

II. HISTORY OF THE DISTRIBUTION OF THE MEXICAN COTTON BOLL WEEVIL IN OKLAHOMA

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The Mexican cotton boll weevil like several of the insects causing serious damage to our field crops comes to us from foreign lands. The Boll weevil's direct history outside, as well as within the state of Oklahoma, is much like the weevil's method of work, somewhat obscure. It is thought that Central America is the native home of the Boll weevil, it having been described in 1843 from specimens received from Vera Cruz, Mexico. Available evidence indicates that the weevil did its first damage in Mexico. So serious, in fact, was the damage in the year 1848 that it practically caused cotton cultivation to be abandoned in the state of Coahuila, Mexico.

About 1890 or approximately forty five years after its description, the weevil crossed the Rio Grande near Brownsville into Texas. It was, however, not until 1894 that it came to the attention of the Bureau of Entomology. From the time that the weevil appeared in Texas it required just fourteen years for it to cross the entire state and knock at the doors of a new cotton area north of the Red River known at that time as Indian Territory, later becoming Oklahoma.

Since I have indicated the rapidity with which the weevil has spread over the cotton growing area throughout Texas, it might be well to say a word in regard to its method of dissemination. Though it is not definitely known how the weevil crossed the Rio Grande it is thought that it was brought across in loads of cotton hauled from the Mexican side to the Brownsville gins. Ordinarily the weevil flies only a short distance at a time covering the longer distances with the aid of the wind and by making successive short flights. Under natural conditions the weevil extends its range from the middle of August till sometime in September, seeming at this time to be seized with the instinct to migrate. At other times excepting when the weevil is going to and from hibernating quarters, it is little inclined to fly. The dispersal then, is brought about largely by artificial means.

At the time the weevil made his appearance on the northern boundary line of Texas, the Oklahoma Experiment Station was as yet in its infancy and very few people, in what was then the

cotton section of Oklahoma, knew of its existence. Consequently the early Boll weevil history in Oklahoma must be obtained from the U. S. Bureau of Entomology which had men located at Victoria and College Station, Texas, under whose jurisdiction Oklahoma was placed. The actual date on which the weevil crossed the border into the Indian Territory is not known, the records being destroyed by a fire at College Station, Texas, where they were being kept by the men working with the U. S. Bureau of Entomology, which at that time existed only as the Division of Entomology.

The Red River did not detain the weevil on its progress north into the new territory of what was then Oklahoma's cotton section. The weevil reached the southern boundary line of Oklahoma in 1904 according to the literature of the U. S. Bureau of Entomology. The fourteenth annual report of the Oklahoma Experiment Station says there as at that time considerable interest shown toward cotton insects, though no weevils had been sent in to the station for identification.

In the sixteenth annual report of 1906-07, there is only this mention made of the cotton Boll weevil, "The cotton Boll worm and Mexican cotton Boll weevil are threatening our cotton industry with disaster." No mention was made of its entrance into the cotton area of Oklahoma. It was not until 1907 that we find any record in these reports of the weevil being found in Oklahoma. From the seventeenth report we read as follows: "The year (1907) was also notable for the appearance of the Mexican cotton Boll weevil in large enough numbers and over wide enough area to become a factor to be dealt with in cotton raising." There is, however, nothing mentioned in this or any other publication of the Oklahoma Experiment Station or the Bureau of Entomology as to the actual date of the first appearance of the weevil in Oklahoma.

Dr. W. D. Hunter wrote a paper dated January, 1907, that was read before the Oklahoma Board of Agriculture meeting, entitled the "Boll Weevil in Oklahoma." In this paper Dr. Hunter says, "Although a few fields in the Red River valley opposite Fannin and Lamar counties, Texas, were infested in the fall of 1905, it was not until the summer of 1906 that an extensive invasion of Oklahoma began. That season was in general an unusual one as far as the migration of the pest was concerned. Greater advance was made to the northeast and west than any one previous year in which observations have been made. This migration in Oklahoma began early in August and continued intermittently until about the middle of November when un-

usual cold checked its advance and killed the cotton plants." Still Dr. Hunter makes no statement as to the date of the first appearance of the weevil in Oklahoma.

Professor C. E. Sanborn, now Entomologist at the Oklahoma Experiment Station, who was then with the Bureau of Entomology located at College Station, Texas, working under the direction of Dr. W. D. Hunter, gave this bit of information on the first appearance of the Boll weevil in Oklahoma. During the month of June or July in the year 1905, a gentleman whose name he did not remember sent a specimen of Boll weevil from Caddo, a town north of Durant, Oklahoma, to the experiment station at College Station, for identification. This specimen was referred to him for identification and further consideration. To his surprise he found it to be the genuine Mexican cotton Boll weevil. Up until this time the Boll weevil was not known to occur in Oklahoma. In so far as I am able to find out, this is the earliest authentic record of the weevil's appearance in Oklahoma.

After crossing the Oklahoma-Texas boundary line, the weevil disseminated rapidly over what was then the cotton growing section of the state. By the end of the year 1906, it spread from the small area that it infested in Bryan, Choctaw and Pushmataha counties to as far west as Jefferson county and as far north as Latimer county. The next three years from 1906 to 1909, the weevil's progress was largely a northern movement, its additional western infestation being only some twenty miles, while northward it extended its territory to the northern boundary line of McIntosh county approximately seventy-five miles into new territory. The next three years the weevil, for some cause or perhaps causes, receded until in 1913 the northern boundary line had dropped back to as far south as Choctaw and McCurtain counties. At this time the weevil infested only the southeast one third of Choctaw and southeast two thirds of McCurtain counties. If there is any advantage in dropping back and making a new and better start, the weevil gained all possible advantages of such an opportunity at this time. By the fall of 1916 the weevil had not only regained all the lost territory but had greatly added to its previous acquisitions. It extended the infested territory to near the western boundary line of Tillman and Washita counties, while north in the central part of the state it extended its boundary line to Grant and Kay counties. In the eastern part of the state the infested area dropped back to the northern line of Muskogee county and extended east to the Arkansas line. During the next three

years (1916-19), the weevil again received a severe set back, and its northern boundary line receded to about the same position that it occupied in 1909. In the progress of the weevil across the cotton growing section of Oklahoma, it moved more rapidly in a northwestern direction than in any other. (See map indicating annual boundary lines of weevil infestation.) As indicated on the map it reached the northern boundary line of the cotton belt in the north central part of the state in 1916. It was, however, not until 1922 that the infestation reached the northern limit of the cotton belt in the eastern part of the state.

It might be said that by 1916 the weevil had spread over the entire cotton growing area of Oklahoma. It is true that the weevil extends over much more territory now than it did in 1916. At that time, however, there was very little cotton grown north of Garfield and Noble counties. The annual boundary line of weevil infestation since 1916 has been rather unstable, gradually moving in a northern direction. As the cotton growing area extended in that direction the weevil has closely followed it. At the present time, the weevil-infested area extends to the Kansas-Oklahoma line.

In the latter part of October of this year, I found the boll weevil to be quite numerous ten or fifteen miles north of Vinita, Okla. Had I gone farther north and examined cotton fields, the indications were that weevil would have been found as far north as the Kansas line and perhaps farther across the line.

The southwestern section of this state seems to be the section in which the weevil has had the greatest difficulty in holding his own. In the year 1921, it reached the farthest point west that it has ever reached in Oklahoma. Ever since that time the western boundary line of infestation has been moving eastward. As near as can be determined, the present (1926) infested area has receded to a point near the south central part of Cotton county. Beginning here the line continues to the northeast corner of Comanche county including all of Grady and the southeast fourth of Canadian, then diagonally through Logan including most of Payne, Pawnee, and half of Osage counties taking most of Washington county and reaching its northernmost limit at the Washington, Nowata county and Kansas line.

This, in brief, then has been the progress of the Boll weevil in Oklahoma. As has been true in the past, so doubtless in the future, the Boll weevil in Oklahoma will in all probability follow the cotton growing areas as it gradually expands. Since the weevil is especially adapted to a much warmer climate, it was

at one time thought that it could not become numerous enough in the northern half of the cotton growing area in Oklahoma to do a great deal of damage. Now the question arises as the cotton area gradually extends farther north, How far will the weevil follow it? Especially is this true when one considers the fact that some of our coldest winters have been followed by years of greatest weevil infestation.