BACTERIAL BLIGHT OF FIELD BEANS IN 1962

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Five-hundred and ninety-nine acres of registered field beans, including 363 acres of Sanilac, 191 acres of Michelite and 45 acres of Seaway were inspected for the incidence of bacterial blight in south-western Ontario in 1962. The initial inspection of 222 acres was made during the first week of July and comprised 122, 75 and 25 acres of the varieties Sanilac, Michelite and Seaway, respectively. The second inspection of 377 acres was made during the fourth week of August and comprised 241 acres of Sanilac, 116 acres of Michelite and 20 acres of Seaway.

The purpose of the first survey was to find out if seed-borne bacterial blight had been transmitted to the 1962 crop from the seed of beans inspected in 1961. Thirteen fields, representing originally 9 seed Lots of which only one was reported healthy in 1961, were inspected. The seed of eight fields was treated while the remaining five fields represented untreated seed,

Both fields grown from the seed lot reported healthy in 1961 were reported healthy in 1962 whether the seed was treated or untreated, The progeny of 3 of 4 fields of untreated seed exhibited definite symptoms of seed-borne bacterial blight, These fields were grown from seed lots that contained from a trace to 100 per cent leaf infection and from a trace to 25 per cent pod infection, Of the 7 remaining fields, all but one produced from treated seed and the progeny of 1961 infected fields, only one showed a trace of infection when ititially inspected. The untreated field exhibited moderate infection,

The results of these inspections indicated initially that fungicidal seed treatments had controlled seed-borne infection. However, further examinations of the fields during the second survey showed that the seed treatments had only delayed the initial expression of bacterial blight symptoms for a period of one to two weeks. It would appear therefore that the treatments had a slight bacteriostatic effect on the organisms within the seed,

Most of the 377 acres inspected during the second survey was concentrated in the Blenheim area adjacent to Lake Erie and the immediate area around Chatham. In this area bean crops were sown quite late and the seed-borne nature of bacterial blight in many fields was still very evident. Distinct, well defined loci of infection were scattered throughout the fields, This condition was particularly true in fields of Sanilac beans. Individual fields of this variety exhibited up to 80 per cent leaf infection and 50 per cent pod infection. Fields of Michelite and Seaway grown in the same area were free of blight or showed only traces of leaf and pod infection, Bacteriological examination of infected plant material indicated that Xanthomonas phaseoli (common blight) and Pseudomonas phaseoliocola were present in the area inspected.

During the survey other diseases of beans were observed. Anthracnose (Colletotrichum lindemuthianum) was repeatedly found, primarily in trace amounts in the variety Michelite, Sclerotinia wilt (Sclerotinia sclerotiorum) was found in almost all fields; infection ranged from a trace to slight in isolated areas in most fields, however, severe infestations of the fungus occurred where growth was extremely succulent on low-lying land. Fusarium root rot (Fusarium solani) was found in trace amounts in a few fields. Common and yellow bean mosaics were prevalent in many of the fields inspected. One field of Michelite showed a heavy infection of bean rust (Uromyces appendiculatus) in certain areas of the field.

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