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Regional Shifts of Crops Within the U.S. During the 20th Century

by

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Overview:

Throughout the 20th Century, an ongoing topic of discussion and debate has been shifts in the production of farm commodities within the U.S. As the 20th Century draws to a close, this paper discusses the regional shifts that have occurred in the production of 18 crops during the Century, as well as changes in the amount of production. Data were taken from the 1900, 1950, and 1997 U.S. Censuses of Agriculture. The shifts were evaluated using the ten production regions classified by the U.S. Department of Agriculture. The regions cover the 48 contiguous states. Each of these regions is comprised of states that are somewhat homogeneous in terms of physical characteristics and types of farming.

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Figure 1. Regional Shares of U.S. Barley Production, 1899, 1949, and 1997*.

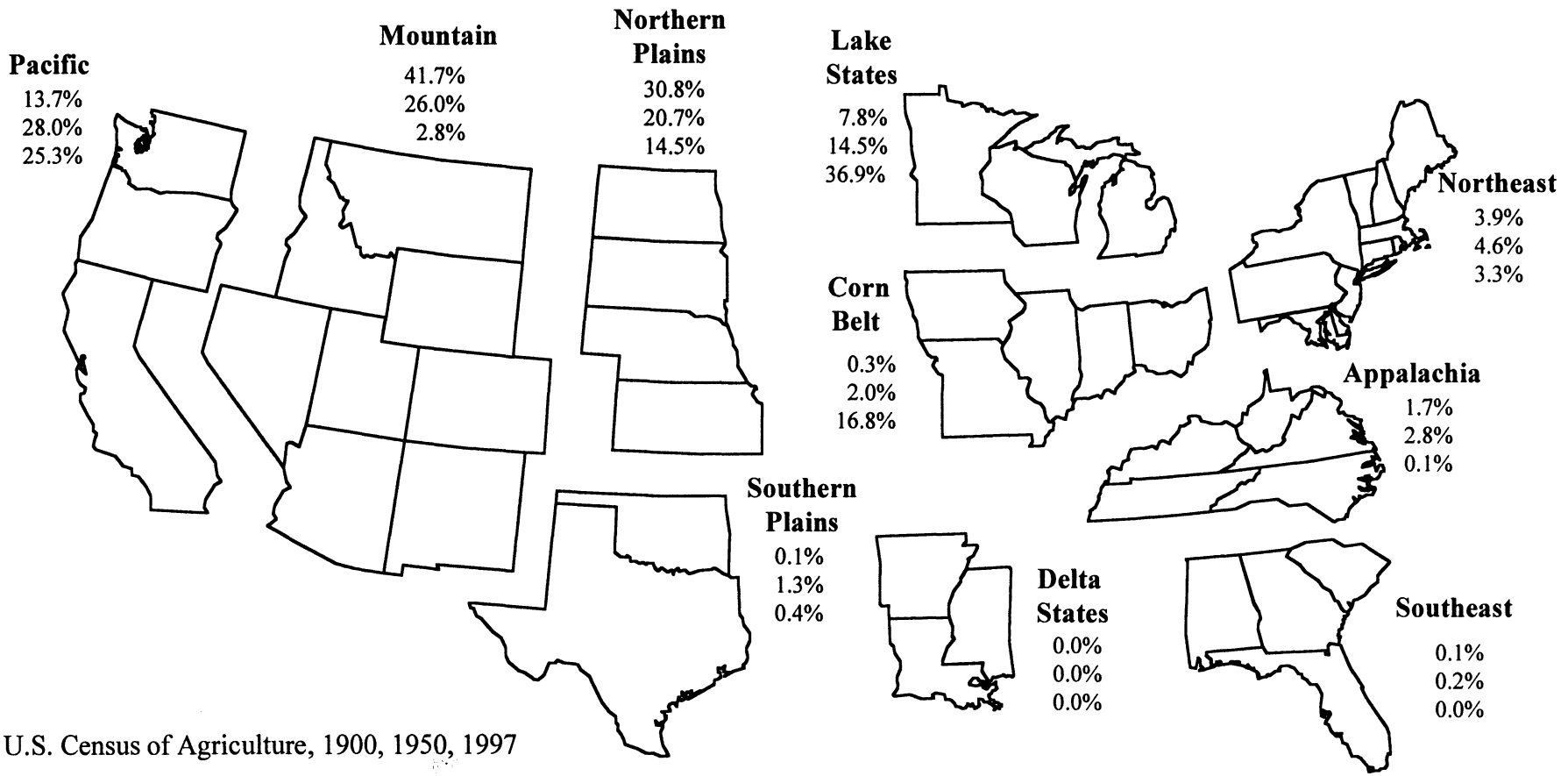
U.S. barley production has concentrated in the Northern Plains and Mountain regions during the 20th Century. In 1997, these two regions accounted for 73% of U.S. production, compared with 17% in 1899. In particular, the Mountain region's share expanded, from 3% in 1899 to 42% in 1997. On the other hand, share of U.S. production in the Corn Belt and Lake States declined from 54% in 1899 to 8% in 1997. Over 80% of this decline occurred before 1949. Barley, a cooler climate crop, has near zero production in the Southeast, Delta, and Southern Plains states.

Order of Data
% U.S. Production, **1997**
% U.S. Production, **1949**
% U.S. Production, **1899**

U.S. Production	
1997	336 mil. bu.
1949	221 mil. bu.
1899	120 mil. bu.

Measure of Regional Concentration: This measures distribution inequality among regions.

1997	112%	It is calculated as the sum of the differences between the regional shares observed
1949	98%	for a year and an equal distribution of a 10% share in each region. The larger the number
1899	107%	the more unequal the distribution, i.e. the more regionally concentrated production.



* U.S. Census of Agriculture, 1900, 1950, 1997

Figure 2. Regional Shares of Buckwheat Production, U.S., 1899, 1949, and 1997*.

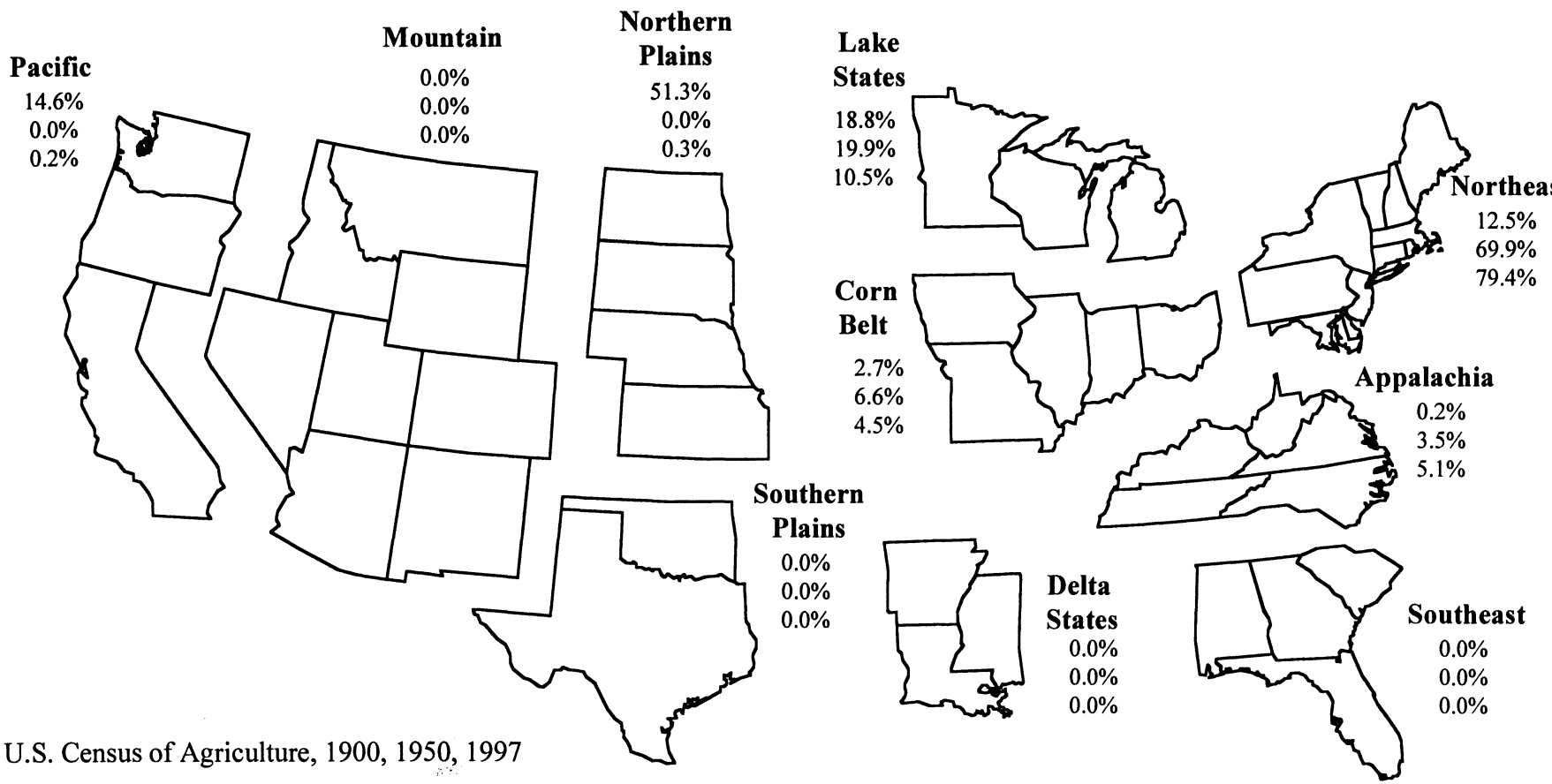
Buckwheat production totaled 11 million bushels in 1899. It is now less than 1 million bushels. Buckwheat is a northern climate crop. For example, states along the Canadian border accounted for 72% of production in 1997. The Northeast's share of production decreased from 79% in 1899 to 13% in 1997, with most of the decline occurring after 1949. In contrast, the Northern Plains' share increased from near zero percent in 1899 and 1949 to 51% in 1997.

Order of Data
% U.S. Production, **1997**
% U.S. Production, **1949**
% U.S. Production, **1899**

U.S. Production	
1997	0.6 mil. bu.
1949	4.3 mil. bu.
1899	11.2 mil. bu.

Measure of Regional Concentration: This measures distribution inequality among regions. It is calculated as the sum of the differences between the regional shares observed for a year and an equal distribution of a 10% share in each region. The larger the number the more unequal the distribution, i.e. the more regionally concentrated production.

1997	114%
1949	140%
1899	140%



* U.S. Census of Agriculture, 1900, 1950, 1997

Figure 3. Regional Shares of Corn Production, U.S., 1899, 1949, and 1997*.

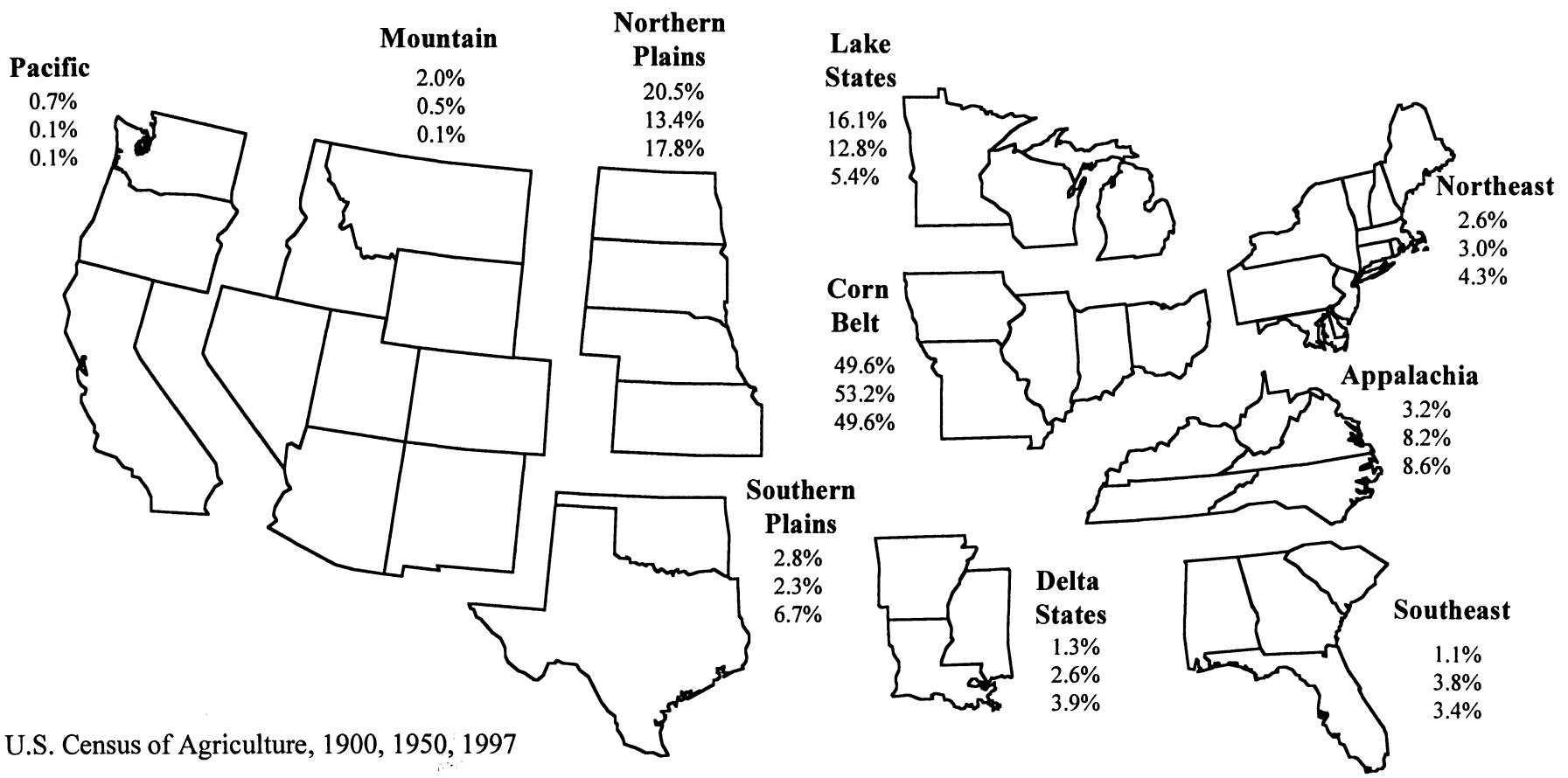
The Corn Belt accounted for 50% of the crop in 1997, the same percentage as in 1899. The Northern Plains and Lake States accounted for another 37% of corn production in 1997, up from 23% in 1899. On the other hand, the Southeast, Delta, Southern Plains, and Appalachian regions accounted for only 8% of corn production in 1997, compared with 23% in 1899 and 17% in 1949. Thus, the major regional shift was from the south to the Northern Plains and Lake States.

Order of Data
% U.S. Production, **1997**
% U.S. Production, **1949**
% U.S. Production, **1899**

U.S. Production	
1997	8.6 bil. bu.
1949	2.8 bil. bu.
1899	2.7 bil. bu.

Measure of Regional Concentration: This measures distribution inequality among regions. It is calculated as the sum of the differences between the regional shares observed for a year and an equal distribution of a 10% share in each region. The larger the number the more unequal the distribution, i.e. the more regionally concentrated production.

1997	113%
1949	99%
1899	95%



* U.S. Census of Agriculture, 1900, 1950, 1997

Figure 4. Regional Shares of Cotton Production, U.S., 1899, 1949, and 1997*.

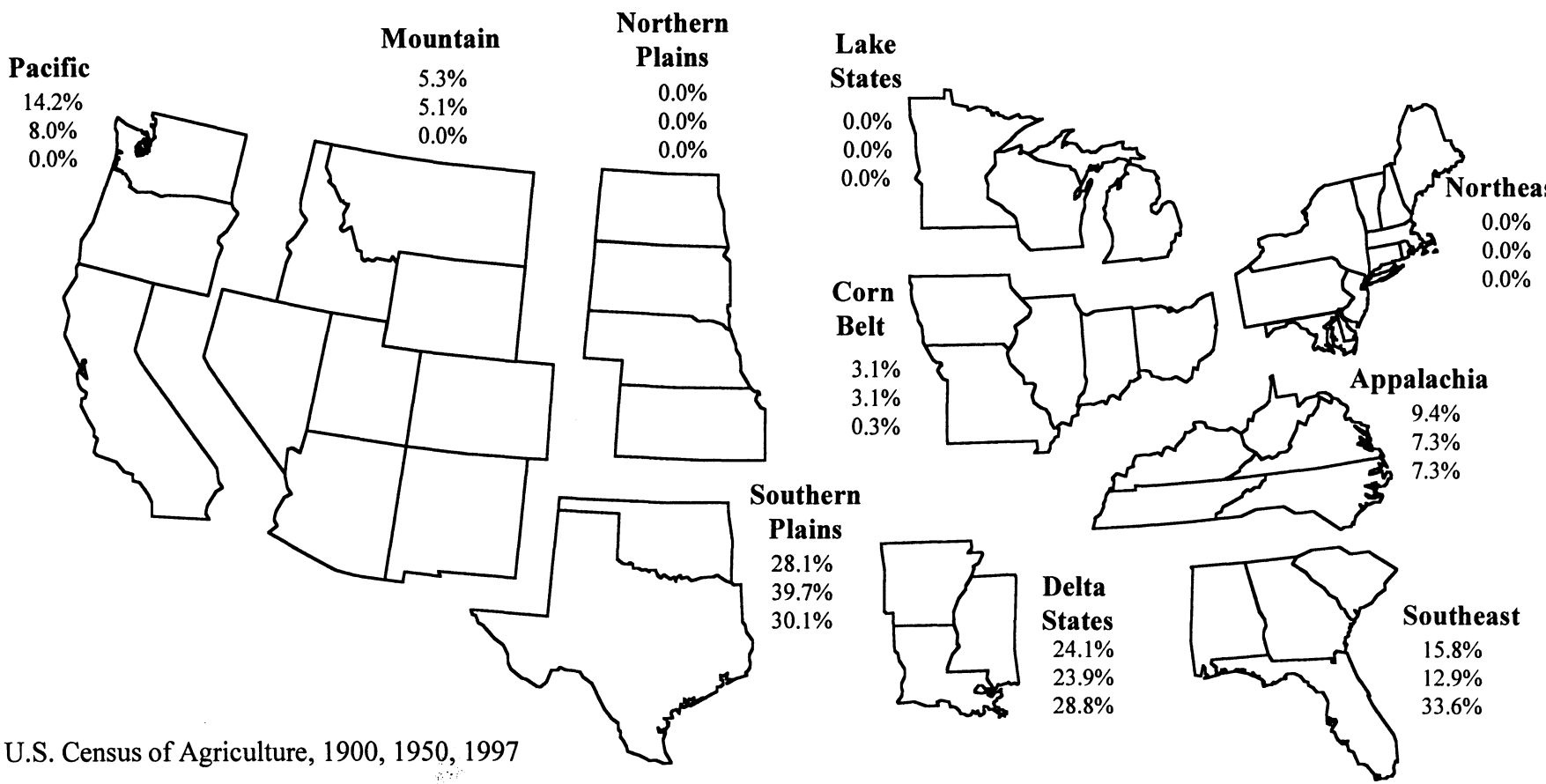
Reflecting the competition from synthetic fibers, U.S. cotton production increased only 16% between 1949 and 1997, compared with 65% between 1899 and 1949. The Delta and Southern Plains regions accounted for at least 50% of U.S. cotton production in 1899, 1949, and 1997. The Southeast region's share of production shifted to the Mountain and, especially, Pacific region.

Order of Data
% U.S. Production, **1997**
% U.S. Production, **1949**
% U.S. Production, **1899**

U.S. Production	
1997	18 mil. bales
1949	15 mil. bales
1899	9 mil. bales

Measure of Regional Concentration: This measures distribution inequality among regions. It is calculated as the sum of the differences between the regional shares observed for a year and an equal distribution of a 10% share in each region. The larger the number the more unequal the distribution, i.e. the more regionally concentrated production.

1997	84%
1949	93%
1899	125%



* U.S. Census of Agriculture, 1900, 1950, 1997

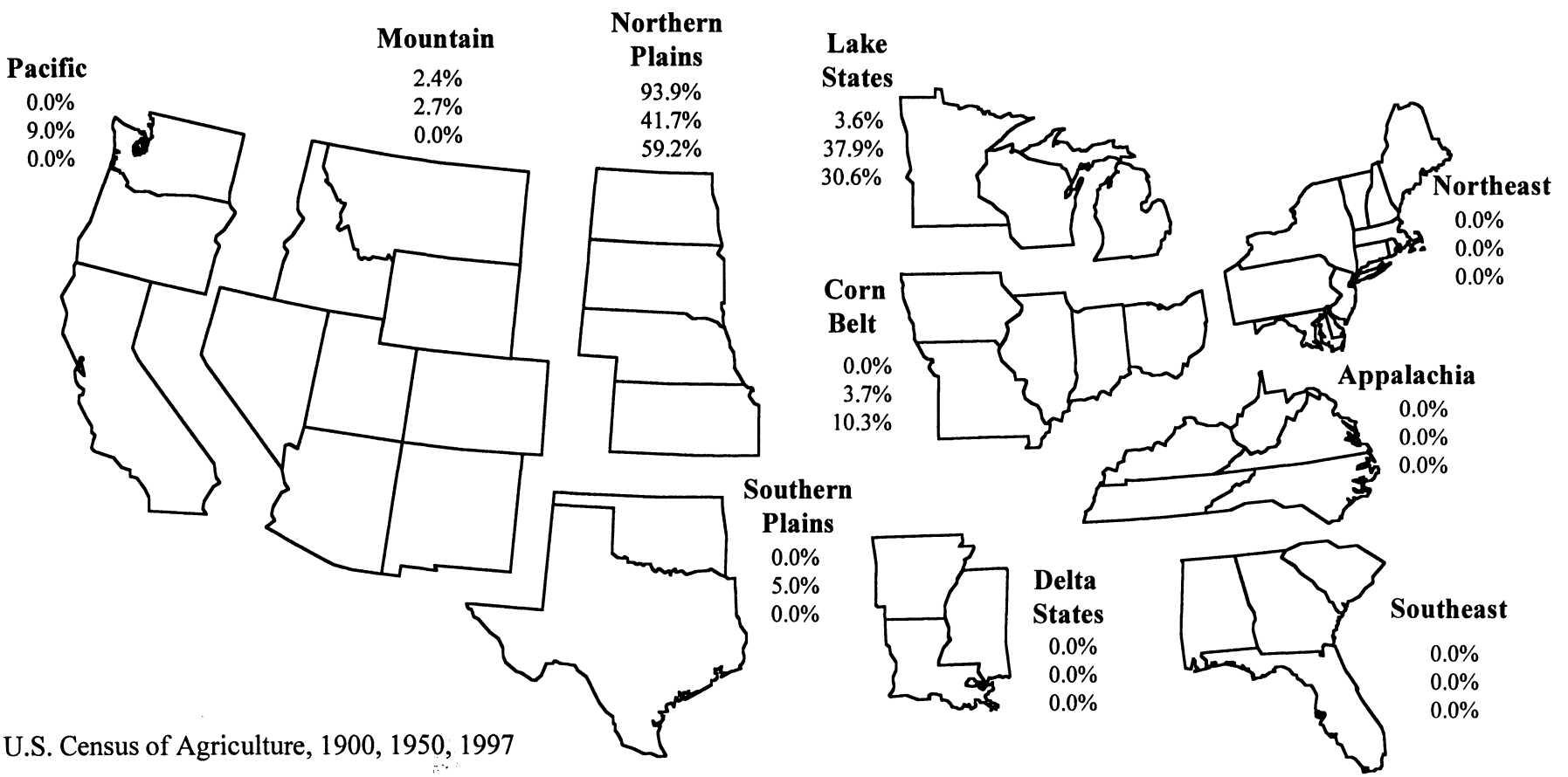
Figure 5. Regional Shares of Flaxseed Production, U.S., 1899, 1949, and 1997*.

In 1899, the U.S. produced 20 million bushels of flaxseed. Production doubled to 40 million bushels in 1949 before declining dramatically to 2 million bushels by 1997. During the post-1949 decline, U.S. flaxseed production concentrated in the Northern Plains. More specifically, it concentrated in North Dakota, which produced 87% of the U.S. crop in 1997.

Order of Data
% U.S. Production, **1997**
% U.S. Production, **1949**
% U.S. Production, **1899**

U.S. Production	
1997	2 mil. bu.
1949	40 mil. bu.
1899	20 mil. bu.

Measure of Regional Concentration: This measures distribution inequality among regions.
1997 168% It is calculated as the sum of the differences between the regional shares observed
1949 119% for a year and an equal distribution of a 10% share in each region. The larger the number
1899 140% the more unequal the distribution, i.e. the more regionally concentrated production.



* U.S. Census of Agriculture, 1900, 1950, 1997

Figure 6. Regional Shares of Fruit Production, U.S., 1899, 1949, and 1997*.

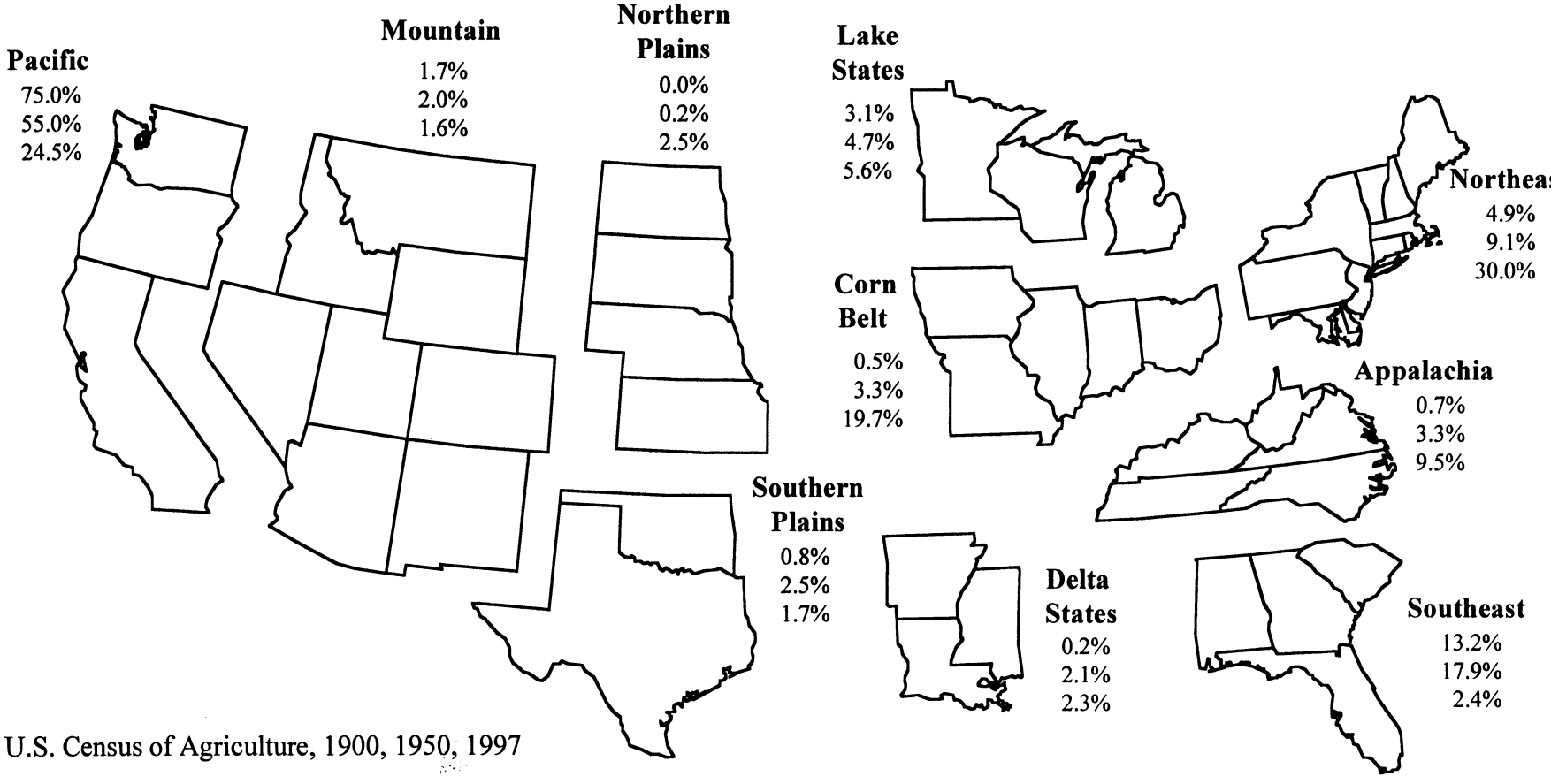
During the 20th Century, U.S. fruit production concentrated in two regions: the Pacific and Southeast. Their combined share of production in 1997 was 87%. The Pacific region's share increased from 25% in 1899 to 75% in 1997. Specifically, California's share of U.S. fruit production increased from 22% in 1899 to 63% in 1997. Share of production declined in nearly every other region during the 20th Century. The decline was largest in the Northeast and Corn Belt regions. Their combined share declined from 50% in 1899 to 5% in 1997. Most of the shift occurred before 1949.

Order of Data
% U.S. Production, **1997**
% U.S. Production, **1949**
% U.S. Production, **1899**

U.S. Production	
1997	$12.5 bil.
1949	$0.8 bil.
1899	$0.1 bil.

Measure of Regional Concentration: This measures distribution inequality among regions. It is calculated as the sum of the differences between the regional shares observed for a year and an equal distribution of a 10% share in each region. The larger the number the more unequal the distribution, i.e. the more regionally concentrated production.

1997	136%
1949	106%
1899	89%



* U.S. Census of Agriculture, 1900, 1950, 1997

Figure 7. Regional Shares of Hay and Forage Production, U.S., 1899, 1949, and 1997*.

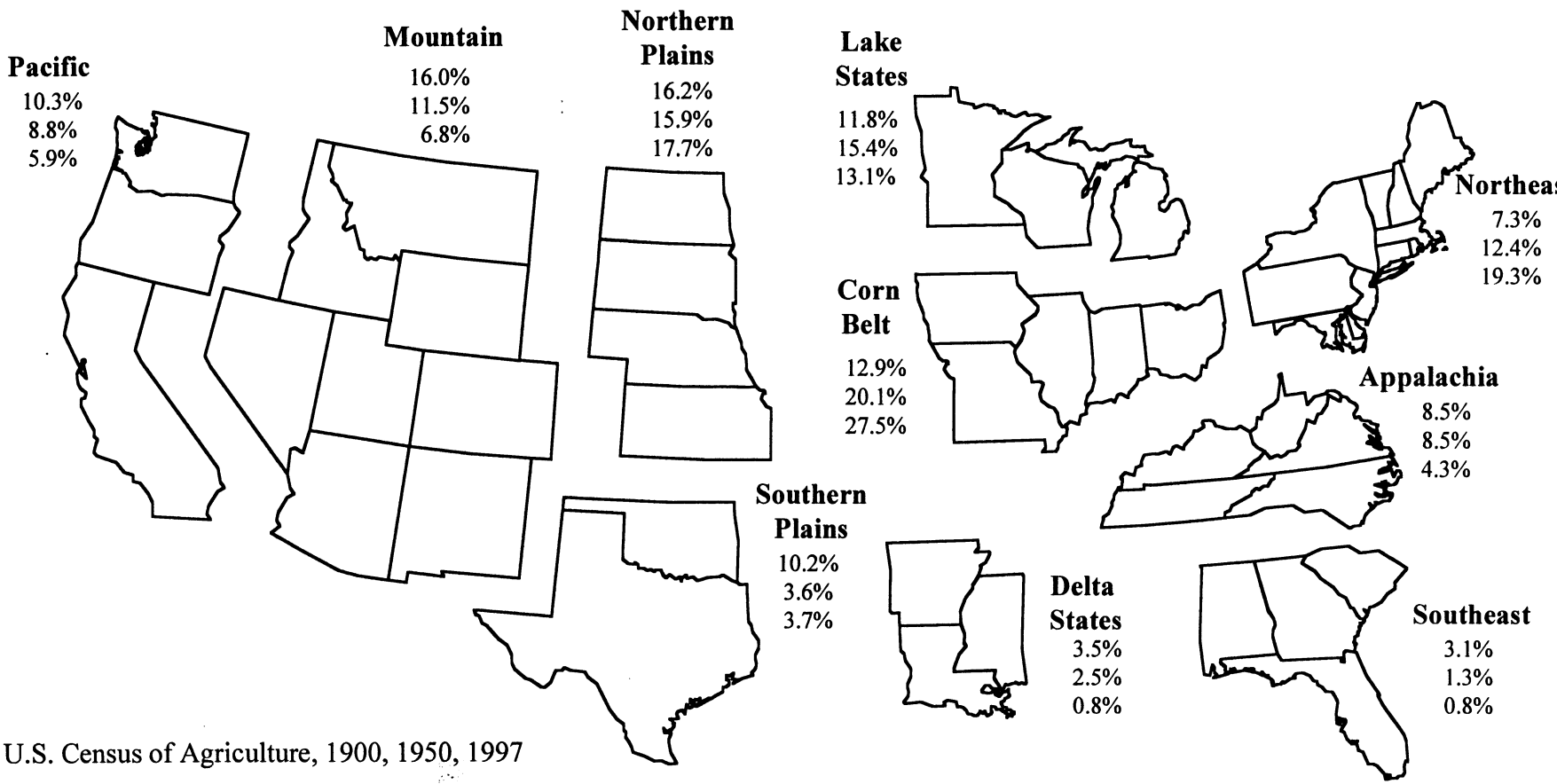
Hay and forage production became much more uniform across the 10 regions during the 20th Century. Share of production increased in six regions, notably the Mountain and Southern Plains regions; changed little in the Lake States and Northern Plains; and decreased substantially in the Corn Belt and Northeast regions. The regional shift in forage production is positively correlated to the shift in livestock, especially cattle, to the western states and away from the Northeast and Corn Belt regions.

Order of Data
% U.S. Production, **1997**
% U.S. Production, **1949**
% U.S. Production, **1899**

U.S. Production	
1997	139 mil. ton
1949	89 mil. ton
1899	84 mil. ton

Measure of Regional Concentration: This measures distribution inequality among regions. It is calculated as the sum of the differences between the regional shares observed for a year and an equal distribution of a 10% share in each region. The larger the number the more unequal the distribution, i.e. the more regionally concentrated production.

1997	35%
1949	51%
1899	75%



* U.S. Census of Agriculture, 1900, 1950, 1997

Figure 8. Regional Shares of Oats Production, U.S., 1899, 1949, and 1997*.

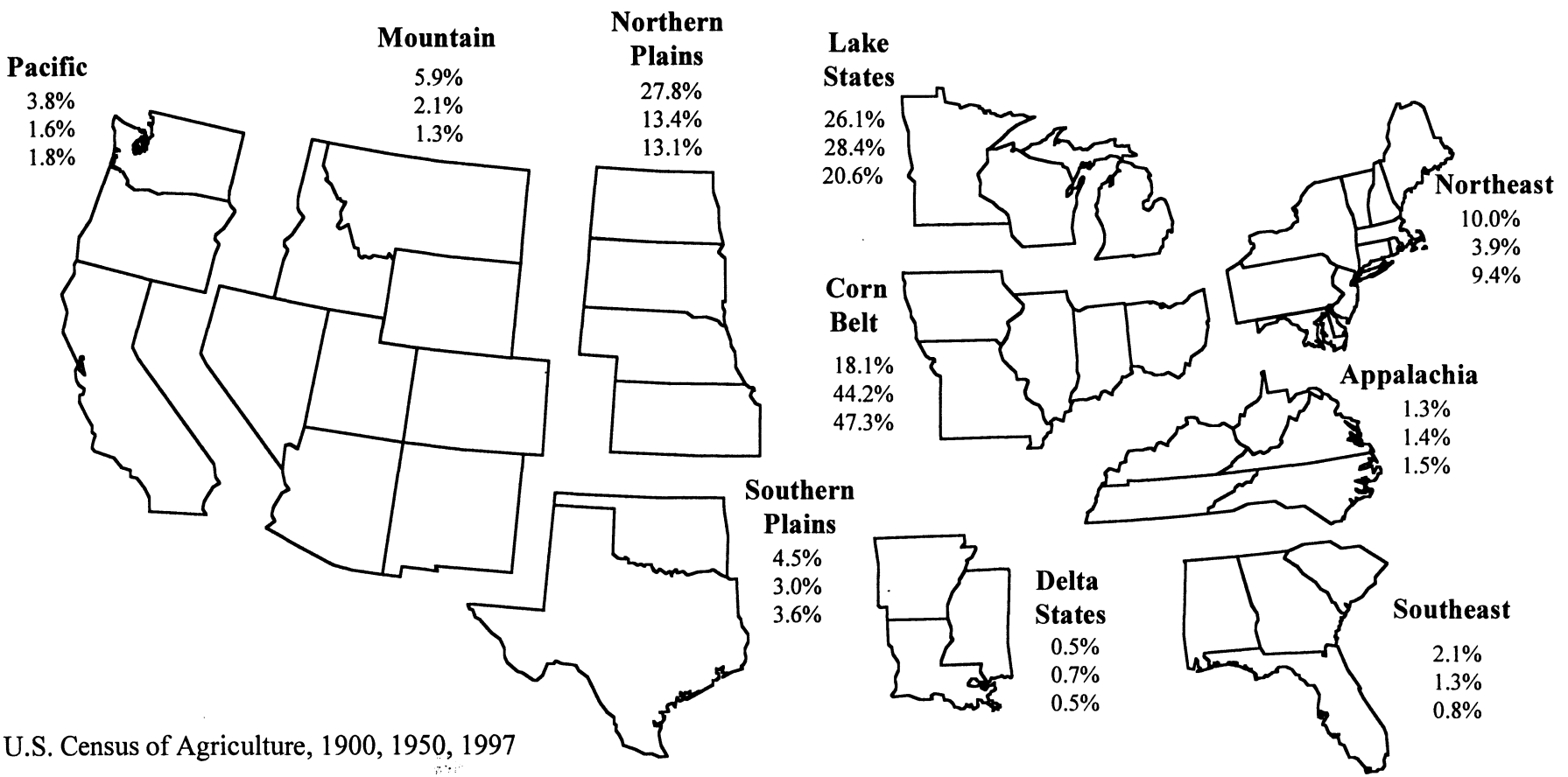
Oats production declined from 0.9 billion bushels in 1899 and 1.1 billion bushels in 1949 to 151 million bushels in 1997. Regional shifts in oats production were relatively small during the 20th Century except for the increase in the Northern Plains' share (13% in 1899 to 28% in 1997) and the decrease in the Corn Belt's share (47% in 1899 to 18% in 1997). Most of these two changes occurred after 1949. Because oats is a cool climate crop, it is not surprising that the Lake States, Northern Plains, Corn Belt, and Northeast produced 82% of the 1997 crop.

Order of Data
% U.S. Production, **1997**
% U.S. Production, **1949**
% U.S. Production, **1899**

U.S. Production	
1997	0.2 bil. bu.
1949	1.1 bil. bu.
1899	0.9 bil. bu.

Measure of Regional Concentration: This measures distribution inequality among regions.

1997	84%	It is calculated as the sum of the differences between the regional shares observed
1949	112%	for a year and an equal distribution of a 10% share in each region. The larger the number
1899	102%	the more unequal the distribution, i.e. the more regionally concentrated production.



* U.S. Census of Agriculture, 1900, 1950, 1997

Figure 9. Regional Shares of Peanut Production, U.S., 1899, 1949, and 1997*.

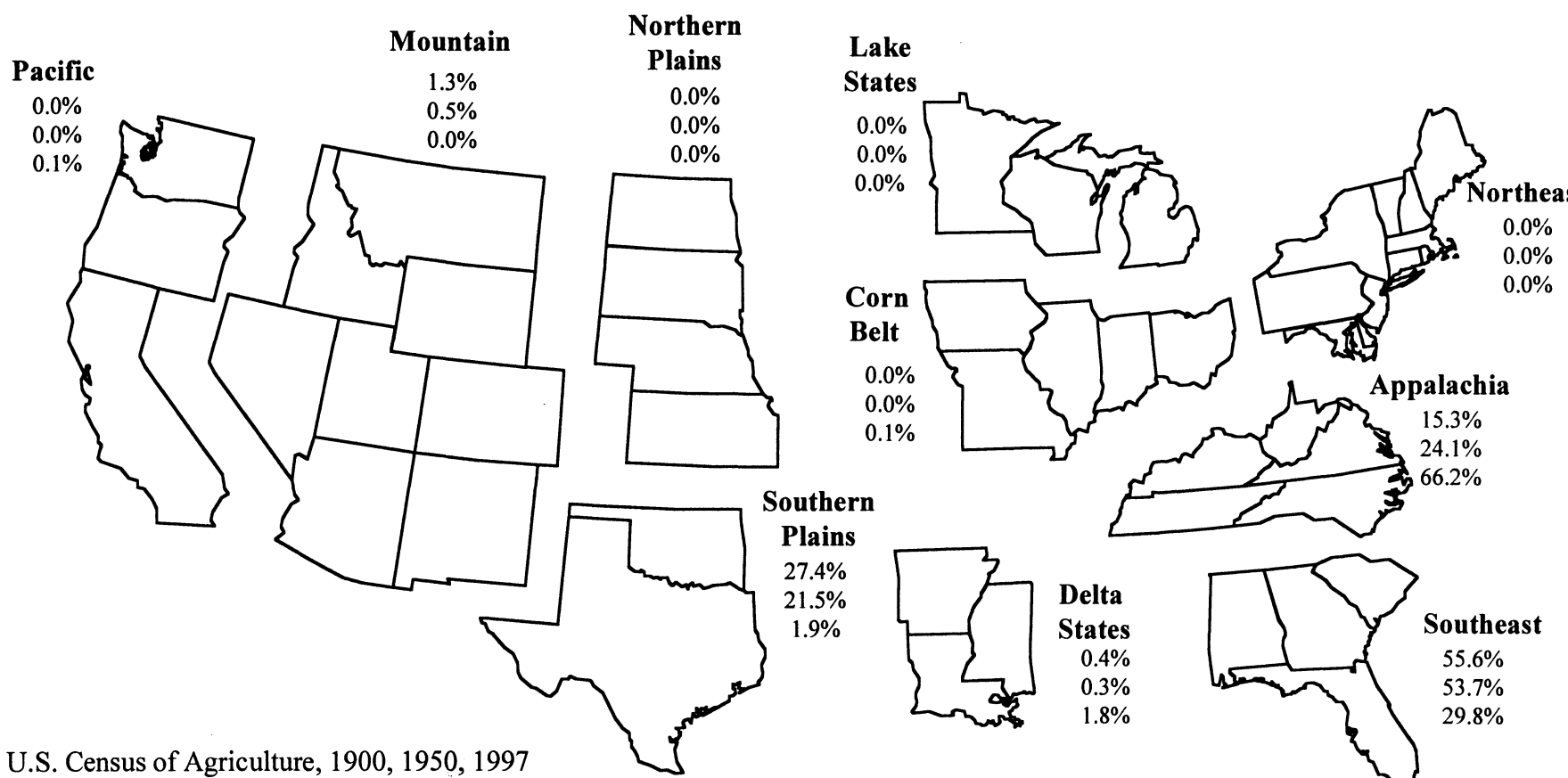
Peanut production grew from 203 million pounds in 1899 to 3.4 billion pounds in 1997. Production in 1997 was concentrated in the Southeast and Southern Plains regions as they collectively produced 83% of the U.S. crop. In 1899, these two regions accounted for only 32% of the U.S. crop. The increased share of production in the Southeast and Southern Plains' came at the expense of Appalachia, which had 66% of U.S. peanut production in 1899 but only 15% in 1997. Most of these regional shifts occurred before 1949.

Order of Data
% U.S. Production, **1997**
% U.S. Production, **1949**
% U.S. Production, **1899**

U.S. Production	
1997	3.4 bil. lbs.
1949	1.7 bil. lbs.
1899	0.2 bil. lbs.

Measure of Regional Concentration: This measures distribution inequality among regions.

1997	137%	It is calculated as the sum of the differences between the regional shares observed
1949	138%	for a year and an equal distribution of a 10% share in each region. The larger the number
1899	152%	the more unequal the distribution, i.e. the more regionally concentrated production.



* U.S. Census of Agriculture, 1900, 1950, 1997

Figure 10. Regional Shares of Potato Production, U.S., 1899, 1949, and 1997*.

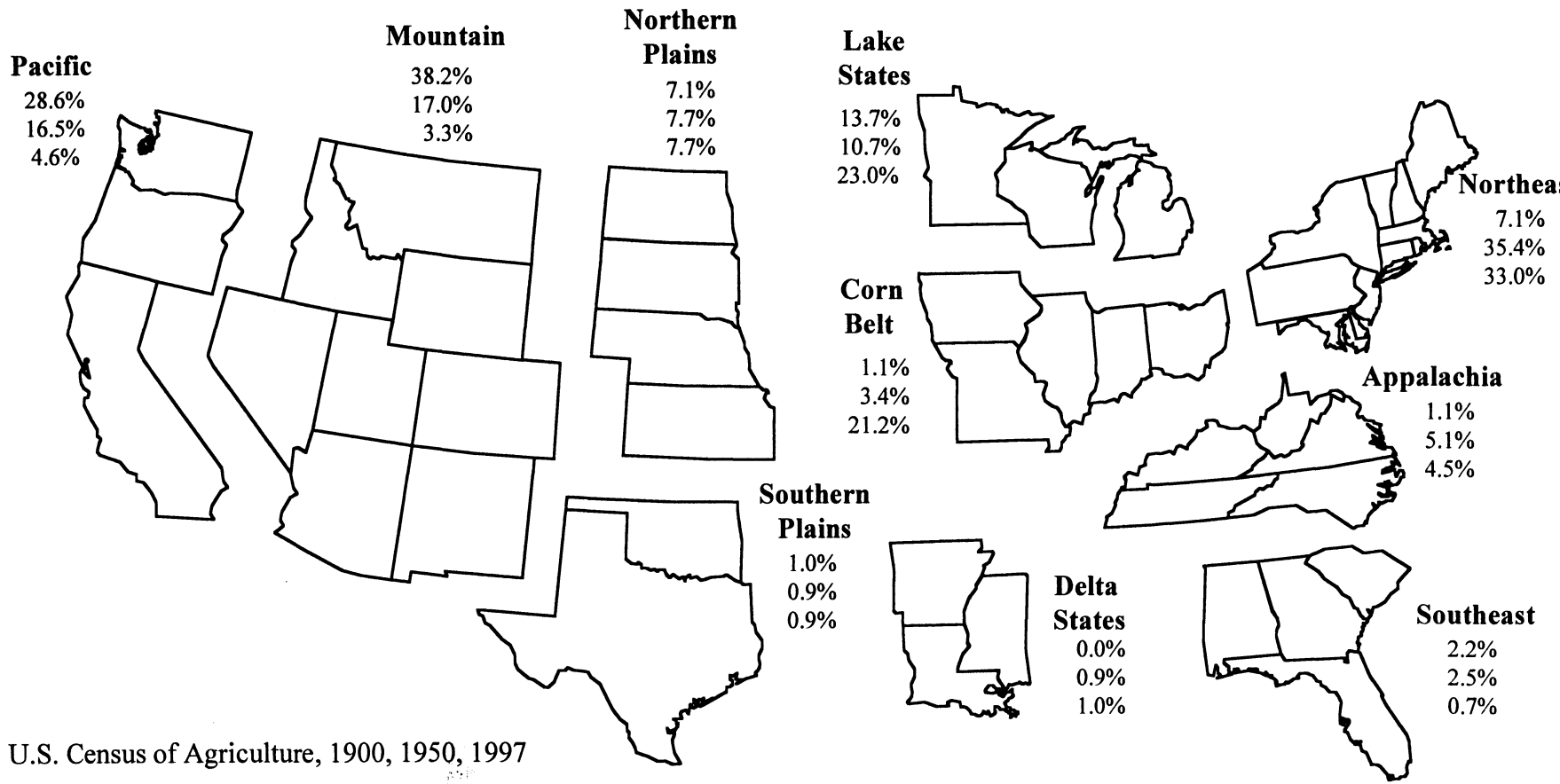
Potato production shifted from the Lake States, Corn Belt, and Northeast regions to the Mountain and Pacific regions during the 20th Century. Share of production in the first three regions decreased from 77% to 22% between 1899 and 1997. The decline occurred before 1949 in the Lake States and Corn Belt, but after 1949 in the Northeast. Share of production in the two western regions increased from 8% in 1899 to 67% in 1997. Relatively little change in share of U.S. potato production occurred in the other five regions during the 20th Century.

Order of Data
% U.S. Production, **1997**
% U.S. Production, **1949**
% U.S. Production, **1899**

U.S. Production	
1997	763 mil. bu.
1949	367 mil. bu.
1899	273 mil. bu.

Measure of Regional Concentration: This measures distribution inequality among regions. It is calculated as the sum of the differences between the regional shares observed for a year and an equal distribution of a 10% share in each region. The larger the number the more unequal the distribution, i.e. the more regionally concentrated production.

1997	101%
1949	79%
1899	94%



* U.S. Census of Agriculture, 1900, 1950, 1997

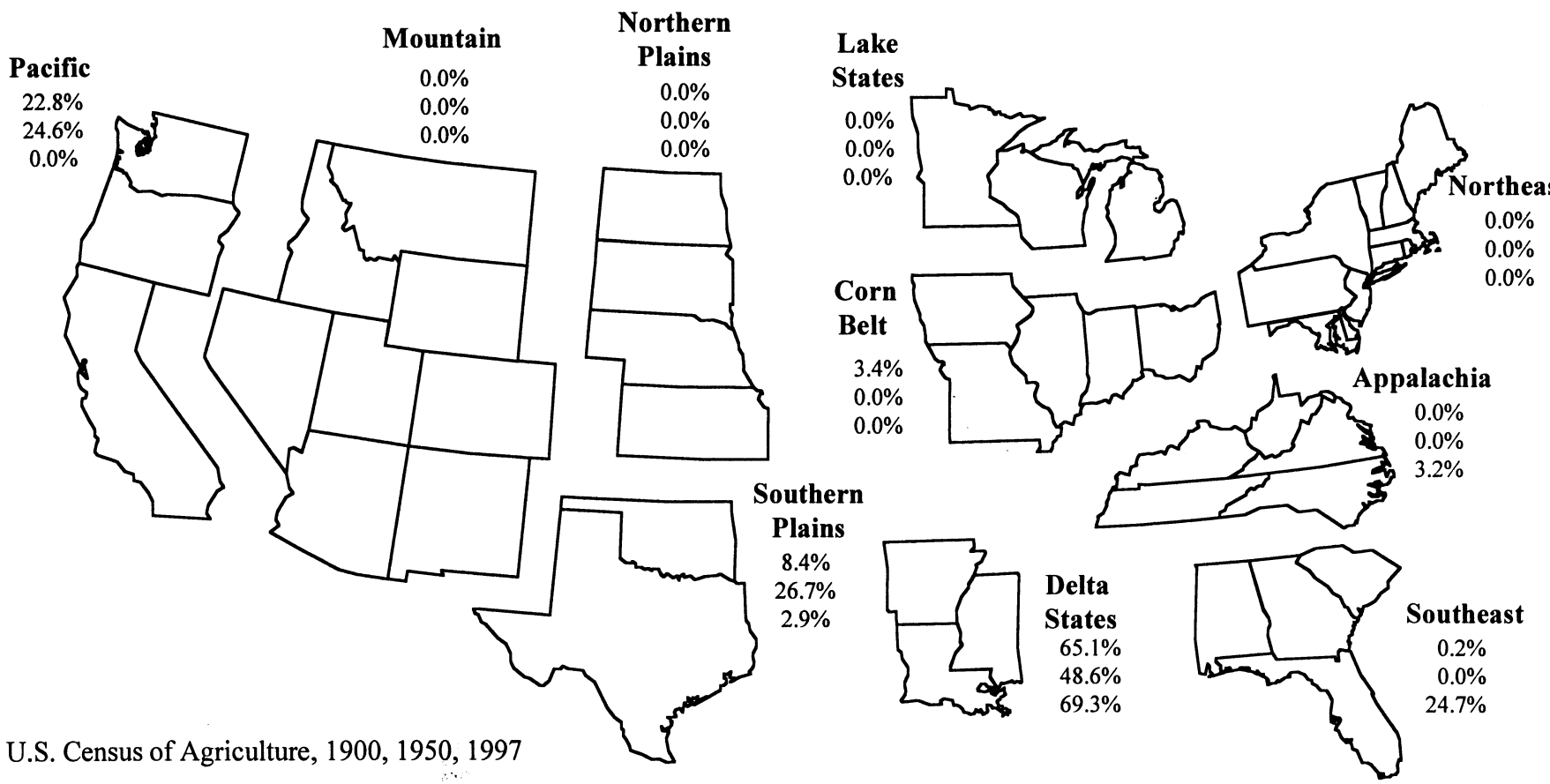
Figure 11. Regional Shares of Rice Production, U.S., 1899, 1949, and 1997*.

Rice production grew from 3 million hundredweight in 1899 to 182 million hundredweight in 1997. Seventy-eight percent of this increase occurred after 1949. Production centered in the Delta States throughout the century. The major regional shift was from the Southeast to the Pacific. Share of production in the Southeast was 25% in 1899 but near 0% in 1997; contrarily, the Pacific region's share was near 0% in 1899 but 23% in 1997. Share of production in the Southern Plains increased from 3% in 1899 to 27% in 1949, but then declined to 8% by 1997.

Order of Data
% U.S. Production, **1997**
% U.S. Production, **1949**
% U.S. Production, **1899**

U.S. Production	
1997	182 mil. cwt.
1949	40 mil. cwt.
1899	3 mil. cwt.

Measure of Regional Concentration: This measures distribution inequality among regions.	
1997 136%	It is calculated as the sum of the differences between the regional shares observed
1949 140%	for a year and an equal distribution of a 10% share in each region. The larger the number
1899 148%	the more unequal the distribution, i.e. the more regionally concentrated production.



* U.S. Census of Agriculture, 1900, 1950, 1997

Figure 12. Regional Shares of Rye Production, U.S., 1899, 1949, and 1997*.

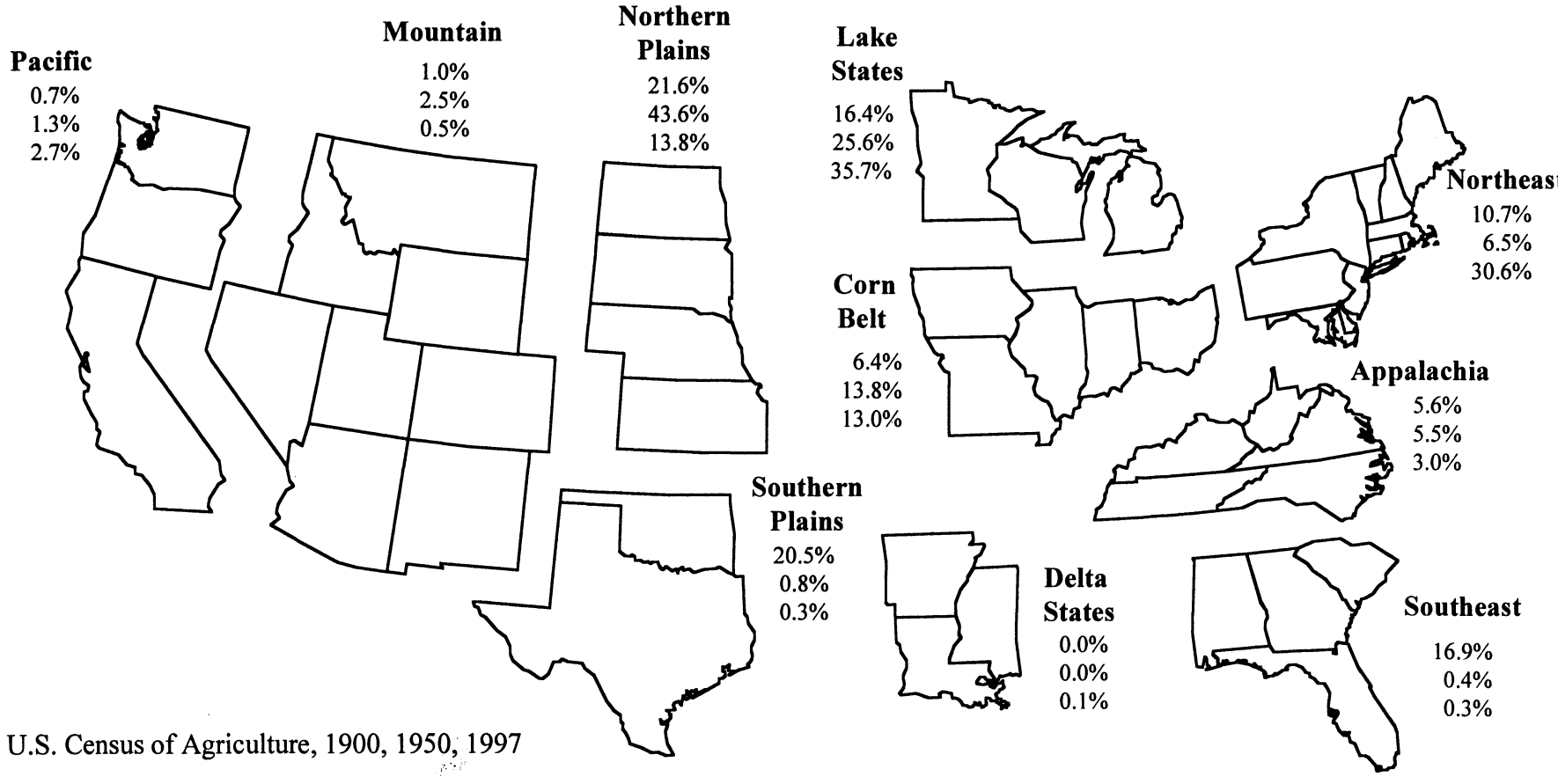
Rye production declined from 26 million bushels in 1899 to 6 million bushels in 1997. In 1899, the Lake States and the Northeast regions collectively produced 66% of the U.S. crop. However, by 1997 these two regions produced only 27% of the U.S. rye crop. The Southeast and Southern Plains became major production regions during the century as their combined share increased from less than 1% in 1899 to 37% in 1997. Share of production in the Northern Plains states increased from 14% to 44% between 1899 and 1949, but then decreased to 22% by 1997.

Order of Data
% U.S. Production, **1997**
% U.S. Production, **1949**
% U.S. Production, **1899**

U.S. Production	
1997	6 mil. bu.
1949	17 mil. bu.
1899	26 mil. bu.

Measure of Regional Concentration: This measures distribution inequality among regions. It is calculated as the sum of the differences between the regional shares observed for a year and an equal distribution of a 10% share in each region. The larger the number the more unequal the distribution, i.e. the more regionally concentrated production.

1997	72%	
1949	106%	
1899	106%	



* U.S. Census of Agriculture, 1900, 1950, 1997

Figure 13. Regional Shares of Soybean Production, U.S., 1899, 1949, and 1997*.

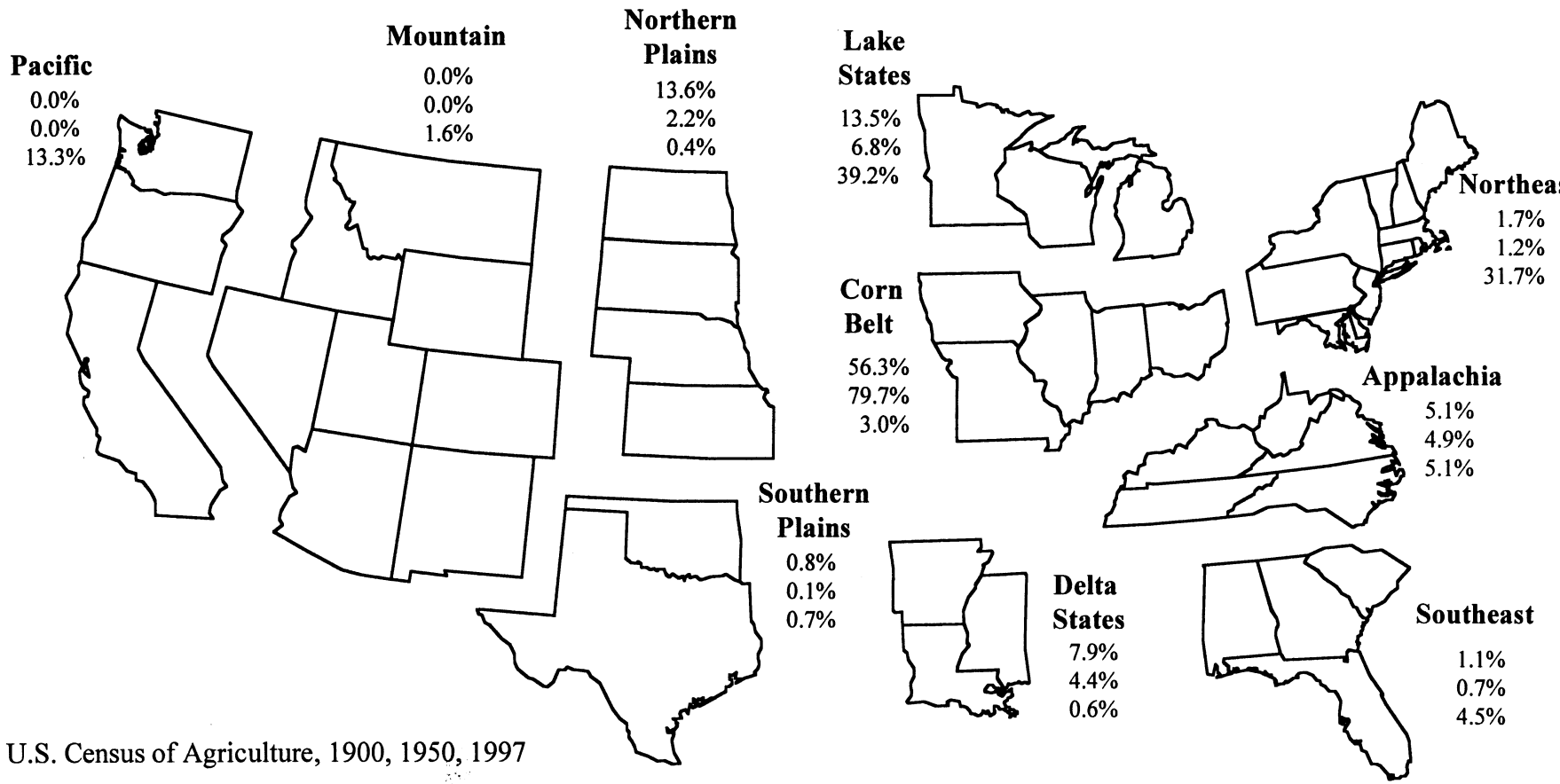
Soybean production totaled only 5 million bushels in 1899. In 1997, it totaled 2.5 billion bushels. Over 90% of this increase occurred after 1949. In 1997, the Corn Belt, Lake States, and Northern Plains accounted for 83% of soybean production. Given the small level of production in 1899, it is inappropriate to place too much emphasis on regional shifts in soybean production during the 20th Century. The major regional change since 1949 was the decline in the Corn Belt's share, from 80% in 1949 to 56% in 1997. Share of production increased the most in the Northern Plains and Lake States since 1949.

Order of Data
% U.S. Production, **1997**
% U.S. Production, **1949**
% U.S. Production, **1899**

U.S. Production	
1997	2,504 mil. bu.
1949	212 mil. bu.
1899	5 mil. bu.

Measure of Regional Concentration: This measures distribution inequality among regions. It is calculated as the sum of the differences between the regional shares observed for a year and an equal distribution of a 10% share in each region. The larger the number the more unequal the distribution, i.e. the more regionally concentrated production.

1997	107%
1949	139%
1899	108%



* U.S. Census of Agriculture, 1900, 1950, 1997

Figure 14. Regional Shares of Sugar Beet Production, U.S., 1899, 1949, and 1997*.

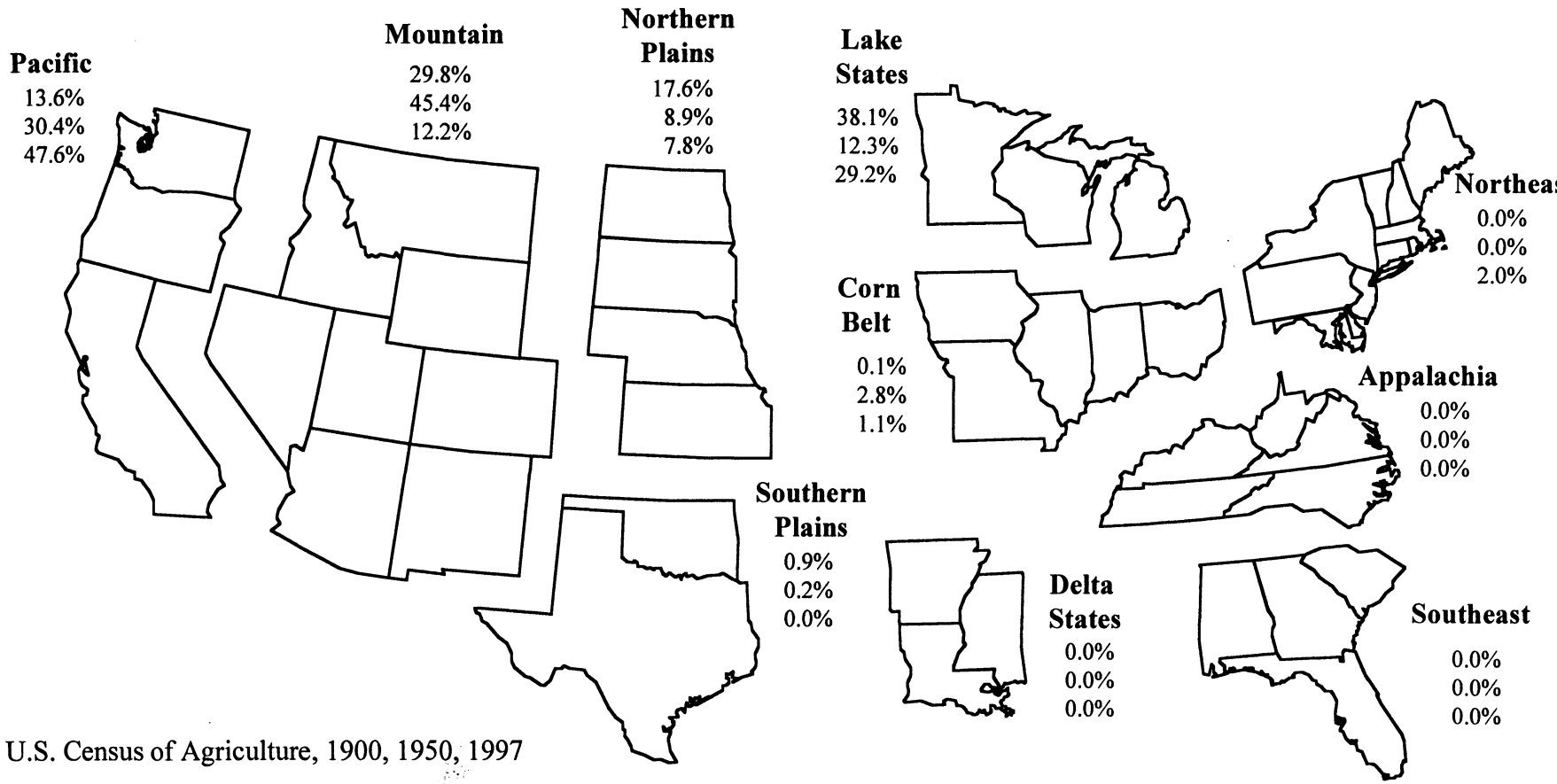
Sugar beet production increased from 1 million tons in 1899 to 30 million tons in 1997. Almost 70% of this increase occurred after 1949. Sugar beet production essentially occurs in four regions. They are in order of descending share of U.S. production in 1997: Lake States, Mountain, Northern Plains, and Pacific. Given the small level of production in 1899, it is inappropriate to place too much emphasis on regional shifts of production during the 20th Century. The major regional shift since 1949 has been the increase in the combined share of the Lake States and Northern Plains from 21% to 56% and the decrease in the combined share of the Mountain and Pacific regions from 75% to 43%.

Order of Data
% U.S. Production, **1997**
% U.S. Production, **1949**
% U.S. Production, **1899**

U.S. Production	
1997	30 mil. tons
1949	10 mil. tons
1899	1 mil. tons

Measure of Regional Concentration: This measures distribution inequality among regions. It is calculated as the sum of the differences between the regional shares observed for a year and an equal distribution of a 10% share in each region. The larger the number the more unequal the distribution, i.e. the more regionally concentrated production.

1997	118%
1949	116%
1899	118%



* U.S. Census of Agriculture, 1900, 1950, 1997

Figure 15. Regional Shares of Sugar Cane Production, U.S., 1899 and 1997*.

Sugar cane production is evaluated only for 1899 and 1997 due to non-collection of information for some key states during the 1950 Census. In keeping with the other figures, the numbers are for the 48 contiguous states. The territory of Hawaii produced 2 million tons of sugar cane in 1899, or 50% of the amount produced in the continental U.S. The state of Hawaii produced 3 million tons in 1997, or 10% of the amount produced by the continental U.S. Among the 48 contiguous states, Louisiana's share declined from 75% of the U.S. crop in 1899 to 43% in 1997. Florida's share increased from 3% in 1899 to 55% in 1997. In 1997, Florida and Louisiana combined to produce 97% of the continental U.S. sugar cane crop.

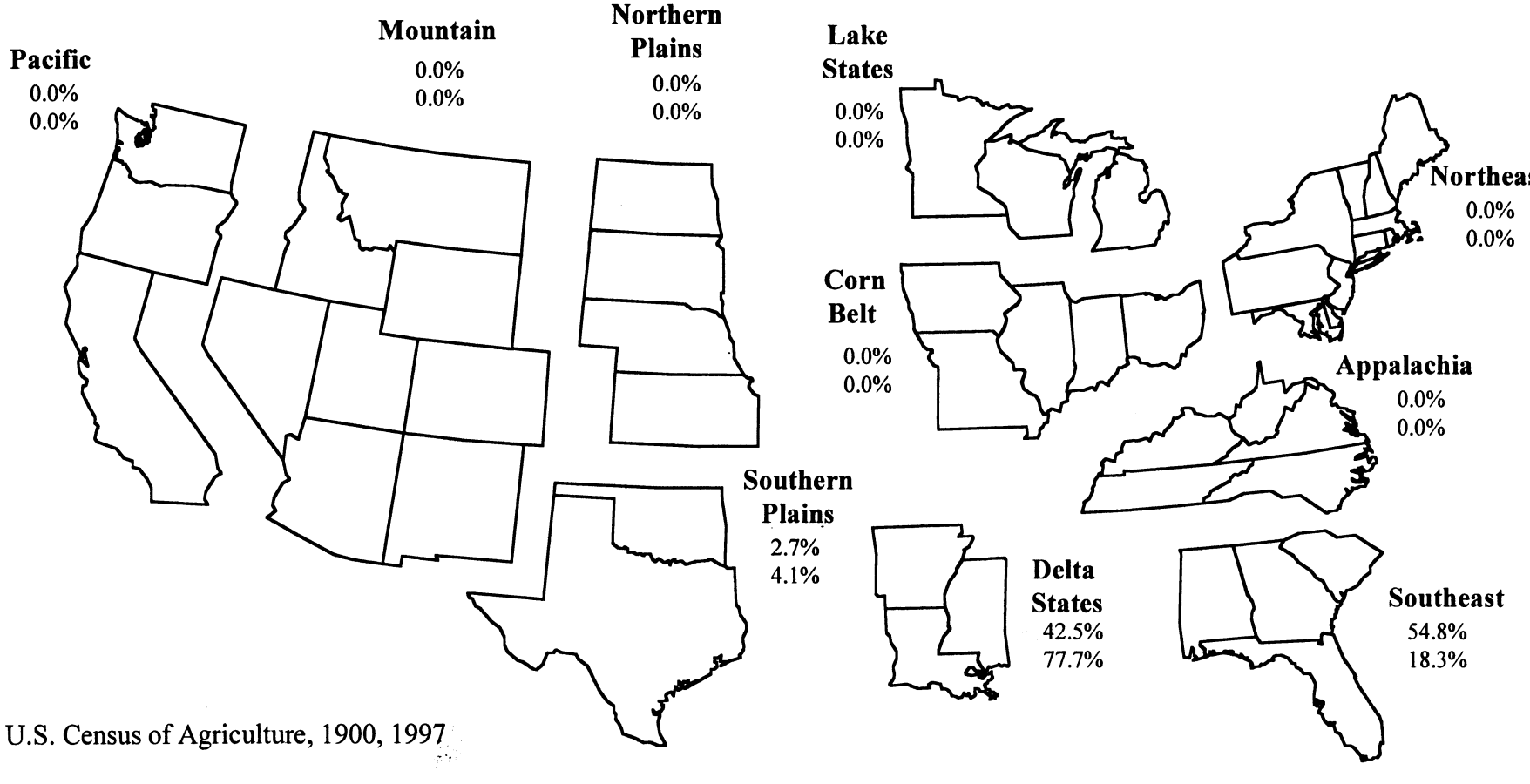
Order of Data
% U.S. Production, **1997**
% U.S. Production, **1899**

U.S. Production	
1997	29 mil. ton
1899	4 mil. ton

Measure of Regional Concentration: This measures distribution inequality among regions.

1997	155%
1899	152%

It is calculated as the sum of the differences between the regional shares observed for a year and an equal distribution of a 10% share in each region. The larger the number the more unequal the distribution, i.e. the more regionally concentrated production.



* U.S. Census of Agriculture, 1900, 1997

Figure 16. Regional Shares of Tobacco Production, U.S., 1899, 1949, and 1997*.

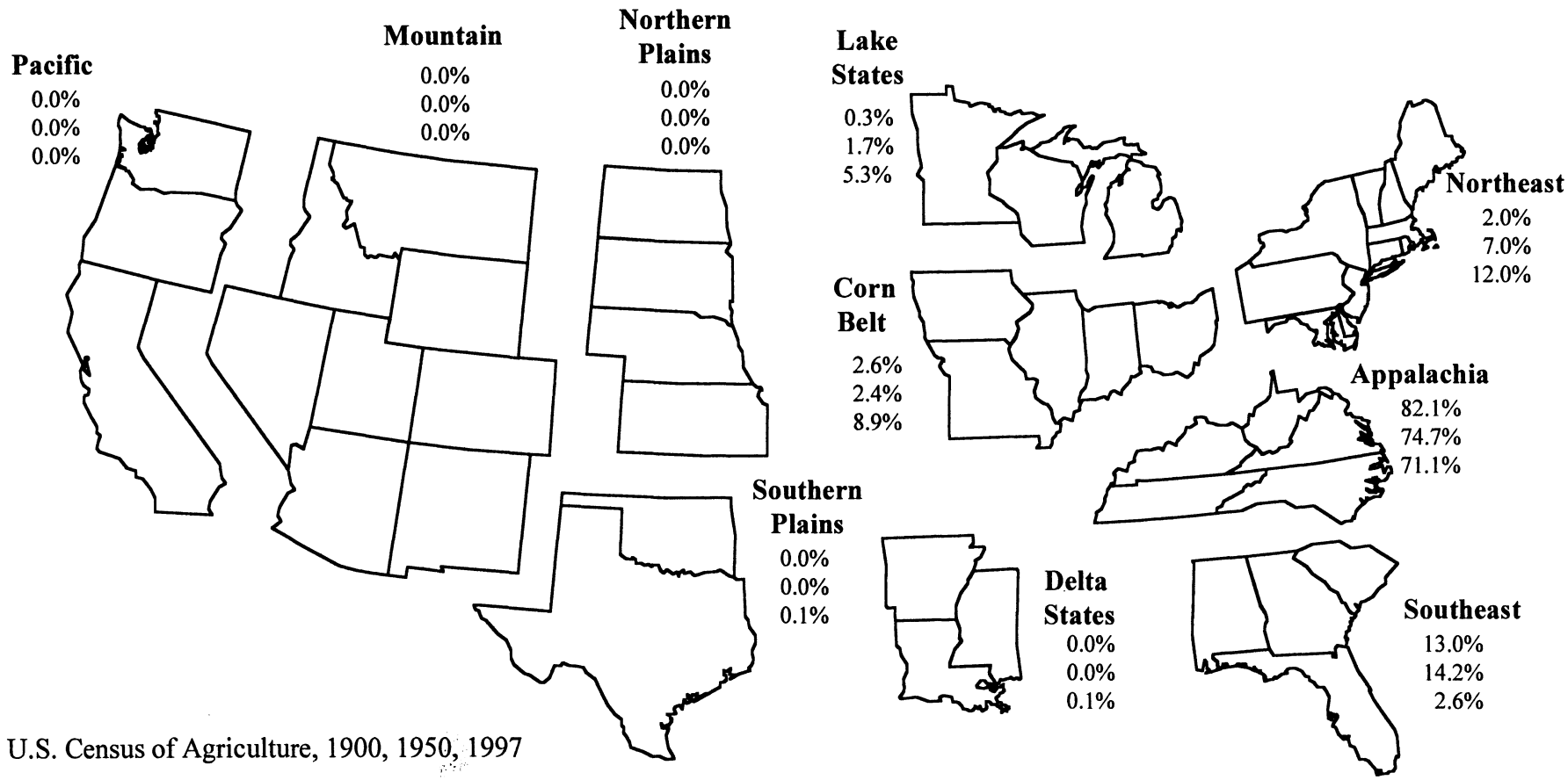
Tobacco production has centered in Appalachia throughout the 20th century. This region accounted for 71% of production in 1899 and 82% in 1997. The only other region to gain share during the 20th Century was the Southeast. Share of production in the Northeast, Corn Belt, and Lake States decreased from 26% in 1899 to 5% in 1997. Among individual states, Kentucky accounted for 36% of U.S. production in 1899 and 29% in 1997, while North Carolina accounted for 15% in 1899 and 40% in 1997. These two states now account for over two-thirds of U.S. tobacco production. For the U.S. as a whole, tobacco production was nearly the same in 1949 and 1997.

Order of Data
% U.S. Production, **1997**
% U.S. Production, **1949**
% U.S. Production, **1899**

U.S. Production	
1997	1.7 bil. lbs.
1949	1.8 bil. lbs.
1899	0.9 bil. lbs.

Measure of Regional Concentration: This measures distribution inequality among regions.

1997	150%	It is calculated as the sum of the differences between the regional shares observed
1949	138%	for a year and an equal distribution of a 10% share in each region. The larger the number
1899	126%	the more unequal the distribution, i.e. the more regionally concentrated production.



* U.S. Census of Agriculture, 1900, 1950, 1997

Figure 17. Regional Shares of Vegetable Production, U.S., 1899, 1949, and 1997*.

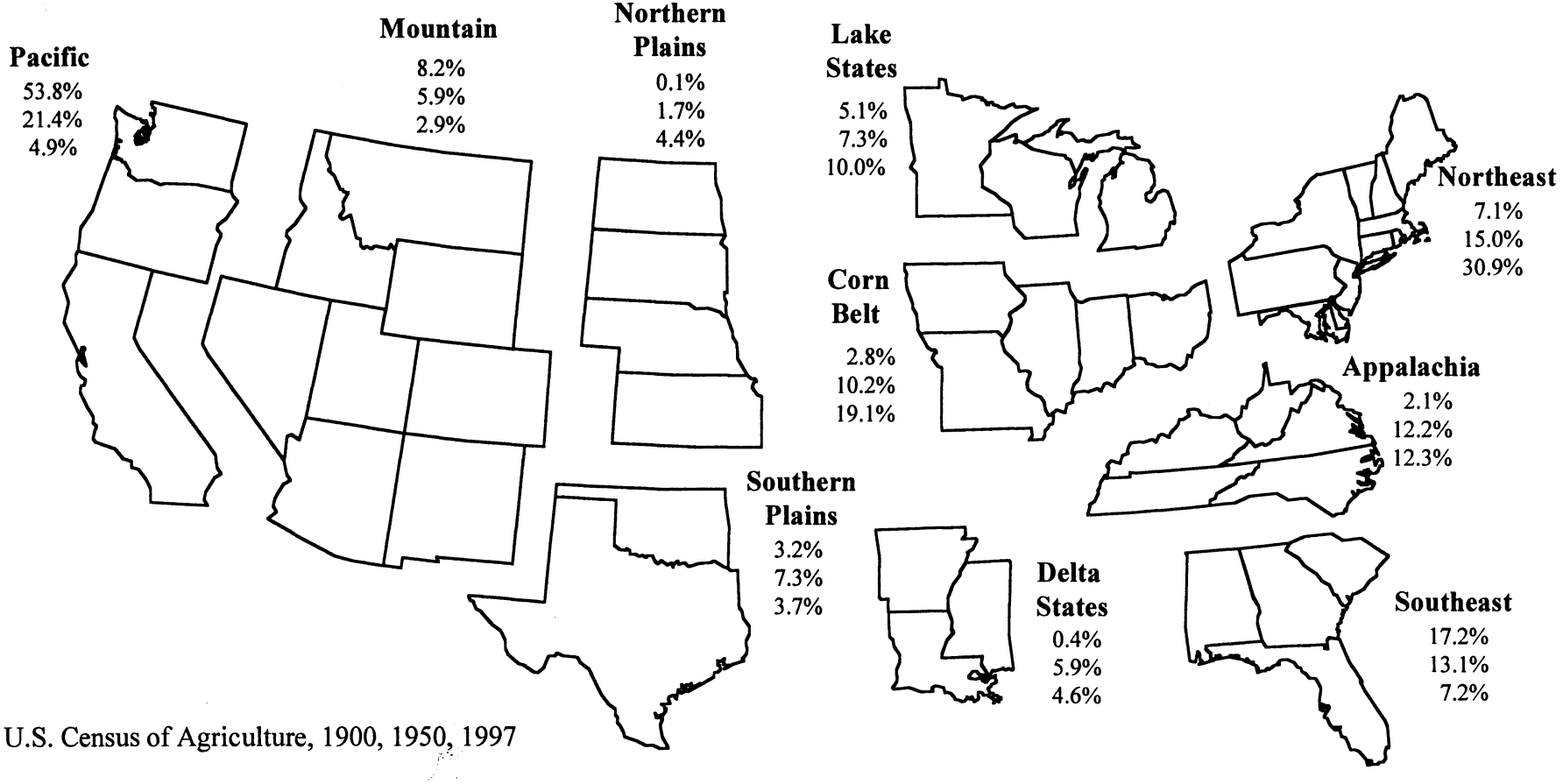
During the 20th Century vegetable production shifted from the east and central U.S. to the southeast and western regions. In particular, the Pacific region's share increased substantially, from 5% in 1899 to 54% in 1997. More specifically, California's share of U.S. vegetable production increased from 3% in 1899 to 48% in 1997. On the other hand, share of production in the Northeast, Corn Belt, and Appalachian regions decreased from 62% in 1899 to 12% in 1997. As a result of these large shifts, regional concentration of vegetable production increased substantially.

Order of Data
% U.S. Production, **1997**
% U.S. Production, **1949**
% U.S. Production, **1899**

U.S. Production	
1997	$8.4 bil.
1949	$1.1 bil.
1899	$0.2 bil.

Measure of Regional Concentration: This measures distribution inequality among regions. It is calculated as the sum of the differences between the regional shares observed for a year and an equal distribution of a 10% share in each region. The larger the number the more unequal the distribution, i.e. the more regionally concentrated production.

	1997	1949	1899
Pacific	53.8%	21.4%	4.9%
Mountain	8.2%	5.9%	2.9%
Northern Plains	0.1%	1.7%	4.4%
Lake States	5.1%	7.3%	10.0%
Northeast	7.1%	15.0%	30.9%
Corn Belt	2.8%	10.2%	19.1%
Appalachia	2.1%	12.2%	12.3%
Southern Plains	3.2%	7.3%	3.7%
Delta States	0.4%	5.9%	4.6%
Southeast	17.2%	13.1%	7.2%



* U.S. Census of Agriculture, 1900, 1950, 1997

Figure 18. Regional Shares of Wheat Production, U.S., 1899, 1949, and 1997*.

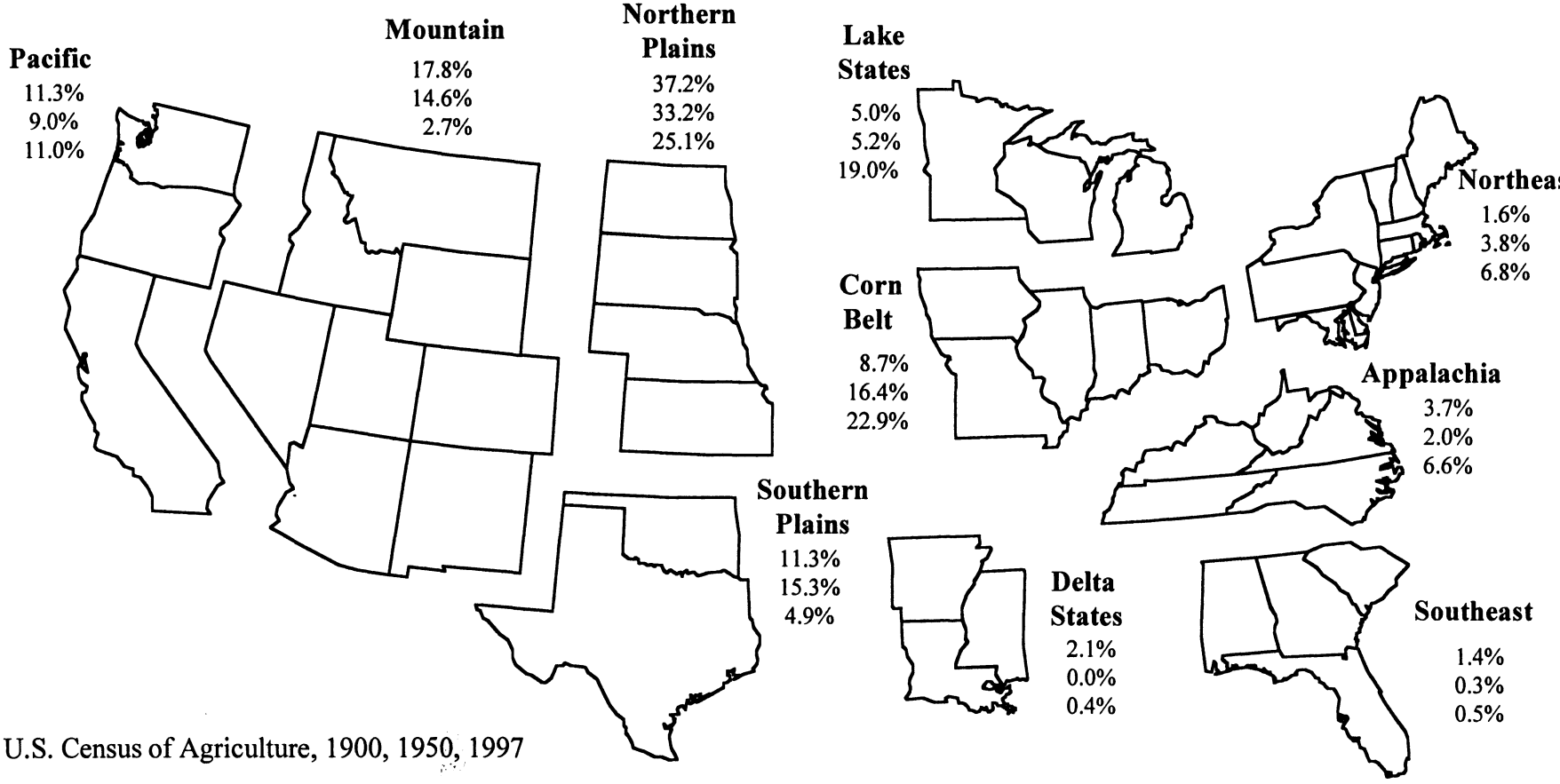
Wheat production moved from the Corn Belt and Lake States to the Plains and Mountain regions during the 20th Century. The Plains and Mountain States produced 66% of U.S. wheat in 1997, compared with 33% in 1899. In contrast, the Corn Belt and Lake States produced only 14% of U.S. wheat in 1997 compared with 42% in 1899. Most of these regional changes occurred before 1949.

Order of Data
% U.S. Production, **1997**
% U.S. Production, **1949**
% U.S. Production, **1899**

U.S. Production	
1997	2.2 bil. bu.
1949	1.0 bil. bu.
1899	0.7 bil. bu.

Measure of Regional Concentration: This measures distribution inequality among regions. It is calculated as the sum of the differences between the regional shares observed for a year and an equal distribution of a 10% share in each region. The larger the number the more unequal the distribution, i.e. the more regionally concentrated production.

1997	75%
1949	79%
1899	76%



* U.S. Census of Agriculture, 1900, 1950, 1997