Losses Incurred in Asexual Propagation of Alfalfa Clones

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Without asexual propagation, the breeding and improvement of alfalfa would be a long and laborious process. The fact that alfalfa plants will root readily in sand under favorable conditions makes it possible to increase clonal lines rapidly and thereby obtain enough seed in one season to conduct field tests. This shortens materially the period between the experimental stage and commercial production of a new variety.

Under the conditions at the Kansas Agricultural Experiment Station, Manhattan, Kans., where many thousands of cuttings are made each year, the losses incurred often run as high as 90%. This loss of cuttings not only means the loss of valuable material, but also the loss of labor and greenhouse space.

The procedure generally followed in making alfalfa cuttings is to bring into the greenhouse the late fall growth from the selected clones. Each stem is cut into segments including a node and internode and then set in a wet sand bed for rooting. The sand used is a very fine, washed riverbed sand. Because of the lack of facilities and the quantity of sand necessary, no attempt had been made to sterilize it previous to these experiments. The extent of the losses, however, made it necessary to attempt to find the cause and a method of control. The purpose of this investigation was to isolate some of the organisms from the diseased cuttings and determine those causing the losses.

Most alfalfa plant breeders using the asexual method of propagation have experienced losses of vegetative cuttings. Some have been indirectly reported in the literature. The use of vegetative cuttings in propagating alfalfa was mentioned by Tysdal, et al. as a method of increasing clonal lines for the possible commercial production of a hybrid alfalfa. They also mentioned the use of growth substances to increase rooting. White stated that at Saskatoon, Canada, the usual techniques on the average gave a low percentage of rooted cuttings, indicating that difficulty was encountered in propagating plants in this manner. However, he stated that some plants rooted more readily than others, which also has been observed at the Kansas

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