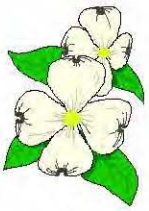
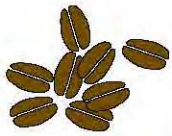
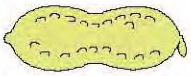
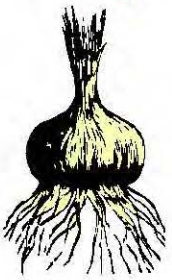
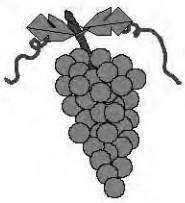




2002 GEORGIA PLANT DISEASE LOSS ESTIMATES



COMPILED BY:

Jean L. Williams-Woodward
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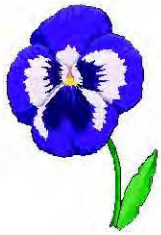

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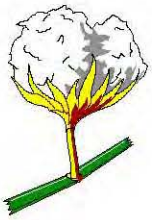

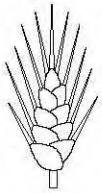
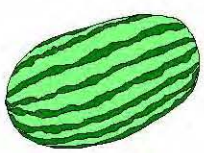
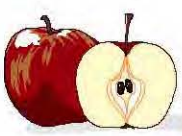


2002 Georgia Plant Disease Loss Estimates

It is estimated that 2002 plant disease losses, including control costs, amounted to approximately $576.65 million. The value of the crops used in this estimate was approximately $4.376 billion, resulting in a 13.18 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 Vol. 03, No. 4 and the 2001 Georgia Farm Gate Value Report (AR-02-02). 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 turf rely on specialists knowledge of the industry and industry sources for information.

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2002 PLANT DISEASE CLINIC 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 ornamental greenhouse and nursery 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, landscape ornamentals, 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.

Ornamentals (trees, herbaceous and woody ornamentals) and turf comprised most of the samples received in 2002. Due to staffing losses, the Homeowner IPM Clinic formally located in Athens was officially closed from January to September 2002 when it was re-opened in Griffin. Although the Homeowner IPM Clinic was "closed," a total of 776 sample diagnoses were rendered to assist county extension faculty and the clients they serve. This total was approximately 48 percent less than the number of diagnoses provided in 2001, and is the primary reason that total sample diagnoses provided from the three plant disease clinics were approximately 27 percent less than provided in 2001. Total commercial sample diagnoses were reduced by 12 percent from 2001 totals due mostly to a 31 percent reduction in the number of turf disease diagnoses compared to 2001. The reduction may have been due to the loss of an extension turf pathology position. Other commercial crop sample numbers have been fairly consistent over the last five years.

CLINIC SUMMARIES: 2002 PLANT SPECIMEN DIAGNOSES

Crop	Commercial Samples	Homeowner IPM Clinic	Total
Field Crops	208		208
Vegetables	359	57	416
Fruits & Nuts	92	37	129
Herbaceous Ornamentals	277	94	371
Woody Ornamentals	326	197	523
Trees	136	107	243
Turf & Forages	431	275	706
Miscellaneous	14	9	23
TOTAL	**1843**	**776**	**2619**

APPLE

Apples generally had high disease pressure in 2002. Due to wet, warm conditions during bloom, fire blight was prevalent if antibiotic sprays were not applied. Summer rots, particularly bitter rot, were of major concern as the season progressed; there is a strong need for more efficacious fungicides for control of bitter rot. Cost of control included increased pesticide usage for fire blight and summer rots. Often, chemical fungicides did not adequately suppress disease.

Disease	% Reduction in Crop Value	Damage ($ Thousands)	Cost of Control ($ Thousands)	Total ($ Thousands)
Fire Blight	1.0	20.0	45.0	65.0
Bitter Rot	10.0	200.5	100.0	300.5
Bot Rot	1.0	20.0	52.0	72.0
Black Rot	0.1	2.0	33.0	35.0
Alternaria Leaf Spot	0.1	2.0	--[1]	2.0
Powdery Mildew	0.1	2.0	11.5	13.5
Sooty Blotch	0.1	2.0	--[1]	2.0
Fly Speck	0.1	2.0	--[1]	2.0
Cedar Apple Rust	0.1	2.0	--[1]	2.0
Scab	0.05	1.0	--[1]	1.0
Other Diseases	0.05	1.0	1.0	1.0
Total	**12.7**	**254.6**	**241.5**	**496.1**

[1] Controlled with fungicides applied for other diseases.

Estimated by Phil Brannen, Extension Plant Pathologist

BLUEBERRY

In 2002, mummy berry and rot diseases were observed at very low levels, largely due to dry conditions and good fungicide programs. Botrytis blight was essentially absent, as no predisposing freezes occurred during bloom. In southern highbush cultivars, problems due to foliar diseases and dieback were observed, but the advent of new fungicides helped to reduce these diseases. Rust was also observed. In general, disease pressure was minimal.

Disease	% Reduction in Crop Value	Damage ($ Thousands)	Cost of Control ($ Thousands)	Total ($ Thousands)
Mummy Berry	0.1	17.8	250.0	267.8
Botrytis Blight	0.1	17.8	50.0	67.8
Foliar Disease	1.0	178.2	20.0	198.2
Dieback	1.0	178.2	10.0	188.2
Phytophthora Root Rot	0.1	17.8	5.0	22.8
Total	**2.3**	**409.9**	**335.0**	**744.9**

Estimate by Phil Brannen, Extension Plant Pathologist

BUNCH GRAPE

Disease pressure, especially from downy mildew, was very high among bunch grape vineyards in 2002, due largely to wet conditions during harvest. For the first time, Petri disease, also known as "black goo," was observed in north Georgia wine grape vines. This disease resulted from stressful drought conditions during mid to late summer. Pathological issues resulted in a substantial value loss in 2002.

Disease	% Reduction in Crop Value	Damage ($ Thousands)	Cost of Control ($ Thousands)	Total ($ Thousands)
Botrytis	5.0	91.0	30.0	121.0
Downy Mildew	10.0	182.0	20.0	202.0
Black Rot	1.0	18.2	20.0	38.2
Powdery Mildew	5.0	91.0	5.0	96.0
Phomopsis Cane Blight	2.0	36.4	--[1]	36.4
Crown Gall	0.5	9.1	5.0	14.1
Pierce's Disease	0.5	9.1	5.0	14.1
Total	**24.0**	**436.9**	**85.0**	**521.9**

[1] Controlled with fungicides applied for other diseases.

Estimate by Phil Brannen, Extension Plant Pathologist

CORN

In 2002, corn was planted on 340,000 acres and harvested from 290,000 acres. Dry weather during the season affected much of the corn that was planted but not harvested. The average yield in 2002 was 115 Bu/A, down from 134 Bu/A in 2001. The 2002 crop was valued at $88,378,000. In 2002 southern corn leaf blight and southern rust were severe in some fields. Use of varieties with some resistance to these diseases seems to be the most effective management strategy at this time. Problems associated with mycotoxins, primarily aflatoxin, were likely increased in 2002 from 2001 because conditions were more favorable for growth of *Aspergillus flavus* (hotter and drier).

Disease	% Reduction in Crop Value	Damage ($ Millions)	Cost of Control ($ Millions)	Total ($ Millions)
Root & Stalk Rot	0.1	0.09	0.0	0.09
Nematodes	2.0	1.78	1.0	2.78
Mycotoxins	8.5	7.51	0.0	7.51
Leaf Diseases	4.0	3.53	0.0	3.53
Total	**14.6**	**12.01**	**1.0**	**13.91**

Estimate by Robert Kemerait, Extension Plant Pathologist

COTTON

Rainfall was not as abundant during the growing season in 2002 as it was in 2001 and because of this yields and also disease severity were down. Yields were also reduced across much of the state because extensive rain at the end of the season kept growers from timely harvests. Delays in harvest hurt the cotton yields and quality. Cotton was planted on 1.45 million acres in 2002 and harvested from an estimated 1.36 million acres. The average lint yield was 582 lb/A for a total production of 1.65 million bales. The crop was valued at $320,961,000. Losses to boll rot and seedling diseases decreased in 2002 from 2001, largely due to dry weather during the growing season. Seedling disease in Georgia is largely caused by *Rhizoctonia solani* (soreshin); however there is evidence that *Pythium* spp. may play a greater role in this disease complex than previously thought. Other diseases, such as Fusarium wilt and various fungal foliar diseases, were only of minimal importance. Losses to nematodes, primarily southern root-knot nematode, continue to be important problems for cotton growers in the state. In a recent survey, the level of southern root-knot nematode was found to be above the economic threshold (100 southern root-knot nematodes per 100 cc soil) in 25 percent of the nearly 1,800 fields that were sampled. This is largely a result of inadequate crop rotation in many areas. Reniform and Columbia lance nematodes were much less of a problem across the state; however they can be devastating in localized areas.

Disease	% Reduction in Crop Value	Damage ($ Millions)	Cost of Control ($ Millions)	Total ($ Millions)
Boll Rot (lint)	2.5	8.0	0.0	8.0
Nematodes	7.0	22.5	8.0[a]	30.5
Seedling Disease	1.5	4.8	2.2[b]	7.0
Fusarium Wilt	Trace	----	----	----
Total	**11.0**	**35.3**	**10.2**	**45.5**

[a] This figure is based upon an estimation that approximately 25% of the cotton acreage in the state is treated with a nematicide rate of Temik (5 lb/A or greater) and approximately 0.5% 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

Dry conditions resulted in minimal disease pressure 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.

Disease	% Reduction in Crop Value	Damage ($ Thousands)	Cost of Control ($ Thousands)	Total ($ Thousands)
Bitter Rot	1.0	15.3	40.2	55.5
Macrophoma Rot	2.0	30.6	35.0	65.6
Ripe Rot	1.0	15.3	15.0	30.3
Angular Leaf Spot	0.1	1.5	5.0	6.5
Black Rot	0.1	1.5	--[1]	1.5
Phomopsis Dead Arm	0.1	1.5	1.0	2.5
Total	**4.3**	**65.8**	**96.2**	**162.0**

[1] Controlled with fungicides applied for other diseases.

Estimate by Phil Brannen, Extension Plant Pathologist

ORNAMENTALS

The estimated value of the ornamental industry (excluding turf) was $1.23 billion in 2002. Farm gate values for field and container nursery and greenhouse sales was estimated at $406.6 million, with landscape industries (including re-wholesalers) making up the bulk of the total ornamental crop value. Root rot diseases account for the largest percentage of disease loss to ornamentals. Incidence of daylily rust and other foliar fungal diseases was greater in 2002 compared to 2001. Daylily rust control alone increased the cost of disease control (plant loss and increased fungicide use) for nurseries, re-wholesalers, and landscapers.

Disease	% Reduction in Crop Value	Damage ($ Millions)	Cost of Control ($ Millions)	Total ($ Millions)
Bacterial diseases (fire blight, leaf spots)	0.3	3.69	0.9	4.59
Fungal leaf spots, branch and stem cankers	0.8	9.84	6.5	16.34
Root and crown rots	2.8	34.44	8.1	42.54
Powdery mildew	0.4	4.92	1.8	6.72
Botrytis blight	0.1	1.23	1.0	2.23
Virus (TSWV, INSV, CMV)	0.05	0.62	0.0	0.62
Minor diseases (rust, downy mildew, nematode)	1.8	22.14	2.3	24.44
Total	**6.25**	**76.88**	**20.6**	**97.48**

Production Category	% Reduction [1] in Crop Value	Damage ($ Millions)	Cost of Control ($ Millions)	Total ($ Millions)
Field Grown Stock	3.0	1.70	2.1	3.80
Containerized Nursery (including Liners)	7.1	11.09	5.5	16.59
Floriculture	6.9	12.39	4.4	16.79
Landscape	5.3	30.45	5.7	36.15
Re-wholesale	8.6	21.25	2.9	24.15
Total	**6.25**	**76.88**	**20.6**	**97.48**

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

Estimate by Jean Williams-Woodward, Extension Plant Pathologist

PEACH

Peach production in 2002 experienced very limited disease, due to dry conditions throughout much of the season. Though brown rot and scab were present, with good spray programs, disease was limited. The same was true of bacterial spot, which was virtually nonexistent. Problems with Armillaria root rot and phony peach were observed. 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 were therefore considered in the assessment.

Disease	% Reduction in Crop Value	Damage ($ Thousands)	Cost of Control ($ Thousands)	Total ($ Thousands)
Brown Rot	2.0	822.8	1,500.0	2,322.8
Scab	1.0	411.4	1,110.0	1,151.4
Bacterial Spot	0.1	41.1	20.0	61.1
Phony Peach	0.5	205.7	230.0	435.7
Gummosis	0.1	41.1	20.0	61.1
Armillaria Root Rot	1.0	411.4	50.0	46.1
Phomopsis Constriction Canker	0.05	20.5	10.0	30.6
Total	**4.8**	**1,954.2**	**2,940.0**	**4,894.2**

Estimate by Phil Brannen, Extension Plant Pathologist

PEANUT

In 2002, peanut was planted on an estimated 510,000 acres and harvested from approximately 505,000 acres. Due to drier conditions during the growing season and increased rainfall at harvest, yields were down in 2002 from 2001. Yields in 2002 averaged 2,600 lb/A for a total production of 1.3 billion pounds, valued at $229,775,000. Diseases early in the season, such as Aspergillus crown rot, Diplodia collar rot, and Rhizoctonia seedling blight were only of sporadic importance. Reduced rainfall across much of the production region lead to fewer problems with common fungal diseases such as leaf spot diseases, especially early leaf spot, Rhizoctonia limb rot, and white mold. Cylindrocladium black rot (CBR) was not nearly as severe in 2002 as it had been in 2001. White mold generally appeared during the latter part of the season and caused problems for growers who were not able to make late-season applications of fungicides effective against soilborne fungal pathogens. Tomato spotted wilt, the most devastating disease of peanut in Georgia in recent years, was more severe in many areas in 2002 than in 2001. Some growers who were not severely affected by spotted wilt in 2001 (the disease was fairly light across the state in 2001) began planting peanuts in April, which often led to high incidence of the disease. The peanut root-knot nematode caused marked losses in some fields, especially in sandier fields in the southwestern corner of the state.

Note: For 2002, the damage to the peanut crop is based upon the figure of $355/ton of peanuts.

Disease	% Reduction in Crop Value[a]	Damage ($ Millions)	Cost of Control ($ Millions)	Total ($Millions)
Leaf spots	1.5	3.5	24.1[b]	27.6
White mold	3.0	6.9	11.6[c]	18.5
Limb Rot	2.0	4.6	----[d]	4.6
Pod Rot	0.5	1.2	----[e]	1.2
Nematodes	3.0	6.9	8.0	14.9
Cylindrocladium Black Rot	1.5	3.5	0.26[f]	3.76
Seedling Disease	0.5	1.2	0.5	1.7
Tomato Spotted Wilt Virus	4.5	10.4	0.0	10.4
Diplodia Collar Rot	Trace	----	0.0	0
Total	**16.5**	**38.2**	**44.46**	**82.66**

[a] The value used to determine the value of the crop was $355/ton based upon the recent farm bill.

[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 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.

[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.

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

Estimate by Robert Kemerait, Extension Plant Pathologist

PECAN

Abundant June-July rain resulted in some scab at a number of locations. Loss potential for 2002 was variable as usual ranging from <10 to >80 percent and generally greater than the past several years.

Disease	% Reduction in Crop Value	Damage ($ Millions)	Cost of Control ($ Millions)	Total ($ Millions)
Scab[2]	2.00	1.60	12.10	13.70
Brown Spot	0.00	0.00	----[1]	0.00
Downy Spot	0.00	0.00	----[1]	0.00
Powdery Mildew[3]	Trace	0.00	----[1]	----
Zonate Leaf spot	0.00	0.00	----	----
Total	**2.00**	**1.60**	**12.10**	**13.70**

[1] This data is based on the response of unsprayed trees ("Desirable") in test plots.
[2] Seven treatments on 150,000 acres @ $11.50/A; scab sprays also effective against downy spot, brown spot, and powdery mildew in most cases.

Estimate by Paul Bertrand, Extension Plant Pathologist

SOYBEAN

In 2002, soybean was planted on approximately 160,000 acres and harvested from an estimated 140,000 acres. Dry weather during the growing season saw the average yields drop from 27 Bu/A in 2001 to 21 Bu/A in 2002. The total soybean production for Georgia in 2002 was valued at nearly $15,729,000. Nematodes remain an important problem of soybean in Georgia; diseases are less important.

Disease	% Reduction in Crop Value	Damage ($ Millions)	Cost of Control ($ Millions) [1]	Total ($ Millions)
Soybean cyst nematode	3.0	0.47	0	0.47
Root-knot nematodes	3.5	0.55	0	0.55
Other nematodes	0.25	0.04	0	0.04
Anthracnose	0.20	0.03	0	0.03
Brown leaf spot	0.0	0.00	0	0.00
Charcoal rot	0.3	0.05	0	0.05
Diaporthe/*Phomopsis* complex	0.3	0.05	0	0.05
Downy mildew	0.0	0.00	0	0.00
Frogeye leaf spot	0.25	0.04	0	0.04
Red crown rot	0.5	0.08	0	0.08
Pod and stem blight	0.2	0.03	0	0.03
Purple stain	0.1	0.02	0	0.02
Seedling diseases (*Rhizoctonia*/*Pythium*/*Fusarium*)	0.1	0.02	0.1	0.12
Southern blight	0.1	0.02	0	0.02
Stem canker	0.5	0.08	0	0.08
Fusarium Wilt	0.0	0.00	0	0.00
Virus diseases	0.0	0.00	0	0.00
Bacterial diseases	0.0	0.00	0	0.00
TOTAL	**9.3**	**1.48**	**0.1**	**1.58**

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

Estimate by Robert Kermerait, Extension Plant Pathologist, and Dan Phillips, Research Plant Pathologist

STRAWBERRY

Disease pressure was severe in strawberries throughout most of the state in 2002. As a result of freeze damage, angular leaf spot was observed early in the season. Anthracnose and Botrytis (gray mold) diseases were also prevalent throughout the state, due to wet, warm conditions during bloom and fruit development. Root rots were also observed in some locations, resulting in additional yield losses and control costs.

Disease	% Reduction in Crop Value	Damage ($ Thousands)	Cost of Control ($ Thousands)	Total ($ Thousands)
Gray Mold	5.0	384.6	72.0	456.6
Fungal Leaf Spots	1.0	76.9	34.0	110.9
Anthracnose	10.0	769.2	8.0	777.2
Root Rots & Nematodes	3.0	230.8	50.0	280.8
Angular Leaf Spot	2.0	153.8	1.0	154.8
Total	**21.0**	**1,615.4**	**165.0**	**1,780.4**

Estimated by Phil Brannen, Extension Plant Pathologist

TOBACCO

2002 saw the largest loss to spotted wilt seen so far. About 1,000 acres were destroyed for insurance before topping. The remainder with some exceptions was heavily damaged.

Blue mold flared up early in a number of counties along lines from Moultrie to Hazelhurst and Moultrie to Nahunta. Hot and dry weather in April ended the mini epidemic without much damage. Blue mold flared in single fields in 2-3 counties following a wet July and some minor damage occurred.

Black shank caused major losses in a small number of fields. The incidence of black shank in NC-71 and NC-72 is increasing. All ***Phytophthora parasitica*** recovered from these varieties proved to be race 1.

TMV was present in trace amounts.

Disease	% Reduction in Crop Value	Damage ($ Millions)	Cost of Control ($ Millions)	Total ($ Millions)
Blue Mold	Trace	0.00	0.01	0.01
Black Shank	0.05	0.06	0.83	0.89
Target Spot	0.00	0.00	0.00	0.00
Root Knot Nematode	0.00	0.00	2.30	2.30
TSWV[1]	20.00	18.50	0.87	19.37
TMV	0.00	0.00	0.00	0.00
Total	**20.05**	**18.56**	**4.01**	**22.57**

[1] Loss is 20% of quota. The average stand loss to TSWV is estimated to be 41%.

Estimate by Paul Bertrand, Extension Plant Pathologist

TURF

It is estimated that there are 1.64 million acres of turf with the maintenance value of $1.60 billion in Georgia. Soilborne diseases are present wherever turf is grown and are responsible for much of the disease losses. Foliage diseases continue to be problematic during hot, humid summers. Nematodes have been attributed to increase damage and stress. This stress has predisposed turfgrass to soil borne and foliage diseases. Soil test for nematode to verify problems.

Turf Diseases	% Reduction in Crop Value	Damage ($ Millions)	Cost of Control ($ Millions)	Total ($ Millions)
Soil Diseases	4.0	64.0	32.0	96.0
Foliage Diseases	1.8	28.8	17.6	46.4
Nematodes	4.5	72.0	8.0	80.0
Total	**10.3**	**164.8**	**57.6**	**222.4**

Estimate by Alfredo Martinez, Extension Plant Pathologist

VEGETABLES

About 191,000 acres of vegetables are grown in Georgia worth a total of ca. $631 million. Vidalia onions realized significant losses from Stemphylium leaf blight and sour skin (caused by the bacterium *Burkholdaria cepacia*). Tomato Spotted Wilt Virus incidence was extremely high in the spring and caused severe losses in tomatoes and peppers. Dry spring weather reduced losses to fungal and bacterial pathogens in most vegetables. In the fall, Cabbage Leaf Curl Virus ravaged collards and cabbage in several southwest Georgia counties due to extremely high whitefly pressure.

Major Vegetable Crops	% Reduction in Crop Value[1]	Damage ($ Millions)	Cost of Control ($ Millions)	Total ($ Millions)
Watermelon	6.0	4.8	4.1	8.9
Squash (yellow + zuc.)	4.0	1.7	1.2	2.9
Tomato	10.0	7.7	2.5	10.2

Other Vegetable Crops	% Reduction in Crop Value[1]	Damage ($ Millions)	Cost of Control ($ Millions)	Total ($Millions)
Pepper (bell)	7.0	3.1	1.2	4.3
Cucumber	3.0	1.3	1.1	2.4
Snap Bean	6.0	1.7	0.8	2.5
Greens	4.0	1.5	0.84	2.3
Cabbage	10.0	3.1	0.33	3.4
Onion (dry)	30.0	25.0	2.1	27.0
Cantaloupe	4.0	0.8	0.93	1.7
Eggplant	5.0	0.8	0.18	0.97
Total	**10.0**	**51.5**	**14.48**	**66.57**

[1] This column is not additive due to the way losses for vegetables are tabulated.

Total values for vegetable commodities are taken from the 2001 farm gate values (AR-02-02).

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

WHEAT

Harvested wheat acreage for 2002 was 200,000 with an average yield of 41 bu/A. Yields were lower than previous years due mostly to less favorable growing conditions rather than significant change in diseases. There were no reports of stinking smut in 2002.

Disease	% Reduction in Crop Value	Damage ($ Millions)	Cost of Control ($ Millions)	Total ($ Millions)
Leaf Rust	1.0	0.21	0.5	0.71
Glume Blotch	1.0	0.21	----[1]	0.21
Powdery Mildew	0.2	0.04	0.2	0.24
Barley Yellow Dwarf Virus	1.0	0.21	0.1	0.31
Stinking smut	----	----	----	----
Foot rot	1.0	0.21	----	0.21
Total	**4.2**	**0.88**	**0.8**	**1.68**

[1] Fungicides used to control leaf rust also control glume blotch. Estimated that 20% of the wheat acreage received fungicide treatment costing approximately $13.50/acre.

Estimate by Barry Cunfer, Research/Extension Plant Pathologist

SUMMARY OF TOTAL LOSSES DUE TO DISEASE DAMAGE AND COST OF CONTROL IN GEORGIA - 2002

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	1.78	12.7	0.257	0.242	0.496	27.86
Blueberry	17.42	2.3	0.410	0.335	0.745	4.27
Bunch Grape	1.47	24.0	0.437	0.085	0.522	35.51
Corn	88.38	14.6	12.01	1.0	13.91	15.73
Cotton	320.96	11.0	35.3	10.2	45.5	14.17
Muscadine Grape	1.47	4.3	0.066	0.096	0.162	11.02
Ornamental	1230.0	6.25	76.88	20.6	97.48	7.90
Peach	39.27	4.38	1.954	2.94	4.894	12.46
Peanut	229.8	16.5	38.2	44.46	82.66	35.97
Pecan	80.0	2.0	1.60	12.10	13.70	17.12
Soybean	15.73	9.3	1.48	0.10	1.58	10.04
Strawberry	6.36	21.0	1.62	0.165	1.78	27.98
Tobacco	90.54	20.05	18.56	4.01	22.57	24.92
Turf	1600.0	10.3	164.8	57.6	222.4	13.90
Vegetable	631.3	10.0	51.5	14.48	66.57	10.54
Wheat	20.95	4.2	0.88	0.8	1.68	8.02
TOTALS	**4375.43**	**9.28**	**405.95**	**169.21**	**576.65**	**13.18**

[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.

Learning for Life

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