

MILLER, STEPHEN D. and K. JAMES FORNSTRÖM, Plant, Soil, and Water Sciences and Civil Engineering Departments, University of Wyoming, University Station Box 3364, Laramie, WY 82071 - Weed control in sugar beets with fall pesticide applications in a fall cover crop

#### ABSTRACT

Fall application of preplant incorporated herbicides eliminates the need for spring tillage and allows earlier start for sugar beets at the spring fall herbicide applications. However, increased the risk of soil erosion. Studies were conducted at Torrington, Wyoming in 1993 and 1994 to evaluate herbicide combinations and hand weeding for weed control and economic return in sugarbeets. The experiment was established as a randomized complete block design with four replications. Plots were 4 rows wide by 30 feet long. All herbicides were band-applied with a plot sprayer. Economic analysis included herbicide cost, which was based on a University of Idaho Cost Inputs Survey, and \$4.90/acre for each application. Hand labor costs were based on the hoeing time of each plot multiplied by \$5.50/hour. All other cost inputs were fixed. Ethofumesate was applied preemergence (PRE), phenmedipham + desmedipham was applied postemergence (POST), and EPTC and trifluralin were applied as lay-by herbicides. The most expensive weed control treatments in both years were POST applications plus hand weeding with or without lay-by herbicides. Kochia, common lambsquarters, redroot pigweed, and hairy nightshade were the weeds evaluated. Redroot pigweed and hairy nightshade were controlled effectively with most treatments. Kochia and common lambsquarters control was most consistent with PRE and POST combinations with and without hand weeding. These combinations with and without hand weeding also provided the highest yields and net return. In 1993, hand weed only had a net return equal to other weed control treatment combinations. In 1994 however, hand weed only was not economical due to hand weeding when the weeds were larger.

MORISHITA, DON W. and ROBERT W. DOWNARD, University of Idaho, Twin Falls Research and Extension Center, P.O. Box 1827, Twin Falls, ID 83303. - Economics of chemical and hand weed control in sugarbeets.

Idaho sugarbeet production relies on herbicides and cultivation for weed control although many growers continue to use hand labor as a part of their weed management program. Field studies were conducted in 1993 and 1994 to evaluate herbicide combinations and hand weeding for weed control and economic return in sugarbeets. The experiment was established as a randomized complete block design with four replications. Plots were 4 rows wide by 30 feet long. All herbicides were band-applied with a plot sprayer. Economic analysis included herbicide cost, which was based on a University of Idaho Cost Inputs Survey, and \$4.90/acre for each application. Hand labor costs were based on the hoeing time of each plot multiplied by \$5.50/hour. All other cost inputs were fixed. Ethofumesate was applied preemergence (PRE), phenmedipham + desmedipham was applied postemergence (POST), and EPTC and trifluralin were applied as lay-by herbicides. The most expensive weed control treatments in both years were POST applications plus hand weeding with or without lay-by herbicides. Kochia, common lambsquarters, redroot pigweed, and hairy nightshade were the weeds evaluated. Redroot pigweed and hairy nightshade were controlled effectively with most treatments. Kochia and common lambsquarters control was most consistent with PRE and POST combinations with and without hand weeding. These combinations with and without hand weeding also provided the highest yields and net return. In 1993, hand weed only had a net return equal to other weed control treatment combinations. In 1994 however, hand weed only was not economical due to hand weeding when the weeds were larger.