Diplodia Ear Rot in Illinois Cornfields

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Diplodia[1] ear rot or dry rot of corn occurs annually in Illinois cornfields, but its severity varies and it does not become a serious problem in most seasons, as shown in a previous paper.[2] While examining corn for diseases in the fall of 1937, the writer was impressed by the few times dry rot was found in the fields which were examined.

A varying amount of time has been spent each fall during a 10-year period, beginning with 1928 and extending through 1937, in studying cornfields to determine the prevalence of ear rots in the field before harvest. Cornfields in various parts of the State were examined each year, but the greatest number was examined in the central section, where the largest acreage is grown. The number of fields visited has varied between 20 in the fall of 1928 and 78 in 1935, and the number of ears examined has ranged between 3,800 in 1928 and 15,880 in 1935. Usually 200 ears were observed in each field, although this number varied from 100 to 500 ears. A summary of the 10 year's data is shown in Table 1.

During this period the prevalence of visible dry rot infection has ranged between a low of 0.14 percent in 1937 and a high of 5.38 per cent in 1930.

TABLE 1—SUMMARY OF DIPLODIA EAR ROT DATA TAKEN ANNUALLY IN ILLINOIS CORN FIELDS DURING THE 10 YEARS, 1928-1937.

Year	Number of ears examined	Ears infected		Number of fields examined	Fields with infected ears	
		Total	Per cent		Total	Per cent
1928	3,960	32	0.79	18	10	55.55
1929	11,360	178	1.43	56	35	97.22
1930	5,800	311	5.38	47	20	87.60
1931	10,840	80	0.79	44	19	43.18
1932	7,806	104	1.33	54	43	79.62
1933	9,260	209	2.83	50	42	84.00
1934	13,860	190	1.40	71	61	85.91
1935	15,880	61	0.38	78	46	58.97
1936	11,000	45	0.40	64	28	43.19
1937	12,600	19	0.14	63	8	12.70
Total	102,765	1,285		510	327	
10 year average			1.25			63.80

The average for the 10-year period is 1.25 percent. In 6 of the 10 years, the percentage of ears found with visible infection was above the average and in the other 5 years the percent of infection was below the average. In 3 particular years, 1931, 1936, and 1937, dry rot was found in less than 45 percent of the fields examined. In 1937, it was found in only 12.7 percent of the fields.

The author made a study of the occurrence of dry rot infected ears in the three sections of the State, north, central and south, recognized by the Weather Bureau, and found, as shown in Table 2, that on an average during the 10 years, 1.12 percent were infected in the north, 1.33 percent in central Illinois, and 1.19 percent in the south. Heaviest loss occurred in the central

TABLE II—SUMMARY OF DIPLODIA EAR ROT DATA OBTAINED FROM CROP EXAMINATION OF OHIO, 1936-1937

Section of State	Total number of ears		Per cent of ears with diplodia
	Examined	With diplodia	
North	26,480	285	1.13
Central	57,865	797	1.38
South	19,760	228	1.19

section, where the greatest acreage of corn is grown. Since dry rot infection is known to result from spores produced in old corn stalks and carried as far as 250 feet by the wind, this is to be expected if an abundance of inoculum is a criterion. For in this section, a large percentage of the corn acreage is planted on land which was in corn the previous season, and it is impossible in farm practice to eliminate all diseased stalks of the previous year.

There are other factors, however, which affect the prevalence and distribution of dry rot in Illinois cornfields. It was estimated[3] that 15 percent of the 1937 acreage was planted with hybrid seed and that this is 5 times as much as was planted in 1936. The low percentage of Diplodia ear rot found in the fall of 1937 is coincident with the increase in hybrid corn acreage.

[1] *Diplodia zeae* (Schw.) Lev. and not *Diplodia macrospora* Earle of the southern states.

[2] Tisdale, W. H. 1936. The relation of ear rot prevalence in Illinois corn fields to ear coverage by husks. Ill. State Nat. Hist. Surv. Biol. Notes 1:1-19. May 20.

[3] These figures are estimates given the writer in conversation with Prof. C. M. Woodworth, of the Agronomy Department, University of Illinois.