



# VEGETABLE CULTIVAR AND CULTURAL TRIALS 2001

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## Leaf Drop and Lettuce

Leaf drop of lettuce is a common problem in Saskatchewan - particularly at sites with a long history of vegetable crop production. The fungus which causes leaf drop (*Sclerotinia sclerotiorum* and *S. minor*) attacks a wide range of vegetable crops including beans, carrots, cole crops and tomatoes. Repeated cropping of a site to sensitive hosts results in high population of this fungus in the soil. The fungus gains entry into the lettuce crop by attacking any older senescent leaves which come into contact with the soil. As the infection develops the plants show a characteristic tendency to wilt even when adequately watered - leading to the "leaf drop" name. Eventually the infected tissues produce resting bodies or sclerotia which resemble rodent droppings. These resting bodies are capable of persisting for several years in the soil. The wide host range and persistent resting bodies limits the potential to control "Leaf Drop" or related diseases via crop rotation. This study evaluated the potential to use fungicides to reduce losses to Leaf Drop in a direct seeded lettuce crop.

The trial was conducted as a component of a larger lettuce variety trial conducted in Outlook and Saskatoon in 2001. Both the production sites have a long history of continuous cropping to vegetables - with the associated problems with *Sclerotinia*. A number of varieties of head lettuce were direct seeded at each site in early May. The crop was thinned in late June at which time half of each plot was sprayed with recommended rates of Benomyl (benlate) or Rovral (iprodione). These products are known to have some potential to control *Sclerotinia*. The time of treatment coincides with the onset of aging of the earliest leaves of the crop. Each variety was harvested at maturity, at which time marketable yields, as well as the incidence and severity of leaf drop were evaluated in the sprayed and check rows.

### Results

Problems with leaf drop were much more severe at the Outlook site than in Saskatoon. *Sclerotinia* thrives in moist conditions and the sandier Outlook site had to be irrigated more frequently than the heavier soil in Saskatoon. Losses to leaf drop varied considerably between cultivars (see lettuce cultivar section). Not surprisingly, cultivars with leaves that tended to contact the soil surface showed more severe losses than more upright cultivars. In previous trials at these sites, few problems with *Sclerotinia* were observed in Romaine style lettuce - likely reflecting the more upright growth habit of the Romaine-style plants. Unfortunately, losses to *Sclerotinia* were highest in the cultivars that produced the thickest stand of fast growing plants. *Sclerotinia* thrives in situations where air flow is limited, such as in thick plant canopies. Wider row spacing and greater attention to early thinning may produce a more open canopy that is less prone to this disease. Spraying the plants at thinning time with either Rovral or Benlate showed limited potential to reduce losses to *Sclerotinia*. Timing is critical to preventing the infection - earlier or repeated applications might be more effective.

**Table 1. Influence of fungicide treatments on marketable yields of head lettuce, averaged over 34 cultivars at two sites in 2001**

	Fungicide -Treated		Check	
	000/ha	t/ha	000/ha	t/ha
<b>Saskatoon</b>	46.9	35.7	46.9	35.8
<b>Outlook</b>	32.8	19.7	31.5	19.6

