SURVEY OF WHITE BEAN FIELDS IN 1964

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Four surveys were made of white bean fields in southwestern Ontario in July and August of 1964 in response to numerous reports of leaf disorders and defoliation. As of July 22, however, the condition of beans was generally excellent with luxuriant growth and freedom from disease. At thie date reports of retarded growth and foliage breakdown emanated only from drought areas and here, the problems were quickly corrected by subsequent rainfall, Spraying for manganese deficiency on several farms was clearly Ineffective.

Drought during June was a major factor in most of the early problems found in some areas. The date of planting relative to this period and to a subsequent period of continuous wet and cool weather during July and August and into September appreciably influenced the condition of white beans. In late of August and September foliage deterioration and defoliation became prevalent. Neither pod production nor ripening occurred normally in affected areas,

Affected areas, however, were confined mainly to depressions and low-lying fields in which drainage was inadequate. This association of conditions was clearly observed on August 12 when margins of surface water from overnight rain were found to coincide with outlines of areas showing foliage deterioration and defoliation. The sensitivity of white beans to excess soil moisture was shown by relatively normal development of plants above and at either side of tile drains as compared to near complete defoliation of plants between drains in one low-lying field. In other fields the influence of natural drainage was readily recognized.

In affected areas excess water undoubtedly profoundly disturbed soil processes and the absorption of nutrients by plants, Interference with the process of nitrification and assimilation of nitrogen and other nutrients was indicated by yellowing, tissue breakdown and browning of leaves and ultimately defoliation. These disorders predominated among others attributed mainly to bacterial blights.

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