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STRICKLER, P.E.; SMITH, H.V.; KENDALL, J.R. 1 OF 1

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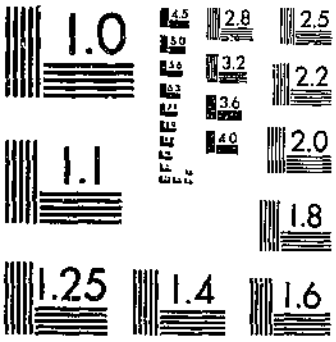

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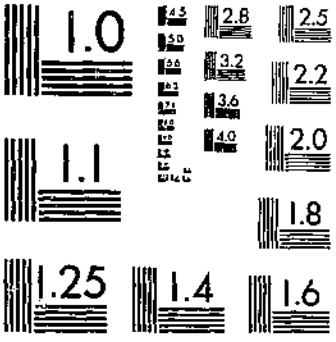

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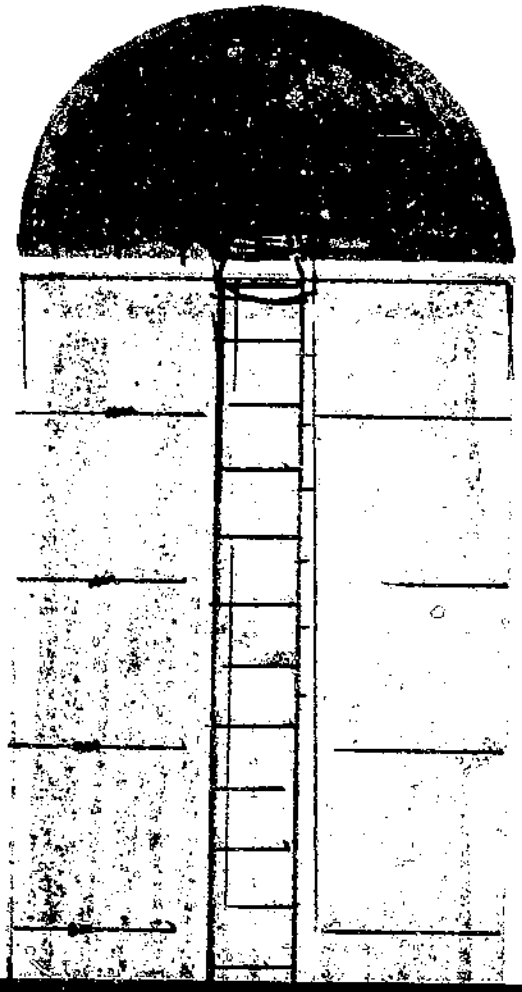

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PREFACE

Significant changes have occurred in silage handling practices since the publication of USDA Statistical Bulletin 217, Silage From 1955 Crops--Harvesting, Storing, Preserving, Sept. 1957, and Statistical Bulletin 128, Harvesting the Silage Crops, May 1953. Information is presented in the report for the first time on quantities of high-moisture corn stored, extent of mechanical removal of silage from silos other than upright, quantities of silage delivered to feeding locations by mechanical methods, and estimates of inventories of total numbers of silos and of silos actually used. The number of silos was last reported in the 1950 Census of Agriculture.

Washington, D. C. January 1968

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CONTENTS

	Page
Summary	iv
Introduction	1
Silos on farms	1
Types of silos	2
Capacity of silos	2
Kinds of silage made	3
Acreage and quantity harvested for silage	3
Hauling and unloading crops for silage	4
Removal of silage for feed	4
Minor products for feed	5

LIST OF TABLES

Table	Page
1. Silos: Total, percentage used, amount of silage stored, and average capacity, by State and region, specified years	6
2. Silos: Distribution by type, by State and region, 1950 and 1963	8
3. Silos used: Total, distribution by type, and average capacity, by State or region, 1963	9
4. Silos: Total capacity, capacity used, and quantity of silage stored, by State or region, 1963	10
5. Silos: Storage of products, by kind and region, 1963	11
6. Corn and sorghums: Harvested acreage, acres for and quantity of silage, by region, 1950-54 and 1955-59 averages, and 1960-63 annual	12
7. Silage: Quantity hauled, distribution by method of hauling, and type of unloading equipment, by region, 1963	14
8. Silage: Quantity stored, percentages removed distributed by specified methods, by State or region, 1963	15
9. Livestock feed crop production other than hay and silage, by region, 1963	16

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SUMMARY

Silage from some kind of forage is made in each of the 48 contiguous States. Production is concentrated in areas where dairy farming and livestock feeding are most prevalent.

Of 114 million tons of silage made or products stored in silos in 1963, about 73 percent was corn silage, 11 percent was sorghum, 3 percent was high-moisture shelled or ground ear corn, and the remaining 13 percent was grass, byproducts of fruit and vegetable processing plants, and miscellaneous farm products.

Farmers have increased acreage of silage corn over the years despite a decline in total acreage of corn harvested for all purposes. The increase in corn acreage for silage coupled with an increase in yield resulted in 83 million tons of corn silage in 1963--double the quantity stored in 1950 (41 million tons), when the last previous count of silos was made.

Throughout the 48 States, the quantity of sorghum silage reached a peak of 16.6 million tons in 1957 and has declined to an annual average of 12 to 13 million tons. In 1963, tonnage was still more than double that in 1950-54.

Wagons or trailers, usually pulled by tractors, were used in hauling 73 percent of the tonnage of crops for silage. Trucks hauled 27 percent of the silage moved. Power unloading equipment was used for handling 60 percent of the crop tonnage put into silos.

The number of silos on farms doubled from 1941 to 1963, increasing from one-half million to 1 million. The increase in numbers of permanent silos since 1950 was 37 percent; if temporary silos are included, the increase was 50 percent. No doubt some temporary silos were used in 1950 but they were not included in the enumeration; in 1963, they numbered 70,000.

Silage stored in 1963 increased 150 percent over 1950. Average capacity of all silos in 1963 was 158 tons, compared with 103 tons reported in 1952 for permanent types of silos. Average capacity of all silos used in 1963 was 164 tons. The average quantity of silage stored per silo in 1963 was 141 tons. Only 51 percent of all silos on farms were used in storing the 1963 crop.

Between 1950 and 1963, numbers of trench, bunker, and pit silos increased nearly threefold--from 68,000 to 251,000. The number of upright silos increased only 11 percent over the same period from 612,000 to 682,000.

Mechanical equipment is used extensively in feeding silage. Of silage stored in upright silos, 38 percent was removed by mechanical unloaders. From other than upright silos, 51 percent was removed with mechanical equipment. Eleven percent of the silage stored in other than upright silos was removed by self-feeding methods. About 24 percent of all silage stored was distributed to animals mechanically.

Forage crops for feed (other than those for hay or silage) amounted to more than 9 million tons in 1963.

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SILOS, SILAGE HANDLING PRACTICES, AND MINOR FEED PRODUCTS

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INTRODUCTION

This report is based on information supplied in February 1964 by voluntary crop reporters in 48 States to the Statistical Reporting Service. About 27,000 usable farm reports were received. A preliminary report, Harvesting Hay and Hay Crop Products, was issued by the Economic Research Service and the Statistical Reporting Service in January 1965.

This report gives data on numbers of silos on farms; quantities of silage stored; acreages of corn and sorghums harvested and their proportions used for silage; quantities of crops for silage hauled from fields by wagons or trailers and by trucks; and extent of use of power equipment for unloading these crops at silos and for moving silage from silos to feeding locations.

SILOS ON FARMS

Silos on farms are counted infrequently. Between counts, a marked increase in number and average capacity has occurred. While the 1 million silos existing in 1963 were double the number in 1941, the increase was much greater in some areas of the country than in others (table 1). The greatest increase--from 24,000 to 164,000--occurred between 1941 and 1963 in the Northern Plains. During this time, silos in the Mountain States increased from about 5,000 to 32,000, or over 500 percent.

Not all silos are used to store silage in a particular year. In 1963, only 81 percent were used to store a current crop. Only half or slightly more of the silos were filled in Florida, Oklahoma, and Texas. Various reasons could be given to explain why silos were not filled with silage in 1963, such as: Drought existed in some areas; land may have been in the soil bank; land use changed from cattle raising to grain farming; a silo may have been nearly full from the previous year's crop; a silo may have been purchased after harvest; or silos may have been used for dry shelled corn or chopped dry hay.

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Types of Silos

In the 1950 census, in which no temporary silos were counted, 90 percent of the silos were the upright type (table 2). Distribution of upright silos ranged from 20 percent in Texas to 98 percent in several States in the Northeast and in Wisconsin, Ohio, Indiana, and West Virginia. Regionally, the range was from 26 percent in the Southern Plains to 98 percent in the Lake States and the Northeast.

In 1963, numbers of upright silos ranged from 10 percent of the total in Texas to 95 percent in Wisconsin. Regionally, the range was from 13 percent in the Southern Plains to 88 percent in the Lake States.

Trench, bunker, and pit silos amounted to only 10 percent of the total in 1950, with percentages ranging from 2 percent in several of the Northeast and Lake States to 80 percent in Texas. These types of storage were most numerous in the Southern Plains and Mountain regions. In 1963, these silos accounted for 25 percent of the total number of all silos in the 48 States. By States, the range was from 2 percent in Wisconsin to 87 percent in some of the Mountain States. Regionally, the range was from 5 percent in the Lake States to 84 percent in the Southern Plains. In most States the distribution of silos used followed closely that of all silos (tables 2 and 3).

A relatively low level of farm income from 1950 to 1957 may have had some influence on farmers' decisions regarding types of silos to construct during the 1950's. With modern excavating equipment, a huge trench silo can be carved in suitable soil quickly and fairly cheaply. Trench and bunker silos are popular in areas where soils are fairly well drained and feeding operations are large. In Arizona, New Mexico, and California, where the larger trench silos are found, one such silo may hold as much as 100 average-sized upright silos.

Other types of silos and temporary storage facilities, not previously reported, numbered about 70,000 in 1963. These consist of stacks which can be located on nearly any site with little preparation other than the removal of stones and debris to smooth the ground. The stacks are usually covered with something, such as plastic film, to exclude air and rain. Another type of storage facility uses snow fencing or galvanized steel mesh fabric, lined with plastic or paper. These are erected on short notice, without special foundations, and are conveniently located for filling and feeding. These silos were used extensively in the Northern Plains, and in North Dakota they outnumbered upright silos.

Capacity of Silos

The average capacity of silos has increased along with the size of herds of dairy cattle, beef cattle, and sheep. In 1952, average capacity of permanent silos was 103 tons, while in 1963 average capacity of all silos, including temporary ones, was 158 tons (table 1). This was an increase of 55 tons, or 53 percent.

Average capacity of silos actually used was 164 tons--not greatly different from that of all silos. Average quantity stored reflects weather conditions and other factors which may limit quantities that are required for feeding. Also some silos were filled or had silage added more than once during the year. However, filling silos more than once was not sufficient to raise the tonnage actually stored to capacity, since the

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average quantity stored in 1963 per silo used was 141 tons. In the Northeast and Lake States, average quantity stored was close to average capacity of silos used.

A very wide range existed in average capacity of silos used among and between types (table 3). For upright silos, it was from 91 tons in West Virginia to 212 tons in Texas. Trench, bunker, and pit silos in California averaged 1,015 tons and in West Virginia the average was only 97 tons. Other types of silos also varied widely in capacity or quantity stored per unit. In Washington, where pea vines and other cannery byproducts were plentiful, the average pile or structure contained over 600 tons, but in the Northeast other types averaged 45 tons.

Quantities of silage stored in 1963 utilized 71 percent of available storage capacity and 86 percent of capacity in structures used in 1963 to store silage (table 4).

KINDS OF SILAGE MADE

Corn has long been the principal farm product used for silage. In 1963, it represented 83 million tons, or 73 percent of the 114 million tons of all products stored for silage (table 5). Only in the Delta States and Southern Plains was the quantity of corn silage exceeded by sorghum silage.

In the 48 States, sorghum silage amounted to 11 percent of the total silage produced. About 80 percent of it was in the Plains and Mountain States with 60 percent in the Northern Plains.

A wide variety of products are stored for silage such as various grasses, cannery byproducts, beet tops, high-moisture shelled corn, ground ear corn, and corn stalks. These products amounted to over 18 million tons in 1963. Storage of high-moisture shelled and ground ear corn accounted for about 9 percent of the tonnage stored in silos in the Corn Belt.

ACREAGE AND QUANTITY HARVESTED FOR SILAGE

Corn harvested for all purposes in 1963 totaled 68 million acres, about 15 percent less than the 1950-54 average acres harvested (table 6). A total of 7.7 million acres of corn was harvested for silage in 1963, an increase of 36 percent over the average in 1950-54. Increased acreage for silage was reported in all regions, with only a slight increase in the Lake States and Southern Plains.

In 1963, about 83 million tons of corn silage were made (table 6). This was an increase of 85 percent over the 1950-54 average tonnage. Increases during this period ranged from 37 percent in the Lake States to 357 percent in the Southeast. However, 29 percent of the corn silage was in the Lake States and only about 1 percent was in the Southeast in 1963.

Sorghums harvested for all purposes in 1963 totaled 17 million acres, a decrease of 17 percent from the 1955-59 average. For the 48 States, the average quantity of sorghum silage has remained at 12 to 13 million tons for several years. There was some decline in tonnage in the Southern Plains and Corn Belt, but this was largely

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offset by gains in the Northern Plains. The quantity of grass silage has been reported in the census of agriculture since 1939 when 0.3 million tons were reported. Quantities reported later were 1.5 million tons in 1949, 6.6 million in 1954, and 8 million in 1959. In 1964 census data, green chop (hay crops cut and fed green) was included and the total tonnage was 10.4 million.

While cattle on farms increased about 30 percent from 1950 to 1964, silage increased about 150 percent. Silage fed per head of cattle increased from about three-fourths of a ton to 1.5 tons.

Hauling and Unloading Crops for Silage

About 73 percent of the silage made in 1963 was hauled from the field to the silo in wagons or trailers (table 7). The proportion ranged from 20 percent in the Mountain region to 95 percent in the Lake States. The remainder of the silage--80 percent of production in the Mountain region, 5 percent in the Lake States, 27 percent in the 48 States--was hauled in trucks.

The method used to unload materials for silage is important in regard to labor requirements. Sixty percent of the material hauled to silos (about 68 million tons) was unloaded with power equipment. Sizable quantities were moved by this method in each region. Proportions moved by power equipment ranged from 35 percent in the Delta region to 67 percent in the Corn Belt. On the smaller farms, particularly, manual labor was still used extensively to transfer materials from hauling equipment to a blower elevator or conveyor in 1963.

REMOVAL OF SILAGE FOR FEED

Much silage is moved with mechanical equipment such as silo unloaders and forks or scoops on tractors, and part of it is distributed to animals mechanically (table 8).

In 1963, 38 percent of the 68 million tons of silage stored in upright silos was removed by mechanical unloaders. This compares with about 4 percent of the 47 million tons stored in upright silos in 1955.1/ In 1963, the range was from 12 percent in the Mountain region to 65 percent in South Dakota, with one-half or more removed by mechanical unloaders in North Dakota, Iowa, Illinois, Indiana, Nebraska, and California. The Corn Belt and the Northern Plains each had 51 percent of the silage removed from upright silos with mechanical equipment.

Of silage stored in other than upright silos in 1963, 51 percent was removed with mechanical equipment. Proportions ranged from 25 percent in Michigan, Tennessee, and West Virginia to 65 percent in South Dakota, with moderately large percentages in most States. Northern Plains, Mountain, and Pacific regions ranked highest in use of mechanical equipment for removing silage from these silos.

1/ Silage From 1955 Crops. U.S. Dept. Agr., Statis. Bul. 217, Sept. 1957.

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Self-feeding is feasible when silage is stored in trenches, bunkers, or temporary structures. Little labor is required for feeding silage to livestock in this way. The practice was important throughout most of the Corn Belt. From 5 percent of silage so stored in the Southeast and Delta States to 32 percent in the Lake States was fed in this manner.

Experience and management are necessary for best results with self-feeding. Location and design of the structures are important. To minimize waste, a feeding gate should be used.

Details of farmers' experiences with self-feeding are available in Self Feeding Silage to Beef Cattle From Horizontal Silos (Univ. Ill. Agr. Expt. Sta. and U.S. Dept. Agr., Bul. 642, April 1959).

Of the 114 million tons of silage stored, 25 percent of it was distributed to animals by mechanical methods such as conveyors, and power unloading equipment (table 8). Proportions handled this way varied little among regions except in the Northeast where only 12 percent was moved mechanically.

MINOR PRODUCTS FOR FEED

A large quantity of relatively minor products is used for livestock feed.

Over 9 million tons of corn fodder, corn tops, straw, oats, sorghum forage, and other minor crops were fed in 1963 (table 9). By kinds of forage, 47 percent was sorghum, 18 percent fodder, 12 percent straw, and the remainder consisted of corn tops, oats, and miscellaneous crops. Of the total tonnage, 29 percent was in the Northern Plains and 26 percent in the Southern Plains. Relatively small amounts were used in Southeastern, Delta, and Northeastern States.

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Table 1.--Silos: Total, percentage used, amount of silage stored, and average capacity, by State and region, specified years

State or region	Silos on farms			Percentage used in 1963	Silage stored		Average quantity stored per silo used, 1963	Average capacity of silos		
	1941 1/	1950 1/	1963		1950 2/	1963		1952 3/	1963	
									All silos	Silos used
	Number	Number	Number	Percent	1,000 tons	1,000 tons	Tons	Tons	Tons	Tons
New England	24,130	26,332	21,338	85	1,498	2,122	117	94	123	129
New York	54,172	62,072	60,644	89	4,560	6,099	113	101	114	117
New Jersey	3,110	4,949	6,355	88	446	671	120	112	115	120
Pennsylvania	43,990	47,237	60,856	85	2,460	4,759	92	70	94	96
Delaware	547	774	1,629	75	45	110	90	80	88	104
Maryland	3,475	7,036	14,832	82	470	1,423	117	97	121	123
Northeast	129,424	148,400	165,654	86	9,479	15,184	106	90	108	111
Michigan	44,650	44,959	45,874	81	2,336	4,459	120	71	114	121
Wisconsin	101,540	137,194	129,667	89	10,684	13,156	114	91	112	116
Minnesota	34,920	80,571	104,526	85	6,841	10,484	118	97	119	121
Lake States	181,110	262,724	280,067	86	19,861	28,099	116	89	115	119
Ohio	32,705	31,655	38,182	83	1,282	3,486	110	73	112	118
Indiana	27,707	21,112	31,994	71	687	3,044	134	83	130	141
Illinois	30,730	30,442	58,783	76	1,608	6,880	154	100	154	166
Iowa	29,830	36,394	70,859	78	1,730	7,572	137	112	144	151
Missouri	8,640	13,675	38,632	63	789	3,456	142	110	157	171
Corn Belt	129,612	133,278	238,450	75	6,096	24,438	137	95	142	150
North Dakota	2,785	7,346	23,451	87	921	3,754	184	120	207	221
South Dakota	4,550	8,411	34,825	89	642	5,610	181	134	203	210
Nebraska	3,225	10,867	30,466	83	595	4,501	178	122	264	278
Kansas	13,870	31,260	75,133	70	3,574	9,309	177	199	243	264
Northern Plains	24,430	57,884	163,875	79	5,732	23,174	179	165	233	247
Virginia	5,280	8,732	20,514	86	452	2,170	123	---	144	147
West Virginia	3,790	3,295	4,843	76	130	354	85	---	88	91
North Carolina	930	4,372	14,648	87	230	1,644	129	---	141	144
Kentucky	4,880	5,018	11,605	85	284	1,164	118	---	125	127
Tennessee	3,460	3,591	10,501	75	184	1,079	137	---	146	153
Appalachian	18,340	25,008	62,111	84	1,280	6,411	123	82	136	139

Table 1.--Silos: Total, percentage used, amount of silage stored, and average capacity, by State and region, specified years--Continued

State or region	Silos on farms			Percentage used in 1963	Silage stored		Average quantity stored per silo used, 1963	Average capacity of silos		
	1941 1/	1950 1/	1963		1950 2/	1963		1952 3/	1963	
									All silos	Silos used
	Number	Number	Number	Percent	1,000 tons	1,000 tons	Tons	Tons	Tons	Tons
South Carolina	405	1,924	3,394	86	39	432	148	---	148	155
Georgia	940	1,486	3,954	72	100	541	190	---	200	204
Florida	395	326	1,202	50	33	110	183	---	234	243
Alabama	391	1,307	3,632	80	57	465	160	---	195	198
Southeast	2,131	5,043	12,182	76	229	1,548	167	100	187	189
Mississippi	790	1,769	5,366	71	118	800	210	---	228	230
Arkansas	649	1,424	2,725	60	50	291	178	---	168	186
Louisiana	385	867	2,017	65	41	249	190	---	223	242
Delta States	1,824	4,060	10,108	67	209	1,340	198	120	211	222
Oklahoma	1,890	5,368	6,839	57	366	690	177	---	221	226
Texas	2,380	7,592	13,314	50	620	1,611	242	---	263	266
Southern Plains	4,270	12,960	20,153	52	986	2,301	218	170	249	251
Montana	230	991	3,330	83	96	633	229	---	330	392
Idaho	970	2,130	7,284	75	138	1,131	207	---	273	289
Wyoming	115	803	2,143	75	78	450	280	---	354	436
Colorado	2,284	7,352	13,709	75	954	3,249	316	---	387	412
New Mexico	240	657	1,570	60	55	501	532	---	873	1,243
Arizona	402	787	1,209	65	140	716	911	---	990	1,181
Utah	649	3,578	2,864	66	231	552	292	---	334	405
Nevada	56	142	308	65	20	105	525	---	709	771
Mountain	4,946	16,440	32,417	74	1,712	7,337	307	250	398	444
Washington	3,730	5,202	8,236	72	88	1,346	227	---	285	336
Oregon	2,825	4,716	5,096	73	94	785	211	---	244	268
California	2,170	4,031	5,062	72	412	1,644	451	---	506	715
Pacific	8,725	13,949	18,394	72	594	3,775	284	115	334	421
48 States	504,812	679,746	1,003,411	81	46,178	113,607	141	103	158	164

1/ Census of agriculture.
2/ Corn and sorghums for silage, U.S. Dept. Agr. Crop Production, 1951 Annual Summary, Dec. 1951 (USDA CP-PR-2151).
3/ Bureau of Agricultural Economics. Harvesting the Silage Crops. U.S. Dept. Agr. Statis. Bul. 128. May 1953.

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Table 2.--Silos: Distribution by type, by State and region, 1950 and 1963

State or region	All silos, 1950	Silos by type, 1950		All silos, 1963	Silos by type, 1963		
		Upright	Trench, bunker, and pit		Upright	Trench, bunker, and pit	Other 1/
	Number	Percent	Percent	Number	Percent	Percent	Percent
New England	26,332	97	3	21,338	87	9	4
New York	62,072	98	2	60,644	87	8	5
New Jersey	4,949	97	3	6,355	88	4	8
Pennsylvania	47,237	98	2	60,856	85	11	4
Delaware	774	94	6	1,629	80	10	10
Maryland	7,036	98	2	14,832	75	20	5
Northeast	148,400	98	2	165,654	85	10	5
Michigan	44,959	97	3	45,874	89	7	4
Wisconsin	137,194	98	2	129,667	95	2	3
Minnesota	80,571	97	3	104,526	80	9	11
Lake States	262,724	98	2	280,067	88	5	7
Ohio	31,655	98	2	38,182	90	8	2
Indiana	21,112	98	2	31,994	81	17	2
Illinois	30,442	95	5	58,783	84	12	4
Iowa	36,394	94	5	70,859	74	19	7
Missouri	13,675	82	18	38,632	36	60	4
Corn Belt	133,278	95	5	238,450	74	22	4
North Dakota	7,346	68	32	23,451	27	39	34
South Dakota	8,411	84	16	34,825	48	28	24
Nebraska	10,867	32	68	30,466	24	60	16
Kansas	31,260	69	31	75,133	36	60	4
Northern Plains	57,884	64	36	163,875	35	50	15
Virginia	8,732	97	3	20,514	65	27	8
West Virginia	3,295	98	2	4,843	70	27	3
North Carolina	4,372	83	17	14,648	44	47	9
Kentucky	5,018	95	5	11,605	76	19	5
Tennessee	3,591	84	16	10,501	50	48	2
Appalachian	25,008	92	8	62,111	60	34	6
South Carolina	1,924	70	30	3,394	68	29	3
Georgia	1,486	48	52	3,954	42	58	---
Florida	326	60	40	1,202	---	100	---
Alabama	1,307	61	39	3,632	37	63	---
Southeast	5,043	60	40	12,182	42	57	1
Mississippi	1,769	60	40	5,366	47	49	4
Arkansas	1,424	43	57	2,725	21	74	5
Louisiana	867	66	34	2,017	19	81	---
Delta States	4,060	56	44	10,108	34	62	4
Oklahoma	5,368	36	64	6,839	18	81	1
Texas	7,592	20	80	13,314	10	86	4
Southern Plains	12,960	26	74	20,153	13	84	3
Idaho	2,130	41	59	7,284	16	83	1
Colorado	7,352	45	55	13,709	17	80	3
Utah	3,578	33	67	7,864	19	73	8
Other Mountain States	3,380	26	74	8,560	10	87	3
Mountain	16,440	38	62	32,417	15	82	3
Washington	5,202	85	15	8,236	48	47	5
Oregon	4,716	91	9	5,096	61	37	2
California	4,031	63	37	5,062	32	61	7
Pacific	13,949	81	19	18,394	47	48	5
48 States	679,746	90	10	1,003,411	68	25	7

1/ Stacks and temporary structures.

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Table 3.--Silos used: Total, distribution by type, and average capacity, by State or region, 1963

State or region	Silos used in 1963	Distribution by type			Average capacity			
		Upright	Trench, bunker, and pits	Other 1/	All silos used	Upright	Trench, bunker, and pits	Other 1/
	Number	Percent	Percent	Percent	Tons	Tons	Tons	Tons
New England	18,137	86	10	4	129	116	270	60
New York	53,973	87	7	6	117	117	180	47
New Jersey	5,592	86	5	9	120	125	170	41
Pennsylvania	51,728	85	10	5	96	92	157	39
Delaware	1,222	84	8	8	104	102	170	58
Maryland	12,162	76	21	3	123	115	164	38
Northeast	142,814	85	10	5	111	108	180	45
Michigan	37,158	88	7	5	121	120	182	52
Wisconsin	115,404	95	2	3	116	117	168	42
Minnesota	88,847	80	8	12	121	125	169	60
Lake States	241,409	88	5	7	119	120	172	55
Ohio	31,691	89	8	3	118	110	230	42
Indiana	22,716	78	19	3	141	125	216	68
Illinois	44,675	82	13	5	166	168	188	85
Iowa	55,270	75	17	8	151	148	188	98
Missouri	24,338	36	59	5	171	128	203	98
Corn Belt	178,690	74	20	6	150	141	200	87
North Dakota	20,402	18	41	41	221	172	298	165
South Dakota	30,994	48	26	26	210	169	339	155
Nebraska	25,287	25	55	20	278	170	345	230
Kansas	52,593	33	62	5	264	162	326	164
Northern Plains	129,276	33	49	18	247	167	328	175
Virginia	17,642	66	25	9	147	140	185	91
West Virginia	4,165	72	25	3	91	91	97	45
North Carolina	12,744	46	43	11	144	134	179	52
Kentucky	9,864	78	16	6	127	123	175	50
Tennessee	7,876	49	48	3	153	132	180	79
Appalachian	52,291	61	21	8	139	129	175	69
Southeast	9,273	46	52	2	189	147	230	100
Delta States	6,756	33	61	6	222	194	251	71
Oklahoma	3,898	17	83	---	226	184	235	---
Texas	6,657	7	89	4	266	212	280	50
Southern Plains	10,555	11	87	2	251	196	264	50
Idaho	5,463	14	86	---	289	130	315	---
Colorado	10,282	10	86	4	412	156	450	236
Utah	1,890	20	73	7	405	167	498	118
Other Mountain States	6,299	9	89	2	642	198	692	439
Mountain	23,934	11	84	5	444	159	488	250
Washington	5,930	45	47	8	336	130	483	632
Oregon	3,720	62	36	2	268	120	505	608
California	3,645	31	58	11	715	177	1,015	650
Pacific	13,295	46	47	7	421	135	668	638
48 States	808,293	69	23	8	164	127	290	116

1/ Stacks and temporary structures.

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Table 4.--Silos: Total capacity, capacity used, and quantity of silage stored, by State or region, 1963

State or region	Silage stored	Capacity of silos used	Capacity of all silos	Capacity utilized	
				Silos used	All silos
	Thousand tons	Thousand tons	Thousand tons	Percent	Percent
New England	2,122	2,340	2,625	91	81
New York	6,099	6,315	6,913	97	88
New Jersey	671	671	731	100	92
Pennsylvania	4,759	4,966	5,720	96	83
Delaware	110	127	143	87	77
Maryland	1,423	1,496	1,795	95	79
Northeast	15,184	15,915	17,927	95	85
Michigan	4,459	4,496	5,230	99	85
Wisconsin	13,156	13,387	14,523	98	91
Minnesota	10,484	10,750	12,439	98	84
Lake States	28,099	28,633	32,192	98	87
Ohio	3,486	3,740	4,276	93	82
Indiana	3,044	3,203	4,159	95	73
Illinois	6,880	7,416	9,053	93	76
Iowa	7,572	8,346	10,204	91	74
Missouri	3,456	4,162	6,065	83	57
Corn Belt	24,438	26,867	33,757	91	72
North Dakota	3,754	4,509	4,854	83	77
South Dakota	5,610	6,509	7,069	86	79
Nebraska	4,501	7,030	8,043	64	56
Kansas	9,309	13,885	18,257	67	51
Northern Plains	23,174	31,933	38,223	73	61
Virginia	2,170	2,593	2,954	84	73
West Virginia	354	379	426	93	83
North Carolina	1,644	1,835	2,065	90	80
Kentucky	1,164	1,253	1,451	93	80
Tennessee	1,079	1,205	1,533	90	70
Appalachian	6,411	7,265	8,429	88	76
South Carolina	432	452	502	96	86
Georgia	541	581	791	93	68
Florida	110	146	281	75	39
Alabama	465	575	708	81	66
Southeast	1,548	1,754	2,282	88	68
Mississippi	800	876	1,223	91	65
Arkansas	291	304	458	96	64
Louisiana	249	317	450	79	55
Delta States	1,340	1,497	2,131	90	63
Oklahoma	690	881	1,511	78	46
Texas	1,611	1,771	3,502	91	46
Southern Plains	2,301	2,652	5,013	87	46
Mountain	7,337	10,617	12,895	69	57
Pacific	3,775	5,595	6,151	67	61
48 States	113,607	132,728	159,000	86	71

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Table 5.--Silos: Storage of products, by kind and region, 1963

Region	Corn		Sorghum	Other products 1/	Total
	Stalk and ear	High-moisture			
	Thous. tons	Thous. tons	Thous. tons	Thous. tons	Thous. tons
Northeast	12,836	---	---	2,348	15,184
Lake States	24,215	825	---	3,059	28,099
Corn Belt	17,528	2,160	866	3,884	24,438
Northern Plains	13,012	525	7,647	1,990	23,174
Appalachian	5,514	---	297	600	6,411
Southeast	1,088	---	410	50	1,548
Delta States	500	---	715	125	1,340
Southern Plains	748	---	1,495	58	2,301
Mountain	5,347	---	1,090	900	7,337
Pacific	2,138	---	306	1,331	3,775
48 States	82,926	3,510	12,826	14,345	113,607
Percentage of total	73	3	11	13	100

1/ Other products include mainly grass, sugarbeet tops, sweet cornstalks, and byproducts from fruit and vegetable processing plants.

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Table 6.--Corn and sorghums: Harvested acreage, acres for and quantity of silage, by region, 1950-54 and 1955-59 averages, and 1960-63 annual 1/

Region and year	Corn				Sorghums			
	Harvested acreage for all purposes	Acres for silage 2/	Quantity of silage	Increase from 1950-54	Harvested acreage for all purposes	Acres for silage 2/	Quantity of silage	Increase from 1950-54
	1,000 acres	Percent	1,000 tons	Percent	1,000 acres	Percent	1,000 tons	Percent
Northeast:								
1950-54	3,008	32	9,145	---	---	---	---	---
1955-59	2,849	34	9,621	5	---	---	---	---
1960	2,770	33	10,120	11	---	---	---	---
1961	2,537	34	10,414	14	---	---	---	---
1962	2,613	41	11,719	28	---	---	---	---
1963	2,783	41	12,836	40	---	---	---	---
Lake States:								
1950-54	9,618	21	17,721	---	5	40	12	---
1955-59	10,691	19	19,503	10	---	---	---	---
1960	11,706	20	21,107	19	---	---	---	---
1961	10,133	20	22,384	26	---	---	---	---
1962	9,808	23	23,254	31	---	---	---	---
1963	10,459	21	24,215	37	---	---	---	---
Corn Belt:								
1950-54	31,616	3	7,848	---	172	33	461	---
1955-59	31,676	3	9,243	18	847	27	2,017	338
1960	36,114	3	12,058	54	686	15	1,121	143
1961	28,506	3	11,869	51	381	27	1,221	165
1962	29,008	4	16,097	105	329	22	808	75
1963	31,414	4	17,528	123	357	22	866	88
Northern Plains:								
1950-54	14,485	7	4,500	---	4,376	13	3,533	---
1955-59	12,723	14	7,744	72	7,315	11	5,373	52
1960	14,283	13	10,107	125	7,666	9	6,352	80
1961	11,345	14	9,266	106	5,360	13	6,921	96
1962	11,080	14	11,689	160	5,957	12	7,667	117
1963	11,811	15	13,012	189	7,309	11	7,647	116
Appalachian:								
1950-54	7,382	3	1,863	---	133	15	142	---
1955-59	6,120	4	2,399	29	277	19	457	222
1960	5,818	5	3,349	80	224	22	438	208
1961	4,601	7	4,151	123	159	25	379	167
1962	4,329	9	4,853	160	135	27	392	176
1963	4,448	12	5,514	196	135	24	297	109
Southeast:								
1950-54	7,359	1	238	---	115	12	82	---
1955-59	6,256	1	496	108	176	25	346	322
1960	5,427	2	867	264	128	30	330	302
1961	4,595	2	862	262	113	36	360	339
1962	4,114	2	808	239	104	42	379	362
1963	4,142	3	1,088	357	111	41	410	400

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Table 6.--Corn and sorghums: Harvested acreage, acres for and quantity of silage, by region, 1950-54 and 1955-59 averages, and 1960-63 annual 1/--Continued

Region and year	Corn				Sorghums			
	Harvested acreage for all purposes	Acres for silage 2/	Quantity of silage	Increase from 1950-54	Harvested acreage for all purposes	Acres for silage 2/	Quantity of silage	Increase from 1950-54
	1,000 acres	Percent	1,000 tons	Percent	1,000 acres	Percent	1,000 tons	Percent
Delta States:								
1950-54	3,432	1	239	---	124	28	257	---
1955-59	2,498	2	350	46	270	27	723	181
1960	1,809	3	434	82	134	43	551	114
1961	1,422	3	500	109	116	47	553	115
1962	1,265	4	419	75	102	30	400	56
1963	1,210	4	500	109	134	47	715	178
Southern Plains:								
1950-54	2,927	2	298	---	7,901	3	1,045	---
1955-59	2,033	3	382	28	9,890	3	2,040	95
1960	1,584	4	559	88	8,874	3	2,434	133
1961	1,289	3	366	23	6,704	4	2,364	126
1962	1,269	4	537	80	6,928	3	2,139	105
1963	1,096	6	748	151	7,612	2	1,495	43
Mountain:								
1950-54	857	28	2,231	---	1,172	3	273	---
1955-59	909	39	4,050	82	1,489	6	925	239
1960	812	48	5,033	126	1,179	8	1,144	319
1961	709	46	4,671	109	938	8	962	252
1962	718	53	5,124	130	968	8	816	199
1963	673	53	5,347	140	1,033	8	1,090	299
Pacific:								
1950-54	141	40	625	---	112	5	67	---
1955-59	366	32	1,604	157	238	4	152	127
1960	355	36	1,795	187	259	6	248	270
1961	268	42	1,581	153	220	6	245	266
1962	270	50	2,253	260	235	7	306	357
1963	281	45	2,138	242	273	7	306	357
48 States:								
1950-54	80,825	7	44,708	---	14,110	7	5,872	---
1955-59	76,121	9	55,388	24	20,501	8	12,033	105
1960	80,678	9	65,429	46	19,150	7	12,618	115
1961	65,405	10	66,064	48	13,991	9	13,005	121
1962	64,474	11	76,753	72	14,758	8	12,907	120
1963	68,317	11	82,926	85	16,964	8	12,826	118

1/ Field crops by States: 1949-54, U.S. Dept. Agr. Statis. Bul. 185, June 1956; 1955-58, U.S. Dept. Agr. Statis. Bul. 290, June 1961; 1959-63, U.S. Dept. Agr. Statis. Bul. 384, Dec. 1966.

2/ Acres for silage derived from percentages will not be exact due to rounding.

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Table 7.--Silage: Quantity hauled, distribution by method of hauling, and type of unloading equipment, by region, 1963

Region	Quantity hauled	Percentage hauled in--		Unloading equipment	
		Wagons or trailers	Trucks	Power	Other
	Thous. tons	Percent	Percent	Percent	Percent
Northeast	15,184	70	30	60	40
Lake States	28,099	95	5	60	40
Corn Belt	24,438	90	10	67	33
Northern Plains	23,174	60	40	56	44
Appalachian	6,411	60	40	57	43
Southeast	1,548	65	35	60	40
Delta States	1,340	80	20	35	65
Southern Plains	2,301	40	60	55	45
Mountain	7,337	20	80	66	34
Pacific	3,775	50	50	58	42
48 States	113,607	73	27	60	40

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Table 8.--Silage: Quantity stored, percentages removed distributed by specified methods, by State or region, 1963

State or region	Upright silos		All other silos			Silage stored	
	Silage stored	Removed by mechanical unloaders	Silage stored	Removed by mechanical equipment	Self fed	Total	Distributed to animals mechanically
	Thous. tons	Percent	Thous. tons	Percent	Percent	Thous. tons	Percent
New England	1,698	25	424	60	15	2,122	16
New York	5,367	30	732	38	18	6,099	12
New Jersey	570	30	101	43	14	671	14
Pennsylvania	4,045	20	714	41	19	4,759	10
Delaware	77	25	33	35	15	110	15
Maryland	1,039	25	384	36	16	1,423	14
Northeast	12,796	26	2,388	43	17	15,184	12
Michigan	3,879	30	580	25	35	4,459	25
Wisconsin	12,630	35	526	30	36	13,156	25
Minnesota	8,702	38	1,782	36	30	10,484	25
Lake States	25,211	35	2,888	33	32	28,099	25
Ohio	2,998	45	488	54	23	3,486	31
Indiana	2,222	50	822	51	30	3,044	35
Illinois	5,642	55	1,238	57	25	6,880	32
Iowa	5,679	55	1,893	57	20	7,572	29
Missouri	1,037	22	2,419	36	18	3,456	24
Corn Belt	17,578	51	6,860	49	22	24,438	30
North Dakota	601	62	3,153	60	5	3,754	20
South Dakota	2,300	65	3,310	65	6	5,610	27
Nebraska	1,125	58	3,376	55	2	4,501	30
Kansas	2,327	30	6,982	50	5	9,309	27
Northern Plains	6,353	51	16,821	56	5	23,174	26
Virginia	1,194	35	976	45	14	2,170	30
West Virginia	262	25	92	25	15	354	19
North Carolina	756	30	888	34	10	1,644	25
Kentucky	861	27	303	27	14	1,164	20
Tennessee	529	25	550	25	10	1,079	17
Appalachian	3,602	30	2,809	35	12	6,411	24
Southeast	635	27	913	40	5	1,548	31
Delta States	400	36	940	37	5	1,340	21
Oklahoma	117	40	573	44	14	690	24
Texas	113	35	1,498	45	12	1,611	30
Southern Plains	230	38	2,071	45	13	2,301	28
Mountain	589	12	6,748	58	7	7,337	24
Washington	283	25	1,063	65	8	1,346	24
Oregon	234	30	551	62	5	785	21
California	49	55	1,595	60	5	1,644	24
Pacific	566	30	3,209	62	6	3,775	23
48 States	67,960	38	45,647	51	11	113,607	25

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OFFICIAL BUSINESS

POSTAGE AND FEES PAID
U.S. Department of Agriculture

Table 9.--Livestock feed crop production other than hay and silage, by region, 1963

Region	Corn fodder	Corn tops	Straw	Oats 1/	Sorghum forage	Other minor crops	Total
	1,000 tons	1,000 tons	1,000 tons	1,000 tons	1,000 tons	1,000 tons	1,000 tons
Northeast	90	34	51	29	---	35	239
Lake States	228	14	137	7	---	74	460
Corn Belt	96	3	245	22	119	62	547
Northern Plains	197	29	181	18	1,909	358	2,692
Appalachian	138	9	45	2	51	96	341
Southeast	37	3	11	1	68	5	125
Delta States	32	4	15	---	89	17	157
Southern Plains	561	8	20	---	1,651	122	2,362
Mountain	130	1	205	45	376	691	1,448
Pacific	138	2	170	2	36	420	768
48 States	1,647	107	1,080	126	4,299	1,880	9,139
	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Percentage of total	18	1	12	1	47	21	100

1/ Cut ripe and fed without separating grain from straw.

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END

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