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## Lightning Injury to Alfalfa

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## LIGHTNING INJURY TO ALFALFA

JOSEPH C. GILMAN

Lightning injury to herbaceous plants has been a phenomenon that has interested plant pathologists and growers alike for many years, and in 1918 the knowledge, then available on this subject, was well summarized by Jones and Gilbert.<sup>1</sup> These authors note that while lightning injury is a frequent occurrence in potato fields, and less common in tobacco, cotton and sugar beet plantings, it has been rarely observed on other herbaceous crops: but one case of such injury to alfalfa, that of Sitensky<sup>2</sup> in Europe, has been reported.

On July 2, 1928, Mr. F. S. Wilkins of the Farm Crops and Soils Section of the Iowa Agricultural Experiment Station asked the writer with Dr. C. S. Reddy to examine two areas in widely separated alfalfa plots which were damaged by some unknown cause. One area was in the experimental plots north of the Veterinary Quadrangle at Ames, Iowa, the other was on a rented farm about one mile south of Ames where variety tests were being made. The areas were similar in that there was complete death of the plants at the center for a diameter of from one to two meters, with a zone of partial injury extending around them for another two meters or more.

The dead stems of the plants were darkened and covered by the pycnidia of the Ascochyta stage of *Mycosphaerella lethalis* (B. & Br.) Stone and a similar serious infection of this fungus occurred on the partially injured plants. The roots of the plants in the affected area were not noticeably affected and in those portions of the spot removed from the center were beginning to send up new shoots which, at the time of observation, were about a centimeter long. There was but slight infection with the Ascochyta on the part of the field outside of the affected area.

In the field south of Ames plants of *Plantago major* L. and *Traxacum officinale* Weber, in the affected area showed injury

<sup>1</sup> Jones, L. R. and W. W. Gilbert. 1918. Lightning injury to herbaceous plants. *topath.* 8: 270-280.

<sup>2</sup> Sitensky, F. 1896. Phytopathologische Poznamky. Abst. in *Zeitschr. f. Pflanzen-ukh.* 8: 148.

to the older leaves, most of which were entirely killed, with a tuft of new growth arising from the center of the crown.

The character of the spots in the field: the dead central area with a zone of partial injury surrounding it; the absence of root parasites throughout the area; and the killing of the tops of the weed flora within the affected area; combined with the fact that a severe local storm had passed over this region a short time previously, led to the conclusion that the injury was caused by electrical discharges striking these fields at the points studied.

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