

FORNSTROM, K. JAMES, STEPHEN D. MILLER and LARRY J. HELD, Civil Engineering, Plant, Soil and Insect Sciences and Agricultural Economics Departments, respectively, University of Wyoming, University Station Box 3295, Laramie, WY 82071, - Economics of weed management systems in sugarbeets.

ABSTRACT

Studies were conducted at four Wyoming locations in 1994 to compare economic benefits of preplant, complementary preplant and postemergence or total postemergence weed management systems in sugarbeets. Twelve weed management systems were established to include full preplant, 1/2 preplant and no preplant herbicide and postemergence applications of early post, two post treatments and three post treatments. Enterprise budgets were derived for respective herbicide treatments at each location to generate costs for herbicide material, herbicide application, hours of hoeing labor required and interest on operating capital. The plots were kept weed free and thus no yield differences between treatments were found. The treatments with the lowest herbicide plus labor costs varied with location, according to weed populations present. Hoeing labor cost was directly related to weed population.

The lowest average weed population was at Torrington (7,600 weeds/A) and the least cost treatment was to apply a full preplant treatment with no postemergence herbicide. As a group, the treatments which had two herbicide applications (two post treatments or 1/2 preplant and full preplant with early post) had the lowest average cost (\$43/A). Weed populations were very similar at the Wheatland location (10,800 weeds/A) and the least cost system was again to apply a full preplant treatment with no postemergence herbicide. However, when comparing groups with similar total numbers of herbicide application, the treatments which had only one herbicide application (full post, early post, 1/2 preplant or full preplant) had the lowest average cost (\$54/A).

The locations at Powell and Worland both had much higher weed populations (26,100 and 38,900 weeds/A, respectively) and the least cost treatments for both locations were those which included 3 herbicide applications (no preplant with 3 postemergence applications and 1/2 preplant or full preplant with 2 postemergence applications). Weed control costs for three herbicide applications and hand hoeing averaged \$84/A at Powell and \$73/A at Worland.

Apart from extraordinary high cost from one-time over at Worland (\$158/A), the total cost differences among alternate times over (from one herbicide application to four herbicide applications) are not large, ranging from \$43/A to \$54/A at Torrington; \$54/A to \$65/A at Wheatland; \$84/A to \$100/A at Powell and \$73/A to \$82/A at Worland. However, the composition of total costs between herbicide and labor is markedly different. Therefore, the choice of employing fewer versus a greater number of spray operations depends on individual preferences for incurring lower herbicide and higher labor costs as opposed to more herbicide and less labor.