

WINDELS, CAROL E.\* and ROGER K. JONES\*. Northwest Experiment Station, University of Minnesota, Crookston 56716\* and University of Minnesota, St. Paul 55108\*. - A new sugar beet disorder in the Red River Valley.

This report describes the symptoms of a disorder of unknown etiology affecting sugar beet in the Red River Valley of Minnesota and North Dakota. Symptoms of the disorder begin to appear in fields in early August about 100 days after planting. Affected plants occur in areas that are oval, semi-circular or irregular in shape and vary in size from 3 to 75 m in diameter. These patches are located near edges of fields and reoccur when beets are planted. Every plant in the affected area shows symptoms and there is a sharp line of demarkation between affected and healthy plants. Aboveground symptoms include yellowed leaves that are brittle, twisted and prostrate on the soil surface; cracking of leaf petioles; and a proliferation of leaf buds at the crown. At the end of the growing season, roots of affected plants have short, swollen secondary roots that resemble galls. Beet seed was planted in soil samples from disorder and healthy areas of a field and placed in a growth chamber (30 C day/ 24 C night, 12 hr/12 hr photoperiod). Fourteen days after emergence, symptoms (chlorosis and cupping) appeared on the first set of true leaves but not on cotyledonary leaves of sugar beet seedlings in the disorder soil. There were no symptoms on seedlings growing in soil from unaffected areas of the field. Estimates of sugar beet yield and quality were made in affected and healthy areas of three fields in 1989 and in four fields in 1990. Yields (T/ha) were reduced by 1.6 to 65% in disorder areas compared to healthy areas of fields, percent sucrose was reduced by 21 to 56%, and recoverable sugar was reduced by 42 to 81%.

ARENSEN, JOHN O.\* Industria Azucarera Nacional S.A. (IANSA), Casilla 4-D, Curicó, Chile. - Evaluation of hymexazol in control of damping-off in sugarbeet seedlings.

One of the most important diseases of sugarbeet in Chile is damping-off of seedlings caused by soil-borne fungi. These fungi are *Aphanomyces cochlioides*, *Pythium* spp., and *Rhizoctonia solani*. Two trials were conducted under greenhouse conditions to evaluate three application rates of hymexazol at 0.3, 0.6, 1.2 kg a.i./ha in relation with a check and the standard treatment fenaminosulf at 1.4 kg a.i./ha. Treatments were mixed with phosphate fertilizer and applied next to the seed. The main fungus observed in both trials was *A. cochlioides*. Hymexazol provided excellent control of disease and was less phytotoxic than fenaminosulf. The check had 79 and 57% dead plants after 40 days in each trial, respectively. The highest application rate of hymexazol showed 6 and 0% dead plants and fenaminosulf 13 and 2%, respectively. Mean emergence period was significantly higher for fenaminosulf than for all rates of hymexazol and the check.