

JUNEBERRY GROWTH AS AFFECTED BY WEED CONTROL METHODS. Deborah A. Willard and Harlene Hatterman-Valenti, Graduate Student and Professor, Department of Plant Sciences, North Dakota State University, Fargo, ND 58105.

A study was conducted during 2005 and 2006 in a field near Prosper, ND to determine the efficacy of various weed control methods on juneberry (*Amelanchier alnifolia*) growth. The juneberry cultivar, Parkhill was tested in this experiment. The plants were produced from stratified seed in the spring of 2004. They were grown outdoors in containers until fall. In October 2004 they were placed in a cold storage facility at 4.4°C. They were removed from cold storage in mid-March 2005 and maintained in the greenhouse at 21 to 24°C. On May 19, 2005 they were moved outdoors to a protected area to harden-off for 2 wk prior to being transplanted to the field on June 2, 2005. The experiment was arranged as a randomized complete-block design. There were eight weed control treatments and four replicates. Each single row plot measured 0.9 m wide and 6.7 m long and contained 10 plants. Plant spacing was 0.6 m with 1.2 m between treatments. Each replicate was 53.7 m long and contained 80 juneberry shrubs with 4.3 m between replicates. Each treatment was applied to a 0.9 m wide section of each row, extending 0.5 m on either side of the juneberry row. Treatments consisted of: 1) winter rye (*Secale cereale* L.) cover crop, 2) hairy vetch (*Vicia villosa*), 3) flax (*Linum usitatissimum*) mulch 4) straw mulch, 5) landscape fabric, 6) linuron Year 1 and flumioxazin thereafter, 7) glyphosate plus oryzalin, and 8) untreated control that received hand-weeding three times during each year of the experiment. Winter rye was sown in September of 2004 and 2005 at 342 kg/ha. Hairy vetch was sown in the spring of 2005 and 2006 at 61.2 kg/ha. In 2005, wheat straw was spread to a uniform depth of 7 cm and flax mulch and landscape fabric were laid down with a 5-cm diameter hole and 15-cm slit for each plant, respectively. Herbicide treatments were applied twice each growing season.

Woven landscape fabric was the most effective in eliminating weed emergence, whereas, winter rye cover crop allowed significantly more weeds to emerge throughout the study. Both years, a hairy vetch companion crop provided poor early to mid-season weed control, yet fair to good late season weed control. However, the hairy vetch was very competitive with the crop, and therefore, significantly reduced juneberry height, width, stem number and length of main and secondary branches. Herbicide treatments and the untreated control resulted in the most juneberry growth. This research supports using woven landscape fabric to eliminate weed emergence in juneberry orchards. However, to produce the tallest juneberries with the greatest width, stem number, and length of main and secondary branches, glyphosate plus oryzalin or linuron should be used to control weeds.