LATE FALL DORMANT PLANTING OF CEREALS USING POLYMERS

Bill Schillinger, Harry Schafer, Bruce Sauer, and Steve Schofstoll
Department of Crop and Soil Sciences, Washington State University

Dormant planting is a practice where spring crops are sown in late fall or during the winter instead of the traditional March or April. Potential benefits of dormant planting include faster spring growth to compete with Russian thistle and other broadleaf weeds, reduced heat and water stress, and higher yields. Dormant planting is not without risks. Warm temperatures after late-fall planting may result in emergence of spring wheat seedlings that may easily winter kill.

We are evaluating four cereal cultivars: 1) dark northern spring wheat (Scarlet); 2) soft white spring wheat (Alpowa); 3) spring barley (Baronesse) and; 4) soft white winter wheat (Eltan) with and without polymer seed coating. The polymer "Extender^{TM}" has been developed to prevent seed from imbibing water until soil temperatures begin to warm in late winter - early spring. The trial, conducted at the WSU Dryland Research Station near Lind was planted in the last week of November in 1999, 2001 and 2002 and again in mid March in 2000, 2002, and 2003. The experiment was not conducted in the 2000-2001 crop year due to early snow cover. The four cereal entries were planted with and without the polymer coating into undisturbed spring wheat stubble with a Cross-slot drill equipped with a cone seed feeder. Planting rate for all entries is 70 lbs/acre and fertilizer rate was 40 lbs N, 10 lbs P, and 10 lbs S per acre.

For the 2003 crop year, plant stand establishment for all entries (except Eltan winter wheat) tended to be better when spring planted compared to fall planted (Fig. 1a). Polymer coating had no effect on any fall or spring planted entry except for Scarlet where polymer coating significantly increased stand for spring planting (Fig. 1a). Yield data for 2003 show that November planting was generally superior to spring planting for all entries except for barley (Fig. 1a). Spring planted Eltan did not vernalize and therefore produced no grain. Fall planted Alpowa, and to a lesser extent fall planted Scarlet, produced considerably higher grain yield compared to fall planted Eltan (Fig. 1a).

When data are combined over the three years, we see few consistent trends in plant stand establishment as affected by planting date or polymer coating (Fig. 1b). Although there is a trend for greater grain yield when planted in the fall vs. the spring, within-entry grain yield differences averaged over years have not been significantly different expect for Eltan winter wheat which, of course, has much lower yield when planted in the spring due to vernalization problems (Fig. 1b). We plan to conduct this experiment for three more years.

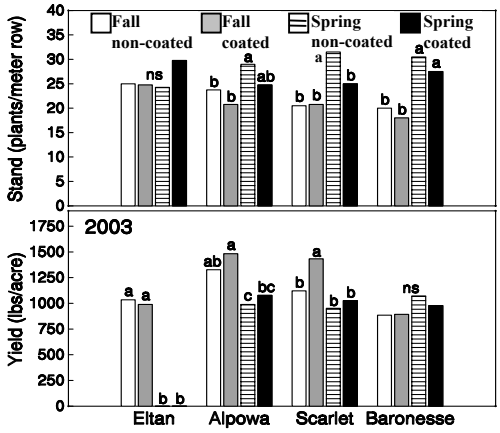

Fig. 1a. Stand establishment and grain yield of four cereal varieties planted in late November 2002 and again in mid March 2003 with and without polymer seed coating.

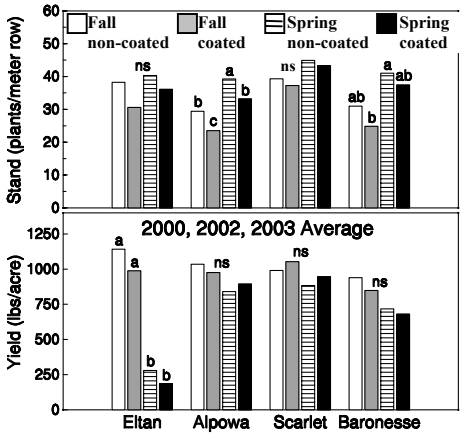

Fig 1b. Average stand establishment and grain yield of four cereal varieties planted in late November and again in mid March with and without polymer seed coating during three years.