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Studies in the Redistribution of Some Phytopathogenic Species of Bacillus

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A QUANTITATIVE STUDY OF THE EARLY WEED STAGE OF SECONDARY PLANT SUCCESSION IN CENTRAL IOWA

J. M. AIKMAN AND HELEN F. BARR

Count-list and chart quadrats, camera-sets-frequency and frequency-abundance determinations were used to compare the vegetation of 28 fields in Story and Boone counties during the first growing season following cultivation. Similarities and differences in growth response as well as in floristics were tabulated and evaluated.

There seemed to be little relationship between the frequency and constancy of the species and previous cultural treatment although there was a definite relationship between their abundance and previous cultural treatment. By the end of August, in the drought year of 1934, sufficient top cover had developed to reduce to an appreciable degree the force of the rain water falling on the areas: 34.5 per cent cover to 91 per cent cover with an average of 58 per cent.

Annuals which are effective aggregants because of abundance of non-motile seed and ease of establishment (*Setaria viridis*, *Setaria glauca* and *Ambrosia trifida*) were found to be dominant in most of the communities the first year. *Setaria viridis* had greater frequency and frequency-abundance than any other species although several of the species have more seeds per plant.

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STUDIES IN THE REDISTRIBUTION OF SOME PHYTO- PATHOGENIC SPECIES OF BACILLUS

E. L. WALDEE, G. C. KENT AND I. E. MELHUS

The genus *Bacillus* as recently defined excludes non-endospore formers which necessitates a redistribution of the phytopathogenic species. The studies from which this preliminary report is taken

deal with the possible reclassification of eight species of peritrichous phytopathogenic bacteria.

More than 50 species of bacterial plant pathogens have been described as belonging to the genus *Bacillus*. In only a comparatively few of these named species do the original citations include a description adequate for accurate identification and classification. A number of these have since been relegated to synonymy. Out of all these species, cultures of only eight could be obtained from various laboratories and culture collections.

Cultural and limited cross-inoculation studies on 75 isolates of these eight species of peritrichous plant pathogens have served as a basis for the determination of the relationships of the species. These studies indicate that these eight species constitute two separate and distinct groups of bacteria. One of these groups may be included in the genus *Erwinia* Com. S.A.B., 1917. The other group, involving the soft rot organisms, will probably constitute a separate new genus or be included in some other existing genus.

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HISTOLOGY OF A GENETIC MALFORMATION IN CORN

J. E. SASS AND A. A. BRYAN

“Knotted leaf” is a malformation of corn leaves, manifested as scattered, conical or irregular emergences on the dorsal surface of the leaf. These raised regions occur most commonly on the veins. A corresponding depression occurs on the ventral surface opposite each emergence. Sections show that an emergence is a thickened fold of the leaf blade. Thickening is associated with great enlargement of mesophyll and epidermal cells. There is little or no increase in the number of layers of cells comprising the thickness of the fold. The enlarged cells are uninucleate and the relatively small nuclei are diploid.

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