Alfalfa produces remarkable yields at the Nebraska Agricultural Experiment Station during the first three or four years on land growing this crop for the first time. In this initial period the yields are practically independent of the amount of rainfall. Thereafter, they decline and become largely dependent upon the precipitation. On land that has previously grown alfalfa, even as remote as 15 years, the yields appear dependent upon rainfall from the very beginning and are never as high as during the early years on land where this crop has not previously been grown. Many farmers on the unirrigated uplands of Nebraska report the same experiences. The explanation for this and what can be done about it is becoming a matter of considerable concern.

The attention of the writers was forcibly directed toward this problem in 1921 when a series of alfalfa plats was sown at the Experiment Station farm in a field that had in part been in alfalfa nine years previously. Though an equally good stand was obtained in both portions, growth was invariably poorer where alfalfa had formerly grown. During the last three of the four years that this crop was allowed to stand, that portion previously in alfalfa yielded 2.07 tons of cured forage per acre, while the other portion averaged 3.75 tons per acre.

In 1925 a corresponding series of plats was planted to alfalfa adjacent to the first series in the same field. The performance was much the same, the average acre yield for the years 1926 and 1927 being 1.36 and 3.83 tons, respectively, on the two portions.

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2Agronomists.