

JACOBSEN, BARRY J.^{1*}, JOHN C. ANSLEY¹, KEN KEPHART², NINA K. ZIDACK¹, ALAN DYER¹ and MAREIKE R. JOHNSTON¹, ¹Montana State University, Department of Plant Science and Plant Pathology, Bozeman, MT 59717 and ²Montana Agricultural Experiment Station – Southern Agricultural Research Center, Huntley, MT 59037. **Timing of azoxystrobin fungicide application for control of *Rhizoctonia* crown and root rot on sugarbeet.**

ABSTRACT

Field experiments at the Southern Agricultural Research Center near Huntley, Montana were conducted in 2004, 2005 and 2006 to compare applications of azoxystrobin fungicide based on soil and air temperatures or plant growth stage for the control of *Rhizoctonia* crown and root rot on sugarbeet (*Beta vulgaris* L.) The basis for temperature based fungicide applications in the field were growth chamber experiments were carried out at 15°C, 20°C-22°C, 25°C, and 28°C. These experiments demonstrated that *Rhizoctonia solani* AG 2-2 IV, causes very little or no disease at 15°C and that significant disease development did not occur until temperatures were 20°C or greater. Optimal disease control and extractable sucrose per hectare was accomplished with azoxystrobin applications when soil temperatures at the 10 cm depth were 18.3°C-26.6°C in both 2004 and 2005. Fungicide application timing based on plant growth stage showed that applications at the 8-leaf stage had a lower disease index and higher yield than applications at the 4-leaf stage in 2004 while in 2005 the reverse was true. In both years comparison of *Rhizoctonia* resistant and susceptible varieties showed that both responded in a similar manner, showing that growers should plant the highest yielding variety regardless of *Rhizoctonia* resistance if optimal economic returns are to be achieved. Results of 2006 and a model for *Rhizoctonia* crown and root rot with azoxystrobin will be reported.