

INFLUENCE OF WEED MANAGEMENT TREATMENTS ON SOIL SEED BANK DYNAMICS. Gustavo M. Sbatella and Stephen D. Miller, Graduate Assistant, Professor, Department of Plant Sciences, University of Wyoming, Laramie, WY, 82071.

Weed seeds that persist in the soil seed bank are the main source of weed infestations in agricultural fields. Weed seed bank dynamics are complex and are influenced by tillage practices, crop rotations and herbicides. In 2002 and 2003 a study was conducted at the Research and Extension Center, Torrington, WY to evaluate the impact of different weed control treatments in a corn (*Zea mays* L.) /sugarbeet (*Beta vulgaris* L.) or barley (*Hordeum vulgare* L.) /sugarbeet rotation on soil seed bank dynamics.

Common lambsquarters (*Chenopodium album* L.), hairy nightshade (*Solanum sarrachoides* Sendtner) and redroot pigweed (*Amaranthus retroflexus* L.) accounted for 90% of the total weed seed in the soil seed bank. Samples collected after corn or barley harvest showed no significant impact in total seed numbers due to herbicide treatments; however, differences were evident in samples collected following sugarbeet harvest. Glyphosate or the conventional treatment (ethofumesate + triflusaluron + phenmediphan / desmediphan / ethofumesate + clopyralid) in sugarbeet reduced the total number of weed seed in soil following all corn treatments, mainly due to their impact on redroot pigweed and hairy nightshade. An increase in soil seed bank numbers was observed when the micro-rate treatment was used in sugarbeet after all of the barley treatments. None of the sugarbeet treatments were able to reduce total seed numbers following untreated plots in barley or corn. Common lambsquarters seed bank numbers increased with all treatments in barley suggesting barley provided a more favorable community for this species.