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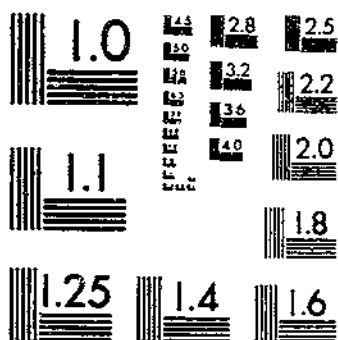
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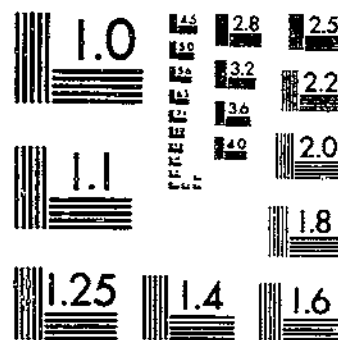
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**Extent of SPRAYING and DUSTING
on Farms, 1958
With Comparisons**

Statistical Bulletin No. 314

U.S. DEPARTMENT OF AGRICULTURE
Economic Research Service
Farm Economics Division

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EXTENT OF SPRAYING AND DUSTING ON FARMS, 1958 - WITH COMPARISONS

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SUMMARY

Use of pesticides plays an important part in the production of an adequate supply of high-quality food and fiber in the United States. In 1958, farmers treated more than 92 million acres of cropland and other farmland for control of insects, diseases, weeds, and brush. An additional 3.7 million acres were sprayed or dusted for defoliation of crops before harvest.

Since 1952, treatment for weed and brush control has increased rapidly, especially pre-emergence treatment on corn and cotton. The 55.2 million acres treated for weed and brush control in 1958 exceeded by 77 percent the acreage treated in 1952. During this time, the acreage treated for control of insects and diseases increased only 28 percent -- to 37.2 million acres. In 1952, of course, most of the crops subject to attack by insects and diseases were treated, whereas use of chemicals for weed control was just beginning to gain momentum.

Ground equipment was used for 78 percent of the total acreage sprayed or dusted in 1958, and aircraft for 22 percent.

About 73 percent of the total acreage sprayed or dusted was treated by farmers and the remaining 27 percent by custom operators. Custom operators did most of their work with air equipment.

More effective chemicals and other methods of pest control are constantly being discovered, tested, and developed. This is especially true in weed control.

THE BACKGROUND

These estimates of the extent of pest control and defoliation treatments are based on 20,500 replies to questionnaires mailed to crop reporters of the Statistical Reporting Service. The farmers reported on (1) acreages of principal crops planted

and acreages on which they used chemical treatments for control of weeds, insects, and diseases, or for defoliation; (2) the percentage of the treated acreage that was treated with air equipment and the percentage that was treated with ground equipment; and (3) whether the equipment used was (a) their own, (b) borrowed, rented, or used on an exchange basis, or (c) supplied by custom operators. The reports on weed-control treatment covered both pre-emergence and post-emergence treatments, that is, treatment before the emergence of the crop and treatment after the crop was growing.

Some of the reporters listed the types or kinds of chemicals used, but many of them did not remember the names of the chemicals. Others gave trade names only, and still others reported using "the recommended schedule" or a "combination." Because of this, it was not possible to isolate the major chemicals used.

Data from the schedules were transferred, by States, to punch cards. Summary cards were then run through a data-processing machine to compute State totals and averages. In computing State totals, weighting for corn and cotton was done by the number of farms harvesting different amounts of crop acreage as reported in the 1954 census, compared with the number reporting these acreages in the survey. This was not available for the other crops but similar weighting was done by seven size-of-farm groups from the preliminary 1959 census reports.

Data were shown separately for each State for which the sample appeared to be adequate; otherwise State data were combined. Some adjustments were made when a trend was obvious but a small number of cases caused distortions.

Even with available checks, the data are estimates subject to sampling errors which cannot be ascertained, and should be considered as approximations only.

Because two areas are involved in the discussion of crops treated -- (1) the actual acreage of the crop and (2) that resulting when the number of times over is taken into account -- these are referred to as (1) acreage treated and (2) total acreage treated.

INSECT AND DISEASE CONTROL

After allowance is made for some difference in the need for treatment from year to year, the data for 1958 indicate a continuing nationwide increase since 1952 in the acreage of crops treated for plant insects and diseases. Underlying the overall increase, however, are some shifts in relative importance of acreages of different crops treated (table 1). For instance, in 1952 little of the corn acreage was treated. But in 1958, the acreage of corn treated was greater than the acreage of any other crop treated except cotton and, when taken together, alfalfa and clover.

Much smaller acreages of both cotton and tobacco were treated in 1958 than in 1952, mainly because the acreage planted or harvested had declined sharply. In the Southeast and Delta States this decline in treated acreage was so great that a reduction occurred in the extent of all treatment between 1952 and 1958 (table 2).

The total acreage treated in 1958 is shown by regions and States in table 3.

Cotton

Although the acreage of cotton planted in 1958 was the lowest in more than 80 years, treatment for insects in that year was still more extensive on cotton than on any other crop. Around 8.1 million acres were treated an average of 4.4 times (table 1). In most States, the acreage of cotton planted was only one-third to one-half as large in 1958 as it was in 1952 (table 4). But for the United States as a whole, the higher percentage of the acreage treated in 1958, with more average times over, resulted in only slightly less total acreage covered than in 1952 -- 36 million acres compared with 40 million acres.

In 1958, the average number of times cotton was treated to control insects was higher in nearly all States than in 1952 or 1949. Nationwide, the percentage of the acreage treated increased from 48 percent in 1952 to 66 percent in 1958, despite decreases in many States. Texas, with the largest acreage of cotton and a sharp increase in percentage treated, was largely responsible for the nationwide increase.

Alfalfa and Clover

The acreage of alfalfa and clover treated with chemicals for insects and diseases was about 120 percent higher in 1958 than in 1952 (table 5). Much of the acreage grown for seed was treated. Treatment for spittle bug on the hay crops was extensive in some areas.

More than half the acreage treated in 1958 was in six States -- California, Nebraska, Ohio, Montana, Kansas, and Pennsylvania. In 1952, treatment was relatively high in all of these States except Kansas. In that State, only 75,000 acres were treated in 1952, compared with 500,000 acres in 1958.

In 1958, the number of times these crops were treated was especially high in Texas and California -- two times over was the average in each State. Regionally, the average number of treatments was highest in the Pacific States, with an average of 1.9 times over, followed by the Northern Plains with an average of 1.5 times over.

Corn

Treatment of corn for insects and diseases was more than 10 times as extensive in 1958 as it was in 1952. In 1958, 4.5 million acres were covered compared with around 400,000 acres in 1952. On the average, 1.1 treatments were applied in 1958, bringing total acreage treated to 5.1 million acres (table 6). Increases were general over the entire country, but Iowa, Nebraska, and Illinois accounted for 65 percent of the total acreage treated in 1958.

The extent of treatment needed for infestations of grasshoppers and as insurance against cut worms, root worms, and corn borer can cause year to year variations in acreage treated. It is obvious, however, that the practice of treating corn with chemicals is rapidly gaining ground.

Fruits and Tree Nuts

For the United States as a whole, little change occurred from 1952 to 1958 in the acreage of tree fruits, small fruits, and tree nuts treated for insects and diseases (table 7). When the number of times over is taken into account, the total acreage covered was second only to the acreage of cotton treated (table 1). However, the average cost of treating an acre of fruit is so much greater than the average cost of treating an acre of cotton that the total expenditure for treatment was much higher.

Between 1952 and 1958, there was a 2-percent increase in acreage of fruit and tree nuts treated. This was about the same as the 1954-59 increase reported by the Census of Agriculture in acreage grown. Similarly, increases and decreases in extent of treatment in the various States during the 1952-58 period usually correspond to census data on changes in acreage grown.

Vegetables

Few of our vegetable crops escape attack from insects or diseases. On the basis of the commercial acreage (acreage harvested for sale, reported in the 1959 census) with an allowance for home gardens, it is estimated that in 1958 farmers treated around three-fourths of the total acreage of vegetables grown (table 8). In 1958, 2.9 million acres were treated, compared with 2.3 million acres treated in 1952. Census reports show a decline of 250,000 in the acreage of vegetables grown for sale between 1954 and 1959; thus, it appears that an increasing proportion of the vegetable crop has been treated in late years.

Three States -- California, Florida, and Texas -- accounted for more than a third of the vegetable acreage treated in 1958. A higher percentage of the acreage grown was treated in these States as a group than elsewhere -- 85 percent, compared with 74 percent for the country as a whole. Also, in many of the other States having important commercial acreages, an above-average percentage of the vegetable acreage was sprayed or dusted. Treatment in home gardens tended to be lower than treatment on commercial acreages in both percentage of acreage treated and number of times chemicals were applied.

Potatoes

For decades, most of the acreage of potatoes has been treated to control plant diseases and insects. Hence, with little change in potato acreage, only a slight change occurred in the acreage treated between 1952 and 1958 (table 9). In general, the number of times treatment was applied declined slightly in the North and increased slightly in the South and West.

The percentage of the acreage treated and the average times over continued to be higher in the Northeast than elsewhere in the country. Although the average number of treatments in New England, New York, and Pennsylvania was about 8.5, some of the farmers treated their potatoes 15 to 18 times. Variations in management and in local weather are probably responsible for the wide range in number of treatments.

Tobacco

Two main factors were involved in the reduction of about one-third that occurred between 1952 and 1958 in the treated acreage of tobacco: (1) Acreage harvested declined 40 percent, and (2) in most States, applications were made less frequently in 1958 (table 10). For the tobacco States as a group there was little change in percentage of the acreage treated, although this was not true for individual States. In 1958, the percentage of the acreage treated in Pennsylvania, Ohio, and Wisconsin was about double the percentage treated in 1952, but the harvested acreage was small. A slight decline in the percentage treated in North Carolina, where over 40 percent of the tobacco acreage was harvested, offset most of the increases in other States.

Other Crops and Lands

Data for land in crops other than those already discussed, and for land in pastures, fence rows, and ditch banks, are grouped together in the tables under the general heading of "other crops and lands." The acreage in this category that was treated for insect and disease control more than doubled between 1952 and 1958 (table 11).

The Mountain and Plains States accounted for two-thirds of the 9.4 million acres of such land that were treated in 1958. Here, pasture, rangeland, small grains, and sorghum were treated extensively for grasshoppers.

Other crops for which data are included in the "other crops and lands" category are soybeans, hay crops (other than alfalfa and clover), sweet corn, sweetpotatoes, sugar beets, peanuts, dry beans and peas, sugarcane, and mint. A larger treated acreage was reported in 1958 for this category than for any of the crops for which data are presented separately.

WEED CONTROL

The use of chemicals to control weeds has been increasing rapidly. Pre-emergence treatment, especially of cotton and corn, can be considered as good insurance against a heavy weed crop.

Research efforts have been rewarded by the discovery and development of effective low-cost herbicides, which are doing a broader job of weed control each year. The total acreage treated for weed control in 1958 is shown in table 3.

A recent publication, "A Survey of Extent and Cost of Weed Control and Specific Weed Problems," ^{1/} reports the situation in 1959. In addition to the cost of weed control, this publication shows, by important crops, the effectiveness of present chemicals and where there is need for more effective ones. It also indicates a continuation in 1959 of the rapid increase in acreage of many crops treated for weed control reported for the period 1952-58.

^{1/} A Survey of Extent and Cost of Weed Control and Specified Weed Problems. Joint report, U. S. Agricultural Research Service and U. S. Federal Extension Service, Agr. Res. Serv. ARS 34-23, 65 pp., Mar. 1962.

Small Grains

Weeds have long been a problem in our small grain crops. Control by herbicides is economical, and in favorable seasons results have been gratifying to farmers.

In 1958, farmers applied weed-control treatments on 25 million acres of small grains (wheat, oats, barley, rye, flax, and rice), an increase of 45 percent over the acreage treated in 1952 (table 12). In most instances, as indicated by the number of times over, one treatment gave satisfactory control.

Chiefly because of a bad weed problem in spring wheat, treatment was extensive in the Northern Plains, Minnesota, and the Mountain and Pacific States. There was little treatment for weeds in the Appalachian and Corn Belt States.

Corn

For corn, as for other row crops, chemical weed control can save trips over the field for cultivation. Pre-emergence control is good insurance against heavy weed growth in a wet season before cultivation can be started.

A much higher proportion of a smaller corn acreage was treated for weed control in 1958 than in 1952 (table 13). This resulted in an increase of around 12 1/2 million acres treated. The trend toward pre-emergence treatment, although not clearly shown in the data presented here, has been remarkable, especially in the Northeast. In most of the important corn-producing areas, post-emergence treatment on corn has expanded rapidly also. More than half the total pre- and post-emergence treatment in 1958 was in the Corn Belt States, where acreage treated ranged from 1.1 million acres in Missouri to 3.8 million acres in Illinois. In Minnesota, slightly under 2 million acres of corn were treated in 1958.

Pasture and Rangeland

In 1958, farmers treated around 3.5 million acres of pasture and rangeland for weed and brush control (table 14). This was an increase of 1.3 million acres, or 58 percent, over that treated in 1952. In both years, as indicated by the low average number of times over, one treatment usually gave satisfactory results. In 1958, average number of times over, by States, ranged from 1.0 to 1.3, and the average number of times over for the country was only 1.1.

The Plains and Corn Belt States accounted for 60 percent of the acreage of pasture and rangeland treated in 1958. In the two leading States -- Texas and Kansas -- 1 million acres were treated.

A few of the farmers experimented by mowing part of their pasture and treating part of it with herbicides. Others may have done this earlier, but no results were reported.

Cotton

The extent of weed control in cotton had not been surveyed separately before 1958.

As mentioned before, a comparatively small acreage of cotton was planted in 1958. Farmers treated 3 percent of the acreage before the cotton was up and 3.5 percent after the crop was growing, covering about 800,000 acres in the season (table 15). The post-emergence treatments averaged 1.2 times over, making a total of around 900,000 acres of cotton treated.

Pre-emergence treatment was dominant except in the Southern Plains and the West. Except in Oklahoma, farmers reported some treatment in all States where cotton was grown. Arkansas was the leading State, with 150,000 acres given pre-emergence treatment and around 100,000 acres getting post-emergence treatment. New Mexico and California had the highest percentages of post-emergence treatment -- 12 and 11 percent, respectively, of the crop. In Texas, with nearly half the cotton acreage in the country, more acreage was given post-emergence treatment than in any other State.

Other Crops and Lands

Many different crops are treated for weed control. In 1958, in addition to those previously discussed farmers treated soybeans, sorghum, hay crops, potatoes, dry beans, sweet corn, vegetables, fruits, sugar beets, and sugarcane, as well as Soil Bank and fallow land, ditch banks, and fence rows.

In 1958, 4.5 million acres in the "other crops and lands" category were treated, up from 2.6 million acres in 1952 (table 16). Treatment in both these years was more extensive in the Northern Plains and Pacific States than elsewhere in the country. In 1958, about half the total acreage treated was in these two regions. Kansas, Nebraska, and California together had about 40 percent of the total acreage treated in 1958.

In Kansas and Nebraska, sorghum accounted for much of the treatment for weed control. Much of the treatment in California was on fruits and vegetables.

DEFOLIATION

Spraying or dusting crops to defoliate them for more efficient harvesting is not new. However, the full extent of the practice and the kinds of crops involved have not been generally known. Much of the treatment for defoliation has been done by aircraft, and reports of the Federal Aviation Agency indicate the increasing importance of this practice. But here again, weather affects the extent of the practice from year to year

Cotton was the leading crop on which chemical defoliants were used. Around 87 percent of the 3.7 million acres defoliated were in cotton. Seventy percent of the total acreage of cotton that was defoliated in 1958 was in three States -- Texas, California, and Mississippi (table 17).

The total acreage of other crops treated with defoliants in 1958 amounted to around one-half million acres (table 18). These crops were chiefly legumes for seed, grain sorghum, dry beans, and potatoes.

METHODS OF CHEMICAL APPLICATION

Farmers used their own equipment on 68 percent of the total acreage treated in 1958 (table 19). They used rented, borrowed, or exchange equipment to cover 5 percent of the acreage. Custom operators covered 27 percent of it, largely with aircraft. Throughout the country, chemicals are still applied chiefly with ground equipment, but more than 20 percent of the acreage was covered from the air in 1958. Some hand equipment is used on small plots and gardens.

Methods of application varied widely among States. Proportion of the acreage treated with the farmer's own equipment ranged from more than 80 percent in the Northeast, Appalachian States, and Corn Belt to around 50 percent in the Mountain and Pacific States.

In many States, the percentage of the acreage treated by airplane and the percentage treated by custom operators was about the same. The greatest spread was in the Lake and Corn Belt States, where there was a higher-than-average use of ground equipment by custom operators.

Flying farmers apparently did some of their own treating in the Southern Plains, Montana, and Wyoming -- here the percentage of the acreage treated by farmers with their own equipment was slightly higher than the total percentage treated with ground equipment.

Timeliness is important in spraying and dusting operations. This somewhat restricts the practices of borrowing, renting, or exchanging equipment. Sprayers and dusters were used under such arrangements for as much as 10 percent of the acreage in only two States -- Nebraska and Kansas.

Size of farm influenced the kind or type of equipment used to apply pesticides. Air equipment was used more and ground equipment less as the size of farm increased (table 20). On large farms in the Mountain and Pacific States, air equipment was used more extensively than ground equipment.

The percentage of the total acreage sprayed or dusted by farmers with their own equipment varied widely by size of farm. In the Northeast, the Corn Belt, and the Appalachian States, operators of small farms depended more on custom work than did operators of large farms. In most of the rest of the country, operators of the larger farms tended to have custom operators do the work. Much of this custom work was done with airplanes. Rented, borrowed, or exchange equipment was used more extensively on small farms than on large ones throughout the country.

Table 1.--Extent of pest-control and defoliation treatment, by crops, United States, 1952 and 1958

INSECT AND DISEASE CONTROL

Crop or land	1952		1958		Total acreage treated ^{1/}
	Acreage treated	Average times treated	Acreage treated	Average times treated	
	1,000 acres	Number	1,000 acres	Number	1,000 acres
Total or average-----	29,002	2.86	37,234	2.61	97,199
Cotton-----	13,066	3.06	8,144	4.41	35,943
Alfalfa and clover-----	3,046	1.27	6,639	1.34	8,912
Corn-----	414	1.08	4,519	1.13	5,109
Fruits and tree nuts--	3,459	4.55	3,516	4.96	17,436
Vegetables-----	2,270	3.25	2,946	3.12	9,201
Potatoes-----	1,071	5.12	1,193	4.52	5,393
Tobacco-----	1,407	2.92	862	2.64	2,272
All other crops and land-----	4,269	1.42	9,415	1.37	12,933

WEED CONTROL

Total or average-----	31,101	1.08	55,222	1.03	56,865
Small grains-----	17,107	1.04	24,853	1.00	24,921
Corn-----	9,173	1.05	21,599	1.03	22,136
Pasture and rangeland--	2,192	1.14	3,427	1.10	3,765
Cotton-----	^{2/}	---	810	1.11	902
All other crops and land-----	2,629	1.37	4,533	1.13	5,141

DEFOLIATION

Total or average-----	^{3/}	---	3,653	1.20	4,376
Cotton-----	^{3/}	---	3,175	1.22	3,860
All other crops and land-----	^{3/}	---	478	1.08	516

^{1/} Sums of State data.

^{2/} Included with all other crops and land.

^{3/} Not available.

Table 2.--Extent of pest-control and defoliation treatment, regions and United States, 1952 and 1958

TOTAL TREATMENT ^{1/}

Region	1952		1958		Total acreage treated ^{3/}
	Acreage treated	Average times treated	Acreage treated	Average times treated ^{2/}	
	1,000 acres	Number	1,000 acres	Number	
48 States-----	60,103	1.94	96,109	1.65	158,440
Northeast-----	3,204	3.26	4,768	2.52	12,022
Lake States-----	4,165	1.64	9,238	1.35	12,474
Corn Belt-----	7,939	1.25	19,230	1.12	21,626
Northern Plains---	7,629	1.07	17,613	1.10	19,438
Appalachian-----	3,613	2.56	3,735	2.12	7,926
Southeast-----	4,764	3.40	3,769	3.21	12,097
Delta States-----	4,885	3.38	4,798	3.38	16,229
Southern Plains---	7,493	1.77	10,052	2.21	22,261
Mountain-----	7,213	1.36	12,083	1.28	15,437
Pacific-----	9,198	1.77	10,823	1.75	18,930

INSECT AND DISEASE CONTROL

48 States-----	29,002	2.86	37,234	2.61	97,199
Northeast-----	1,728	5.13	2,058	4.45	9,163
Lake States-----	743	4.22	1,365	3.10	4,224
Corn Belt-----	1,604	1.96	4,199	1.54	6,458
Northern Plains---	702	1.44	4,573	1.35	6,169
Appalachian-----	2,810	2.97	2,275	2.79	6,353
Southeast-----	4,493	3.53	2,893	3.87	11,209
Delta States-----	4,241	3.71	2,611	5.27	13,770
Southern Plains---	5,810	1.98	6,643	2.78	18,473
Mountain-----	2,341	2.03	5,720	1.56	8,954
Pacific-----	4,530	2.35	4,897	2.54	12,426

WEED AND BRUSH CONTROL

48 States-----	31,101	1.08	55,222	1.03	56,865
Northeast-----	1,476	1.07	2,597	1.05	2,721
Lake States-----	3,422	1.07	7,834	1.05	8,211
Corn Belt-----	6,335	1.08	15,026	1.01	15,163
Northern Plains---	6,927	1.03	13,031	1.02	13,259
Appalachian-----	803	1.11	1,433	1.07	1,540
Southeast-----	271	1.37	791	1.01	803
Delta States-----	644	1.16	1,342	1.04	1,395
Southern Plains---	1,683	1.04	1,900	1.07	2,029
Mountain-----	4,872	1.04	6,066	1.01	6,156
Pacific-----	4,668	1.19	5,202	1.07	5,588

^{1/} Includes defoliation. ^{2/} Total acreage treated divided by acreage treated. ^{3/} Sums of State data.

Table 3.--Extent of insect-and-disease and weed control treatment, by regions and States, 1958 ^{1/}

Region and State	Insect and disease control	Weed control	Total
	1,000 acres	1,000 acres	1,000 acres
Northeast-----	9,163	2,721	11,884
New England-----	2,549	211	2,760
New York-----	2,820	835	3,655
New Jersey-----	927	161	1,088
Pennsylvania-----	2,178	1,098	3,276
Delaware-----	257	129	386
Maryland-----	432	287	719
Lake States-----	4,224	8,211	12,435
Michigan-----	2,680	1,527	4,207
Wisconsin-----	903	1,427	2,330
Minnesota-----	641	5,257	5,898
Corn Belt-----	6,458	15,163	21,621
Ohio-----	1,800	2,676	4,476
Indiana-----	742	2,442	3,184
Illinois-----	1,124	4,214	5,338
Iowa-----	1,730	4,484	6,214
Missouri-----	1,062	1,347	2,409
Northern Plains-----	6,169	13,259	19,428
North Dakota-----	644	6,137	6,781
South Dakota-----	654	2,664	3,318
Nebraska-----	2,968	1,784	4,752
Kansas-----	1,903	2,674	4,577
Appalachian-----	6,353	1,540	7,893
Virginia-----	1,571	375	1,946
West Virginia-----	361	51	412
North Carolina-----	2,582	607	3,189
Kentucky-----	665	317	982
Tennessee-----	1,174	190	1,364
Southeast-----	11,209	803	12,012
South Carolina-----	2,043	572	2,615
Georgia-----	2,589	55	2,644
Florida-----	4,109	40	4,149
Alabama-----	2,468	136	2,604
Delta States-----	13,770	1,395	15,165
Mississippi-----	6,598	255	6,853
Arkansas-----	4,542	602	5,144
Louisiana-----	2,630	538	3,168
Southern Plains-----	18,473	2,029	20,502
Oklahoma-----	1,337	530	1,867
Texas-----	17,136	1,499	18,635
Mountain-----	8,954	6,156	15,110
Montana-----	1,413	4,141	5,554
Idaho-----	918	961	1,879
Wyoming-----	619	220	839
Colorado-----	2,402	512	2,914
New Mexico-----	1,096	83	1,179
Arizona-----	1,895	57	1,952
Utah-----	525	125	650
Nevada-----	86	57	143
Pacific-----	12,426	5,588	18,014
Washington-----	1,226	2,197	3,423
Oregon-----	898	1,584	2,282
California-----	10,302	2,007	12,309
48 States-----	97,199	56,865	154,064

^{1/} Sums of State data.

Table 4.--Cotton: Extent of insect-control treatment, by States, 1949, 1952, and 1958

State	Acreage under cultivation July 1		Acreage planted	Percentage treated			Average times treated			Total acreage treated 1958
	1949	1952	1958	1949	1952	1958	1949	1952	1958	<u>1/</u>
	1,000 acres	1,000 acres	1,000 acres	Per- cent	Per- cent	Per- cent	Num- ber	Num- ber	Num- ber	1,000 acres
Cotton States	26,957	27,086	12,343	34	48	66	3.0	3.06	4.4	35,943
North Carolina	889	753	271	22	65	59	2.4	4.00	4.2	672
South Carolina	1,258	1,149	357	61	71	62	3.3	3.50	5.5	1,216
Tennessee	911	851	416	2	12	38	2.6	2.32	4.6	727
Georgia	1,577	1,470	388	74	73	71	4.6	3.94	6.2	1,708
Alabama	1,905	1,591	540	37	38	60	3.4	3.00	4.8	1,555
Mississippi	2,844	2,399	1,185	46	83	76	4.2	3.60	6.9	6,217
Arkansas	2,668	1,956	1,075	16	45	65	2.9	4.16	6.0	4,193
Louisiana	974	899	379	34	81	73	3.7	5.15	7.0	1,937
Oklahoma	1,344	1,283	430	11	24	35	2.4	2.02	4.1	617
Texas	11,190	11,756	5,675	27	33	67	2.1	2.24	3.6	13,688
New Mexico	---	305	184	---	74	68	---	2.45	3.2	400
Arizona	386	678	386	90	96	91	2.9	2.96	3.9	1,370
California	931	1,407	750	85	87	80	1.9	1.87	2.4	1,440
Others	80	589	307	16	13	33	1.7	2.00	2.0	203

1/ Acreage treated times average number of treatments, except regional and national totals which are sums of State data.

Table 3.-Alfalfa and clover: Extent of insect- and disease-control treatment, by regions and States, 1952 and 1958

Region and State	1952		1958		
	Acreage treated	Average times treated	Acreage treated	Average times treated	Total acreage treated ^{1/}
	1,000 acres	Number	1,000 acres	Number	1,000 acres
Northeast-----	269	1.04	720	1.2	869
New York-----	2/	2/	65	1.0	65
New Jersey-----	2/	2/	75	1.3	98
Pennsylvania-----	200	1.02	480	1.2	576
Maryland-----	47	1.15	80	1.3	104
Others-----	22	1.04	20	1.3	26
Lake States-----	65	1.23	275	1.0	280
Michigan-----	5	1.20	45	1.1	50
Wisconsin-----	30	1.32	200	1.0	200
Minnesota-----	30	1.15	30	1.0	30
Corn Belt-----	865	1.03	830	1.0	952
Ohio-----	650	1.03	600	1.0	600
Indiana-----	50	1.00	65	1.0	65
Illinois-----	120	1.00	30	1.1	33
Iowa-----	40	1.02	75	1.1	82
Missouri-----	5	1.20	60	1.2	72
Northern Plains-----	300	1.22	1,430	1.5	2,112
North Dakota-----	25	1.00	110	1.2	132
South Dakota-----	70	1.11	170	1.5	255
Nebraska-----	130	1.28	650	1.5	975
Kansas-----	75	1.31	500	1.5	750
Appalachian-----	23	1.44	225	1.2	267
Southeast-----	3	1.00	3	1.0	3
Delta States-----	1	1.50	11	1.0	11
Southern Plains-----	102	1.51	240	1.7	399
Oklahoma-----	90	1.45	90	1.1	99
Texas-----	12	2.00	150	2.0	300
Mountain-----	873	1.25	2,055	1.2	2,510
Montana-----	120	1.36	500	1.1	550
Idaho-----	225	1.24	400	1.1	440
Wyoming-----	85	1.03	250	1.2	300
Colorado-----	200	1.04	400	1.3	520
New Mexico-----	8	1.31	90	1.9	171
Arizona-----	45	1.40	100	1.2	120
Utah-----	160	1.46	250	1.3	325
Nevada-----	30	1.50	65	1.3	84
Pacific-----	545	1.77	850	1.9	1,609
Washington-----	40	1.38	80	1.3	104
Oregon-----	75	1.60	70	1.5	105
California-----	430	1.83	700	2.0	1,400
48 States-----	3,046	1.27	6,639	1.3	8,912

^{1/} Acreage treated times average number of treatments, except regional and national totals which are sums of State data. ^{2/} Included in "Others".

Table 6.--Corn: Extent of insect- and disease-control treatment, by regions and States, 1952 and 1958

Region and State	1952			1958			
	Acreage planted	Percentage treated	Average times treated	Acreage planted	Percentage treated	Average times treated	Total acreage treated ^{1/}
	1,000 acres	Percent	Number	1,000 acres	Percent	Number	1,000 acres
Northeast-----	3,017	1.1	1.18	2,840	4	1.3	106
New England----	2/	2/	2/	158	5	1.3	10
New York-----	2/	2/	2/	680	4	1.0	27
New Jersey-----	2/	2/	2/	157	5	1.0	8
Pennsylvania-----	2/	2/	2/	1,261	3	1.0	38
Delaware-----	2/	2/	2/	134	4	1.0	5
Maryland-----	2/	2/	2/	450	3	1.3	18
Lake States-----	9,446	.3	1.06	10,396	2	1.0	161
Michigan-----	2/	2/	2/	1,911	1	1.0	19
Wisconsin-----	2/	2/	2/	2,717	1	1.0	27
Minnesota-----	2/	2/	2/	5,768	2	1.0	115
Corn Belt-----	32,255	.3	1.04	30,244	8	1.1	2,702
Ohio-----	2/	2/	2/	3,420	4	1.2	164
Indiana-----	2/	2/	2/	4,637	3	1.3	181
Illinois-----	2/	2/	2/	8,664	7	1.0	606
Iowa-----	2/	2/	2/	10,085	13	1.1	1,442
Missouri-----	2/	2/	2/	3,438	9	1.0	309
Northern Plains--	14,819	1.2	1.03	12,790	10	1.2	1,560
North Dakota----	2/	2/	2/	1,376	3/	1.0	5
South Dakota----	2/	2/	2/	3,974	1	1.0	40
Nebraska-----	2/	2/	2/	5,644	18	1.2	1,219
Kansas-----	2/	2/	2/	1,796	11	1.5	296
Appalachian-----	7,561	.5	1.00	5,904	2	1.1	130
Virginia-----	2/	2/	2/	775	1	1.0	8
West Virginia----	2/	2/	2/	152	2	1.2	4
North Carolina----	2/	2/	2/	1,859	2	1.0	37
Kentucky-----	2/	2/	2/	1,573	3	1.0	47
Tennessee-----	2/	2/	2/	1,545	2	1.1	34
Southeast-----	7,629	.4	1.03	6,351	3	1.2	164
South Carolina----	2/	2/	2/	937	1	1.0	10
Georgia-----	2/	2/	2/	2,733	1	1.0	27
Florida-----	2/	2/	2/	581	4	1.0	23
Alabama-----	2/	2/	2/	2,100	5	1.0	105
Delta States-----	3,520	.3	1.36	2,565	3	1.2	90
Mississippi-----	2/	2/	2/	1,498	2	1.1	33
Arkansas-----	2/	2/	2/	477	3	1.0	15
Louisiana-----	2/	2/	2/	590	6	1.2	42
Southern Plains--	3,118	.3	1.00	2,088	4	1.2	104
Oklahoma-----	2/	2/	2/	310	5	1.2	19
Texas-----	2/	2/	2/	1,778	4	1.2	85
Mountain-----	917	2.0	1.77	991	8	1.0	79
Pacific-----	127	.8	2.00	344	3	1.3	13
48 States-----	82,409	.5	1.08	74,513	6	1.1	5,109

1/ Acreage treated times average number of treatments, except regional and national totals which are sums of State data. 2/ Included in regional totals. 3/ Less than .5 percent.

Table 7.—Fruits and tree nuts: Extent of insect- and disease-control treatment, by regions and States, 1952 and 1958

Region and State	1952		1958		Total acreage treated ^{1/}
	Acreage treated	Average times treated	Acreage treated	Average times treated	
	1,000 acres	Number	1,000 acres	Number	1,000 acres
Northeast	433.0	7.64	364	9.7	3,544
New England	65.0	8.11	80	11.5	920
New York	175.0	8.00	150	9.2	1,380
New Jersey	43.0	7.33	35	10.5	368
Pennsylvania	125.0	7.31	85	9.2	782
Delaware	4.0	6.50	2	10.6	21
Maryland	21.0	6.00	12	6.1	73
Lake States	230.0	7.40	253	8.8	2,228
Michigan	192.0	7.76	220	9.1	2,002
Wisconsin	31.0	6.12	28	7.3	204
Minnesota	7.0	3.29	5	4.4	22
Corn Belt	181.0	6.80	123	8.6	1,063
Ohio	65.0	7.38	45	11.7	526
Indiana	32.0	5.06	18	6.1	110
Illinois	40.0	7.08	27	8.8	238
Iowa	14.0	6.79	8	6.1	49
Missouri	30.0	7.00	25	5.6	140
Northern Plains	12.5	3.12	8	4.0	32
Appalachian	200.0	6.29	133	7.2	960
Virginia	80.0	7.50	55	9.0	495
West Virginia	45.0	6.02	28	8.0	224
North Carolina	35.0	4.83	20	5.5	110
Kentucky	25.0	6.00	15	4.2	63
Tennessee	15.0	4.51	15	4.5	68
Southeast	598.0	4.13	60	4.0	3,050
South Carolina	40.0	6.75	50	6.8	340
Georgia	60.0	5.12	760	6.7	402
Florida	475.0	3.74	625	3.5	2,188
Alabama	23.0	5.00	25	4.8	120
Delta States	85.0	4.09	75	4.3	324
Mississippi	25.0	3.20	20	4.0	80
Arkansas	40.0	5.10	15	4.5	68
Louisiana	20.0	3.20	40	4.4	176
Southern Plains	80.0	3.05	181	3.2	575
Oklahoma	20.0	3.45	16	5.0	80
Texas	60.0	2.92	165	3.0	495
Mountain	82.9	3.27	79	3.6	284
Idaho	13.0	3.64	13	3.5	46
Colorado	23.0	3.43	17	4.2	71
New Mexico	2/	2/	11	4.5	50
Arizona	20.0	3.00	25	3.0	75
Utah	15.0	3.20	11	3.5	38
Others	11.9	3.12	2	2.0	4
Pacific	1,557.0	3.12	1,540	3.5	5,376
Washington	127.0	3.57	140	3.9	546
Oregon	120.0	3.96	100	4.1	410
California	1,310.0	3.00	1,300	3.4	4,420
48 States	3,459.4	4.55	3,516	5.0	17,436

^{1/} Acreage treated times average number of treatments, except regional and national totals which are sums of State data.

^{2/} Included in regional totals.

Table 8.--Vegetables: Extent of insect- and disease-control treatment, by regions and States, 1952 and 1958

Region and State	1952		1958				Total acreage treated 2/
	Acreage treated	Average times treated	Acreage grown 1/	Percentage treated	Acreage treated	Average times treated	
	1,000 acres	Number	1,000 acres	Percent	1,000 acres	Number	
Northeast	469	3.91	592	73	433	4.0	1,743
New England	40	3.02	60	75	45	4.5	202
New York	125	4.74	185	65	120	4.3	516
New Jersey	120	4.52	129	70	90	4.2	378
Pennsylvania	70	4.07	91	83	76	4.3	327
Delaware	34	3.00	43	76	33	4.5	148
Maryland	80	2.34	84	82	69	2.5	172
Lake States	185	2.46	566	68	410	1.7	687
Michigan	55	5.09	127	72	91	2.8	255
Wisconsin	60	1.42	264	61	161	1.5	242
Minnesota	70	1.30	175	90	158	1.2	190
Corn Belt	113	2.90	425	75	320	3.4	1,077
Ohio	35	3.31	93	90	84	4.5	378
Indiana	30	3.41	91	81	74	4.2	311
Illinois	25	1.93	148	64	95	2.0	190
Iowa	10	2.50	48	70	34	3.0	102
Missouri	13	2.77	45	73	33	2.9	96
Northern Plains	2	2.35	43	34	15	1.9	28
Appalachian	252	3.08	306	70	214	3.5	751
Virginia	70	2.89	72	65	47	5.0	235
West Virginia	20	4.75	13	75	10	4.2	42
North Carolina	67	3.64	106	76	81	3.5	284
Kentucky	35	3.00	38	80	30	3.1	93
Tennessee	60	2.17	77	60	46	2.1	97
Southeast	414	4.24	403	83	335	4.6	1,525
South Carolina	56	2.82	22	57	13	4.2	55
Georgia	58	3.47	32	60	19	4.2	60
Florida	250	5.00	278	96	267	4.6	1,228
Alabama	40	3.00	71	50	36	4.5	162
Delta States	72	2.83	130	47	61	4.0	246
Mississippi	27	3.96	53	55	29	5.2	151
Arkansas	25	1.80	45	40	18	3.0	54
Louisiana	20	2.58	32	45	14	2.9	41
Southern Plains	90	2.51	403	66	268	2.9	782
Oklahoma	20	1.85	40	80	32	2.3	74
Texas	70	2.70	363	65	236	3.0	708
Mountain	126	2.52	191	75	144	3.5	497
Idaho	13	2.92	32	40	13	1.2	16
Colorado	12	2.29	42	90	38	4.5	171
Arizona	70	2.80	78	90	70	3.8	266
Utah	20	1.84	18	60	11	1.5	16
Others	11	1.78	21	58	12	2.3	28
Pacific	547	2.68	893	84	747	2.5	1,865
Washington	62	1.90	120	62	74	1.7	126
Oregon	35	3.78	112	70	78	1.7	133
California	450	2.71	661	90	595	2.7	1,606
48 States	2,270	3.25	3,952	74	2,947	3.1	9,201

1/ Data from 1959 Census. Commercial acreage and allowance for home gardens (one-fourth of the number of farms harvesting vegetables for home use, or one-quarter acre each).

2/ Acreage treated times average number of treatments, except regional totals and national totals which are sums of State data.

Table 9.--Potatoes: Extent of insect- and disease-control treatment, by regions and States, 1952 and 1958

Region and State	1952			1958			
	Acres planted	Percentage treated	Average times treated	Acres grown	Percentage treated	Average times treated	Total acreage treated ^{1/}
	1,000 acres	Percent	Number	1,000 acres	Percent	Number	1,000 acres
Northeast-----	393.3	95	8.41	344	98	8.1	2,727
New England-----	181.7	99	8.56	171	99	7.9	1,337
New York-----	107.0	93	7.98	89	99	9.1	802
New Jersey-----	27.3	97	4.26	18	96	4.0	69
Pennsylvania---	66.0	91	11.10	50	97	8.9	432
Others-----	11.3	84	4.53	16	94	5.8	87
Lake States-----	185.0	83	5.04	196	79	4.4	688
Michigan-----	57.0	93	6.68	53	94	6.9	344
Wisconsin-----	57.0	89	5.02	50	80	4.2	168
Minnesota-----	71.0	70	3.32	93	70	2.7	176
Corn Belt-----	66.5	74	4.47	47	79	3.1	115
Northern Plains--	129.0	70	3.13	140	72	3.0	298
North Dakota---	82.0	84	3.10	108	80	3.0	259
Nebraska-----	31.0	48	3.73	19	50	3.0	28
Others-----	16.0	38	2.00	13	43	2.0	11
Appalachian-----	129.0	79	2.89	110	80	2.6	224
Virginia-----	35.0	86	2.50	36	85	2.0	61
North Carolina--	43.0	86	3.41	36	85	3.4	104
Others-----	51.0	69	2.71	38	68	2.3	59
Southeast-----	78.7	85	4.01	92	84	4.5	349
Florida-----	31.7	95	4.50	50	96	5.4	259
Alabama-----	29.0	76	4.55	29	76	3.4	75
Others-----	18.0	83	2.23	13	54	2.1	15
Delta States-----	30.6	56	2.12	24	54	2.5	32
Southern Plains--	22.3	58	1.49	27	67	3.8	68
Mountain-----	226.0	52	1.74	313	61	1.7	318
Idaho-----	138.0	36	1.03	209	54	1.2	135
Colorado-----	51.0	94	2.52	60	90	2.5	135
Others-----	37.0	54	1.57	44	55	2.0	48
Pacific-----	161.0	47	2.17	208	87	3.2	574
Washington-----	26.0	69	3.06	46	85	3.1	121
Oregon-----	33.0	61	1.67	40	80	3.2	102
California-----	102.0	36	2.00	122	90	3.2	351
48 States	1,421.4	75	5.12	1,501	80	4.5	5,393

^{1/} Acreage treated times average number of treatments, except regional and national totals, which are sums of State data.

Table 10.--Tobacco: Extent of insect- and disease-control treatment, by States, 1952 and 1958

State	1952			1958			
	Acreage harvested	Percent age treated	Average times treated	Acreage harvested	Percent age treated	Average times treated	Total acreage treated ^{1/}
	1,000 acres	Percent	Number	1,000 acres	Percent	Number	1,000 acres
Tobacco States-----	1,771	79	2.92	1,078	80	2.6	2,272
New England---	23	65	4.47	11	85	4.1	38
Pennsylvania---	23	21	1.00	30	42	1.0	13
Maryland-----	50	40	1.50	34	66	1.3	29
Wisconsin-----	15	26	1.00	13	59	1.0	8
Ohio-----	20	46	1.61	12	89	1.6	17
Indiana-----	11	55	2.17	7	80	1.9	11
Virginia-----	137	80	2.55	84	92	2.0	155
North Carolina---	747	90	2.84	438	87	2.7	1,029
Kentucky-----	350	67	2.14	220	70	2.1	323
Tennessee-----	114	61	3.06	24	83	2.9	178
South Carolina---	132	91	4.20	76	93	3.8	269
Georgia-----	112	89	3.88	59	59	4.2	146
Florida-----	27	94	4.96	15	89	3.7	50
Others-----	10	47	2.49	5	58	2.2	6

^{1/} Acreage treated times average number of treatments.

Table 11.—Other land: Extent of insect- and disease-control treatment, by regions and States, 1952 and 1958 1/

Region and State	1952		1958		Total acreage treated 2/
	Acreage treated	Average times treated	Acreage treated	Average times treated	
	1,000 acres	Number	1,000 acres	Number	1,000 acres
Northeast	108	1.42	65	1.4	94
New England	20	1.48	15	2.0	30
New York	60	1.43	30	1.0	30
Pennsylvania	21	1.00	10	1.0	10
Others	7	2.36	10	2.4	24
Lake States	73	1.18	100	1.7	172
Michigan	5	1.40	10	1.0	10
Wisconsin	50	1.13	30	1.8	54
Minnesota	18	1.25	60	1.6	108
Corn Belt	227	1.03	315	1.3	417
Ohio	10	1.00	30	1.2	36
Indiana	10	1.20	50	1.0	50
Illinois	20	1.00	40	1.4	56
Iowa	20	1.26	45	1.1	50
Missouri	167	1.00	150	1.5	225
Northern Plains	126	1.13	1,720	1.7	2,139
North Dakota	65	1.12	220	1.1	242
South Dakota	9	1.04	350	1.0	350
Nebraska	17	1.00	525	1.4	735
Kansas	35	1.24	625	1.3	812
Appalachian	512	1.61	505	1.8	932
Virginia	100	2.78	240	1.9	456
West Virginia	1	1.50	10	1.2	12
North Carolina	191	1.64	150	2.1	315
Kentucky	140	1.04	75	1.3	98
Tennessee	80	1.06	30	1.7	51
Southeast	624	2.16	640	1.8	1,174
South Carolina	57	1.37	90	1.6	144
Georgia	352	2.07	100	2.2	220
Florida	90	3.29	150	2.4	360
Alabama	125	1.98	300	1.5	450
Delta States	455	1.23	500	1.4	720
Mississippi	130	1.14	100	1.0	100
Arkansas	250	1.05	200	1.0	200
Louisiana	75	2.00	200	2.1	420
Southern Plains	1,310	1.14	1,900	1.2	2,240
Oklahoma	950	1.03	400	1.1	440
Texas	360	1.42	1,500	1.2	1,800
Mountain	249	1.47	2,700	1.3	3,496
Montana	95	1.01	600	1.4	840
Idaho	25	1.16	200	1.4	280
Wyoming	3/	3/	200	1.5	300
Colorado	115	1.91	1,200	1.2	1,440
New Mexico	3/	3/	340	1.3	442
Arizona	3/	3/	35	1.6	56
Utah	3/	3/	125	1.1	138
Nevada	3/	3/	---	---	---
Pacific	585	1.53	970	1.6	1,549
Washington	95	1.09	250	1.3	325
Oregon	65	1.44	120	1.2	144
California	425	1.64	600	1.8	1,080
48 States	4,269	1.42	9,415	1.4	12,933

1/ Includes land in pasture, fence rows and ditch banks, and land in all crops other than cotton, corn, alfalfa, clover, vegetables, potatoes, fruits and nuts, and tobacco. 2/ Acreage treated times average number of treatments, except regional and national totals which are sums of State data. 3/ Included in regional totals.

Table 12:--Small grains: Extent of weed-control treatment, by regions and States, 1952 and 1958

Region and State	1952			1958			Total acreage treated ^{1/}
	Acreage planted	Percentage treated	Average times treated	Acreage planted	Percentage treated	Average times treated	
	1,000 acres	Percent	Number	1,000 acres	Percent	Number	1,000 acres
Northeast	4,323	11.0	1.03	3,729	17	1.0	640
New England	184	16.3	1.30	162	31	1.0	50
New York	1,452	15.5	1.00	1,134	22	1.0	249
New Jersey	263	9.5	1.00	253	12	1.0	30
Pennsylvania	1,836	10.0	1.02	1,653	17	1.0	281
Delaware	119	5.0	1.00	103	5	1.0	5
Maryland	469	1.5	1.01	424	6	1.0	25
Lake States	15,438	16.6	1.07	11,728	33	1.0	3,900
Michigan	3,220	4.5	1.31	2,506	15	1.0	376
Wisconsin	3,275	13.1	1.01	2,895	19	1.0	550
Minnesota	8,943	22.1	1.06	6,327	47	1.0	2,974
Corn Belt	21,732	3.3	1.13	19,129	4	1.0	783
Ohio	3,650	2.6	1.01	2,932	5	1.0	147
Indiana	3,109	1.7	1.06	2,703	5	1.0	135
Illinois	5,341	4.2	1.04	4,639	3	1.0	139
Iowa	6,407	5.0	1.23	5,462	6	1.1	328
Missouri	3,225	.6	1.00	3,393	1	1.0	34
Northern Plains	49,707	8.5	1.02	41,148	21	1.0	8,800
North Dakota	16,390	12.3	1.02	15,643	38	1.0	5,944
South Dakota	9,281	19.3	1.02	7,123	28	1.0	1,994
Nebraska	7,751	3.3	1.02	5,658	4	1.0	226
Kansas	16,285	1.1	1.02	12,724	5	1.0	636
Appalachian	3,491	2.2	1.27	3,455	2	1.0	71
Virginia	2/	2/	2/	781	3	1.0	23
West Virginia	2/	2/	2/	101	5	1.0	5
North Carolina	2/	2/	2/	1,110	2	1.0	22
Kentucky	2/	2/	2/	620	3	1.0	19
Tennessee	2/	2/	2/	843	3/	1.0	2
Southeast	2,336	4.3	1.07	2,429	18	1.0	441
South Carolina	2/	2/	2/	963	42	1.0	404
Georgia	2/	2/	2/	687	1	1.0	7
Florida	2/	2/	2/	188	---	---	---
Alabama	2/	2/	2/	591	5	1.0	30
Delta States	1,709	16.4	1.07	2,222	11	1.0	235
Mississippi	2/	2/	2/	560	2	1.0	11
Arkansas	2/	2/	2/	1,027	7	1.0	72
Louisiana	2/	2/	2/	635	24	1.0	152
Southern Plains	14,730	3.3	1.06	14,072	5	1.1	724
Oklahoma	2/	2/	2/	6,784	2	1.2	163
Texas	2/	2/	2/	7,288	7	1.1	561
Mountain	16,649	26.1	1.02	14,543	36	1.0	5,239
Montana	7,349	40.8	1.01	6,674	60	1.0	4,004
Idaho	2,249	24.2	1.08	2,124	38	1.0	807
Wyoming	814	20.9	1.01	628	16	1.3	131
Colorado	4,589	10.4	1.02	3,862	4	1.1	170
New Mexico	722	1.0	1.00	318	3/	1.0	1
Arizona	198	7.1	1.00	358	1	1.0	4
Others	728	19.2	1.02	579	21	1.0	122
Pacific	8,924	43.0	1.05	8,387	49	1.0	4,088
Washington	3,393	42.4	1.08	3,120	64	1.0	1,997
Oregon	2,052	57.0	1.10	1,962	56	1.0	1,099
California	3,479	35.4	1.02	3,305	30	1.0	992
48 States	139,039	12.3	1.04	120,842	20	1.0	24,921

^{1/} Acreage treated times average number of treatments, except regional and national totals which are sums of State data. ^{2/} Included in regional totals. ^{3/} Less than .5 percent.

Table 13.—Corn: Extent of weed-control treatment, by regions and States, 1952 and 1958

Region and State	1952			1958						
	Acreage planted	Percentage treated	Average times treated	Acreage planted	Percentage treated		Average times treated		Total acreage treated 1/	
					Pre-emergence	Post-emergence	Pre-emergence	Post-emergence	Pre-emergence	Post-emergence
	1,000 acres	Percent	Number	1,000 acres	Percent	Percent	Number	Number	1,000 acres	1,000 acres
Northeast	3,017	28.0	1.08	2,840	15	44	1.0	1.1	414	1,336
New England	170	17.6	1.27	158	13	40	1.0	1.0	21	63
New York	648	29.3	1.12	680	15	56	1.0	1.0	102	381
New Jersey	197	25.4	1.03	157	19	48	1.0	1.0	30	75
Pennsylvania	1,358	35.6	1.04	1,261	16	40	1.0	1.1	202	555
Delaware	170	8.2	1.11	134	7	67	1.0	1.1	9	99
Maryland	474	16.5	1.22	450	11	33	1.0	1.1	50	163
Lake States	9,446	5.3	1.09	10,396	4	28	1.0	1.1	409	3,168
Michigan	1,667	8.4	1.01	1,911	9	39	1.0	1.1	172	820
Wisconsin	2,439	4.5	1.03	2,717	6	17	1.1	1.1	179	508
Minnesota	5,340	4.8	1.17	5,768	1	29	1.0	1.1	58	1,840
Corn Belt	32,255	15.4	1.04	30,244	4	38	1.0	1.0	1,231	11,967
Ohio	3,581	26.7	1.03	3,420	8	58	1.0	1.1	274	2,182
Indiana	4,633	14.9	1.03	4,637	4	43	1.1	1.0	204	1,994
Illinois	9,034	12.0	1.05	8,664	4	40	1.0	1.0	347	3,466
Iowa	10,782	14.6	1.05	10,085	3	30	1.0	1.1	303	3,328
Missouri	4,225	15.7	1.06	3,438	3	29	1.0	1.0	103	997
Northern Plains	14,819	12.2	1.03	12,790	1	14	1.0	1.0	90	1,831
North Dakota	1,095	2.1	1.09	1,376	2/	7	1.0	1.0	1	96
South Dakota	3,757	11.2	1.07	3,974	2/	9	1.0	1.0	15	358
Nebraska	7,148	11.0	1.02	5,644	1	12	1.0	1.0	56	677
Kansas	2,819	20.4	1.01	1,796	1	39	1.0	1.0	18	700
Appalachian	7,561	7.7	1.08	5,904	2	15	1.0	1.1	102	975
Virginia	973	14.9	1.01	775	5	22	1.0	1.1	39	188
West Virginia	206	10.7	1.02	152	3	13	1.0	1.0	5	20
North Carolina	2,223	5.7	1.27	1,859	2	24	1.0	1.1	37	491
Kentucky	2,115	10.4	1.03	1,573	1	10	1.0	1.0	16	157
Tennessee	2,044	3.3	1.07	1,545	2/	7	1.0	1.1	5	119
Southeast	7,629	.4	1.15	6,351	2/	1	1.0	1.0	20	69
South Carolina	3/	3/	3/	937	2/	5	1.0	1.0	19	47
Georgia	3/	3/	3/	2,733	---	2/	---	---	---	10
Florida	3/	3/	3/	581	---	2/	---	---	---	2
Alabama	3/	3/	3/	2,100	2/	2/	1.0	1.0	1	10
Delta States	3,520	11.1	1.03	2,565	1	4	1.1	1.0	21	108
Mississippi	3/	3/	3/	1,498	2/	4	---	1.0	5	60
Arkansas	3/	3/	3/	477	2	5	1.0	1.0	10	24
Louisiana	3/	3/	3/	590	1	4	1.1	1.0	6	24
Southern Plains	3,118	6.9	1.04	2,088	2/	2	1.0	1.2	9	56
Oklahoma	833	18.0	1.04	310	3	13	1.0	1.2	9	48
Texas	2,285	2.8	1.03	1,778	---	2/	---	---	---	8
Mountain	917	13.7	1.08	991	2	20	1.0	1.1	15	215
Colorado	485	15.5	1.04	543	2	27	1.0	1.1	11	161
Others	432	11.7	1.14	448	1	12	1.0	1.0	4	54
Pacific	127	30.7	1.07	344	5	22	1.0	1.1	17	83
48 States	82,409	11.1	1.05	74,513	3	25	1.0	1.0	2,328	19,808

1/ Acreage treated times average number of treatments, except regional and national totals which are sums of State data.

2/ Less than .5 percent.

3/ Included in regional totals.

Table 14.—Pasture and rangeland: Extent of weed-control treatment, by regions and States, 1952 and 1958

Region and State	1952		1958		Total acreage treated 1/
	Acreage treated	Average times treated	Acreage treated	Average times treated	
	1,000 acres	Number	1,000 acres	Number	1,000 acres
Northeast-----	34	1.08	33	1.1	36
New England-----	2/	2/	7	1.0	7
Pennsylvania-----	2/	2/	10	1.0	10
Maryland-----	2/	2/	12	1.2	14
Others-----	2/	2/	4	1.2	5
Lake States-----	286	1.12	275	1.1	292
Michigan-----	16	1.22	15	1.1	16
Wisconsin-----	110	1.23	100	1.0	100
Minnesota-----	160	1.04	160	1.1	176
Corn Belt-----	302	1.32	515	1.2	612
Ohio-----	42	1.19	25	1.1	28
Indiana-----	30	1.33	40	1.1	44
Illinois-----	40	1.30	100	1.3	130
Iowa-----	170	1.38	300	1.2	360
Missouri-----	20	1.15	50	1.0	50
Northern Plains-----	453	1.16	880	1.1	962
North Dakota-----	12	1.02	60	1.0	60
South Dakota-----	80	1.21	70	1.1	77
Nebraska-----	86	1.08	250	1.1	275
Kansas-----	275	1.17	500	1.1	550
Appalachian-----	46	1.06	190	1.0	195
Virginia-----	2/	2/	75	1.0	75
West Virginia-----	2/	2/	10	1.3	13
North Carolina-----	2/	2/	20	1.0	20
Kentucky-----	2/	2/	75	1.0	75
Tennessee-----	2/	2/	10	1.2	12
Southeast-----	72	1.19	140	1.0	147
South Carolina-----	2/	2/	50	1.0	50
Georgia-----	2/	2/	10	1.0	10
Florida-----	2/	2/	10	1.0	10
Alabama-----	2/	2/	70	1.1	77
Delta States-----	49	1.78	320	1.0	320
Mississippi-----	2/	2/	50	1.0	50
Arkansas-----	2/	2/	200	1.0	200
Louisiana-----	2/	2/	70	1.0	70
Southern Plains-----	766	1.02	700	1.0	720
Oklahoma-----	118	1.00	200	1.1	220
Texas-----	650	1.02	500	1.0	500
Mountain-----	103	1.16	324	1.2	373
Montana-----	2/	2/	100	1.0	100
Idaho-----	2/	2/	50	1.3	65
Wyoming-----	2/	2/	60	1.3	78
Colorado-----	2/	2/	75	1.2	90
Nevada-----	2/	2/	25	1.0	25
Others-----	2/	2/	14	1.1	15
Pacific-----	79	1.24	90	1.2	108
Washington-----	2/	2/	15	1.2	18
Oregon-----	2/	2/	35	1.3	46
California-----	2/	2/	40	1.1	44
48 States-----	2,192	1.14	3,467	1.1	3,765

1/ Acreage treated times average number of treatments, except regional and national totals, which are sums of State data.

2/ Included in regional totals.

Table 15.--Cotton: Extent of weed-control treatment, by States, 1958

State	Acreage planted	Percentage treated		Average times treated		Total acreage treated ^{1/}	
		Pre-emergence	Post-emergence	Pre-emergence	Post-emergence	Pre-emergence	Post-emergence
	1,000 acres	Percent	Percent	Number	Number	1,000 acres	1,000 acres
Cotton States----	12,343	3.1	3.5	1.0	1.2	397	505
Missouri----	307	8.0	---	1.0	---	25	---
North Carolina--:	271	2.0	---	1.0	---	5	---
Tennessee--:	416	2.0	---	1.0	---	8	---
South Carolina--:	357	9.0	---	1.0	---	32	---
Georgia----	388	3.0	---	1.0	---	12	---
Alabama----	540	2.0	<u>2/</u>	1.0	1.0	11	1
Mississippi:	1,185	8.0	1	1.1	1.3	104	15
Arkansas----	1,075	14.0	9	1.0	1.2	150	116
Louisiana--:	379	13.0	4	1.0	1.1	49	17
Oklahoma----	430	---	---	---	---	---	---
Texas-----:	5,675	<u>2/</u>	3	1.0	1.2	1	204
New Mexico-:	184	---	12	---	1.0	---	22
Arizona----	386	---	6	---	1.0	---	23
California-:	750	---	11	---	1.3	---	107

^{1/} Acreage treated times average number of treatments, except national totals which are sums of State data.

^{2/} Less than .5 percent.

Table 16.--Other land: Extent of weed-control treatment, by regions and States, 1952 and 1958 1/

Region and State	1952		1958		Total acreage treated 2/
	Acreage treated	Average times treated	Acreage treated	Average times treated	
	1,000 acres	Number	1,000 acres	Number	
Northeast	120	1.14	295	1.0	295
New England	41	1.01	70	1.0	70
New York	40	1.20	100	1.0	100
New Jersey	8	1.75	25	1.0	25
Pennsylvania	23	1.11	50	1.0	50
Delaware	5	1.00	15	1.0	15
Maryland	3	1.00	35	1.0	35
Lake States	77	1.08	410	1.1	442
Michigan	16	1.06	130	1.1	143
Wisconsin	30	1.08	90	1.0	90
Minnesota	31	1.10	190	1.1	209
Corn Belt	349	1.13	505	1.1	545
Ohio	40	1.12	45	1.0	45
Indiana	62	1.05	65	1.0	65
Illinois	63	1.13	120	1.1	132
Iowa	110	1.25	150	1.1	165
Missouri	74	1.02	125	1.1	138
Northern Plains	422	1.07	1,430	1.1	1,576
North Dakota	80	1.12	30	1.2	36
South Dakota	85	1.06	200	1.1	220
Nebraska	62	1.13	500	1.1	550
Kansas	195	1.64	700	1.1	770
Appalachian	101	1.18	172	1.1	184
Virginia	10	1.00	50	1.0	50
West Virginia	3	1.00	7	1.1	8
North Carolina	25	1.48	25	1.3	32
Kentucky	52	1.12	50	1.0	50
Tennessee	11	1.04	40	1.1	44
Southeast	68	1.80	66	1.1	70
South Carolina	2	1.25	20	1.0	20
Georgia	5	1.16	15	1.1	16
Florida	55	1.96	25	1.1	28
Alabama	6	1.00	6	1.0	6
Delta States	275	1.15	240	1.1	260
Mississippi	45	1.00	10	1.0	10
Arkansas	40	1.02	30	1.0	30
Louisiana	190	1.21	200	1.1	220
Southern Plains	215	1.08	315	1.0	315
Oklahoma	90	1.03	90	1.0	90
Texas	125	1.12	225	1.0	225
Mountain	292	1.24	250	1.1	269
Montana	50	1.23	15	1.1	16
Idaho	40	1.12	70	1.1	77
Wyoming	10	1.80	5	1.0	5
Colorado	70	1.18	80	1.0	80
New Mexico	60	1.07	50	1.1	55
Arizona	36	1.33	20	1.2	24
Utah	20	1.65	10	1.2	12
Nevada	6	1.67	---	---	---
Pacific	710	1.93	850	1.4	1,185
Washington	70	1.26	150	1.1	165
Oregon	100	1.16	200	1.1	220
California	540	2.16	500	1.6	800
48 States	2,629	1.37	4,533	1.1	5,141

1/ Includes land in crops other than cotton, small grains and corn, and land in pasture and range.

2/ Acreage treated times average number of treatments, except regional and national totals, which are sums of State data.

Table 17.--Cotton: Extent of defoliation treatment, by States, 1958

State	Acreage treated	Average times treated	Total acreage treated ^{1/}
	1,000 acres	Number	1,000 acres
North Carolina-----	20	1.3	26
South Carolina-----	25	1.0	25
Georgia-----	35	1.0	35
Alabama-----	25	1.0	25
Mississippi-----	480	1.2	576
Arkansas-----	230	1.3	299
Louisiana-----	135	1.4	189
Oklahoma-----	125	1.0	125
Texas-----	1,250	1.2	1,500
New Mexico-----	90	1.0	90
Arizona-----	150	1.2	180
California-----	600	1.3	780
Others-----	10	1.0	10
Total or average-----	3,175	1.2	3,860

^{1/} Acreage treated times average numbers of treatments, except the total which is the sum of State data.

Table 18.--Crops other than cotton: Extent of defoliation treatment, by regions, 1958 ^{1/}

Region	Acreage treated	Average times treated	Total acreage treated ^{2/}
	1,000 acres	Number	1,000 acres
Northeast-----	113	1.2	138
Lake States-----	39	1.0	39
Southern Plains-----	134	1.0	134
Mountain-----	57	1.0	57
Pacific-----	124	1.1	136
Others-----	11	1.1	12
Total or average-----	478	1.1	516

^{1/} Chiefly forage seed, sorghum, potatoes, and dry beans.

^{2/} Sums of total acreages treated by crops.

Table 19.—Extent of pest-control and defoliation treatment and percentage of acreage treated with specified kinds of equipment, by regions and States, 1958

Region and State	Total acreage treated ^{1/}	Percentage treated with—		Percentage treated with—		
		Air equipment	Ground equipment	Own equipment	Custom operator's equipment	Rented, borrowed, or exchange equipment
	1,000 acres	Percent	Percent	Percent	Percent	Percent
Northeast	12,022	3.0	97.0	86.2	10.6	3.2
New England	2,856	2	98	90	9	1
New York	3,697	3	97	91	7	2
New Jersey	1,088	4	96	85	10	5
Pennsylvania	3,276	3	97	80	15	5
Delaware	386	5	95	81	15	4
Maryland	719	4	96	80	14	6
Lake States	12,474	7.6	92.4	76.4	17.0	6.6
Michigan	4,242	5	95	88	7	5
Wisconsin	2,334	6	94	79	15	6
Minnesota	5,898	10	90	67	25	8
Corn Belt	21,626	2.6	97.4	80.3	12.5	7.2
Ohio	4,478	2	98	77	16	7
Indiana	3,184	3	97	80	12	8
Illinois	5,338	2	98	82	12	6
Iowa	6,214	2	98	82	10	8
Missouri	2,412	6	94	79	14	7
Northern Plains	19,438	17.9	82.1	71.1	21.2	7.7
North Dakota	6,782	15	85	76	18	6
South Dakota	3,318	25	75	67	28	5
Nebraska	4,756	18	82	68	22	10
Kansas	4,582	17	83	70	20	10
Appalachian	7,926	4.9	95.1	82.8	11.1	6.1
Virginia	1,946	3	97	91	5	4
West Virginia	412	2	98	92	6	2
North Carolina	3,215	6	94	76	15	9
Kentucky	982	5	95	82	14	4
Tennessee	1,371	6	94	85	10	5
Southeast	12,097	15.1	84.9	71.2	21.4	7.4
South Carolina	2,640	17	83	66	25	9
Georgia	2,679	18	82	68	23	9
Florida	4,149	12	88	76	16	8
Alabama	2,629	15	85	72	25	3
Delta States	16,229	36.1	63.9	57.0	40.7	2.3
Mississippi	7,429	36	64	58	40	2
Arkansas	5,443	35	65	55	42	3
Louisiana	3,357	38	62	58	40	2
Southern Plains	22,261	39.5	60.5	61.4	34.6	4.0
Oklahoma	2,026	35	65	66	30	4
Texas	20,235	40	60	61	35	4
Mountain	15,437	43.8	56.2	50.0	46.1	3.9
Montana	5,555	35	65	67	30	3
Idaho	1,879	32	68	54	37	9
Wyoming	839	60	40	41	58	1
Colorado	2,914	50	50	50	60	3
New Mexico	1,291	45	55	46	52	2
Arizona	2,132	65	35	25	70	5
Utah	659	30	70	59	37	4
Nevada	168	50	50	30	63	7
Pacific	18,930	34.6	65.4	52.9	43.4	3.7
Washington	3,433	28	72	63	31	6
Oregon	2,287	25	75	66	30	4
California	13,210	38	62	48	49	3
48 States	158,440	22.4	77.6	67.5	27.3	5.2

^{1/} Sums of total acreage of crops and other land.

Table 20.—Percentage distribution of the acreage treated for pest control and defoliation with specified equipment, by regions and by size of farm, 1958

Region and size of farm	Percentage treated with -		Percentage treated with -		
	Air equipment	Ground equipment	Own equipment	Custom operators' equipment	Rented, borrowed, or exchange equipment
	Percent	Percent	Percent	Percent	Percent
Northeast:					
Less than 50 acres-----	2	98	81	16	3
50 to 99 acres-----	2	98	83	13	4
100 to 179 acres-----	3	97	86	10	4
180 to 259 acres-----	3	97	88	9	3
260 to 499 acres-----	4	96	91	7	2
500 to 999 acres-----	5	95	93	6	1
1,000 acres and over-----	5	95	93	7	1/
Average-----	3.0	97.0	86.2	10.6	3.2
Lake States:					
Less than 50 acres-----	2	98	70	18	12
50 to 99 acres-----	4	96	74	17	9
100 to 179 acres-----	6	94	77	15	8
180 to 259 acres-----	6	94	81	14	5
260 to 499 acres-----	8	92	80	16	4
500 to 999 acres-----	9	91	80	18	2
1,000 acres and over-----	9	91	81	18	1
Average-----	7.6	92.4	76.4	17.0	6.6
Corn Belt:					
Less than 50 acres-----	1	99	74	16	10
50 to 99 acres-----	2	98	75	15	10
100 to 179 acres-----	2	98	78	13	9
180 to 259 acres-----	3	97	81	12	7
260 to 499 acres-----	4	96	85	10	5
500 to 999 acres-----	6	94	90	9	1
1,000 acres and over-----	7	93	91	9	1/
Average-----	2.6	97.4	80.3	12.5	7.2
Northern Plains:					
Less than 50 acres-----	1/	100.0	79	12	9
50 to 99 acres-----	3	97	76	15	9
100 to 179 acres-----	6	94	73	16	11
180 to 259 acres-----	7	93	70	17	13
260 to 499 acres-----	12	88	70	20	10
500 to 999 acres-----	15	85	69	24	7
1,000 acres and over-----	25	75	67	31	2
Average-----	17.9	82.1	71.1	21.2	7.7
Appalachian:					
Less than 50 acres-----	1	99	75	13	12
50 to 99 acres-----	3	97	79	12	9
100 to 179 acres-----	5	95	82	11	7
180 to 259 acres-----	6	94	85	10	5
260 to 499 acres-----	6	94	86	8	4
500 to 999 acres-----	8	92	88	10	2
1,000 acres and over-----	10	90	87	12	1
Average-----	4.9	95.1	82.8	11.1	6.1
Southeast:					
Less than 50 acres-----	5	95	68	20	12
50 to 99 acres-----	7	93	71	19	10
100 to 179 acres-----	10	90	75	16	9
180 to 259 acres-----	12	88	75	17	8
260 to 499 acres-----	15	85	76	20	4
500 to 999 acres-----	22	78	73	25	2
1,000 acres and over-----	27	73	68	30	2
Average-----	15.1	84.9	71.2	21.4	7.4

Table 20.--Percentage distribution of the acreage treated for pest control and defoliation with specified equipment, by regions and by size of farm, 1958--Continued

Region and size of farm	Percentage treated with -		Percentage treated with -		
	Air equipment	Ground equipment	Own equipment	Custom operators' equipment	Rented, borrowed, or exchange equipment
	Percent	Percent	Percent	Percent	Percent
Delta States:					
Less than 50 acres-----	5	95	66	25	9
50 to 99 acres-----	15	85	64	28	8
100 to 179 acres-----	30	70	61	33	6
180 to 259 acres-----	33	67	59	37	4
260 to 499 acres-----	35	65	57	41	2
500 to 999 acres-----	43	57	54	45	1
1,000 acres and over-----	50	50	49	50	1
Average-----	36.1	63.9	57.0	40.7	2.3
Southern Plains:					
Less than 50 acres-----	15	85	68	24	8
50 to 99 acres-----	20	80	65	28	7
100 to 179 acres-----	24	76	64	30	6
180 to 259 acres-----	30	70	62	33	5
260 to 499 acres-----	35	65	61	35	4
500 to 999 acres-----	42	58	57	41	2
1,000 acres and over-----	48	52	54	45	1
Average-----	39.6	60.4	61.4	34.6	4.0
Mountain:					
Less than 50 acres-----	6	94	69	24	7
50 to 99 acres-----	20	80	63	28	9
100 to 179 acres-----	24	76	57	35	8
180 to 259 acres-----	35	65	52	42	6
260 to 499 acres-----	44	56	50	47	3
500 to 999 acres-----	52	48	42	55	3
1,000 acres and over-----	56	44	38	60	2
Average-----	43.8	56.2	50.0	46.1	3.9
Pacific:					
Less than 50 acres-----	10	90	75	19	6
50 to 99 acres-----	14	86	71	25	4
100 to 179 acres-----	18	82	69	27	4
180 to 259 acres-----	25	75	66	31	3
260 to 499 acres-----	35	65	60	37	3
500 to 999 acres-----	42	58	53	45	2
1,000 acres and over-----	50	50	33	65	2
Average-----	34.6	65.4	52.9	43.4	3.7
48 States:					
Less than 50 acres-----	5.2	94.8	72.5	18.6	8.9
55 to 99 acres-----	8.0	92.0	73.6	19.2	7.2
100 to 179 acres-----	11.3	88.7	73.8	19.3	6.9
180 to 259 acres-----	13.4	86.6	74.7	19.6	5.7
260 to 499 acres-----	19.4	80.6	71.8	23.6	4.6
500 to 999 acres-----	30.7	69.3	63.4	33.8	2.8
1,000 acres and over-----	45.1	54.9	48.1	50.3	1.6
Average-----	22.4	77.6	67.5	27.3	5.2

1/ Less than .5 percent.



Growth Through Agricultural Progress

END