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DISPERSION OF THE BOLL WEEVIL IN 1921.

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The mild winter of 1920-21 and the wet summer of 1921 favored an abnormal multiplication of the boll weevil throughout the territory infested by this insect. The weevil has now reached the limit of cotton cultivation, except in western Texas, southwestern Oklahoma, northeastern North Carolina, and Virginia (see fig. 1). In determining the remainder of the line the search was for the last cotton fields rather than for the weevil because all fields were infested. It still remains to be seen whether the weevil can maintain existence in these extreme portions of the cotton belt.

For the first time the States of Missouri and Kentucky were invaded by the weevil and all fields in these States were found to be infested.

The gain west of the Mississippi River is very nearly equal to that east of the river. However, the greatest gain in a single State is 15,700 square miles in North Carolina.

The gain in Texas was 10,386 square miles, which practically extends the line to that of 1915, the territory lost by the weevil since that year being thus regained.

In Oklahoma almost the entire cotton area is infested, which is a gain of 10,536 square miles over 1920. Practically the same conditions prevail in Arkansas and a gain of 13,906 square miles is shown.

In Tennessee several new counties were invaded in the western portion along the Mississippi River Valley and a gain of 8,729 square miles is shown.

The entire area of cotton production in Georgia is infested and South Carolina is also totally infested.

In Texas the line extends from western Valverde County to Mertzon in Irion County. It then runs northward, passing Sterling City on the west about midway through Sterling County, thence curves slightly eastward to Colorado in Mitchell County and onward to Foch in Scurry County. From here it proceeds across the extreme northwest corner of Fisher County to Roman, just touches the southeast corner of Kent County, then turns northward through the west part of Stonewall County, passing just west of Peacock and across King County direct to Paducah in Cottle County. Bending eastward again, the line passes between the east-east corner of Childress County and Goodlett in Hardeman County, leaving the State at about the middle of the northern edge of this county.

In Oklahoma the line enters the State just east of Eldorado in Jackson County and goes northeast to Albus, then north through the eastern portion of Greer County and passes about 12 miles west of Elk City in LeFlore County. It then goes a little northwest to Strong City in Roger Mills County and bends eastward to Leedey in Dewey County. It goes north through Taloga in the same county and passes through the southeast corner of Major County to Enid in Garfield County, continuing a little north of east through Ford in Noble County, then to Wynona in Osage County. From there it goes due east, passing through the center of Washington and the south end of Nowata Counties to about half way between Vinita and Big Cabin in Craig County, then taking a southerly direction through the eastern part of Mayes County to Gideon in Cherokee County, then eastward through the northern part of Adair County.

In Arkansas the line enters the State at Cincinnati in Washington County and goes east to Fayetteville, continuing due northeast through the north end of Madison County and the southeast corner of Carroll County, dividing Boone County and going through Oakland in Marion County and Prestonia in Baxter County.

In Missouri the line enters the State at Bakersfield in the southeast corner of Ozark County and extends through the southern portion of Howell County to St. Elmo in Oregon County, continuing a little northeast through the centers of Ripley and Butler Counties to Dexter in Stoddard County. It then goes due east through Champion in New Madrid County, continuing through East Prairie and Belmont in Mississippi County.

In Kentucky the line enters the State at Columbus in Hickman County and then runs southeast to Clinton and crosses the extreme southwest corner of Graves County into Tennessee. No cotton was grown north of this section in Kentucky.

In Tennessee the line extends through the extreme northwest corner of Weakley County, entering Henry County just south of Elm-tree. In Henry County it runs eastward to Whitelock and then turns southward and enters Benton County just east of Mansfield. It continues southward, entering Perry County along the Tennessee River east of Cuba Landing. In Perry County the line continues to Alden, or about the center of that county, and then turns eastward, entering Hickman County at Pleasantville. It runs out of Hickman County into Maury at the extreme southeast corner of the former and continues eastward to Columbia. It then runs southeast through Marshall and Lincoln Counties to Winchester in Franklin County and enters Marion County just south of St. Andrews. In Marion County it runs east to Whitwell and then turns southward to Chattanooga, entering Hamilton County just northwest of Chattanooga. From Chattanooga the line then turns northward to Cisco, running just west of the White Oak Mountain through James County and through the extreme southern corner of Meigs County and entering McMinn County just south of Rock Creek. At Cisco the line again turns eastward to Madisonville in Monroe County, entering the county just east of Niota. The line then turns south through Monroe County, entering Polk County just west of Ironburg and, continuing south through Polk County, runs into Georgia about four miles west of Copperhill.

In Georgia the line enters Fannin County west of Cad, continuing due south through the western part of the county, entering Gilmer County just east of Cohutta Mountains. It goes south, joining the 1920 line at Ellijay, then eastward just above the 1920 line through the southern portion of Fannin County, where it rejoins the 1920 line at the northwest corner of Lumpkin County. It crosses the county just north of the 1920 line, entering White County south of Church, and continuing eastward, entering Habersham County below Aerial. Going eastward through this county, it passes through Hollywood and thence to the border through the extreme northern portion of Stephens County.

The line touches the South Carolina border in the western corner of Oconee County and continues northeastward along the State line, which is the limit of cotton, to Polk County in North Carolina.

In North Carolina, the line enters the State just east of Tryon in Polk County. It then runs north through Polk County and then northeastward, passing one mile northwest of Union Mills in Rutherford County, continuing northeastward through the southern portion

of Burke County to Hickory in Catawba County, where it tends southeastward through Catawba and Iredell Counties. It passes into Rowan County two miles south of Mt. Ulla, continues through Rowan County, and passes through the southeastern corner of Rowan County just touching the south end of Davidson County and passing through Ophir in Montgomery County. It then tends northeastward through southeast Randolph County and through Rives Chapel in Chatham County, continuing eastward through a point 4 miles south of Eagle Rock in Wake County through northern Johnson County, and through Wilson in Wilson County. The line continues eastward through the extreme southern portion of Edgecombe County, through Pitt County, and through a point 3 miles north of Washington in Beaufort County and then southeastward into Pamlico River.

In Florida the line passes Ouzo in Pinellas County, Tampa, Seffner, and Plant City in Hillsborough County, Fort Meade in Polk County, Kissimmee in Osceola County, and Indian River City in Brevard County.

Extensive inspections continued throughout the season failed to reveal any weevils in El Paso, Hudspeth, Ward, Reeves, and Pecos Counties in Texas, and Dona Ana, Eddy, and Chavez Counties in New Mexico. The situation in Arizona remains the same as last year, except that specimens of the *Thurberia* weevil have been found in a cotton field at Continental.

Altogether 66,662 square miles of new territory were invaded by the weevil in 1921 and there was no loss of territory at any point. This makes a total of 600,771 square miles infested in the country. The figures for 1920 showed a total of 73,000 square miles uninfested in the cotton belt, but this figure was based on a cotton-belt area of approximately 607,000 square miles. Recent extensions in cotton plantings have made it necessary to correct this figure. The territory now included in the cotton belt comprises about 705,000 square miles. Consequently about 105,000 square miles of cotton territory are still uninfested.

Table I shows the movement of the boll weevil in 1921 by States, expressed in square miles, eliminating the arid western areas.

TABLE I.—Total area, outside of irrigated western fields, in square miles, infested by the boll weevil in 1921.

State.	Year first infested.	Area infested in 1920.	Gain in 1921.	Loss in 1921.	Area infested in 1921.
		<i>Sq. miles.</i>	<i>Sq. miles.</i>	<i>Sq. miles.</i>	<i>Sq. miles.</i>
Texas.....	1892	181,999	10,386	0	192,385
Louisiana.....	1903	40,800	0	0	40,800
Oklahoma.....	1906	40,145	10,536	0	50,681
Arkansas.....	1906	38,267	13,906	0	52,173
Mississippi.....	1907	46,340	0	0	46,340
Alabama.....	1910	51,300	0	0	51,300
Florida.....	1911	35,000	0	0	35,000
Tennessee.....	1914	8,709	8,729	0	17,438
Georgia.....	1915	58,103	530	0	58,633
South Carolina.....	1917	27,166	3,329	0	30,495
North Carolina.....	1919	6,220	13,700	0	21,920
Missouri.....	1921	0	3,188	0	3,188
Kentucky.....	1921	0	358	0	358
Total.....		534,109	66,662	0	600,771

Table II has been prepared to show the proportion of the cotton crop of each State produced in the area not infested at the present time.

TABLE II.—Proportion of cotton crop produced by States in area of the cotton belt now free from the boll weevil.

State.	Average cotton production for 10-year period 1909-1918, inclusive.		
	Average annual bales per State.	Crop produced in area now uninfested (1921).	
		Average annual bales.	Percentage of total crop of State.
Texas.....	3,602,105	162,204	4.50
Louisiana.....	416,372	0	0
Florida.....	54,561	0	0
Arkansas.....	926,618	2,545	0.27
Oklahoma.....	861,304	100,424	11.70
Tennessee.....	332,391	20,120	6.05
Mississippi.....	1,104,950	0	0
Alabama.....	1,139,702	0	0
Georgia.....	2,088,695	3,575	0.17
South Carolina.....	1,287,845	0	0
North Carolina.....	784,125	348,961	44.50
Missouri.....	63,982	16,768	26.20
Virginia.....	21,450	21,450	100.00
All others.....	12,018	12,018	100.00
Total.....	12,696,118	688,065	
Weighted average for country.....			5.41

From this it is seen that only 5.4 per cent of the cotton crop of the cotton belt is produced in the area not infested. Since practically 15 per cent of the cotton belt is still uninfested this percentage emphasizes the scattering plantings of cotton in this outlying territory.

We are indebted to Prof. Franklin Sherman of the North Carolina Department of Agriculture for assistance in determining the line in that State.

FIG. 1.—Map showing dispersion of the Mexican cotton boll weevil in the United States from 1892 to 1921.

NOTE: The outer limit of the cotton belt advances or recedes slightly from year to year and in the map is not absolutely accurate for 1921, as shown by the fact that in a few places the boll-weevil line is a little in advance of the indicated limit of cotton culture.