

AREA AND PERCENTAGES OF AREA IN BARLEY, BY STATES AND TERRITORIES, IN DESCENDING ORDER OF AREA: 1889.

STATES AND TERRITORIES.	Total area in barley. (Acres.)	Percentage of total.	Cumulative percentage.	STATES AND TERRITORIES.	Total area in barley. (Acres.)	Percentage of total.	Cumulative percentage.
The United States	3,220,834	100.00	.....	25. New Hampshire.....	4,934	0.15	99.29
1. California	815,905	25.33	25.33	26. Montana	4,652	0.14	99.43
2. Iowa	518,729	16.11	41.44	27. Tennessee.....	3,535	0.11	99.54
3. Wisconsin	474,914	14.74	56.18	28. Texas	2,782	0.09	99.63
4. Minnesota	358,510	11.13	67.31	29. Virginia.....	2,051	0.06	99.69
5. New York	340,311	10.56	78.10	30. Massachusetts	1,785	0.06	99.75
6. North Dakota.....	109,400	3.40	81.50	31. Missouri.....	1,504	0.05	99.80
7. Michigan	99,305	3.08	84.64	32. New Mexico.....	1,484	0.05	99.85
8. South Dakota.....	97,370	3.02	87.66	33. Maryland.....	818	0.03	99.88
9. Nebraska	82,590	2.56	90.22	34. South Carolina.....	688	0.02	99.90
10. Washington	51,551	1.60	91.82	35. Georgia.....	519	0.02	99.92
11. Illinois	41,390	1.28	93.10	36. Wyoming.....	480	0.02	99.94
12. Oregon	37,722	1.17	94.27	37. Rhode Island	363	0.01	99.95
13. Ohio	37,092	1.15	95.42	38. West Virginia.....	326	0.01	99.96
14. Pennsylvania.....	20,950	0.65	96.07	39. North Carolina.....	302	0.01	99.97
15. Vermont	16,427	0.51	96.58	40. Connecticut.....	273	0.01	99.98
16. Colorado	12,086	0.38	96.96	41. Alabama	200	0.01	99.99
17. Maine	11,972	0.37	97.33	42. Arkansas	100		
18. Arizona.....	10,644	0.33	97.66	43. Mississippi.....	80		
19. Indiana	10,280	0.32	97.98	44. New Jersey.....	47		
20. Idaho	10,004	0.31	98.29	45. Louisiana.....	41	0.01	100.00
21. Nevada	8,081	0.25	98.54	46. Oklahoma.....	17		
22. Kansas.....	7,201	0.22	98.76	47. Delaware.....	12		
23. Utah	6,440	0.20	98.96	48. Florida.....	9		
24. Kentucky.....	5,776	0.18	99.14	49. District of Columbia.....			

By geographical divisions it is found that in the North Atlantic there is a decrease in the acreage devoted to barley of 3,979 acres, or 0.97 per cent; in the South Atlantic there is an increase of 375 acres, or 8.56 per cent; in the South Central a decrease of 16,341 acres, or 56.49 per cent; in the Western an increase of 269,459 acres, or 39.07 per cent, and in the North Central an increase of 973,593 acres, or 112.59 per cent.

In 1889, as in 1879, Nevada was the only state and Arizona the only territory that had a larger area under barley than under any other cereal, the proportion of the total cereal acreage devoted to that product being 52.04 per cent in the case of Nevada and 46.89 per cent in that of Arizona.

Taking the country as a whole, barley has more than held its own in comparison with the other cereals, 2.29 acres out of every 100 under cereals being devoted to it in 1889 in comparison with 1.68 acres out of every 100 in 1879. In the North Atlantic division the percentage has increased from 4.14 to 4.58, for while the acreage in barley decreased, that in corn and wheat decreased in still greater proportion. In the South Atlantic group the percentage remains the same. In the South Central group the reduction in the acreage under barley reduced the ratio it bore to the entire cereal acreage of the division from 0.15 to 0.06 per cent. In the Western division the ratio was reduced from 18.10 to 16.22 per cent, notwithstanding the substantial increase of the barley acreage. This, of course, was due to the fact that the increase of the area under other cereal products was greater even than that under barley. The greatest change and the only substantial increase is found in the North Central division, where the percentage is increased from 1.23 to 2.03.

STATISTICS OF AGRICULTURE.

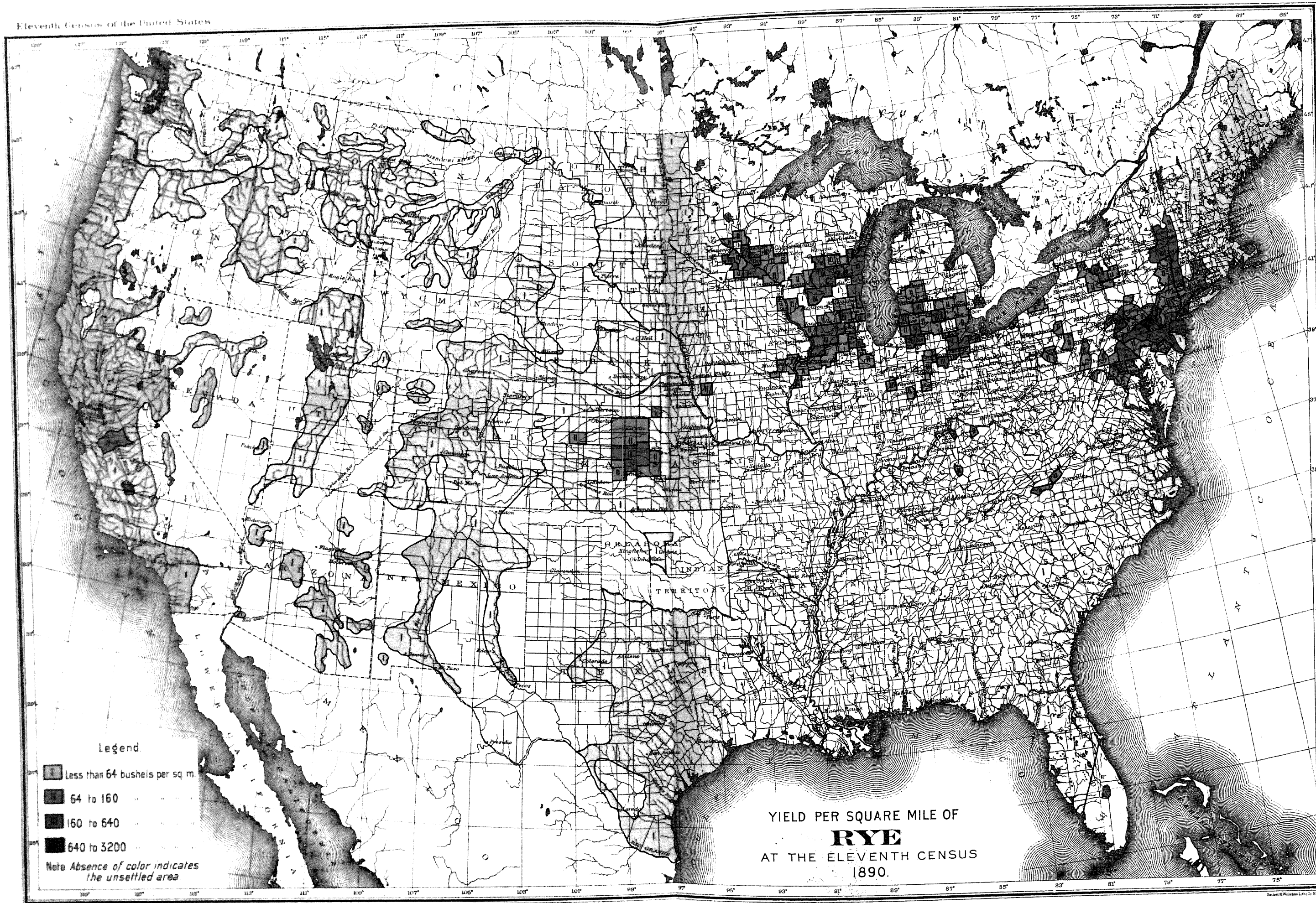
PRODUCTION OF BARLEY AND PERCENTAGES OF TOTAL PRODUCT, BY STATES AND TERRITORIES, IN DESCENDING ORDER OF PRODUCTION: 1889.

STATES AND TERRITORIES.	Total production of barley. (Bushels.)	Percentage of total.	Cumulative percentage.	STATES AND TERRITORIES.	Total production of barley. (Bushels.)	Percentage of total.	Cumulative percentage.
The United States.....	78,332,976	100.00	.....	25. Montana.....	160,902	0.21	99.43
1. California.....	17,548,386	22.40	22.40	26. New Hampshire.....	112,378	0.14	99.57
2. Wisconsin.....	15,225,872	19.44	41.84	27. Tennessee.....	63,806	0.08	99.65
3. Iowa.....	13,400,122	17.11	58.95	28. Texas.....	48,152	0.06	99.71
4. Minnesota.....	9,100,683	11.62	70.57	29. Virginia.....	40,982	0.05	99.76
5. New York.....	8,220,242	10.49	81.06	30. Massachusetts.....	38,715	0.05	99.81
6. Michigan.....	2,522,378	3.22	84.28	31. New Mexico.....	35,024	0.05	99.86
7. Nebraska.....	1,822,111	2.33	86.61	32. Missouri.....	34,803	0.04	99.90
8. North Dakota.....	1,570,717	2.01	88.62	33. Maryland.....	18,778	0.02	99.92
9. Washington.....	1,269,140	1.62	90.24	34. Wyoming.....	11,763	0.02	99.94
10. Illinois.....	1,197,206	1.53	91.77	35. South Carolina.....	9,428	0.01	99.95
11. Ohio.....	1,059,915	1.35	93.12	36. Rhode Island.....	8,009	0.01	99.96
12. South Dakota.....	902,005	1.15	94.27	37. Georgia.....	6,053	0.01	99.97
13. Oregon.....	874,353	1.12	95.39	38. Connecticut.....	5,747	0.01	99.98
14. Pennsylvania.....	493,893	0.63	96.02	39. West Virginia.....	5,387	0.01	99.99
15. Vermont.....	420,761	0.54	96.56	40. North Carolina.....	3,521		
16. Colorado.....	331,550	0.42	96.98	41. Alabama.....	1,996		
17. Maine.....	286,263	0.37	97.35	42. New Jersey.....	1,043		
18. Arizona.....	252,992	0.32	97.67	43. Arkansas.....	994		
19. Indiana.....	250,200	0.32	97.99	44. Mississippi.....	875		
20. Nevada.....	237,192	0.30	98.29	45. Louisiana.....	598	0.01	100.00
21. Idaho.....	236,471	0.30	98.59	46. Delaware.....	205		
22. Kentucky.....	165,959	0.21	98.80	47. Florida.....	128		
23. Kansas.....	165,715	0.21	99.01	48. Oklahoma.....	112		
24. Utah.....	163,328	0.21	99.22	49. District of Columbia.....			





It will be seen from a comparison of the two tables last given that while California contained in 1889 25.33 per cent of the total area devoted to the cultivation of barley, its total barley production was only 22.40 per cent of the total crop of the country, its average yield per acre being less than that of the United States at large. A difference of 6.22 bushels per acre in the average yield in Iowa and Wisconsin, in favor of the latter state, gives it the second place in the scale of production, although it stood third only in that of acreage. Similar variations in the average rate of production change the relative positions of various other states, though scarcely to the same extent as in the case of certain other crops. The production of the state of California in 1889 exceeded the total production of the United States but 30 years before, and the combined production of California and Iowa exceeded the total production of the United States but 20 years before.

In the states in which the cultivation of barley assumes but small dimensions it is frequently restricted almost entirely to one or two counties, and even in some states that make a substantial contribution to the barley crop of the country the crops of one or two counties are far in excess of those of the remainder. In California, the state producing the largest amount of barley, 8 counties out of 53 produced in 1889 over one-half of the entire crop of the state. In Wisconsin, which stood next in rank, 6 counties out of 68, and in Iowa, which stood third, 9 counties out of 100 are to be credited with one-half of the total. In Massachusetts nearly one-half of the crop was the production of Worcester county, and in Rhode Island over one-half was grown in Newport county. In Connecticut nearly one-third was raised in Windham county, while of the production of Pennsylvania over one-half is to be credited to Erie county. In Maryland the production of Carroll county was more than one-half of the total production of the state. In North Carolina, Guilford county raised over one-third, and in Tennessee, Davidson county produced over two-fifths of the crop. In Virginia, Augusta and Rockingham counties, 2 counties out of 100, contributed over two-thirds of the crop, and in West Virginia, Berkeley and Ohio counties, 2 out of 55, produced over one-half of the total. In Kentucky over one-third was reported from Fayette county. In Montana over four-fifths of the total production was contributed by Gallatin county. In Colorado over one-third of the total production is to be credited to Weld county, and in Idaho over one-half to Latah. In Wyoming, Johnson county produced over one-third of the total. In Arizona, Maricopa county produced about three-fifths of the barley crop, while in Washington, Whitman county raised over one-third and Wallawalla county over one-fourth of the crop.

Barley shows a greater uniformity in the average yield per acre than any other cereal. In the North Atlantic division the average is 23.61 bushels to the acre, in the North Central 25.71, in the South Central 22.45, and in the Western 22.02. Only in the South Atlantic division, where its cultivation is for the most part sporadic, is there any considerable departure from the general uniformity of the other 4 divisions, the average being 17.77 bushels.



Legend

-  Less than 64 bushels per sq m
-  64 to 160
-  160 to 640
-  640 to 3200

Note Absence of color indicates the unsettled area

YIELD PER SQUARE MILE OF
RYE
 AT THE ELEVENTH CENSUS
 1890.

In a comparison of the average yield per acre in the different states Montana leads with an average yield of 34.59 bushels per acre, followed by Wisconsin with an average yield of 32.06 bushels. No fewer than 30 states and territories ranged from 20 to 30 bushels per acre in the average yield. Fourteen states exceeded the average production of the United States as a whole. Nevada had an average of over 29 bushels, Illinois, Kentucky, and Ohio over 28, Colorado over 27, Iowa, Vermont, Michigan, Minnesota, and Utah over 25, Washington, Indiana, and Wyoming over 24, Maine, Arizona, Idaho, New Mexico, Pennsylvania, New York, Oregon, Missouri, and Kansas over 23, Maryland, New Hampshire, New Jersey, Nebraska, and Rhode Island over 22, and Massachusetts, California, and Connecticut over 21. The states with averages ranging from 10 to 20 bushels per acre are 12 in number, and, with the exception of North Dakota, belong to the South Atlantic or South Central divisions. The states having a production of less than 10 bushels to the acre, with the exception of South Dakota, belong to the South Central division.

The production of barley in the United States in 1889 averaged 1.25 bushels per capita, an increase of 0.37 bushel per capita upon the production of 1879, and the highest average found to obtain at any federal census. The production of the North Atlantic division amounted to 0.55 bushel per capita, that of the South Atlantic to 0.01, of the North Central to 2.11, of the South Central to 0.03, and of the Western to 6.98 bushels. In no eastern state does the production reach as much as 2 bushels per capita, the highest averages being found in New York and Vermont. In the North Central division the production of Wisconsin is over 9 bushels, that of North Dakota over 8.5 bushels, that of Iowa over 7 bushels, and that of Minnesota nearly 7 bushels for each inhabitant. The largest per capita production is found in California, where it amounts to over 14.5 bushels.

Owing to the limited cultivation of barley the ratio borne by the area devoted to it to the total land surface of the country is even of less interest than the ratio borne by production to population. In Wisconsin, Iowa, and New York over 1 per cent, but under 1.05 per cent, of the total area is devoted to barley, and in California the proportion is less than 1 per cent. This is owing to the great area of the state, which considerably exceeds the combined area of any other two of the leading barley-producing states.

RYE.

The total area devoted to the cultivation of rye in the United States in 1889 was 2,171,604 acres, or 1.55 per cent of the total cereal acreage of the country. The total rye production was 28,421,398 bushels, or 13.09 bushels per acre.

In 1879 the total area under rye was 1,842,333 acres, or 1.55 per cent of the total cereal acreage, while the total production was 19,831,595 bushels, or an average of 10.76 bushels per acre.

There was accordingly an increase of 329,371 acres, or 17.88 per cent, in area, of 8,589,803 bushels, or 43.31 per cent, in production, and of 2.33 bushels per acre in the average yield.

The following table shows the total rye production for the years immediately preceding each decennial census from and including that of 1840, the total percentage of increase since 1839, the percentage of increase by decades, and the production per capita of total population:

YEARS.	Total production of rye. (Bushels.)	Percentage of increase since 1839.	Percentage of increase by decades.	Number of bushels per capita of total population.
1889.....	28,421,398	52.43	43.31	0.45
1879.....	19,831,595	6.36	17.23	0.40
1869.....	16,018,795	29.26	29.32	0.44
1859.....	21,101,380	13.17	46.72	0.67
1849.....	14,188,813	23.90	23.90	0.61
1839.....	13,045,567	.....	.....	1.09

a Decrease.

It will be seen from this table that the total percentage of increase in the volume of rye production from 1839 to 1889 is 52.43.

The increase in the production of rye from 1879 to 1889 was greater than in any previous decade, and was accompanied by an important change in the area of principal production, which was mostly in states east of the Mississippi river. This differs materially from the conditions for corn, wheat, and barley. The region west of the Mississippi river had only 525,506 acres under rye in 1889 as compared with 1,646,098 acres devoted to that product in the various states lying east of the Mississippi river.

East of that river there was an increase of 69,169 acres as compared with an increase of 260,202 acres west, the west having a slightly larger proportion (26.72 per cent) of the total production than of the total acreage. The number of states that show an increase is 25 and the number showing a decrease 24, the total increase amounting to 588,659 acres and the total decrease to 259,288 acres.

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AREA AND PERCENTAGES OF AREA IN RYE, BY STATES AND TERRITORIES, IN DESCENDING ORDER OF AREA: 1889.

STATES AND TERRITORIES.	Total area in rye. (Acres.)	Percentage of total.	Cumulative percentage.	STATES AND TERRITORIES.	Total area in rye. (Acres.)	Percentage of total.	Cumulative percentage.
The United States.....	2, 171, 604	100. 00	.....	25. Oregon.....	6, 845	0. 31	98. 38
1. Pennsylvania.....	336, 041	15. 47	15. 47	26. Texas.....	5, 255	0. 24	98. 62
2. Wisconsin.....	275, 058	12. 67	28. 14	27. Colorado.....	4, 615	0. 21	98. 83
3. New York.....	236, 374	10. 91	39. 05	28. South Carolina.....	4, 129	0. 19	99. 02
4. Kansas.....	199, 140	9. 17	48. 22	29. Utah.....	3, 389	0. 16	99. 18
5. Illinois.....	165, 598	7. 63	55. 85	30. Vermont.....	3, 379	0. 15	99. 33
6. Michigan.....	140, 754	6. 48	62. 33	31. Arkansas.....	2, 470	0. 11	99. 44
7. Iowa.....	93, 707	4. 31	66. 64	32. Alabama.....	2, 190	0. 10	99. 54
8. Nebraska.....	81, 372	3. 75	70. 39	33. Washington.....	1, 763	0. 08	99. 62
9. New Jersey.....	77, 245	3. 56	73. 95	34. North Dakota.....	1, 568	0. 07	99. 69
10. Indiana.....	62, 890	2. 90	76. 85	35. Idaho.....	1, 092	0. 05	99. 74
11. Minnesota.....	62, 899	2. 89	79. 74	36. New Hampshire.....	1, 056	0. 05	99. 79
12. Ohio.....	59, 643	2. 75	82. 49	37. Florida.....	853	0. 04	99. 83
13. North Carolina.....	59, 496	2. 60	85. 09	38. Maine.....	791	0. 04	99. 87
14. Virginia.....	52, 063	2. 40	87. 49	39. Rhode Island.....	779	0. 04	99. 91
15. Kentucky.....	45, 546	2. 10	89. 59	40. Delaware.....	775	0. 04	99. 95
16. Maryland.....	34, 302	1. 58	91. 17	41. Mississippi.....	406	0. 02	99. 97
17. California.....	27, 413	1. 26	92. 43	42. Wyoming.....	141	0. 01	99. 98
18. Tennessee.....	26, 443	1. 22	93. 65	43. District of Columbia.....	111	} 0. 01	99. 99
19. Missouri.....	24, 283	1. 12	94. 77	44. Oklahoma.....	110		
20. Georgia.....	20, 940	0. 96	95. 73	45. Louisiana.....	73	} 0. 01	100. 00
21. Connecticut.....	19, 100	0. 74	96. 47	46. New Mexico.....	60		
22. West Virginia.....	14, 962	0. 69	97. 16	47. Nevada.....	54		
23. Massachusetts.....	10, 665	0. 49	97. 65	48. Arizona.....	29		
24. South Dakota.....	9, 229	0. 42	98. 07	49. Montana.....	14		

The concentration of the productive area in the case of rye is greater than in that of wheat, corn, or oats, but it is not so great as in that of barley. The first 3 states in area devoted to rye in 1889 contained 39.05 per cent of the total rye acreage of the country, and the 10 having the largest acreage contained more than three-fourths of the total for the United States. By geographical divisions, it is found that in the North Atlantic every state shows a decrease, aggregating 130,911 acres, or 16.09 per cent. Pennsylvania shows a falling off of 62,424 acres, or 15.67 per cent, and in New Jersey, long a prominent rye-producing state, the reduction amounts to 27.14 per cent. In the South Atlantic there was a decrease of 10,424 acres, or 5.34 per cent, and in the South Central a decrease of 52,804 acres, or 39.03 per cent, there being a reduction in the state of Kentucky of 43,871 acres, or 49.06 per cent, and in Texas an increase of 1,929 acres, and the new territory of Oklahoma appears for the first time with 110 acres under rye. The remaining divisions show a considerable increase. In the North Central the state of Kansas has increased its area under rye 164,525 acres, or 475.22 per cent, Nebraska has more than doubled its acreage, as have also Ohio and Indiana. Michigan has increased its acreage over sixfold and Minnesota over fourfold. The increase in Wisconsin, with the exception of the increase in Kansas and in Michigan, is the greatest in the entire country, but the percentage of increase is much smaller than in many other states, while a decrease of 26,540 acres is shown in Illinois, 22,201 acres in Missouri, and 8,900 acres in Iowa. The net increase in this division amounts to 502,565 acres, or 74.61 per cent. Except for the decrease of a single acre in the small figures which represent the extent to which rye is cultivated in Montana, every state and territory in the Western division either shows an enlargement of its acreage under rye or appears in the list of rye-producing states for the first time. The total increase is 20,945 acres, or 85.56 per cent.

Taking the country at large, 1.55 acres were under rye in 1889 out of every 100 acres devoted to the various cereals. Even in the states of largest production the proportionate acreage was but small, being only 7.56 per cent in Pennsylvania, 6.37 per cent in Wisconsin, 7.31 per cent in New York, 1.88 per cent in Kansas, and 1.17 per cent in Illinois. In a few states, in which the total acreage under cereals is inconsiderable, the proportion under rye is much larger. In Connecticut, for example, it is 18.79 per cent, in Massachusetts 16.83 per cent, and in New Jersey 12.84 per cent. In the District of Columbia, with a total area under cereals of only 555 acres, rye had 111 acres, or 20 per cent. In no fewer than 26 states, scattered over the country, less than 1 acre out of every 100 devoted to cereals was under rye. The ratio is the lowest in the South Central division, where it fell during the decade from 0.70 to 0.41 per cent. It is but little higher in the Western, where it increased from 0.64 to 0.77 per cent. In the North Central it is 1.30, as compared with 0.96 per cent in 1879. In the South Atlantic the area bore practically the same proportion to the whole in 1889 that it did in 1879, it being 1.25 in the former year and 1.26 in the latter. In the North Atlantic it fell from 8.21 per cent to 7.70 per cent.

The North Central division, with only 25.37 per cent of the entire land surface of the country, contained 54.16 per cent of the total acreage of rye; the North Atlantic, with 5.46 per cent of the entire land surface, contained 31.45 per cent of the total acreage of rye; in the South Atlantic 8.50 per cent of the total acreage in rye is

distributed over 9.04 per cent of the land surface of the country. The South Central has 20.55 per cent of the entire land surface of the country and only 3.80 per cent of the total acreage in rye, while the Western has 39.58 per cent of the total land surface and only 2.09 per cent of the total acreage in rye.

PRODUCTION OF RYE WITH PERCENTAGES OF TOTAL PRODUCT, BY STATES AND TERRITORIES, IN DESCENDING ORDER OF PRODUCTION: 1889.

STATES AND TERRITORIES.	Total production of rye. (Bushels.)	Percentage of total.	Cumulative percentage.	STATES AND TERRITORIES.	Total production of rye. (Bushels.)	Percentage of total.	Cumulative percentage.
The United States.....	28,421,308	100.00	.....	25. Oregon.....	63,206	0.22	98.82
1. Wisconsin.....	4,250,582	14.96	14.96	26. Texas.....	62,370	0.22	99.04
2. Pennsylvania.....	3,742,164	13.17	28.13	27. Colorado.....	54,158	0.19	99.23
3. New York.....	3,065,623	10.79	38.92	28. Vermont.....	43,256	0.15	99.38
4. Kansas.....	2,917,386	10.26	49.18	29. Utah.....	33,928	0.12	99.50
5. Illinois.....	2,628,046	9.25	58.43	30. Washington.....	19,188	0.07	99.57
6. Michigan.....	2,101,713	7.39	65.82	31. South Carolina.....	17,303	0.06	99.63
7. Iowa.....	1,445,283	5.09	70.91	32. Arkansas.....	15,181	0.05	99.68
8. Minnesota.....	1,252,068	4.41	75.32	33. Alabama.....	14,618	0.05	99.73
9. Nebraska.....	1,085,983	3.82	79.14	34. Florida.....	13,389	0.05	99.78
10. Ohio.....	1,007,150	3.54	82.68	35. North Dakota.....	12,195	0.04	99.82
11. Indiana.....	877,532	3.06	85.77	36. New Hampshire.....	11,062	0.04	99.86
12. New Jersey.....	874,040	3.08	88.85	37. Idaho.....	10,809	0.04	99.90
13. Kentucky.....	423,847	1.49	90.34	38. Rhode Island.....	9,617	0.03	99.93
14. Virginia.....	397,304	1.40	91.74	39. Maine.....	6,664	0.02	99.95
15. Maryland.....	352,690	1.24	92.98	40. Delaware.....	6,825	0.02	99.97
16. Missouri.....	308,807	1.09	94.07	41. Mississippi.....	3,544	0.01	99.98
17. North Carolina.....	276,330	0.97	95.04	42. Wyoming.....	2,055	0.01	99.99
18. California.....	243,871	0.86	95.90	43. District of Columbia.....	1,099		
19. Connecticut.....	214,935	0.76	96.66	44. Oklahoma.....	1,052		
20. Tennessee.....	165,621	0.58	97.24	45. New Mexico.....	810		
21. West Virginia.....	117,113	0.41	97.65	46. Nevada.....	502	0.01	100.00
22. Massachusetts.....	117,061	0.41	98.06	47. Louisiana.....	374		
23. Georgia.....	87,021	0.31	98.37	48. Arizona.....	207		
24. South Dakota.....	65,183	0.23	98.60	49. Montana.....	188		

A comparison of the two tables last given shows a variation in the relative rank of states in the scales of acreage and production. While Pennsylvania contained in 1889 15.47 per cent of the total area devoted to the cultivation of rye, its crop is only 13.17 per cent of the total crop of the country. While Wisconsin contained only 12.67 per cent of the total rye acreage, its crop amounted to 14.96 per cent of the total production. In Wisconsin 13 counties out of 68 contributed half of the state crop. In New York 7 counties out of 60, in Minnesota 6 counties out of 79, in Virginia 8 counties out of 100, and in Georgia 9 counties out of 137 did the same. Of the rye crop of Maine, close upon one-half was produced in Aroostook county, of that of Florida over two-thirds was raised in Marion county, in Wyoming three-fourths was contributed by Johnson county, in Idaho nearly three-fourths was produced in Oneida county, while in California and Utah over one-half of the state totals are to be credited to Merced and Boxelder counties, respectively.

Rye is a product yielding a comparatively small quantitative return, and while the maximum yield per acre in the case of corn, oats, and barley, where the state is the geographical unit, is 41, 39, and 34 bushels, respectively, the highest state average in the case of rye is under 20 bushels, and the average for the country at large is, therefore, much lower than in the case of the three products just mentioned. In the North Atlantic division the average production was 11.84 bushels per acre, in the South Atlantic 6.87 bushels, in the North Central 15.26 bushels, in the South Central 3.32 bushels, and in the Western 9.44 bushels. Taking the averages for the individual states, it is found that Minnesota had an average of over 19 bushels, Ohio over 16, Illinois, Florida, Wisconsin, and Iowa over 15, Michigan, Kansas, and Wyoming over 14, and Indiana, Montana, Connecticut, and Nebraska over 13. The states in which the average was between 10 and 13 bushels were New York, Vermont, Missouri, Rhode Island, Texas, Colorado, New Mexico, New Hampshire, New Jersey, Pennsylvania, Massachusetts, Washington, Maryland, and Utah, the remaining 22 states and territories, including the District of Columbia, showing averages that reach their lowest figures in South Carolina with 4.19 and Georgia with 4.15 bushels per acre.

The production of rye in the United States in 1889 per capita of population was 0.45 bushel. This is considerably less than one-half of the per capita production in 1839, although it shows a trifling increase of about 3 per cent per capita over the production of 1879. Of the five geographical divisions, the North Central is the only one in which the production averages one-half bushel or more per head of population. In Wisconsin it is a little over 2.5 bushels, in Kansas 2 bushels, and in Nebraska 1 bushel per capita. The large production of Pennsylvania amounts to less than three-fourths of a bushel for each inhabitant of that state, that of Illinois is a little over two-thirds of a bushel, and that of New Jersey and New York each over one-half bushel per capita.

STATISTICS OF AGRICULTURE.

BUCKWHEAT.

The total area devoted to the cultivation of buckwheat in the United States in 1889 was 837,164 acres, or 0.60 per cent of the total cereal acreage of the country. The total buckwheat production was 12,110,349 bushels, or an average of 14.47 bushels per acre.

In 1879 the total area under buckwheat was 848,389 acres, or 0.72 per cent of the total cereal acreage, while the total production was 11,817,327 bushels, or an average of 13.93 bushels per acre.

There was, accordingly, an increase of 293,022 bushels, or 2.48 per cent, in production concurrent with a decrease of 11,225 acres, or 1.32 per cent in acreage, owing to the slight increase, amounting to 0.54 bushel per acre, in the average yield.

The following table shows the total buckwheat production for the years immediately preceding each decennial census from and including that of 1840, the total percentage of increase since 1839, the percentage of increase by decades, and the production per capita of total population:

YEARS.	Total production of buckwheat. (Bushels.)	Percentage of increase since 1839.	Percentage of increase by decades.	Number of bushels per capita of total population.
1889.....	12,110,349	66.08	2.48	0.19
1879.....	11,817,327	62.00	20.32	0.24
1869.....	9,821,721	34.70	a44.11	0.25
1859.....	17,571,818	140.98	96.18	0.56
1849.....	8,956,912	22.84	22.84	0.39
1839.....	7,291,743	-----	-----	0.43

a Decrease.

It will be seen from this table that the greatest increase in the volume of buckwheat production occurred between 1849 and 1859, and that between 1859 and 1869 there was a considerable decrease. The greatest percentage of increase was likewise between 1849 and 1859, and the smallest, excluding the decade in which there was an absolute decrease, between 1879 and 1889. The total percentage of increase in 50 years is only 66.08, and accordingly the production per capita of total population has fallen from 0.43 bushel in 1839 and 0.56 bushel in 1859 to 0.19 bushel in 1889.

There was a net decrease of 55,448 acres in the area under buckwheat in the states east of the Mississippi river, as compared with an increase of 44,223 acres west of that dividing line; still only 6.77 per cent of the crop was grown in the trans-Mississippi states and territories.

By geographical divisions, the North Atlantic shows a net decrease of 82,574 acres, or 13.06 per cent, since 1879. The decrease in New York amounted to 11,199 acres, that in New Jersey to 21,853 acres, and that in Pennsylvania to 35,711 acres. The South Atlantic shows a decrease of 34,293 acres, or 54.20 per cent; the South Central a decrease of 3,603 acres, or 58.94 per cent; the Western a decrease of 329 acres, or 21.48 per cent. In the North Central division there was an increase in area devoted to the production of buckwheat of 109,574 acres, or 75.36 per cent.

AREA AND PERCENTAGES OF AREA IN BUCKWHEAT, BY STATES AND TERRITORIES, IN DESCENDING ORDER OF AREA: 1889.

STATES AND TERRITORIES.	Total area in buckwheat. (Acres.)	Percentage of total.	Cumulative percentage.	STATES AND TERRITORIES.	Total area in buckwheat. (Acres.)	Percentage of total.	Cumulative percentage.		
The United States.....	837,104	100.00	.....	25. California.....	604	0.03	99.07	
1. New York.....	280,029	33.45	33.45	26. Arkansas.....	388	0.05	99.72		
2. Pennsylvania.....	210,488	25.14	58.59	27. Kentucky.....	384	0.05	99.77		
3. Wisconsin.....	77,458	9.25	67.84	28. Alabama.....	352	0.04	99.81		
4. Michigan.....	70,046	8.37	76.21	29. Georgia.....	332	0.04	99.85		
5. Iowa.....	25,243	3.02	79.23	30. Delaware.....	325	0.04	99.89		
6. Maine.....	22,395	2.68	81.91	31. Oregon.....	259	0.03	99.92		
7. Minnesota.....	22,090	2.64	84.55	32. North Dakota.....	147	0.02	99.94		
8. Nebraska.....	15,358	1.83	86.38	33. Colorado.....	117	0.01	99.95		
9. Ohio.....	14,052	1.68	88.06	34. Texas.....	99	0.01	99.96		
10. West Virginia.....	13,096	1.64	89.70	35. New Mexico.....	81	0.01	99.97		
11. New Jersey.....	13,520	1.61	91.31	36. South Carolina.....	65	0.01	99.98		
12. Vermont.....	13,429	1.60	92.91	37. Mississippi.....	56	0.01	99.99		
13. Illinois.....	9,763	1.17	94.08	38. Rhode Island.....	41				
14. Indiana.....	9,548	1.14	95.22	39. Washington.....	27	0.01	100.00		
15. Maryland.....	7,569	0.90	96.12	40. Wyoming.....	20				
16. Kansas.....	6,907	0.82	96.94	41. Florida.....	19				
17. Virginia.....	5,170	0.62	97.56	42. Idaho.....	16				
18. Connecticut.....	4,906	0.48	98.04	43. Utah.....	15				
19. New Hampshire.....	3,117	0.37	98.41	44. Montana.....	13				
20. Missouri.....	2,802	0.33	98.74	45. District of Columbia.....	2				
21. Massachusetts.....	2,473	0.30	99.04	46. Louisiana.....					
22. North Carolina.....	1,800	0.21	99.25	47. Oklahoma.....					
23. South Dakota.....	1,561	0.19	99.44	48. Arizona.....					
24. Tennessee.....	1,231	0.15	99.59	49. Nevada.....					

The states which had a larger acreage under buckwheat in 1889 than in 1879 numbered 23, and those which had a smaller acreage 22, their respective positions in the scale of acreage in 1889 being shown in the preceding table. Buckwheat is peculiarly a northern product, and almost 97 per cent of the entire acreage devoted to it is accounted for in the table before a southern state is reached. The South Atlantic and South Central divisions, with 9.04 per cent and 20.55 per cent, respectively, of the total land surface of the country, contained only 3.46 and 0.30 per cent, respectively, of the total buckwheat acreage, nearly the whole of that in the South Atlantic division being in the states of Maryland, Virginia, and West Virginia, which lie along its northern border. The Western division contained but 0.14 per cent of the total buckwheat acreage. The North Atlantic division, with 5.46 per cent of the entire land surface of the country, contained 65.64 per cent of the total acreage under buckwheat, and the North Central, with 25.37 per cent of the entire land surface, contained 30.46 per cent of the acreage of buckwheat. The states which show the largest increase in their area devoted to buckwheat are Wisconsin, 43,341 acres; Michigan, 36,098 acres; Minnesota, 18,413 acres, and Nebraska, 13,692 acres. Those that show the largest decrease are Pennsylvania, 35,711 acres; New Jersey, 21,853 acres; West Virginia, 16,638 acres; Virginia, 11,293 acres, and New York, 11,199 acres.

Even the insignificant proportion which the acreage under buckwheat bore in 1879 to the total area devoted to the cultivation of cereals it has failed to maintain, the percentage having fallen from 0.72 to 0.60. It shows a shrinkage in all but one of the 5 divisions of states, the exception being the North Central, in which it shows a trifling increase from 0.21 to 0.28 per cent. In 1879, 3 acres out of every 10,000 devoted to cereals in the South Central division and 4 out of every 10,000 so cultivated in the Western division were under buckwheat. The proportion in 1889 was still smaller, having been reduced to 1 acre and 2 acres out of every 10,000, respectively. In the South Atlantic division the percentage has fallen from 0.41 to 0.20, and in the North Atlantic division, the only one in which it really assumes noteworthy dimensions, it has fallen from 6.37 to 6.20 per cent. There are few individual states in which the proportion is not exceedingly small. In Maine it is 13.04 per cent, in New York 8.65, in Vermont 7.26, in New Hampshire 5.07, in Pennsylvania 4.73, in Connecticut 4.67, in Massachusetts 3.90, in New Jersey 2.25, in Michigan 1.80, in Wisconsin 1.79, and in West Virginia 1.19 acres out of every 100 under cereals were devoted to buckwheat.

STATISTICS OF AGRICULTURE.

PRODUCTION OF BUCKWHEAT AND PERCENTAGES OF TOTAL PRODUCT, BY STATES AND TERRITORIES, IN DESCENDING ORDER OF PRODUCTION: 1889.

STATES AND TERRITORIES.	Total production of buckwheat. (Bushels.)	Percentage of total.	Cumulative percentage.	STATES AND TERRITORIES.	Total production of buckwheat. (Bushels.)	Percentage of total.	Cumulative percentage.		
The United States.....	12, 110, 340	100.00	.....	25. Tennessee.....	7, 143	0.06	99.74	
1. New York.....	4, 075, 735	38.61	38.61	26. Arkansas.....	5, 074	0.04	99.78		
2. Pennsylvania.....	3, 069, 717	25.35	63.96	27. Alabama.....	4, 022	0.04	99.82		
3. Wisconsin.....	1, 064, 178	8.79	72.75	28. Kentucky.....	3, 804	0.03	99.85		
4. Michigan.....	811, 077	6.70	79.45	29. Georgia.....	3, 162	0.03	99.88		
5. Maine.....	466, 411	3.85	83.30	30. Delaware.....	3, 081	0.03	99.91		
6. Iowa.....	286, 746	2.37	85.67	31. Oregon.....	2, 678	0.02	99.93		
7. Minnesota.....	281, 705	2.33	88.00	32. Colorado.....	2, 081	0.02	99.95		
8. Vermont.....	271, 216	2.24	90.24	33. Texas.....	1, 263	0.01	99.96		
9. Ohio.....	163, 833	1.34	91.58	34. North Dakota.....	930	0.01	99.97		
10. West Virginia.....	120, 460	0.99	92.57	35. New Mexico.....	744	0.01	99.98		
11. Nebraska.....	120, 000	0.99	93.56	36. South Carolina.....	472	} 0.01	99.99		
12. New Jersey.....	114, 620	0.95	94.51	37. Washington.....	430				
13. Illinois.....	107, 080	0.88	95.39	38. Idaho.....	395	} 0.01	100.00		
14. Indiana.....	99, 959	0.83	96.22	39. Rhode Island.....	349				
15. Maryland.....	96, 747	0.80	97.02	40. Mississippi.....	345				
16. New Hampshire.....	75, 048	0.62	97.64	41. Utah.....	316				
17. Kansas.....	67, 115	0.55	98.19	42. Wyoming.....	140				
18. Connecticut.....	46, 104	0.38	98.57	43. Montana.....	128				
19. Virginia.....	41, 199	0.34	98.91	44. Florida.....	126				
20. Massachusetts.....	31, 300	0.26	99.17	45. District of Columbia.....	20				
21. Missouri.....	28, 440	0.23	99.40	46. Arizona.....
22. North Carolina.....	12, 621	0.10	99.50	47. Louisiana.....
23. South Dakota.....	11, 423	0.09	99.59	48. Nevada.....	.....	.....	.....
24. California.....	10, 388	0.09	99.68	49. Oklahoma.....	.....	.....	.....

The average yield per acre of buckwheat in the different states is as follows: Idaho, 24.69 bushels; New Hampshire, 24.08 bushels; Utah, 21.07 bushels; Maine, 20.83 bushels, and Vermont, 20.20 bushels; Colorado, over 17 bushels; New York, over 16; Washington and California, over 15, and Pennsylvania, over 14. The average of the states that have been mentioned exceeded the average for the country as a whole, which was 14.47 bushels. Those next in rank are Wisconsin, Alabama, and Arkansas, with over 13 bushels per acre; Maryland, Texas, Minnesota, and Massachusetts, with over 12 bushels; Michigan, Ohio, Connecticut, and Iowa, with over 11 bushels, and Illinois, Oregon, Indiana, and Missouri, with over 10 bushels. The remaining states and territories, 20 in number, range from 10 bushels per acre to 5.80 bushels, Tennessee standing at the foot of the list. The averages by geographical divisions are 15.92 bushels in the North Atlantic, 14.38 bushels in the Western, 11.93 bushels in the North Central, 9.59 bushels in the South Atlantic, and 8.86 bushels in the South Central.

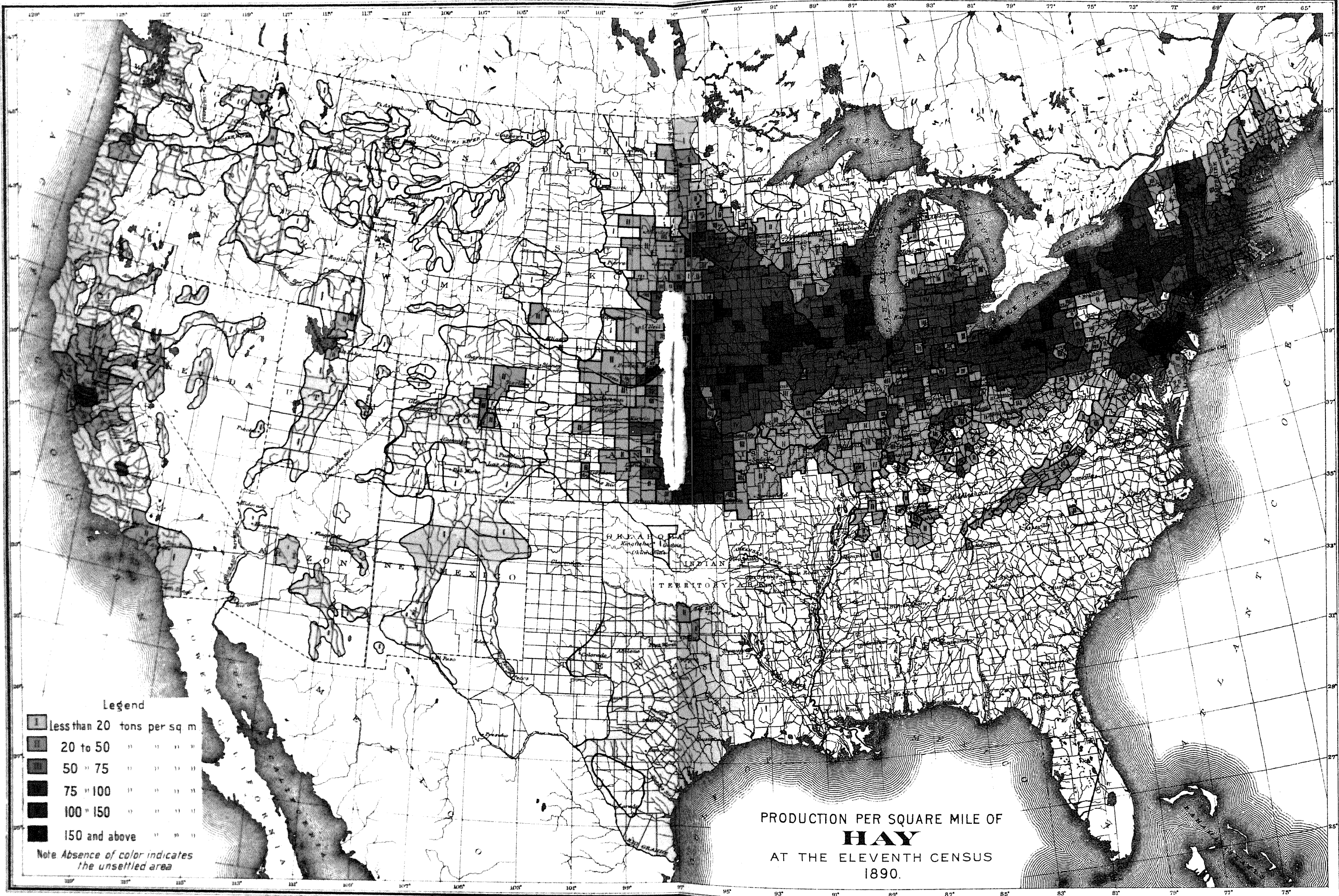
In New York 10 counties out of 60, in New Jersey 2 out of 21, in Pennsylvania 8 out of 67, in Virginia 4 out of 100, in Illinois 11 out of 102, in Wisconsin 8 out of 68, in Minnesota 6 out of 79, in Kansas 12 out of 106, and in Oregon 3 out of 31, produced more than one-half of the entire crop of the state. In North Carolina 3 counties out of 96 produced almost a moiety of the total crop of the state, while in Ohio 5 out of 88 and in South Dakota 2 out of 56 produced over one-third of the total. In Maine, Aroostook county, 1 out of 16, contributed nearly five-sixths of the total; and in Massachusetts, Berkshire county must be credited with nearly two-thirds. Of the crop of New Hampshire, Coos county produced over one-half and Grafton county over one-third. In Maryland, over four-fifths of the state crop was raised in Garrett county; in Tennessee, over one-fifth in Carter county; in West Virginia, over two-fifths in Preston county; in Texas, over one-third in Cherokee county and over one-fourth in Archer county; in Colorado, over two-thirds in Jefferson county; in Utah, practically three-fourths in Salt Lake county, and in Idaho, over nineteen-twentieths in Cassia county.

GRASS LANDS AND FORAGE CROPS.

The total area mown in the United States in 1889 was 52,948,797 acres as compared with a total of 30,631,054 acres in 1879, an increase of 22,317,743 acres, or 72.86 per cent.

The total amount of hay and other forage harvested in 1889 was 66,831,480 tons as compared with a total of 35,150,711 tons in 1879, an increase of 31,680,769 tons, or 90.13 per cent.

While the increase in the area devoted to grass and other forage plants extended to 40 states and territories (considering the Dakotas as a unit for convenience of comparison and not including the newly created territory of Oklahoma), it was greatest in the North Central division, where the area mown increased from 15,490,866 acres in 1879 to 32,220,463 acres in 1889, an increase of 16,729,602 acres, or 108 per cent. In each of the great



Legend

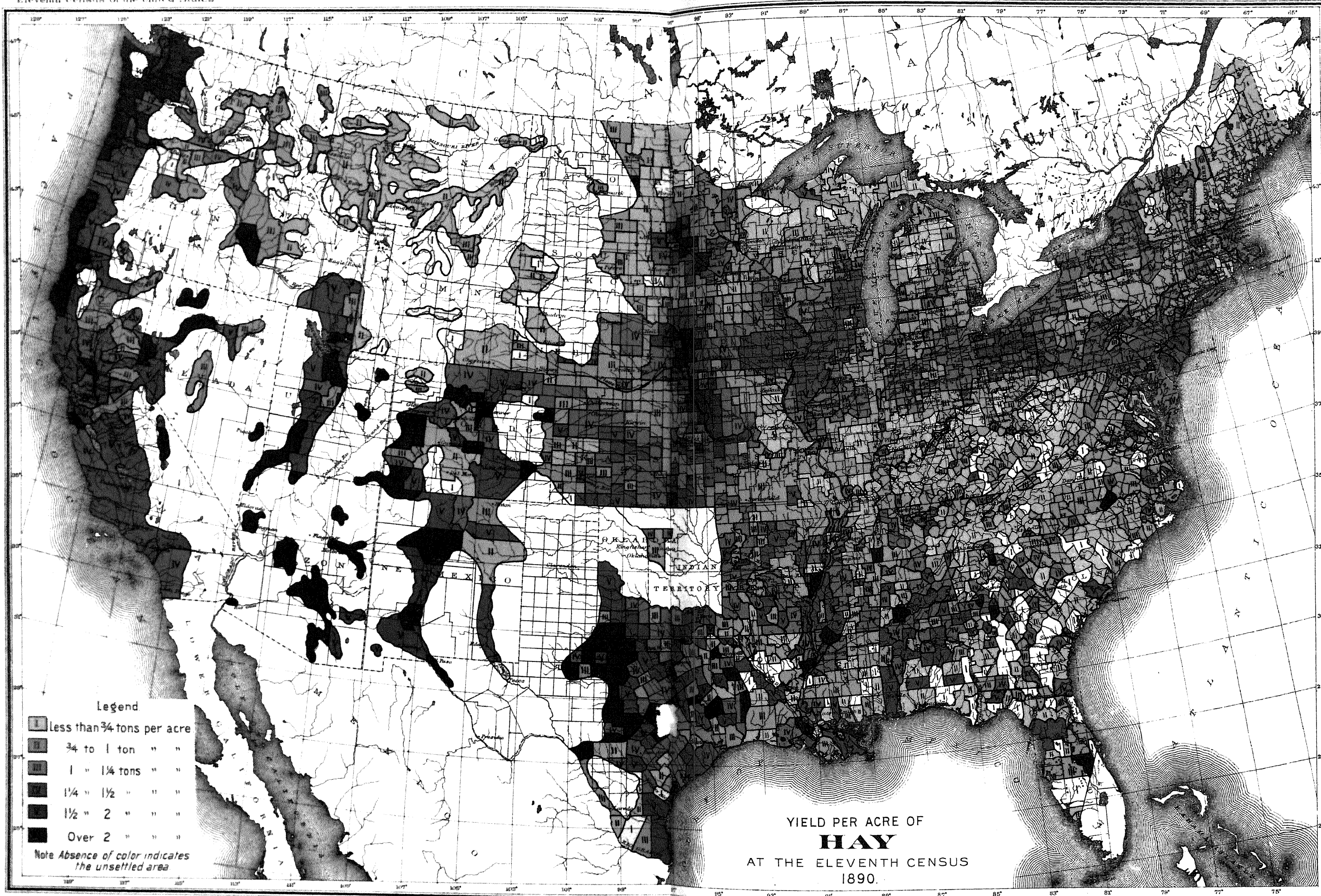
	less than 20 tons per sq m
	20 to 50 " " " "
	50 " 75 " " " "
	75 " 100 " " " "
	100 " 150 " " " "
	150 and above " " "

Note: Absence of color indicates the unsettled area

PRODUCTION PER SQUARE MILE OF
HAY
 AT THE ELEVENTH CENSUS
 1890.

Scale





Legend

- I Less than 3/4 tons per acre
- II 3/4 to 1 ton " "
- III 1 " 1 1/4 tons " "
- IV 1 1/4 " 1 1/2 " " "
- V 1 1/2 " 2 " " "
- VI Over 2 " " "

Note Absence of color indicates the unsettled area

YIELD PER ACRE OF HAY AT THE ELEVENTH CENSUS 1890.

agricultural states comprised in this division there was a large increase, Iowa having added 2,748,891 acres, Kansas 2,441,455 acres, Nebraska 1,945,376 acres, the Dakotas 1,924,841 acres, Minnesota 1,655,813 acres, Missouri 1,572,568 acres, Indiana 1,656,140 acres, and Illinois 1,055,582 acres to the area mown in 1879. In Nebraska the increase amounted to 376.38 per cent, while the Dakotas increased their hay acreage more than tenfold.

In New York and Pennsylvania there was an increase of 598,558 acres and 608,780 acres, respectively. The total increase in the North Atlantic division, in which these states are included, was 1,178,957 acres, or 9.80 per cent, the states of New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut being the only states, with the exception of Louisiana, in which the area mown in 1889 was less than in 1879.

The increase in the states of the South Atlantic and South Central divisions was considerable, Alabama and Georgia having over 3 acres, Arkansas over 5 acres, Texas over 6 acres, Mississippi over 7 acres, South Carolina over 10 acres, and Florida over 23 acres mown in 1889 for every acre mown in 1879.

In the Western division the largest addition, 673,550 acres, to the area mown in 1879 is found in California, but while this is an increase of 88.86 per cent during the decade, Montana, Arizona, and Idaho each had over 5 acres and Wyoming over 7 acres mown in 1889 for every acre mown in 1879.

The average yield per acre of hay and such other products cut for forage as are included in the returns is 1.26 tons. Only in Maine, West Virginia, South Carolina, North Dakota, South Dakota, Kentucky, Montana, and Wyoming is the average yield per acre less than 1 ton, the highest averages being reported from the states in which irrigation is practiced and where alfalfa is the principal forage plant. In Arizona the average is 2.29 tons, in Utah 1.89 tons, in New Mexico 1.79 tons, in Nevada 1.61 tons, and in California 1.55 tons. Excluding the arid and subhumid regions, the highest averages are reported from New Jersey, Delaware, Maryland, Ohio, Illinois, Wisconsin, Iowa, Alabama, Louisiana, and Texas, all of which are from 1.33 tons to 1.50 tons to the acre. The lowest is that of Wyoming, which is 0.86 ton to the acre.

LIVE STOCK AND LIVE STOCK PRODUCTS.

The general tables in this report indicate live stock on farms as obtained by the enumerators, and comparisons are made only for live stock on farms, as in 1880 the live stock on ranges was largely estimated.

The work of enumerating the live stock on ranges in 1890 was assigned to special agents, who visited, as far as possible, every portion of the regions occupied by ranges.

The following table shows the result of the investigation of live stock on ranges, preceded by a summary of live stock on ranges and on farms:

LIVE STOCK ON RANGES AND ON FARMS: CENSUS OF 1890.

RANGES AND FARMS.	Total.	Horses.	Mules and asses.	Cattle.	Sheep.	Swine.
Total	173,090,370	15,258,783	2,314,785	57,215,212	40,270,812	57,425,287
On ranges.....	11,110,861	^a 289,316	^b 10,253	^c 5,851,640	4,040,948	^d 15,704
On farms, including ranges in Idaho, Oregon, and Washington.	161,979,518	14,969,467	2,295,532	51,363,572	35,935,364	57,409,583

^a Not including 7,461 horses on Indian reservations.

^c Not including 433,580 cattle on Indian reservations.

^b Not including 289 mules and asses on Indian reservations.

^d Not including 1,572 swine on Indian reservations.

LIVE STOCK ON RANGES, BY STATES AND TERRITORIES.

STATES AND TERRITORIES.	Total.	Horses.	Mules and asses.	Cattle.	Sheep.	Swine.
Total	^a 11,110,861	289,316	10,253	5,851,640	4,040,948	^a 15,704
Texas (including Pan Handle).....	8,255,967	99,838	1,073	2,842,083	809,329	2,744
Wyoming.....	253,300	5,109	94	248,097	.....	.....
Colorado.....	658,808	31,209	65	448,081	178,820	33
Montana.....	1,277,592	32,930	145	750,619	403,870	19
South Dakota.....	81,799	2,687	9	29,038	70	.....
Utah.....	1,023,020	22,243	.....	78,047	922,730	.....
California.....	1,172,347	22,542	1,499	241,800	897,890	9,110
Arizona.....	1,095,240	18,557	1,203	659,758	412,709	8,013
New Mexico.....	2,348,788	54,192	14,265	1,054,022	1,225,524	785

^a Not including 1,572 swine on Indian reservations.

There is a large number of live stock, particularly horses and milch cows, in the country which are not included in this report, as there were no statistics collected as to live stock in cities, or even in the rural districts except when found on farms.

All live stock appearing in this report was on hand June 1, 1890, while the products were for 1889, except where it is otherwise indicated in the tables.

There were 14,969,467 horses on farms in 1890, which was an increase of 4,611,979, or 44.53 per cent, over the number reported in 1880. Of this number 8,571,177, or 57.26 per cent, were reported in the North Central division. This division had the largest increase in the number of horses on farms since the last census of any of the geographical divisions, there being 3,104,146, or 56.78 per cent, more than in 1880. The Western division attained the highest per cent of increase, it having added 811,132 horses, or 132.35 per cent, during the decade. Illinois stood first in number of horses on farms, having 1,335,289 in 1890, an increase of 312,207, or 30.52 per cent, since 1880. Iowa, with its 1,312,079 horses on farms, nearly as many as Illinois, added 519,757, or 65.60 per cent, since 1880. Texas stood third in number of horses on farms in 1890, having 1,026,002, an increase of 220,396, or 27.36 per cent.

While there was an increase of only 339,566 horses on farms in the Dakotas during the decade from 1880 to 1890, the per cent of increase was 814.89, the highest in the country. Wyoming follows closely with an increase of 629.88 per cent.

All but 5 of the states show an increase in the number of horses, ranging from 203, or 2.10 per cent, in the state of Rhode Island, to the large increase in the state of Iowa. Connecticut, New Jersey, District of Columbia, North Carolina, and South Carolina each showed a decrease in the number of horses on farms, ranging from 15, or 0.02 per cent, in the state of New Jersey, to 2,235, or 1.67 per cent, in the state of North Carolina.

There were 289,316 horses reported on ranges in 1890, making the total number, including both those on farms and ranges, 15,258,783.

In the year 1889 there were 1,813,413 horses foaled on farms in the United States, this being 12.11 per cent of the horses on farms June 1, 1890. The North Central division reported 1,100,508 horses foaled, or 60.69 per cent of the whole. In the North Atlantic division New York and Pennsylvania are in the lead as producers of horses. There were foaled in 1889 in New York 48,954 horses and in Pennsylvania 59,532. Maine and Vermont have kept close together, there having been foaled in 1889 in Maine 9,156 horses and in Vermont 9,009. The smallest number foaled in any state was in Rhode Island, there being 192 foaled in 1889, or 1.95 per cent of the total number of horses on farms in the state on June 1, 1890. In the South Atlantic division Virginia takes the lead in production of horses with 25,956, and West Virginia follows with 17,864 foaled. In the North Central division Iowa and Illinois lead in the production of horses, Iowa having foaled in the year 1889 188,932 and Illinois 184,198. In the South Central division Texas leads with 136,382 horses foaled in 1889. In the Western division California leads with a production of 55,221 horses foaled in 1889.

There were 2,246,443 mules and 49,089 asses on farms June 1, 1890. As these were reported under one head in 1880 the totals of the two must be taken in making any comparison with the last census report. The increase in the United States in mules and asses on farms since 1880 is 482,724, or 26.63 per cent. Pennsylvania had 29,235 mules on farms in 1890, being 68.09 per cent of the number in the North Atlantic division. Georgia had 156,800 mules on farms, the largest number in any state in the South Atlantic division, North Carolina following with 99,299. Missouri had 245,273 mules on farms, the largest number of any state in the country. The South Central division had 1,972,210 mules on farms, or 47.73 per cent of all reported in 1890, which were distributed with considerable uniformity throughout the division, Texas leading with 220,596. California had 52,219 mules on farms, or 72.19 per cent of the mules so reported in the Western division.

There were 49,089 asses reported on farms in 1890. The North Atlantic division reported only 747, nearly all of which were in New York and Pennsylvania. The South Atlantic division reported 2,303 asses on farms, North Carolina leading with 712. The North Central division had 13,781 asses on farms, Missouri leading with 6,441. The South Central division contained 21,512, or 43.82 per cent of the whole number of asses on farms in the United States in 1890. Texas heads the division and the country with 6,836, followed by Tennessee with 5,467 and Kentucky with 5,128. The Western division contained 10,746 asses on farms in 1890, 5,958, or 55.44 per cent, of which were found in New Mexico.

There were 157,022 mules and 7,947 asses foaled in the year 1889, the South Central division leading in their production, having foaled 78,878 mules, or 50.23 per cent of all mules foaled on farms, and 3,373, or 42.44 per cent of all asses foaled on farms in 1889. Missouri, in the North Central division, produced more mules on farms than any other state in 1889, having foaled 34,563, or 22.01 per cent of the whole number foaled.

SWINE.

On June 1, 1890, the total number of swine on farms in the United States was 57,409,583 as compared with a total of 47,681,700 on farms June 1, 1880, an increase of 9,727,883, or 20.40 per cent.

The total number of swine on ranges in the United States in June, 1890 (not including 1,572 in Indian territory), was 15,704 as compared with an estimated total of 1,317,039 (not including 773,931 in Indian territory) in June, 1880, an apparent decrease of 1,301,335, or of 2,073,694 if Indian territory be included. The total number of swine on ranges and on farms, with the distribution of those on ranges, is shown in the table on the following page.

LIVE STOCK AND LIVE STOCK PRODUCTS.

31

SWINE ON RANGES AND ON FARMS: CENSUS OF 1890.

	NUMBER.
Total.....	a57,425,287
On ranges	a15,704
On farms, including ranges in Idaho, Oregon, and Washington	57,409,583

SWINE ON RANGES, BY STATES AND TERRITORIES.

Total	a15,704
Texas (including Pan Handle).....	2,744
Wyoming.....	.....
Colorado.....	33
Montana.....	19
South Dakota.....	.....
Utah.....	.....
California.....	9,110
Arizona.....	3,013
New Mexico.....	785

a Not including 1,572 swine on Indian reservations.

The number of swine on ranges in 1880 included 377,178 in Nebraska and 86,274 in Kansas, no portions of which states are now included in the range country. It also included large numbers in other states in which the area of the ranges has been greatly diminished by the extension of general farming. Except in a few states, to which reference will be made hereafter, the apparent decrease in the number of swine on ranges is practically a transfer to the farms, which to a large extent have taken their places.

The increase in the number of swine is mainly in the North Central division and in the great corn-producing states of Iowa, Nebraska, and Kansas, each of which has increased its total number of swine by over 2,000,000. There is also a very large increase in Illinois, the Dakotas, Minnesota, and Missouri. The 5 states, Illinois, Iowa, Kansas, Nebraska, and Missouri, which had the largest production of corn in 1880, likewise contained the largest number of swine, their percentage of the total corn production of the country being 60.09 and their percentage of the total number of swine 47.06. Wisconsin increased its total number of swine by over 200,000, and Ohio, Indiana, Michigan, and Alabama by over 100,000 each.

There is a small decrease in the number of swine on farms in California, and if the estimated number on ranges in 1880 be included, the decrease is considerably over 200,000. In Tennessee and in North Carolina there is a decrease in the number on farms amounting to over 200,000; Kentucky, Virginia, and South Carolina each report a decrease of over 100,000. Although the number of swine on farms in Texas shows a considerable increase, the number on ranges is so small, as compared with the estimated number in 1880, that the aggregate indicates a reduction of nearly 200,000.

Only in the states that have been mentioned does the number of swine reported in 1890 differ materially from the number reported in 1880. Many other states show an increase, as a rule commensurate with the growth of population. Notwithstanding the enormous increase in certain states, there were only 917 swine for every 1,000 of the population in 1890 as compared with 992 for every 1,000 in 1880. Where the raising of swine attains its largest dimensions, in the midst of a population largely agricultural, the number of swine is far in excess of the number of inhabitants, there being in Iowa, for example, 4,324 swine for every 1,000 of the population.

The number of swine slaughtered in 1889 for consumption on the farm reached a total of 15,426,329, equivalent to 26.87 per cent of the total number on hand June 1, 1890. The proportion so consumed varied considerably. The farmers of Virginia slaughtered for their own consumption a number equivalent to 71.30 per cent of the number in their possession at the time of the enumeration. The proportion amounted to more than one-half in Maryland, West Virginia, North Carolina, and South Carolina; also in Maine, Pennsylvania, and Delaware, and in North Dakota, Utah, and Wyoming. In the last three cases the numbers were comparatively small, although the proportion slaughtered in North Dakota and Utah was nearly as great as in Virginia.

The other extreme is found in the states in which swine are raised on an extensive scale for shipment to the great stock markets of the country, the proportion consumed on farms in Kansas being under 10 per cent, in Nebraska under 8 per cent, and in Iowa under 7 per cent. Missouri is somewhat of an exception to this rule, for while it stands third in the total number of swine, it stands first in the number consumed on farms, its farmers having slaughtered in 1889 for their own use no fewer than 1,093,711 head, a number equivalent to 21.93 per cent of the number on hand June 1, 1890.

In the year 1889 the losses inflicted upon the farmers by the ravages of the various diseases affecting swine were serious, 9,835,614 hogs being reported as having died during that year from one cause or another. The largest number of deaths, 970,200, was reported from Missouri; Iowa, Illinois, and Nebraska following with 965,920, 848,785, and 772,806, respectively. Indiana, Kansas, Kentucky, Tennessee, and Arkansas each reported losses exceeding 500,000 head; while extensive losses, in every case exceeding 250,000 head, were reported from North Carolina, Georgia, Ohio, Alabama, Mississippi, Louisiana, and Texas, those of the last mentioned state reaching the large total of 492,707.

STATISTICS OF AGRICULTURE.

Some of these losses represent high percentages of mortality, the deaths reported from Louisiana exceeding 50 per cent; from Arkansas, Tennessee, and the District of Columbia, 30 per cent; from Mississippi, Florida, Kentucky, and North Carolina, 25 per cent; from Virginia, Alabama, Georgia, South Carolina, Nebraska, and Texas, 20 per cent; and from Maryland, West Virginia, Indiana, Missouri, and Utah, 15 per cent of the total number of swine on hand June 1, 1890.

In Maine, New Hampshire, Vermont, Connecticut, New York, and Michigan the mortality was less than 5 per cent; in Wisconsin it was under 6 per cent, and in Minnesota it was less than 7 per cent.

SHEEP AND WOOL.

In the enumeration of sheep on ranges, as distinguished from sheep on farms, statistics were collected with respect only to the number of sheep and the production of wool. The schedule used by the regular enumerators, however, covered not only these fundamental inquiries, but a classification of sheep by breeds, and, for the year 1889, the number of lambs dropped, the number of spring lambs sold for consumption, the number of sheep slaughtered for use on farm, the number killed by dogs, and the number that died from disease or stress of weather.

SHEEP AND WOOL: CENSUS OF 1890.

RANGES AND FARMS.	Number of sheep.	Wool clip. (Pounds.)
Total	40,876,312	191,278,084
On ranges.....	4,940,948	25,828,845
On farms, including ranges, in Idaho, Oregon, and Washington.....	35,935,364	165,449,239

^a Estimated amount of wool clipped after reporting to the enumerators, 36,548,651 pounds; estimated weight of pulled wool from slaughtered sheep, 42,000,000 pounds, not included in the table.

SHEEP AND WOOL ON RANGES, BY STATES AND TERRITORIES.

STATES AND TERRITORIES.	Number of sheep.	Wool clip. (Pounds.)
Total	4,940,948	25,828,845
Texas.....	800,329	3,480,114
Colorado.....	178,820	1,210,008
Montana.....	493,870	2,841,910
South Dakota.....	70	380
Utah.....	922,790	5,025,263
California.....	897,896	7,734,407
Arizona.....	412,700	1,630,172
New Mexico.....	1,225,524	8,900,405

The total number of sheep, exclusive of spring lambs, in the United States on June 1, 1890, was 40,876,312. Of that number, 35,935,364 were reported by the regular enumerators and the remaining 4,940,948 by special agents appointed for the collection of statistics of live stock on ranges.

The amount of wool reported on farms as shorn in the fall of 1889 and the spring of 1890 was 165,449,239 pounds. The addition of the 25,828,845 pounds of wool of sheep on ranges gives as the total of reported wool 191,278,084 pounds. A census taken as of the date of June 1 finds the spring shearing still in progress in some of the most important wool-growing districts of the country, and on the basis of the enumerators' returns it is estimated that the wool reported would be augmented by 36,548,651 pounds by the time the shearing was completed. The addition of these figures to those of the wool reported gives an estimated aggregate of 227,826,735 pounds as the total wool clip of the United States in the fall of 1889 and the spring of 1890. The pulled wool, or wool of slaughtered sheep, for the year ending June 1, 1890, is estimated at 42,000,000 pounds, making the estimated total wool crop of the country for the year stated 269,826,735 pounds. (a)

The difficulties encountered in the collection of the statistics of sheep and wool, mentioned in the reports of the censuses of 1870 and 1880, still exist. Among them are the liability to omission from the reports of the enumerators of wool that either was not marketed, or, if marketed, was so inconsiderable in quantity and value as easily to escape mention among the farm productions of the year; the probability that, in spite of instructions from the census office, a considerable number of spring lambs were included in the report of sheep; the likelihood that some of the wool reported was either washed before being sold or was at least discounted before being reported (that is, an allowance was made for the loss of weight that would occur in washing), the transfer of

^a The figures appearing in this report as to the number of sheep and the amount of wool clipped are from the definite returns made to the Eleventh Census, and all estimates of wool clipped are based upon those returns, and, therefore, may not agree with reports issued by other authorities.

sheep from one owner to another between the shearing and the visit of the enumerator; and lastly, the inability of the farmer to report the wool of sheep sold, unshorn, for slaughter. The fall shearing practiced extensively, but by no means uniformly, in California, Texas, and New Mexico, resulting in the reporting of 2 fleeces to 1 sheep in many instances, and the fact that on the other hand there are thousands of sheep in the south that are not shorn, still further complicate the situation. Fall shearing is also practiced to some extent in a state as far north as Minnesota, where it prevails chiefly, if not exclusively, among farmers of Norwegian birth or ancestry, of whom there are many thousands. These farmers consider that they get a larger aggregate wool clip than if they sheared only in the spring, and their flocks, ranging only from a dozen to 50 head, are warmly sheltered during the cold of early winter, when their coats are light, without much trouble or expense.

At the census of 1840 there were 1.13 sheep and a production of wool amounting to 2.10 pounds per head of population. In 1850 the number of sheep had fallen to 0.94, while the production of wool had increased to 2.26 pounds for each inhabitant. Ten years more and there were but 0.71 sheep and 1.92 pounds of wool per head of population. In 1870 there was a slight increase in the relative number of sheep and a marked increase in the relative amount of wool produced, the former being 0.74 and the latter 2.60 pounds per head of population. Up to this point no attempt seems to have been made to include, even by estimate, the amount of pulled wool, which forms so considerable a percentage of the total wool supply of the country. In 1880 the number of sheep, including the estimate of sheep on ranges, had risen to 0.84 and the production of wool shorn, reported and estimated, to 4.04 pounds, or, including pulled wool, to 4.80 pounds for each inhabitant; while in 1890 the number of sheep had fallen to 0.65, the amount of wool shorn, reported and estimated, to 3.64 pounds, and the total domestic wool production, including pulled wool, to 4.31 pounds per head of population.

As the number of sheep on ranges in 1880 was estimated, no exact comparison can be made as to the increase or decrease in the total number of sheep in the country as a whole or by geographical divisions, except in the case of the North Atlantic division, in which there is a decrease of 838,005. Using the estimates of 1880, there is an apparent decrease of 133,620 in the South Atlantic division and of 1,330,735 in the North Central division, and an apparent increase of 684,886 in the South Central division and of 356,712 in the Western division. Every state in the North Atlantic division shows a decrease in the number of sheep, and every state in the South Atlantic division shows a decrease with the exception of West Virginia and Florida, which in 1880 had sheep on ranges, the number of which was estimated, and consequently no exact comparison can be made for these states. In the North Central division Ohio shows a decrease of 841,757, Missouri a decrease of 460,736, and Wisconsin a decrease of 351,835. Indiana and Illinois also show a decrease. On the other hand, Michigan shows an increase of 210,929; Minnesota and Iowa also show an increase. In the South Central division Mississippi has gained 164,085; Louisiana and Alabama also show a small increase. Tennessee shows a decrease of 131,793, Kentucky a decrease of 63,145, and Arkansas a decrease of 2,758. In the Dakotas, in the North Central division, there is an apparent increase of 289,687 and in Nebraska an apparent decrease, the comparison in both cases including the estimated numbers of sheep on ranges in 1880. In the South Central division Texas shows a gain of 612,554, based on a similar comparison. All the states and territories of the Western division having contained sheep on ranges in 1880, the numbers of which were estimated, no exact comparison can be made as to the increase or decrease in the total number of their sheep in 1890. Using such estimates, however, in connection with the ascertained number of sheep on farms, California and New Mexico appear to have had a smaller number of sheep in 1890 than in 1880 by 2,354,313 and 1,464,337, respectively, while Montana, Utah, and Oregon show an apparent increase of 2,073,609, 1,413,785 and 412,150, respectively. Wyoming shows an apparent increase of 262,295, and Idaho an apparent increase of 240,386. Arizona and Nevada have apparently a larger number of sheep than in 1880 by 48,612 and 42,774, respectively. Colorado and Washington, on the other hand, appear to have a smaller number by 194,633 and 123,616, respectively.

The states and territories having the largest number of sheep on June 1, 1890, were Texas with 4,264,187, Ohio with 4,060,729, California with 3,373,036, New Mexico with 2,474,494, Michigan with 2,400,318, and Montana with 2,352,886. There is an apparent tendency on the part of the sheep industry to gravitate toward the northwest, Minnesota, the Dakotas, Montana, Wyoming, and Idaho having 2,997,428 more sheep in 1890 than they had in 1880, while Ohio, California, and New Mexico, which stand second, third, and fourth in rank, appear to have had fewer sheep in 1890 than in 1880 by 4,660,407.

It is worthy of note that the 5 grand divisions of the country, the North Atlantic, South Atlantic, North Central, South Central, and Western, which have, respectively, 107.37, 32.98, 29.68, 18.94, and 2.58 inhabitants per square mile of land surface, have 0.24, 0.28, 0.55, 0.64, and 4.93 sheep, respectively, per head of population, suggestive of a ratio inverse to the ratio of population, except in the Western division. Of the 48 states and territories, 25 have less than 10 sheep to every square mile of land, 12 have from 10 to 20, 4 from 20 to 30, and 5 from 30 to 40, while 1 (Michigan) has 42, and 1 (Ohio) 100. Ohio has the largest number of sheep per square mile of land surface, Michigan, Vermont, Pennsylvania, New York, West Virginia, and Indiana following in the order named. Florida reports less than 2 head of sheep for each square mile of land, while Oklahoma, which had been thrown open to settlement but a short time when the enumeration was taken, had more than 2 square miles of land for every head of sheep.

The estimate of the wool production of sheep on ranges in 1880, 34,000,000 pounds, was not distributed among the 15 states and territories in which the wool was produced. The estimate of the clip in California and Texas in the fall of 1879; 13,000,000 pounds, was not apportioned between those 2 states. The post enumeration shearing in the spring of 1890 was only an estimate. These facts render it impossible to make any comparison of the wool statistics for 1880 and 1890, except as to the amount of wool actually reported as the wool of sheep on farms.

Even so limited a comparison, however, affords valuable results, especially as regards the average weight of fleece, which shows a decided increase in almost every important wool-producing state for which the comparison can be made, regardless of its geographical location. In Maine the average weight of fleece has increased during the decade ending with 1890 from 4.91 pounds to 5.28 pounds; in New Hampshire, from 5.01 pounds to 5.82 pounds; in Vermont, from 5.80 pounds to 6.72 pounds; in New York, from 5.15 pounds to 5.66 pounds; in Pennsylvania, from 4.77 pounds to 5.25 pounds; in Virginia, from 3.69 pounds to 4.07 pounds; in West Virginia, from 3.97 pounds to 4.51 pounds; in North Carolina, from 1.99 pounds to 2.27 pounds; in Ohio, from 5.10 pounds to 5.70 pounds; in Indiana, from 5.60 pounds to 6.24 pounds; in Illinois, from 5.88 pounds to 6.92 pounds; in Michigan, from 5.42 pounds to 6.28 pounds; in Wisconsin, from 5.25 pounds to 6.54 pounds; in Minnesota, from 5.05 pounds to 6.22 pounds; in Iowa, from 6.53 pounds to 7.33 pounds; in Missouri, from 5.18 pounds to 6.00 pounds; in Tennessee, from 2.85 pounds to 3.07 pounds; in Mississippi, from 2.55 pounds to 2.77 pounds, and in Arkansas from 2.26 pounds to 2.43 pounds. The only exception worthy of note is Kentucky, in which state the average weight of fleece is only 4.19 pounds as compared with 4.59 pounds in 1880. There are 15 states in which the average weight of fleece is between 6 and 7 pounds, 3 states in which it exceeds 7 pounds, and 8 states in which it is under 3 pounds. These comparisons, which are all based upon official returns and in no case upon estimates, indicate a general improvement in the wool-growing industry of the country.

The average weight of fleece of the sheep on farms for the United States was, in 1850, 2.42 pounds; in 1860, 2.68 pounds; in 1870, 3.52 pounds; in 1880, 4.42 pounds, and in 1890, 5.15 pounds.

In the states of Nebraska, Kansas, and Iowa the fattening for market of sheep brought for that purpose from the western ranges is a business that within the last few years has assumed large dimensions, especially in Nebraska. As the sheep are brought in the fall and early winter and shipped out again in from 2 to 4 months, it is doubtful whether the industry has had any material effect upon the figures published in this report. It may have helped to swell the total production of wool reported from the 3 states mentioned, farmers sometimes shearing their sheep on shipping them to market before the close of winter, notwithstanding the risk of loss from exposure which they incur in so doing. The owners of the 209,243 sheep in Nebraska on June 1, 1890, are reported as having sold 306,503 sheep, exclusive of spring lambs, in 1889, Nebraska being the only state in which the number of sheep sold in 1889 exceeded, or even approached, the number remaining on hand on June 1, 1890.

Of the 35,935,364 sheep reported by the enumerators, 16,725,415, or 46.54 per cent, are reported as merino, "fine" wool (one-half to full blood), and 7,435,471, or 20.69 per cent, as English breeds, "long" or medium wool (one-half to full blood), leaving 11,774,478, or 32.77 per cent, enumerated under the category "all other." The states and territories, 14 in number, that have a majority of merinos or grade merinos are California, Colorado, Kansas, Michigan, Montana, Nebraska, Nevada, Ohio, Oklahoma, Oregon, Texas, Utah, Vermont, and Wyoming. The highest percentage is found in Oklahoma, 82.00 per cent of whose 16,565 sheep are thus reported. Kansas follows with 73.56 per cent of its 401,192. The lowest percentage is in Georgia, which has but 7.81. The highest percentage of English breeds, 57.93, is found in Massachusetts, the only state having a majority of its sheep mainly of English blood. The lowest percentage is in Nevada, 1.62. The states having a preponderance of full-blooded sheep or grades of one-half blood and upward number 33, Vermont standing at the head of the list with the large percentage of 91.01. The lowest percentage, 13.71, is found in Florida. The states and territories that still have a preponderance of common stock, including all of less than half-blood, number only 15, of which all but 3, Minnesota, Washington, and New Mexico, belong to the South Atlantic and South Central divisions.

The total number of lambs dropped in 1889 was to the total number of sheep on farms (exclusive of spring lambs) on June 1, 1890, as 351 is to 1,000, the ratio being the highest in New Jersey, 855, and the lowest in Nebraska, 220. In the North Atlantic division the ratio was 478, in the South Atlantic 377, in the North Central 340, in the South Central 300, and in the Western 339 to every 1,000 sheep on hand on June 1, 1890.

Of the 12,623,257 lambs reported as dropped in 1889, 3,372,535, or 26.72 per cent, were sold that year for consumption. The proportion borne by the number sold for consumption to the total number dropped is greatest in states convenient to the chief centers of population. In New Jersey 78.42 per cent, in Delaware 71.53 per cent, in Rhode Island 69.61 per cent, and in Maine, Massachusetts, Connecticut, New York, Maryland, and Virginia more than one-half of the total number of lambs dropped are reported as sold for consumption as spring lambs, while the other extreme is found in some of the southern and western states, most of which report less than 10 per cent as having been sold for that purpose. In New Mexico less than 1 out of 15, in Texas less than 1 out of 17, and in Arizona only 2 out of the 29,426 lambs dropped were sold as spring lambs for consumption. Taking the country by geographical divisions, it is found that the percentage of lambs sold as spring lambs in the North Atlantic division was 52.30, in the South Atlantic 38.34, in the North Central 29.46, in the South Central 21.86, and in the Western 9.35, the percentage agreeing in a general way with that of the density of population.

The number of sheep reported as "slaughtered for use on farm in 1889" was 596,372, equivalent to 1.66 per cent of the total number of sheep remaining on hand June 1, 1890. The largest numbers thus slaughtered in individual states were 47,346 in New Mexico, 45,672 in Texas, and 42,994 in California. The state in which the number slaughtered bore the largest proportion to the number remaining on hand at the time of the enumeration was Minnesota, where the percentage was 7.92. In Ohio slightly over one-half of 1 per cent of the sheep were slaughtered for use on the farm, and in Michigan also the ratio was less than 1 per cent.

The number of sheep reported as killed by dogs in 1889 is 610,329, a number equivalent to 1.70 per cent of the total number of sheep on hand at the time of the enumeration. For obvious reasons, the losses reported probably fall short of the actual facts, and the value of the figures published lies chiefly in the distribution of the losses reported among the different states. The highest ratio of loss from this cause is reported from the southern states, both of the South Atlantic and South Central divisions. Arkansas stands at the head of the list with a loss equivalent to 10.63 per cent of the total number of sheep on hand at the time of the enumeration. Louisiana follows with 9.49 per cent, Alabama with 7.45, Florida with 6.95, South Carolina with 6.19, Georgia with 6.06, Mississippi with 5.87, and North Carolina with 5.02. The consequence of these high percentages of loss is that 306,661 of the total number of sheep killed by dogs are reported from states having a total of only 8,663,254 sheep reported by the enumerators, and there are therefore only 303,668 left to represent the aggregate loss on farms containing the remaining 27,272,110 sheep. Although the losses in the North Atlantic division as a whole averaged little more than 1 per cent, they amounted to 3.99 per cent in Connecticut and to 5.57 per cent in Massachusetts. In New York they were less than 1 per cent and in Pennsylvania but little more. The average losses of the North Central and Western divisions were likewise little more than 1 per cent, the lowest ratios in the country being reported from these divisions. The percentage of loss in Michigan and Idaho was little more than one-half of 1 per cent. In North Dakota it was still less, while in Montana only 22 sheep out of every 10,000, or about one-fifth of 1 per cent, were killed by dogs.

No attempt has been made to obtain statistics of the number of sheep killed by wild animals. Although such losses are confined almost entirely to the far western plains and intermountain regions, the states and territories in which they occur are, as regards the sheep industry, among the most important in the country, and the annual losses from the ravages of wild animals are known to be very large.

The number reported as having died in 1889 from disease and stress of weather reaches the large total of 2,412,276, equivalent to 6.71 per cent of the total number of sheep on hand on June 1, 1890. When it is remembered that, except in the states of Oregon, Washington, and Idaho, the report does not include the losses of sheep on ranges, the gravity of the foregoing statement will be still further appreciated. Nevada reports no fewer than 128,850 sheep as having died from disease and stress of weather in 1889, the farmers and ranchmen who sustained this loss having only 273,469 head of sheep when the enumerators visited them in June, 1890. The sheep owners of Oregon, with 1,780,312 sheep on hand at the time of the enumeration, report losses from disease and stress of weather in 1889 aggregating the relatively enormous total of 498,476 head. New Mexico and Washington sustained losses that are the equivalent of 14.84 and 14.34 per cent, respectively, of the number of sheep reported as on hand on June 1, 1890. Idaho suffered a loss equivalent to 10.33 per cent of the number of sheep reported. As many as 19 other states, from Maine in the east to California in the west, and southward to Alabama and Louisiana, report losses aggregating from 5 to 10 per cent. These high percentages of loss, however, are by no means the only significant features of this part of the report. While the losses in the New England states, to adopt a more familiar classification, range from 4.48 per cent in Rhode Island, the lowest, to 8.56 per cent in Vermont, the highest; in the gulf states from 4.84 per cent in Florida to 6.31 per cent in Louisiana; in the Pacific states from 6.84 per cent in California to 28 per cent in Oregon; the states of New York, Ohio, and Illinois, averaging 4.47, 3.95, and 3.85 per cent, respectively, the losses in Minnesota, North Dakota, and Montana were but 3.67, 2.59, and 3.67 per cent, respectively.

NEAT CATTLE.

On June 1, 1890, the 4,564,641 farms in the United States contained 1,117,494 working oxen, 10,511,950 milch cows, and 33,734,128 other cattle, a total of 51,363,572.

On June 1, 1880, the 4,008,907 farms contained 993,841 working oxen, 12,443,120 milch cows, and 22,488,550 other cattle, a total of 35,925,511.

There is therefore an increase of 123,653, or 12.44 per cent, in the number of working oxen, of 4,068,830, or 32.70 per cent, in the number of milch cows, and of 11,245,578, or 50.01 per cent, in the number of other cattle, the increase in the total number of neat cattle on farms being 15,438,061, or 42.97 per cent.

On June 1, 1890, there were 6,285,220 neat cattle on ranges, of which 1,959,888 were cows and calves. On June 1, 1880, there was an estimated total of 3,750,022 neat cattle on ranges.

There is thus an apparent increase of 2,535,198, or 67.60 per cent, in the total number of neat cattle on ranges and of 17,973,259, or 45.30 per cent, in the total number of neat cattle in the United States.

STATISTICS OF AGRICULTURE.

It is important to observe a clear distinction between neat cattle on ranges and neat cattle on farms, and the numbers reported in June, 1890, are accordingly summarized in the following table, which also shows the distribution of the neat cattle on ranges:

NEAT CATTLE ON RANGES AND ON FARMS: CENSUS OF 1890.

	NUMBER.
Total	a57, 215, 212
On ranges	a5, 851, 640
On farms, including ranges in Idaho, Oregon, and Washington.....	51, 363, 572

NEAT CATTLE ON RANGES, BY STATES AND TERRITORIES.

Total.....	a5, 851, 640
Texas.....	2, 342, 083
Wyoming.....	248, 097
Colorado	448, 681
Montana.....	750, 619
South Dakota.....	29, 033
Utah.....	78, 047
California	241, 300
Arizona.....	659, 758
New Mexico	1, 054, 022

a Not including 433,580 on Indian reservations.

WORKING OXEN ON FARMS.—For the first time since the census of 1860 the number of working oxen reported exceeds the number reported at the preceding census. At the census of 1850 there were 1,700,744 working oxen, or 117.4 to every 100 farms. During the next 10 years the number increased to 2,254,911, but the number of farms increased in so much greater a ratio that the number of working oxen to every 100 farms fell to 110.3. The census of 1870 found only 1,319,271 working oxen, or 49.6 to every 100 farms. This apparently great falling off might be explained in part by the fact that the census of 1870 was admittedly very defective in some of the states in which oxen are most extensively employed for labor, but the census of 1880 disclosed a still further reduction in the total, the number reported being only 993,841, or 24.8 for every 100 farms. The increase that has apparently taken place between 1880 and 1890 is almost exactly proportionate to the increase in the total number of farms in the country at large, the number of working oxen in 1890 representing an average of 24.5 for every 100 farms. Great changes have to be noted in distribution, 20 states, together with the new territory of Oklahoma, showing an increase aggregating 219,767, and 28 states and territories, including the District of Columbia, a decrease aggregating 96,114.

The states of Kentucky, Tennessee, Alabama, Mississippi, and Arkansas show an increase in number of working oxen amounting to 120,717, almost equivalent to the net increase in the United States. Although the percentage of increase in these 5 states is 53.38, as compared with an increase of only 17.52 per cent in the number of their farms, the large numerical increase in working oxen in these states only raises the average for every 100 of their farms from 34.1 to 44.4. The number in Arkansas more than doubled during the decade; the increase in Louisiana was less than 1 per cent.

In the North Atlantic division, Vermont and Pennsylvania are the only states reporting an increase over the year 1880, the division as a whole showing a net decrease of 26,355. In the South Atlantic division there is a net increase of 26,700, Virginia, West Virginia, North Carolina, South Carolina, and Florida having increased their total to the extent of 34,774, while Delaware, Maryland, the District of Columbia, and Georgia show a falling off aggregating 8,074. In the North Central division, Ohio, Indiana, Illinois, Missouri, and the Dakotas have increased their total number of working oxen by 49,938, the increase in the Dakotas being 32,417, while Michigan, Wisconsin, Minnesota, Iowa, Nebraska, and Kansas report a reduction amounting altogether to 36,617. All the states of the South Central division show an increase, the total increase in the division, including the number reported from the new territory of Oklahoma, amounting to 130,372. All the states and territories of the Western division show a decrease, the result of which is that the total number of working oxen reported from this division in 1890 was only 16,476 as compared with 36,861 in 1880.

MILCH COWS ON FARMS.—The increase in the number of milch cows on farms between 1880 and 1890 is the largest ever reported, and in 1890 the number to every 100 of the population, 26.4, was greater than at any census since 1860. At the census of 1850 the number of milch cows reported as on farms was 6,385,094; 1860, 8,585,735; 1870, 8,935,332, and 1880, 12,443,120, the number per 100 of the population ranging from 23.2 in 1870 to 27.5 in 1850. This is a narrow range of fluctuation for 5 decennial censuses. Out of 49 states and territories, including the District of Columbia, 43 show an increase and only 6 a decrease between 1880 and 1890, the total increase in the 43 being 4,146,357 and the total decrease in the 6, 77,527.

In the North Atlantic division, a division which shows a decrease in the number and area of its farms and in many important branches of agriculture, every state had a larger number of milch cows in 1890 than in 1880. In

Pennsylvania the increase was 73,098; in New Jersey, 9,498; in New York, 2,375, and in the 6 New England states 75,345, Massachusetts taking the lead with an increase of 21,611. The increase in this division has not kept pace with the growth of population, the increase in the number of milch cows being 5.02 per cent, while that of population was 19.95 per cent. New York had a larger number of milch cows than any other 3 states in the division. The ratio of milch cows to population was much the highest in Vermont, there being 69.6 to every 100 of the population. In Franklin county, Vermont, there were 107.7 milch cows to every 100 of the population.

In the South Atlantic division the largest increase is in Florida, which had 269 milch cows in 1890 for every 100 in 1880. West Virginia, Virginia, Maryland, and Delaware show an increase. South Carolina and Georgia show a considerable decrease, especially the former; North Carolina and the District of Columbia report a smaller number than in 1880. These are the only important exceptions to the increase in the number of milch cows. The decrease in the states named was more or less general; in Georgia 79 counties show a decrease as compared with 58 showing an increase; in North Carolina 56 show a decrease as against 40 showing an increase; in South Carolina 28 show a decrease and 7 an increase. Taking the division as a whole, there is an increase of 88,705.

In the North Central division during the decade ending with 1890 there was a large increase in the number of milch cows, and, as will be shown hereafter, a great development of its dairy industry. The total number of milch cows reported as on farms in the 12 states comprised in this division is 8,240,999, 49.91 per cent of the total number in the United States, and an increase of 2,838,918 upon the number reported from these 12 states in 1880. Iowa has increased its number of milch cows by 644,231; there are no fewer than 32 counties in which there are more than 1,000 milch cows for every 1,000 of the population, Delaware county standing at the head of all counties in the United States with the average of 1,630 milch cows to 1,000 population. The area both of farms and of improved land in Illinois has diminished since 1880, yet there was a large increase in the number of milch cows in that state, 221,973, or 25.63 per cent. The numerical increase and the percentage of increase in Wisconsin, Minnesota, Kansas, and Nebraska have been greater than in Illinois, Wisconsin showing an increase of 314,246, or 65.69 per cent; Kansas an increase of 323,453, or 77.32 per cent; Minnesota an increase of 318,363, or 115.54 per cent, and Nebraska an increase of 343,858, or 213.33 per cent. The increase in the Dakotas amounts to 257,957, these states reporting more than seven times as many milch cows in 1890 as were contained in the territory of Dakota in 1880. There has been a large increase in Michigan and Missouri, a smaller one, but more than commensurate with the growth of population, in Indiana, and an increase of 3.62 per cent, or less than one-fourth of that of population, in Ohio.

In the South Central division every state shows an increase, the additions to the numbers reported in 1880 ranging from 20,645 in Alabama and 20,769 in Louisiana to 397,263 in Texas. In Tennessee, Alabama, Louisiana, and Arkansas the increase has failed to keep pace with the growth of population, and that such has not been the case with the division as a whole is due to the large increase, 65.54 per cent, in Texas. There is comparative uniformity in the number of milch cows to every 1,000 of the population in 3 of the principal states, Kentucky having 196, Tennessee 195, and Alabama 193 milch cows for every 1,000 of their inhabitants. In Texas the average is 449 per 1,000 population, while in Louisiana it is 149 per 1,000.

In the Western division there is a close correspondence between the increase in population and the increase in the number of milch cows, the former amounting to 71.27 per cent and the latter to 70.76 per cent. With the exception of Arizona and Nevada, which show a decrease (the latter also showing a decrease in population), every state and territory in this division contained a larger number of milch cows in 1890 than in 1880. In Wyoming the increase was 7,954, or 213.24 per cent; in Colorado, 48,178, or 167.46 per cent; in Washington, 43,099, or 156.03 per cent; in Montana, 12,835, or 113.50 per cent; in Idaho, 14,440, or 112.48 per cent; in Oregon, 54,607, or 91.70 per cent; in California, 107,123, or 50.99 per cent; in New Mexico, 5,552, or 42.86 per cent, and in Utah, 13,214, or 40.33 per cent. The total number of milch cows on farms in the whole of this region, comprising considerably more than one-third of the total land surface of the United States, was less than one-half the number in Iowa. The ratio of milch cows to population was higher in this division than in either the North Atlantic or South Atlantic division.

OTHER CATTLE ON FARMS.—The statistics for this branch of the neat cattle investigation indicate a very decided westward movement. All but 2 of the states in the North Atlantic and South Atlantic divisions show a decrease; all but 1 of the states and territories comprised in the North Central, South Central, and Western divisions show an increase. Inclusive of the territory of Oklahoma, which appears in the list for the first time, there are 32 states and territories that report a larger number of "other cattle" on farms than they had in 1880, the aggregate of such increase being 12,015,488, and 17 states, including the District of Columbia, that report a decrease, amounting to 769,910.

The 3 states reporting the largest reductions are New York, with a decrease of 208,364, Ohio, with a decrease of 131,298, and Pennsylvania, with a decrease of 99,219. The increase in many individual states is represented by large figures, Texas, Iowa, Kansas, and Nebraska reporting, respectively, 1,711,902, 1,639,422, 1,425,817, and 1,041,655 more "other cattle" on farms than in 1880. North Carolina, South Carolina, Georgia, and Florida all show a decrease, while to the west of them Kentucky, Tennessee, Alabama, Mississippi, Louisiana, and Arkansas show an increase.

TOTAL NUMBER OF NEAT CATTLE ON FARMS.—Combining working oxen, milch cows, and all other neat cattle on farms, it is found that there has been a decrease in every state in the North Atlantic division, most notably in New York, where it amounts to 208,329. In the South Atlantic division there has been an increase in Maryland, Virginia, West Virginia, and Florida, and a decrease in Delaware, the District of Columbia, North Carolina, South Carolina, and Georgia. In the North Central division the increase extends to every state except Ohio, and aggregates the net total of 9,240,920. There is an increase from 2,612,036 to 4,895,550 in Iowa, from 1,451,057 to 3,188,033 in Kansas, and from 758,550 to 2,142,597 in Nebraska. Every state in the South Central division shows a large increase, that in Texas being from 4,084,605 to 6,201,552. In the Western division every state and territory shows an increase, and while the additions to the total number of neat cattle on farms are not represented by such large figures as in the North Central division, the percentage of increase is for the most part high.

The largest number of neat cattle on farms to every square mile of land surface is found in Iowa, where the average is 88.25; Illinois stands second, with an average of 54.70. Vermont, Connecticut, New York, Ohio, Indiana, and Missouri have between 40 and 50 neat cattle on farms for every square mile of land surface; Massachusetts, Rhode Island, Pennsylvania, Wisconsin, and Kansas, between 30 and 40; New Hampshire, New Jersey, Delaware, Maryland, West Virginia, Nebraska, Kentucky, Tennessee, and Texas, between 20 and 30; Maine, the District of Columbia, Virginia, North Carolina, Georgia, Michigan, Minnesota, Alabama, Mississippi, Louisiana, and Arkansas, between 10 and 20, and South Carolina, Florida, North Dakota, South Dakota, Oklahoma, Montana, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Idaho, Washington, Oregon, and California, under 10.

East of the Mississippi river it is only in the states of Vermont and Florida that there are 1,000 or more neat cattle on farms for every 1,000 of the population. West of the Mississippi river the proportions are almost entirely reversed, there being few states or territories in which the number of neat cattle on farms is not largely in excess of population. In Wyoming there are 11 neat cattle on farms to each inhabitant, while the addition of those on the ranges in that state would increase the ratio to 15 to 1.

STATISTICS OF QUALITY.—The statistics of quality were collected in 1890 for the first time and no comparison can be made with previous censuses.

Taking the country as a whole, 0.98 per cent of neat cattle on farms in 1890 were pure bred, 16.08 per cent were grades, one-half blood or higher, and 82.94 per cent were common or native, including grades of less than one-half blood. The highest percentage of pure bred cattle, 1.77, is found in the North Atlantic division, which has also 16.41 per cent of grades, making 31.82 per cent of its 5,461,724 neat cattle one-half blood or over. The North Central division has a smaller percentage (1.21) of pure bred; its percentage of grades is 22.21, its total percentage of more than half blood being thus 23.42. The South Atlantic division has 0.73 per cent of pure bred and 7.41 per cent of grades, and the South Central division 0.46 per cent of pure bred and 6.77 per cent of grades. The Western division, with 0.52 per cent of pure bred, appears with 14.38 per cent of grades, owing to the large proportion of grades reported from certain districts in Colorado.

By states and territories the highest percentage of pure bred was 5.97 in the District of Columbia, though the absolute number was small, and the highest percentage of grades was 33.48 in Colorado, followed by 29.90 in Iowa. The highest percentages of pure bred and grades combined were 34.25 in Colorado and 31.47 in Rhode Island. There is very little difference between Rhode Island and Iowa in this regard, the percentage in the latter state being 31.13. Among the North Atlantic states Connecticut, Rhode Island, Massachusetts, and New Jersey have all over 3 per cent of pure bred, and these, except New Jersey, have a high percentage of grades; Maine and Vermont have a high percentage of grades, with a percentage of pure bred differing but little from the average of the division as a whole. New York has 1.50 and Pennsylvania 1.50 per cent of pure bred, while they have 15.39 and 11.68 per cent of grades, respectively. In the South Atlantic group the percentage of pure bred ranges from 5.97 in the District of Columbia and 2.33 in Maryland to 0.45 in Georgia and 0.25 in Florida, the percentage of grades ranging from 23.58 in the District of Columbia and 18.62 in Delaware to 3.22 in Georgia and 1.24 in Florida. The last mentioned state appears to have the smallest number of improved stock in proportion to the total number of its neat cattle on farms of any state or territory. The percentages in the Carolinas and Georgia are low. Among the North Central states Ohio has the highest percentage of pure bred, but it is exceeded in percentages of grades and of pure bred and grades combined by Iowa. The difference between Minnesota, South Dakota, North Dakota, and Wisconsin is small. There is a wide difference between the percentages in the various states composing the South Central division, Kentucky having 1.52 per cent of pure bred and 14.77 per cent of grades, while Louisiana has only 1.98 per cent of pure bred and grades combined, the percentages in Arkansas, Alabama, and Mississippi being almost equally low. In the Western division Utah has 1.25 per cent of pure bred, as compared with 0.10 per cent in New Mexico and 0.08 per cent in Arizona, and California has 16.93 per cent of grades, as compared with 4.66 per cent in Idaho.

NEAT CATTLE SOLD IN 1889, LIVING OR SLAUGHTERED.—The total number of neat cattle, living or slaughtered, sold from the farms of the United States in 1889 was 13,015,775, equivalent to 25.34 per cent of the total number of neat cattle reported as on hand on June 1, 1890. The largest numbers reported, as compared with the numbers remaining on hand at the time of the enumeration, were 34.09 per cent in the North Atlantic and 30.71 per cent in the North Central division. The lowest percentages, 15.36 and 17.09, were reported from the South Atlantic and South Central divisions, respectively, while the Western division, with its percentage of 17.60, was but little higher than the South Central. The only state in which the number sold in 1889 was equivalent to 50 per cent or upward of the number remaining on hand in June, 1890, was New Jersey; in South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Oklahoma, Wyoming, and Arizona the proportion was less than 10 per cent.

NEAT CATTLE SLAUGHTERED IN 1889 FOR CONSUMPTION ON FARM.—The total number of cattle reported under this head is 1,294,237, equivalent to 2.52 per cent of the total number remaining on hand in June, 1890. A comparison of the figures by geographical divisions discloses a general uniformity, the Western division, with its percentage of 1.46, being the only division deviating much from the average of the country. The highest percentages are found in North Dakota and Minnesota, 5.10 and 4.97, respectively, and the lowest in Delaware, the District of Columbia, Oklahoma, Montana, Wyoming, and Arizona, which have less than 1 per cent.

CATTLE DIED ON FARMS IN 1889.—The total number of neat cattle reported as having died on farms in the United States in 1889 was 2,028,070, equivalent to 3.95 per cent of the total number reported as on hand in June, 1890. Except in the states of Oregon, Washington, and Idaho, the report does not include the mortality among neat cattle on ranges. By far the highest apparent rate of mortality was in Nevada, where the number of deaths was 133,845, equivalent to 63.46 per cent of the total number of neat cattle found on the farms of that state at the time of the enumeration. The next highest percentages of loss were 24.86 in Idaho, 18.82 in Oregon, 14.08 in Washington, and 10.59 in Colorado.

Taking the entire Western division, in which all the foregoing states are embraced, the losses are found to be equivalent to 10.36 per cent of the number of cattle remaining on hand on farms in June, 1890. The losses in Utah aggregated 8.30 per cent; in California, 5.54 per cent; in Montana, 5.33 per cent; in New Mexico, 5.17 per cent; in Wyoming, 4.19 per cent, and in Arizona, 2.26 per cent. The South Central division has the next highest average percentage of loss, 3.80. In Arkansas, Mississippi, and Louisiana the loss exceeds 5 per cent for each, while in Oklahoma and Kentucky the losses amounted to 2.85 per cent and 2.53 per cent, respectively. In the South Atlantic division, which stands next, the percentage of loss was 3.16, ranging from 1.52 in the District of Columbia to 6.54 in Florida. Florida, with the lowest percentage of improved stock in the South Atlantic division, has the highest percentage of loss, its percentage exceeding that of many of the northwestern states with their rigorous winter climate. The North Central division, which contains nearly one-half of the total number of neat cattle on farms in the United States, had only 3.04 per cent of loss. The lowest percentages in the division were 1.96 in Ohio and 1.97 in Michigan, and the highest 4.56 in Nebraska, 4.31 in South Dakota, and 4.01 in Kansas. The division having the lowest percentage of loss was the North Atlantic, with 2.18 per cent. This division contained the 4 states which had the lowest percentages of loss in the entire country, with the exception of the District of Columbia, where the conditions are exceptional. The highest percentage of loss in the division was 2.58 in Pennsylvania. The next highest percentages were 2.50 in New Jersey and 2.44 in Massachusetts. The percentage in New Hampshire was 1.73; in Vermont, 1.61; in Connecticut, 1.56, and in Maine, 1.36, the last mentioned being the lowest in the United States. While in none of these 4 states, with the exception of Connecticut, was the proportion of pure bred cattle especially high, the combined percentage of pure bred and grades was high in all of them, and the relation between the quality of the cattle and the percentage of loss by death, which an examination of the tables discloses in a large number of states, is very marked.

NEAT CATTLE ON RANGES.—In the enumeration of the neat cattle on ranges, outside of Idaho, Oregon, and Washington, no information was collected concerning the quality of the cattle, the number that died in 1889, the number slaughtered for consumption on ranch, or the total number sold. The classification was according to age. The number of range cattle reported, with their ages, is shown in the table on the following page, prepared by Mr. Mortimer Whithead, special agent, who had the general direction of the investigation. The range cattle of Idaho, Oregon, and Washington have been reported with the cattle on farms for those states.

STATISTICS OF AGRICULTURE.

NUMBER AND CLASSIFICATION OF RANGE CATTLE.

DISTRICTS.	Total number of cattle.	COWS AND CALVES.		DRY COWS.		YEARLINGS.		TWO-YEAR OLDS.		THREE-YEAR OLDS.		FOUR-YEAR OLDS.	
		Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.
Total	6,285,220	1,059,888	31.18	795,572	12.66	1,209,731	19.25	999,303	15.90	784,797	12.40	535,869	8.52
Texas, except the Pan Handle...	1,854,340	667,695	36.00	206,695	10.00	389,417	21.00	278,152	15.00	148,347	8.00	74,173	4.00
Pan Handle, Texas	487,734	97,097	19.91	98,929	20.28	86,260	17.69	96,854	19.86	60,678	12.44	47,916	9.82
Cherokee, Osage, and Creek reservations.	158,438	20,467	12.92	12,595	7.95	12,595	7.95	17,318	10.93	36,696	23.12	58,827	37.18
Cherokee strip.....	203,120	26,562	13.08	16,222	7.99	12,089	5.95	23,950	11.79	45,552	22.42	78,754	38.77
Chickasaw nation.....	72,013	11,039	15.33	6,987	9.70	7,741	10.75	11,150	15.48	16,394	22.77	18,702	25.97
Wyoming.....	248,097	60,509	24.39	35,002	14.11	41,717	16.81	47,925	19.32	41,416	16.69	21,528	8.68
Eastern Colorado.....	57,921	13,266	22.90	7,561	13.06	10,184	17.58	12,026	20.76	11,123	19.21	3,761	6.49
Western Colorado.....	390,700	89,874	23.00	50,798	13.00	66,429	17.00	82,059	21.00	74,244	19.00	27,350	7.00
Montana.....	750,610	150,444	20.04	73,132	9.74	131,399	17.50	135,379	18.04	156,187	20.81	104,138	13.87
South Dakota.....	29,033	8,547	29.44	2,846	9.80	5,481	18.88	5,192	17.88	4,557	15.70	2,410	8.30
Utah.....	78,047	25,791	33.05	11,484	14.71	16,858	21.60	10,994	14.07	8,477	10.86	4,453	5.71
California.....	241,300	150,185	62.24	6,638	2.75	46,266	19.17	23,642	9.80	12,069	5.00	2,500	1.04
Arizona.....	659,768	244,114	37.00	39,585	6.00	158,341	24.00	118,756	18.00	65,975	10.00	32,987	5.00
New Mexico.....	1,054,022	394,428	37.42	137,098	13.01	225,014	21.35	135,976	12.90	103,142	9.78	58,364	5.54

DAIRY PRODUCTS.

The total production of milk on farms in the United States in the year ending December 31, 1889 (not including farms of less than 3 acres, except where \$500 worth of the produce of the farm had been actually sold during the year), was 5,210,125,567 gallons, equivalent to 315.54 gallons for each milch cow reported on June 1, 1890, and to 83.20 gallons per head of population.

The total production of butter on farms (as above limited) in the year ending December 31, 1889, was 1,024,223,468 pounds as compared with a total of 777,250,287 pounds in 1879, and the total production of cheese 18,726,813 pounds as compared with a total of 27,272,489 pounds in 1879, an increase of 246,973,181 pounds, or 31.78 per cent, in the production of butter on farms, and a decrease of 8,545,671 pounds, or 31.33 per cent, in the production of cheese on farms.

MILK.

As a general but not invariable rule the average production of milk per milch cow has a certain correspondence with the report as to quality, the District of Columbia, which has the highest percentage of pure-bred cattle, having the highest average milk production, 533 gallons for each milch cow, while New Mexico, with the lowest percentage of pure-bred cattle, has the lowest average production of milk, only 38.75 gallons per milch cow. The proximity of a market for milk or dairy products is a factor not to be lost sight of in this connection.

Taking the country by geographical divisions, the North Atlantic division, with the highest percentage of pure-bred cattle, has the highest average milk production, 428.44 gallons per milch cow. The variation in the averages in this group of states is not great, the highest average production being 479.94 gallons in Massachusetts and 460.98 gallons in New York, and the lowest 368.58 gallons in Maine and 389.62 gallons in New Hampshire. The next highest average is that of the North Central division, which stands second also in its percentage of pure-bred cattle. Here the general average is 329.99 gallons, Michigan and Ohio having the highest averages, 451.23 gallons and 411.31 gallons, respectively, and Missouri and Kansas the lowest, 227.87 gallons and 271.79 gallons, respectively. In the South Atlantic division the general average is 242.96 gallons, the District of Columbia and the state of Delaware having the highest averages, 533.00 gallons and 328.46 gallons, respectively, and the states of Georgia and Florida the lowest, 185.02 gallons and 44.60 gallons, respectively. In the South Central division the general average is 183.66 gallons, the highest being 325.08 gallons in Kentucky and 311.77 gallons in Tennessee, and the lowest 77.03 gallons in Louisiana and 92.16 gallons in Oklahoma. In the Western division the general average is 281.02 gallons; the average production per milch cow ranges from 38.75 gallons in New Mexico to 350.54 gallons in California. The new and sparsely populated states, Wyoming and Montana, have averages of 262.29 gallons and 250.10 gallons, respectively. The production per capita of population in these states is much below the general average for the United States.

The total production of milk in the United States in 1889, compared with the total population in June, 1890, gives an average of about 83 gallons for each inhabitant. The ratio was highest in the North Central division, where it was 122 gallons per unit of the population, the states comprised in this division producing more than one-half of the butter and one-third of the cheese made in the United States. The ratio of milk production to population in the North Atlantic division was nearly 83 gallons for each inhabitant; in the Western division it was not quite 67 gallons, while in the South Atlantic and South Central divisions it was 38 gallons and 47 gallons, respectively.

The only states in which the production of milk amounted to 100 gallons or upward per capita of population were New Hampshire, Vermont, and New York in the North Atlantic division, and Michigan, Wisconsin, Minnesota, North Dakota, South Dakota, Iowa, Nebraska, and Kansas in the North Central division. Only in Vermont and Iowa was there a production of 200 gallons or upward for each inhabitant. The average in the District of Columbia is less than 2 gallons per capita, the city of Washington deriving its milk supply mainly from the states of Maryland and Virginia. In New Mexico the production was less than 5 gallons per capita of population; in Louisiana and Arizona it was under 12 gallons, and in Florida under 13 gallons for each inhabitant.

BUTTER.

Notwithstanding the great extension of the creamery system the production of butter on farms has increased more rapidly than population. By the census of 1850 it is found that the total production of butter on farms in 1849 was 313,345,306 pounds, or 13.51 pounds per capita of population. In 1860 the amount reported for 1859 was 459,681,372 pounds, or 14.62 pounds per capita. In 1870 the amount reported for 1869 was 514,092,683 pounds, which gave an average of 13.33 pounds for each inhabitant. In 1879 the production of farm butter averaged 15.50 pounds for each inhabitant. At the Eleventh Census the production of butter on farms averaged 16.36 pounds per capita of the population.

The increase in the production of butter on farms, as distinguished from that made in creameries, has been very general, 40 states and territories, considering the two Dakotas as a unit for convenience of comparison with the statistics of 1879, reporting an increase and only 8, including the District of Columbia, a decrease. The states from which a smaller production of butter on farms is reported than at the Tenth Census belong to the North Atlantic division. Every other portion of the country shows an increase. The North Central division produced 50.83 per cent of the total amount, and its production per capita of the population is much higher than that of any other division.

From a number of counties in the south, and especially in Georgia, a production of butter is reported in excess of the maximum butter-producing capabilities of the reported milk production. When the apparent discrepancies were detected in consolidating the schedules it was too late to correct or verify them by renewing the inquiry.

It is quite possible that enumerators, or farmers, in the counties above alluded to construed the inquiry in regard to the production of milk as meaning the milk produced other than that used for the making of butter and cheese, or that the farmers returned only that milk which was marketed or used as milk, and returned for the milk that was put fresh into the churn only the butter produced from it. Inquiries have been received from different parts of the country as to whether the column showing the production of milk included milk used for butter and cheese making. It is customary in some parts of the country to churn new milk, and it is quite possible that the product of such milk converted into butter, added to the butter made from milk set for the cream, would be in excess of what the milk reported could produce. Whatever the proper explanation, the discrepancies have but a local effect, disturbing the figures for some counties, but being in the aggregate too small to affect the general reports for the country.

CHEESE.

In 1850 there was a reported production of cheese on farms amounting to 105,535,893 pounds; in 1860 the amount reported was 103,663,927 pounds; in 1870, it was 73,492,153 pounds; in 1880, 27,272,439 pounds, and in 1890, 18,726,818 pounds.

The largest decrease in the production of cheese on farms during the decade ending with 1889 was in the states composing the North Atlantic division, every one of which has a diminished production. In the North Central division the production of cheese on farms was considerably less in 1889 than in 1879, Minnesota, Missouri, the Dakotas, Nebraska, and Kansas forming the only exceptions. While in 1879 Ohio and Wisconsin each reported over 2,000,000 pounds, and Illinois and Iowa each over 1,000,000 pounds of cheese made on farms, an amount in excess of 1,000,000 pounds is reported for 1889 only by Ohio and Iowa.

But little cheese is made in the south, the total production of the farms of the South Atlantic and South Central divisions being 589,658 pounds in 1889 and 567,841 pounds in 1879. Of the production in 1889, Virginia and Texas each contributed over 100,000 pounds. The combined farm production of South Carolina, Florida, Alabama, Mississippi, and Louisiana was 19,175 pounds.

In most of the states and territories of the Western division cheese making on farms largely increased during the decade, New Mexico producing nearly twice, Nevada nearly three times, Wyoming over five times, Colorado over eight times, and Idaho over ten times as much cheese on farms in 1889 as in 1879. Utah, Oregon, and California also show a large increase. Montana and Arizona report a smaller production on farms than at the Tenth Census.

COTTON.

The total area devoted to the production of cotton in 1889 was 20,175,270 acres, or 31,523.86 square miles, and the total production, i. e., the crop gathered from such area in the fall of 1889 and the early winter of 1889-1890, 7,472,511 bales of 477 pounds net (*a*) each, amounting to 3,564,387,747 pounds, an average of 176.67 pounds to the acre.

In 1879 the total area devoted to cotton was 14,480,019 acres, or 22,625.03 square miles, and the total production 5,755,359 bales of 453 pounds each (*a*), amounting to 2,607,177,627 pounds, an average of 180.05 pounds to the acre.

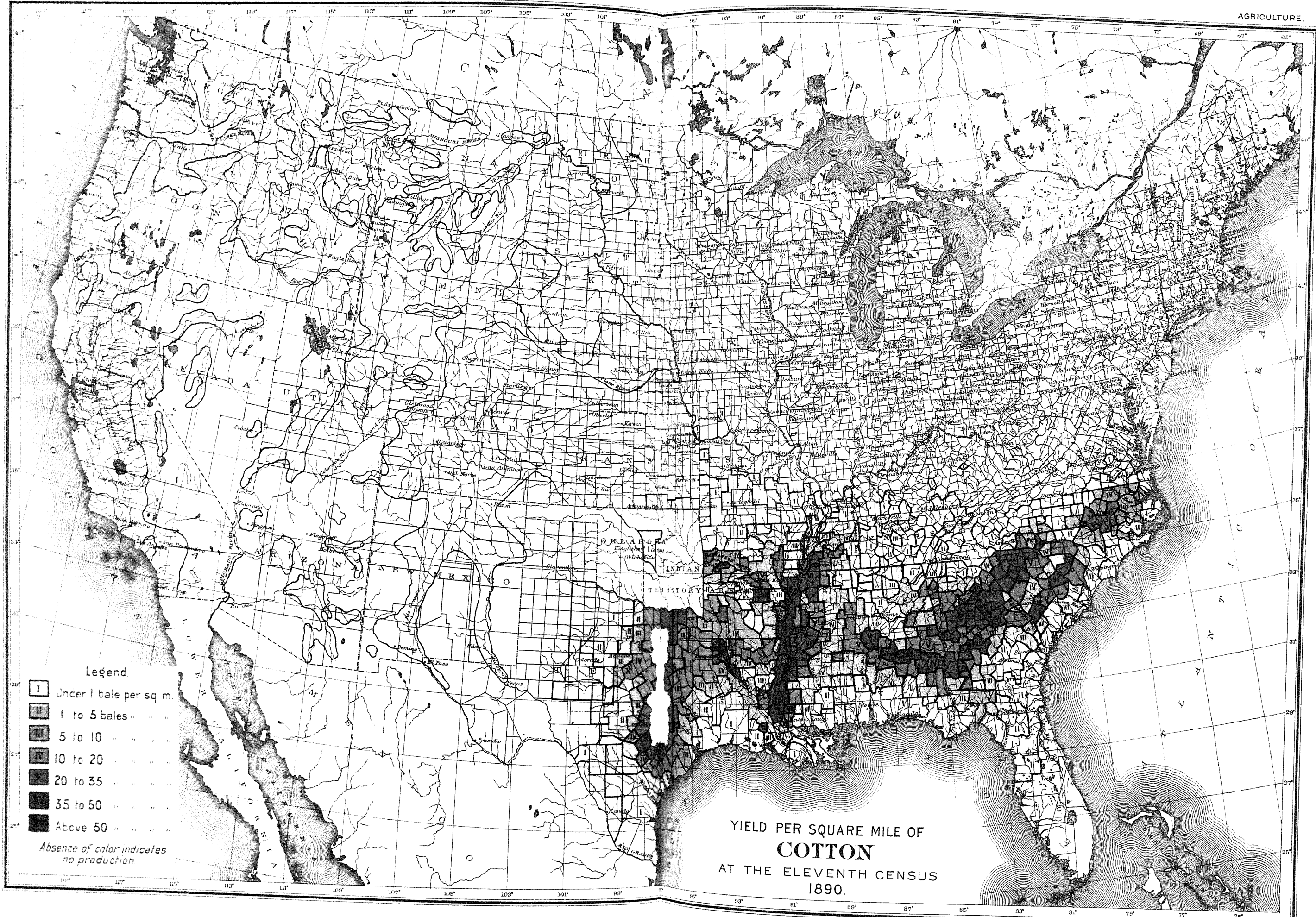
There is therefore an increase of 5,695,251 acres, or 39.33 per cent, in the area, and of 957,210,120 pounds, or 36.71 per cent, in the production.

As the principal portion of each year's crop is exported and only an inconsequential fraction of the amount produced fails to reach a market in its raw state, the production of cotton has always been ascertainable with a more or less close approximation to accuracy. The report as to the production of cotton in the different states of the Union from 1791 to 1834, inclusive, furnished to the Speaker of the House of Representatives in 1836 by the Hon. Levi Woodbury, Secretary of the Treasury, may therefore be accepted as presenting a reasonably accurate statement of the facts up to within 5 years of the first enumeration of agricultural products in the census in 1840.

According to that report the total production of cotton in the United States in 1791 was 2,000,000 pounds, of which 1,500,000 pounds were grown in South Carolina and 500,000 pounds in Georgia. Of the production in the year 1801, amounting to 40,000,000 pounds, one-half was grown in South Carolina, Georgia producing 10,000,000, Virginia 5,000,000, North Carolina 4,000,000, and Tennessee 1,000,000 pounds. In 1811 the production of cotton had doubled, and the 2 states in which it was most extensively produced showed the same ratio of increase, South Carolina and Georgia producing 40,000,000 and 20,000,000 pounds, respectively. Virginia produced 8,000,000, North Carolina 7,000,000, Tennessee 3,000,000, and Louisiana territory 2,000,000 pounds. The succeeding decade witnessed a still larger increase, the total for the year 1821 being, in round numbers, 180,000,000 pounds. South Carolina, with a crop of 50,000,000 pounds, was still in the lead. Georgia produced 45,000,000 pounds, Tennessee and the new state of Alabama 20,000,000 pounds each, Virginia 12,000,000 pounds, and North Carolina and the new states of Louisiana and Mississippi produced 10,000,000 pounds each. The total production for 1826 amounted to 350,000,000 pounds. Georgia is found at the head of the list with a production of 75,000,000 pounds, South Carolina produced 70,000,000 pounds, and Tennessee and Alabama 45,000,000 pounds each. Mississippi had trebled and Louisiana almost quadrupled its production within the 5 years. The new territory of Florida produced 2,000,000 pounds and Arkansas 250,000 pounds. Virginia produced 25,000,000 pounds and reached its high water mark, so far as appears from official data. The next year for which statistics are available by states is 1833, when the total production of the country was computed at 445,000,000 pounds. Georgia and South Carolina were still first and second in the scale of production, with crops of 88,000,000 and 73,000,000 pounds, respectively; the production of Mississippi had increased in the course of 7 years from 30,000,000 pounds to 70,000,000 pounds, while the crops of Alabama and Louisiana amounted to 65,000,000 and 55,000,000 pounds, respectively. Tennessee had increased its production by 5,000,000 pounds, while in Florida production had increased to 15,000,000 pounds, or over sixfold. In Virginia and North Carolina there was a falling off of nearly 50 per cent. In 1834, the last year included in Mr. Woodbury's report, the total production of the country was 460,000,000 pounds. This increase of 15,000,000 pounds over the production of the preceding year was due to the continued rapid development of cotton culture in the interior and gulf states, Alabama and Mississippi leading in the scale of production with crops of 85,000,000 pounds each. The production of the 5 oldest cotton-growing states showed a considerable falling off as compared with the preceding year.

The inclusion of agricultural products in census inquiries had its beginning in 1840, the crop statistics then collected being those of the season of 1839. At that time Mississippi was far in the lead, almost one-fourth of the 790,479,275 pounds of cotton produced in the United States being raised within its borders. Georgia, Louisiana, and Alabama stood second, third, and fourth in rank, with crops of 163,392,396, 152,555,368, and 117,138,823 pounds, respectively. These states, with Mississippi, produced 79.25 per cent of the total crop of the country. Illinois reported a crop of 200,947 pounds, and Delaware, Maryland, and Indiana each made a trifling contribution to the cotton production of the country. The census of 1850 disclosed a production during the previous season of 987,637,200 pounds, Alabama leading with a crop of 225,771,600 pounds, followed by Georgia, Mississippi, and South Carolina with a production of 199,636,400, 193,716,800, and 120,360,400 pounds, respectively. The crop of Mississippi differed less than one-sixth of 1 per cent from what it was in 1839; the production of Alabama and South Carolina had almost doubled. The much smaller production of Tennessee showed a still greater ratio of increase, as did also that of Arkansas. Louisiana, which stood third in rank in 1839, had fallen to the sixth place, its production having decreased by more than one-half. North Carolina, the cotton production of which seems to be subject to greater fluctuations than that of any other state, showed a considerable falling off. Texas, admitted into the Union 4 years before, appears in the list for the first time, with a crop of 23,228,800 pounds. The

^a Weight per bale as adopted in the Statistical Abstract, Bureau of Statistics, United States Treasury Department, 1890, page 102.



Legend

I	Under 1 bale per sq. m.
II	1 to 5 bales
III	5 to 10
IV	10 to 20
V	20 to 35
VI	35 to 50
VII	Above 50

Absence of color indicates no production.

YIELD PER SQUARE MILE OF
COTTON
 AT THE ELEVENTH CENSUS
 1890.