Pathologist

CORN

In 2005, corn was harvested from 274,284 acres in Georgia. The 2005 crop was valued at $84,483,442. Dry weather beginning in August likely reduced the total yield potential. Southern corn leaf blight was of minor importance in 2005. Southern rust, which was very important in 2003, was inconsequential in 2004 and in 2005. Rainfall was less abundant during the 2005 growing season than in 2003 or 2004. Therefore aflatoxin levels increased slightly for the 2005 crop. The true importance of damage from nematodes, e.g. sting, stubby root and southern root-knot nematodes, is becoming more apparent as growers and county agents become more familiar with the symptoms.

Disease	% Reduction in Crop Value	Damage ($ Millions)	Cost of Control ($ Millions)	Total ($ Millions)
Root & Stalk Rot	0.1	0.08	0.0	0.08
Nematodes	3.0	2.5	0.4	2.9
Mycotoxins	6.0	5.1	0.0	5.1
Leaf Diseases	1.0	0.8	0.1	0.9
Total	**10.1**	**7.76**	**0.5**	**8.98**

Estimate by Robert Kemerait, Extension Plant Pathologist

COTTON

Many of Georgia's cotton producers celebrated outstanding yields in 2005. Dry weather during the second half of the season led to minimal boll rot and near-perfect conditions at harvest. Cotton was harvested from an estimated 1.22 million acres in 2005. The average lint yield was 762 lb/A. The crop was valued at $723,281,813.

Losses to nematodes, primarily southern root-knot nematode, continue to be one of the most important problems for cotton growers in Georgia. Until growers are able to practice effective crop rotation and increase the number of years between cotton crops in a field, the losses and damage from parasitic nematodes will continue to increase unless growers use nematicides effectively.

Disease	% Reduction in Crop Value	Damage ($ Millions)	Cost of Control ($ Millions)	Total ($ Millions)
Boll Rot (lint)	1.0	0.7	0.0	0.7
Nematodes	**10.0**	**7.3**	**9.3**[a]	16.6
Southern root-knot	8.0	5.8	---	---
Reniform	1.5	1.1	---	---
Columbia lance	0.5	0.4	---	---
Seedling Disease	1.0	0.7	2.2[b]	2.9
Fusarium Wilt	Trace	---	---	---
Total	**21.0**	**8.7**	**11.5**	**20.2**

[a] This figure is based upon an estimation that approximately 45% of the cotton acreage in the state is treated with a nematicide rate of Temik (5 lb/A or greater) and approximately 2.0% of the acreage was treated with Telone II.

[b] This figure is an estimate of the cost of fungicides, both in the seed treatments and additional hopper box and in-furrow applications, that are used to manage seedling diseases. For this figure it is estimated that approximately 15% of the cotton acreage in Georgia is treated with a fungicide in addition to the seed treatment to manage seedling disease.

Estimate by Robert Kemerait, Extension Plant Pathologist

MUSCADINE GRAPE

Minimal disease pressure was observed in most muscadine vineyards. When rots were observed, Macrophoma rot was the predominant disease observed. Black rot was observed on leaves, but this did not translate to fruit rots. Moisture levels were extremely high, but disease losses were minimal. Conditions may have helped to reduce vine stress, which had been causing vine losses due to secondary dieback diseases.

Disease	% Reduction in Crop Value	Damage ($ Thousands)	Cost of Control ($ Thousands)	Total ($ Thousands)
Bitter Rot	0.1	2.5	40.2	42.7
Macrophoma Rot	1.0	24.6	35.0	59.6
Ripe Rot	0.1	2.5	15.0	17.5
Angular Leaf Spot	0.1	2.5	5.0	7.5
Black Rot	0.1	2.5	--[1]	2.5
Phomopsis Dead Arm	0.1	2.5	1.0	3.5
Total	**1.5**	**37.1**	**96.2**	**133.3**

[1] Controlled with fungicides applied for other diseases.

Estimate by Phil Brannen, Extension Plant Pathologist

ORNAMENTALS

The 2005 farm gate value for ornamentals horticulture (excluding turfgrass) was estimated at $548.47 million. Landscape, re-wholesale and retail (i.e., service) industries are estimated to account for an additional $800 million for a total ornamental industry value-added estimate of $1.348 billion. Disease loss estimates were generated for only ornamental production and excludes the value-added service industries as true value, disease loss and cost of control is not documented and varies greatly within the industry. This is a major change from disease loss estimates in previous years, as only farm-gate value is reported and figured into the loss estimate.

Root rot diseases still account for the largest percentage of disease loss in commercial ornamental production. Increased detection of Hosta Virus X and Canna yellow mottle virus resulted in higher disease loss due to viruses than in past years. Downy mildews and needle blight on Leyland cypress continue to increase in occurrence and cost of control due to additional fungicide inputs and labor costs.

Disease (ornamental production)	% Reduction in Crop Value	Damage ($ Millions)	Cost of Control ($ Millions)	Total ($ Millions)
Bacterial diseases (fire blight, leaf spots)	0.6	3.29	0.9	4.19
Fungal leaf spots, stem cankers, needle blights	2.8	15.36	6.5	21.86
Root and crown rots	3.0	16.45	8.2	24.65
Powdery mildew	0.6	3.29	1.8	5.09
Botrytis blight	0.3	1.65	1.2	2.85
Virus (TSWV, INSV, CMV)	0.6	3.29	0.1	3.39
Minor diseases (rust, downy mildew, nematode)	1.3	7.13	2.4	9.53
Total (ornamental production)	**9.2**	**50.46**	**21.1**	**71.56***

Production Category	% Reduction [1] in Crop Value	Damage ($ Millions)	Cost of Control ($ Millions)	Total ($ Millions)
Field Nursery	3.1	3.1	2.1	5.2
Container Nursery	12.7	25.72	10.2	35.92
Floriculture (greenhouse)	8.8	21.64	8.8	30.44
Total (ornamental production)	**9.2**	**50.46**	**21.1**	**71.56***

[1] This column not additive due to way losses are tabulated.

* Disease loss estimate is less than in previous years due to the estimating losses using only farm gate values for ornamental production and excluding losses within the ornamental service industries.

Estimate by Jean Williams-Woodward, Extension Plant Pathologist

PEACH

Due to exceptionally wet conditions observed throughout much of the season in the major production regions, peach production in 2005 experienced extreme disease pressure from bacterial spot — possibly the greatest observed in 20 years or more. Brown rot pressure was relatively low due in large part to a switch to new fungicides and a new management program that had been promoted in 2004. In 2004, we confirmed resistance of the brown rot fungus to the DMI fungicides that are generally used for control. Without this knowledge, brown rot control would have been abysmal in 2005. Scab, though present, was also minimal. The same was not true of bacterial spot, which was prevalent in both resistant and susceptible varieties. With only one antibiotic and copper fungicides to control this disease, the environment essentially overwhelmed our technologies that are available for control of this disease. Problems with Armillaria root rot and phony peach were observed. Armillaria continues to be a major, expanding problem in re-plant peach production. In addition, some losses were incurred from nematodes and crown gall. Cost of control included cost of pesticides, equipment and labor. Costs associated with certain cultural practices (flail mowing to reduce gummosis, detailed pruning for control of Phomopsis shoot blight) are directly related to disease control and where therefore considered in the assessment.

Disease	% Reduction in Crop Value	Damage ($ Thousands)	Cost of Control ($ Thousands)	Total ($ Thousands)
Brown Rot	0.1	32.1	1,750.0	1,782.1
Scab	0.01	3.2	1,110.0	1,113.2
Bacterial Spot	15.0	4,812.1	20.0	4,832.1
Phony Peach	0.5	160.4	230.0	390.4
Gummosis	0.1	32.1	20.0	52.1
Armillaria Root Rot	1.0	320.8	50.0	370.8
Phomopsis Constriction Canker	0.05	16.0	10.0	26.0
Total	**16.8**	**5,376.8**	**3,190.0**	**8,566.8**

Estimate by Phil Brannen, Extension Plant Pathologist

PEANUT

In 2005, peanut was harvested from approximately 769,000 acres. The large increase in acres planted to peanut in 2005 as compared to 2004 could indicate that growers are shortening the interval between peanut crops in a field. Such a practice is likely to increase the severity of fungal diseases in the future. Yields in 2005 averaged 3,000 lb/A for a total production of 2.25 billion pounds, valued at $423,053,656. Growing conditions were favorable for peanut production early in the season; the second half of the season, however, was marred by severe drought over much of the Coastal Plain. Lack of rainfall was one of the most important constraints to top yields in 2005.

Tomato spotted wilt remained the most important disease of peanut in 2005. The 2005 season marked the second year in a row of increased losses to this disease. In fact, the severity of spotted wilt was greater in 2005 than in any year since 1997. There is no clear explanation for the increased severity of spotted wilt despite growers' continued use of the UGA Peanut Disease Risk Index. Warm soil conditions during the second half of the season favored the development of white mold. However, because conditions were often warm and dry, "underground" white mold was more of a problem for peanut growers than it has been in recent years. Leaf spot, especially late leaf spot, was a problem for some growers. Leaf spot diseases are often more severe in fields where peanuts are planted on a short rotation. Dry weather helped to reduce the overall severity of leaf spot diseases in 2005 from 2004.

Disease	% Reduction in Crop Value[a]	Damage ($ Millions)	Cost of Control ($ Millions)	Total ($Millions)
Leaf spots	1.5	6.3	35.7[b]	42.0
White mold	4.0	16.9	22.4[c]	39.3
Limb Rot	1.5	6.3	----[d]	6.3
Pod Rot	0.5	2.1	----[e]	2.1
Nematodes	2.0	8.5	1.1[f]	9.6
Cylindrocladium Black Rot	1.0	4.2	0.4[g]	4.6
Seedling Disease	0.2	0.8	0.8[h]	1.6
Tomato Spotted Wilt	7.5	31.7	0.0	31.7
Diplodia Collar Rot	Trace	----	0.0	----
Total	**20.7**	**76.8**	**60.4**	**137.2**

[a] The total value of the crop was $423 million according to Annual Comparison of Farm Gate Value by Commodity.

[b] It was estimated that 55% of peanut acreage in Georgia receives some irrigation and that most of this acreage was sprayed with fungicides 7.0 times during the season. Fungicide treatments for leaf spot control alone are about $8/acre per application. Growers usually sprayed non-irrigated fields less often, perhaps 4-5 times per season. This figure is based upon the cost to growers if they ONLY used fungicides (e.g. chlorothalonil) for leaf spot control. Only the approximate cost of the fungicide is factored into this figure.

[c] This figure reflects the additional cost BEYOND control of leaf spot if growers chose to use products such as azoxystrobin, tebuconazole or flutolanil to control soilborne diseases at some point during the season.

[d] Cost of control for limb rot is included in treatments for white mold.

[e] The cost of gypsum treatments applied to reduce pod rot has not been estimated.

[f] For the cost of nematode management, it was estimated that 2.5% of the acreage in Georgia is treated cost of $60/A.

[g] It was estimated that approximately 1% of the total peanut acreage is treated with metam sodium to control CBR at $50/A.

[h] It was estimated that the cost to treat seed with fungicides for seedling diseases is about $0.50/A and that approximately 5% of the peanut acreage in Georgia is treated with an in-furrow fungicide at planting at $10/A.

Estimate by Robert Kemerait, Extension Plant Pathologist

PECAN

Determining the crop reduction due to disease was complicated by the late-season drought stress and subsequent shuck decline. Above average rainfall during April and May created conditions favorable for disease early in the season. Frequent rainfall was also a problem in June and July during the nut expansion period. Loss potential was variable, ranging from 15 to 95 percent.[1]

Disease	% Reduction in Crop Value	Damage ($ Millions)	Cost of Control ($ Millions)	Total ($ Millions)
Scab[2]	3.0	3.1	13.8	16.9
Anthracnose	Trace	0.0	0.0	0.0
Brown Spot	0.0	0.0	0.0	0.0
Downy Spot	0.0	0.0	0.0	0.0
Powdery Mildew	0.0	0.0	0.0	0.0
Zonate Leaf Spot	0.0	0.0	0.0	0.0
Phytophthora Shuck and Kernal Rot	0.0	0.0	0.0	0.0
Total	**3.0**	**3.1**	**13.8**	**16.9**

[1] This data is based on the response of unsprayed trees ("Desirable") in test plots at 6 locations.

[2] Eight treatments on 150,000 acres @ $11.50/A; scab sprays also effective against anthracnose, downy spot, brown spot and powdery mildew in most cases; number of sprays varied by location.

Estimate by Jason Brock, Extension Plant Pathologist

SOYBEAN

The most severe problem that faced soybean producers in 2005 was not disease but a drought that began in mid-August and continued until harvest. The recurrence of Asian soybean rust, *Phakopsora pachyrhizi,* in Georgia was the most important disease issue for soybean producers in 2005. Although the disease was first identified in Seminole County on volunteer soybeans in late April, the epidemic really did not become established until mid-July. By November, the soybean rust had been identified in 35 counties and was likely present in many more. The distribution of the disease stretched from the Florida border to the Tennessee border and from the Alabama border to the border with South Carolina. Fortunately for most growers, soybean rust did not affect their crop until mid- to late reproductive growth stages. Still, it is estimated that at least 65 percent of the growers in Georgia applied at least one fungicide spray for the management of this disease. In fungicide trials, significant yield losses were attributed to rust. In one trial, yields were improved by nearly 19 bu/A where fungicides were applied. In another, yields were increased by nearly 16 bu/A with a fungicide program.

In 2005, soybean was harvested from an estimated 195,848 acres. The total soybean production for Georgia in 2005 was valued at $32,589,312. Frogeye leaf spot and downy mildew were common, especially early in 2005 but were relatively unimportant for most growers. Nematodes remain an important problem of soybeans in Georgia, especially in fields rotated with corn or cotton.

Disease	% Reduction in Crop Value	Damage ($ Millions)	Cost of Control ($ Millions) [1]	Total ($ Millions)
Soybean cyst nematode	Trace	----	0	0
Root-knot nematode	3.0	1.0	0	1.0
Other nematodes	0.5	0.2	0	0.2
Asian soybean rust	7.0	2.3	2.0	4.3
Anthracnose	Trace	----	0	0
Brown leaf spot	Trace	----	0	0
Charcoal rot	NA[2]	----	0	0
Diaporthe/*Phomopsis* complex	1.0	0.3	0	0.3
Downy mildew	0.5	0.2	0	0.2
Frogeye leaf spot	1.0	0.3	0	0.3
Red crown rot	0.25	0.1	0	0.1
Pod and stem blight	NA	0	0	0
Purple stain	NA	0	0	0
Seedling diseases (*Rhizoctonia*/*Pythium*/*Fusarium*)	1.0	0.3	0.1	0.4
Southern blight	0.25	0.1	0	0.1
Stem canker	NA	0	0	0
Fusarium Wilt	0.0	0	0	0
Virus diseases	0.0	0	0	0
Bacterial diseases	0.0	0	0	0
TOTAL	**14.5**	**4.8**	**2.1**	**6.9**

[1] Resistant varieties are used to manage most nematode and disease problems. Typically, the only fungicides used are seed treatments to reduce seedling diseases.

[2] NA signifies that these diseases were not identified in our studies and assessments in 2005; however, it is possible that the disease existed on soybean somewhere else in the state.

Estimate by Robert Kermerait, Extension Plant Pathologist

STRAWBERRY

Disease pressure was not severe in 2005, though rainfall was prevalent. Angular leaf spot was minimally observed. Anthracnose and Botrytis (gray mold) diseases were also not prevalent due to adequate control afforded through the use of multiple fungicides throughout fruit development. Overall, it was a very good year for strawberry production. There is some concern that the strobilurin fungicides, which are heavily and virtually exclusively used for control of anthracnose, may be developing resistance. There is a strong need for fungicides with different modes of action if we are to continue strawberry production in Georgia.

Disease	% Reduction in Crop Value	Damage ($ Thousands)	Cost of Control ($ Thousands)	Total ($ Thousands)
Gray Mold	1.0	88.9	75.0	163.9
Fungal Leaf Spots	1.0	88.9	34.0	122.9
Anthracnose	1.0	88.9	16.0	104.9
Root Rots & Nematodes	1.0	88.9	50.0	138.9
Angular Leaf Spot	1.0	88.9	1.0	89.9
Total	**5.0**	**444.5**	**176.0**	**620.5**

Estimated by Phil Brannen, Extension Plant Pathologist

TOBACCO

The program buy-out resulted in a significant drop in planted acres (24,000 to 17,000) and average price per pound of cured tobacco ($1.83 to $1.35) in 2005 as compared to 2004. Diseases, particularly spotted wilt, showed no regard for the change in tobacco economics. Losses were high but not unreasonable around Douglas, where history has taught growers to use Actigard + Admire treatments. Growers who made use of treatments suffered plant losses in the range of 15-30 percent. Losses were very high north of Baxley and in other areas where treatments have not been traditionally needed. Some fear of Actigard continues to persist across the Georgia tobacco belt.

Black shank caused minor losses. Blue mold was not reported. Target spots caused some loss. Excessive rainfall caused drowning or partial drowning in most of Georgia.

Disease	% Reduction in Crop Value	Damage ($ Millions)	Cost of Control ($ Millions)	Total ($ Millions)
Blue Mold[1]	0.00	0.00	0.00	0.00
Black Shank[2]	T	0.03	0.60	0.63
Target Spot	T	0.01	0.00	0.01
Root Knot Nematode[3]	0.00	0.00	1.06	1.06
TSWV[4]	18.00	9.10	0.47	9.57
TMV[1]	0.00	0.00	0.00	0.00
Total	**18.00**	**9.14**	**2.13**	**11.27**

[1] Not reported in 2005.
[2] Most losses are associated with pathogen race1 selected by new race 0 resistant varieties.
[3] Increasing numbers of growers not using nematicide.
[4] TSWV is estimated to have caused 35% stand loss and 18% loss of yield.

Estimate by Paul Bertrand, Extension Plant Pathologist

TURFGRASS

It is estimated that there are 1.9 million acres of turf with a maintenance value of $1.70 billion in Georgia. In 2005, soilborne diseases were responsible for much of the disease losses. *Rhizoctonia* spp. (causal agent of brown patch, large patch and yellow patch) was the most prevalent pathogen on turfgrass. Increased incidence of *Gaeumannomyces* spp. (causal agent of take-all and bermuda decline) was observed throughout the state, with higher incidences of the disease in the coastal and southern areas of Georgia. *Pythium* spp. was observed throughout the state in 2004. In 2005, a steady increase of *Magnaporthe poae* (summer patch) and *Ophiosphaerella* spp. (spring dead spot) was observed. Foliar diseases continue to be problematic in 2005. *Sclerotinia homeocarpa* was present throughout the state and present in several turfgrass species. During the hot, humid summer, *Curvularia* spp. and *Colletotrichum* spp. were the most common foliar diseases encountered. *Pyricularia grisea* infections were registered in 2005, being prevalent in south and coastal Georgia. Minor incidences of *Puccinia* spp., *Fusarium* spp. and *Bipolaris* spp. were registered in 2005. Nematodes have been attributed to increased damage and promoting stress on turfgrass. Mixed infections of nematodes and *Pythium* were common in 2005.

Turf Diseases	% Reduction in Crop Value	Damage ($ Millions)	Cost of Control ($ Millions)	Total ($ Millions)
Soil-borne Diseases	3.6	61.2	34.0	95.2
Foliage Diseases	1.7	28.9	20.4	49.3
Nematodes	3.0	51.0	8.5	59.5
Total	**8.3**	**141.1**	**62.9**	**204.0**

Estimate by Alfredo Martinez, Extension Plant Pathologist

VEGETABLES

About 178,000 acres of vegetables were grown in Georgia in 2005 worth a total of ca. $700 million. Overall, most crops suffered fewer losses in the field despite favorable weather conditions for disease development during most of the year. Downy mildew of cucurbits was hit or miss on cucumbers and caused severe losses in some cases. Losses to *Phytophthora capsici* on bell pepper and cucurbits were average. The most prevalent disease on tomatoes and peppers was bacterial spot caused by *Xanthomonas campestris* pv. *vesicatoria.* This disease continues to plague growers because it is difficult to prevent and remedial disease management tools are generally suppressive at best.

Major Vegetable Crops	% Reduction in Crop Value[1]	Damage ($ Millions)	Cost of Control ($ Millions)	Total ($ Millions)
Watermelon	2.0	2.4	5.1	7.5
Squash (yellow + zucchini)	3.0	1.3	1.2	2.5
Tomato	4.0	3.2	2.6	6.0

Other Vegetable Crops	% Reduction in Crop Value[1]	Damage ($ Millions)	Cost of Control ($ Millions)	Total ($ Millions)
Pepper (bell)	6.0	5.2	1.9	7.1
Cucumber	4.0	2.3	1.4	3.7
Snap Bean	5.0	2.3	1.2	3.5
Greens	3.0	1.5	1.0	2.5
Cabbage	3.0	1.3	0.4	1.7
Onion (dry)	5.0	6.3	2.5	8.8
Cantaloupe	3.0	1.1	1.3	2.4
Eggplant	4.0	0.42	0.3	0.72

Total	**3.9**	**27.3**	**19.1**	**46.4**

[1] This column is not additive due to the way losses for vegetables are tabulated.
Total values for vegetable commodities are taken from the 2005 farm gate values (AR-05-01).

Estimated by David B. Langston, Jr., Extension Plant Pathologist

WHEAT

Presence of *Puccinia striiformis* (stripe rust) was registered in 2005 in the southern part of the state. *Puccinia recondita* (leaf rust) caused low amounts of damage to wheat during 2005 due to planting resistant cultivars and the use of fungicides to control other foliar diseases such as powdery mildew. *Fusarium* spp. (causal agent of fusarium foot rot) and *Gaeumannomyces graminis* var. *tritici* (take-all) were sporadically found in central and south Georgia and may have contributed to the early decline of some fields. *Blumeria graminis* f. sp. *tritici* (powdery mildew) incidence was moderate, causing fair damage. Weather conditions and early spray of fungicides helped to avoid an epidemic. *Stagonospora* (Glume blotch on heads and leaves) incidence was low in 2005. Barley Yellow Dwarf Virus (BYDV) was variable throughout the state, with low amounts observed in south Georgia. From the Piedmont and north, the damage was moderate. Sporadic wheat samples with symptoms resembling wheat spindle streak mosaic virus were observed in 2005. An important piece of the disease management strategies was the use of disease resistant cultivars in 2005. Wheat was harvested from 230,000 acres.

Disease	% Reduction in Crop Value	Damage ($ Millions)	Cost of Control ($ Millions)	Total ($ Millions)
Leaf Rust	0.4	0.07	1.4	1.47
Glume Blotch	0.2	0.05	----	0.05
Powdery Mildew	1.0	0.27	0.3	0.57
Barley Yellow Dwarf Virus	0.75	0.26	0.3	0.56
Stinking smut	----	----	----	----
Total	**2.5**	**0.65**	**2.0**	**2.65**

Estimate by Alfredo Martinez, Extension Plant Pathologist, and John Youmans, Dept. Plant Pathology

SUMMARY OF TOTAL LOSSES DUE TO DISEASE DAMAGE AND COST OF CONTROL IN GEORGIA – 2005

Crop or Commodity	Estimated Crop Value ($ Millions)	% Reduction in Crop Value[1]	Value of Damage ($ Millions)	Cost of Control ($ Millions)	Total Disease Loss (Damage & Control) ($ Millions)	Total % of Loss [1, 2]
Apple	4.08	11.7	0.432	0.267	0.699	17.10
Blueberry	59.38	2.5	0.815	0.335	1.150	1.90
Bunch Grape	1.86	5.2	0.132	0.090	0.222	11.9
Corn	84.48	10.1	7.76	0.5	8.98	10.60
Cotton	723.28	21.0	8.7	11.5	20.20	2.8
Muscadine Grape	1.43	1.5	0.037	0.096	0.133	9.3
Ornamental (production)	548.47	9.2	50.46	21.1	71.56	9.2
Peach	24.40	16.8	5.37	3.19	8.56	35.08
Peanut	423.05	20.7	76.80	60.4	137.2	32.43
Pecan	161.20	3.0	3.1	13.8	16.9	10.48
Soybean	32.58	14.50	4.80	2.1	6.9	21.17
Strawberry	5.54	5.0	0.444	0.176	0.620	11.19
Tobacco	45.10	18.0	9.14	2.13	11.27	24.98
Turfgrass	1500.0	8.3	141.6	62.9	204.0	13.60
Vegetable	725.0	3.9	27.3	19.1	46.4	6.40
Wheat	37.75	2.5	0.65	2.0	2.65	7.00
TOTALS	**4377.6**	**7.71**	**337.54**	**199.68**	**537.44**	**12.28**

[1] This column is not additive.

[2] Total % loss for each crop and the grand total is figured on the basis of: $\frac{\text{Value of Damage + Cost Control}}{\text{Crop Value}}$

ATTENTION!
Pesticide Precautions

1. Observe all directions, restrictions and precautions on pesticide labels. It is dangerous, wasteful and illegal to do otherwise.

1. Store all pesticides in original containers with labels intact and behind locked doors. **"KEEP PESTICIDES OUT OF REACH OF CHILDREN."**

2. Use pesticides at correct label dosage and intervals to avoid illegal residues or injury to plant and animals.

3. Apply pesticides carefully to avoid drift or contamination of non-target areas.

4. Surplus pesticides and containers should be disposed of in accordance with label instructions so that contamination of water and other hazards will not result.

5. Follow directions on the pesticide label regarding restrictions as required by State and Federal Laws and Regulations.

6. Avoid any action that may threaten an Endangered Species or its habitat. Your County Extension Agent can inform you of Endangered Species in your area, help you identify them and through the Fish and Wildlife Service Office identify actions that may threaten Endangered Species or their habitat.

Trade names are used only for information.

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