QUALITY VERSES QUANTITY: SPRING WHEAT SEED SIZE AND SEEDING RATE EFFECTS ON WILD OAT INTERFERENCE AND ECONOMIC RETURNS**.** Robert N. Stougaard and Qingwu Xue, Professor and Research Associate, Montana State University, Northwestern Agricultural Research Center, 4570 MT 35, Kalispell, MT 59901.

A three-year field experiment was conducted at Kalispell, MT to investigate the effects of spring wheat seed size and seeding rate on wheat yield loss and economic returns as a function of wild oat density. Treatments consisted of four wild oat densities (0, 85, 170 and 340 plants m^{-2}), three spring wheat seed size classes (large, small and bulk), and two spring wheat seeding rates (175 and 280 plants m^{-2}) arranged in a complete factorial design. Weed-free yield potential varied yearly. As yield potential declined, wild oat competitive effects were less evident, and economic thresholds increased. Nonetheless, crop competitive ability increased as wheat seeding rate and seed size increased, with the greatest differences among treatment factors being observed at low weed densities. Both treatment factors decreased spring wheat yield loss, increasing economic returns during all three years of the study despite the higher associated seed costs. Averaged over all other factors, adjusted gross returns were 477 and 537 \$ ha^{-1} for the low and high seeding rates, while values of 453, 521 and 547 \$ ha^{-1} were obtained for the small, bulk and large seed size classes, respectively. Both treatment factors increased economic thresholds in two of three years. These results demonstrate that the use of higher seeding rates and larger seed size classes both improve wheat competitive ability toward wild oat. However, the extent to which economic threshold values are raised will vary depending on the weed-free yield potential.