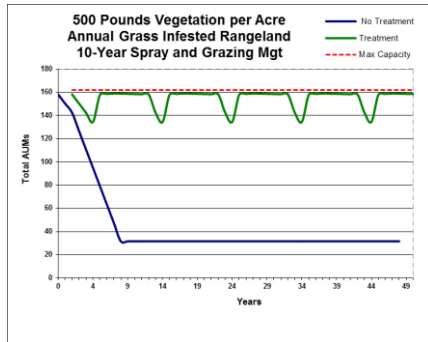
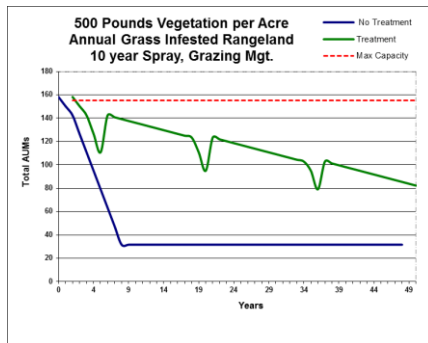


Economics of Invasive Annual Grass Control in Eastern Oregon

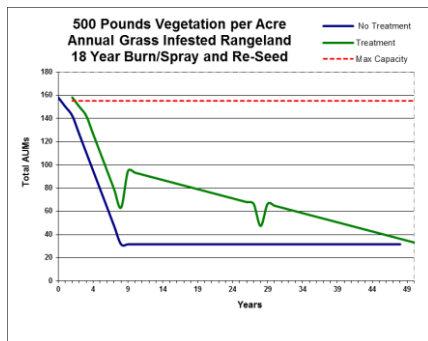
500 Pounds Vegetation per Acre Site Characteristics: Rangeland grazed early spring to late summer, producing 500 pounds vegetation per acre 1,000 Acre pasture, annual precipitation 9-14 inches, shallow soils, bluebunch wheatgrass, Idaho Fescue, Thurber's Needlegrass site infested with invasive annual grasses (including cheatgrass, medusahead and ventenata). Every 5 to 10 years this site experiences drought, wildfire or other natural disturbances. Note: Treatment costs, forage response, timelines and actual numbers will vary with site conditions.



Treatment: Aerial application of pre-emergent Imazapic herbicide (and spot treatment) and good grazing management. \$15/Acre treatment every 10 years. Evaluation Period: 50 Years. Increased Carrying Capacity: .11 AUMs/Acre/Year Cost per AUM: \$19.69/AUM Annual Net Benefits: \$.21/Acre/Year



Treatment: Aerial application of pre-emergent Imazapic herbicide and average grazing management. \$30/Acre treatment (after wildfire) about every 10 Years. Evaluation Period: 50 Years. Increased Carrying Capacity: \$.07 AUMs/Acre/Year Cost per AUM: \$30.18/AUM Annual Net Benefits: -\$.49/Acre/Year



Treatment: Aerial application of pre-emergent Imazapic herbicide, prescribed burn, range seeding and poor grazing management. \$125/Acre treatment about every 18years. Evaluation Period: 50 Years. Increased Carrying Capacity: .03 AUMs/Acre/Year Cost per AUM: \$229.03/AUM Annual Net Benefits: -\$5.43/Acre/Year



Treatment Benefits:

- Reduced sheet, rill, wind, gully erosion.
- Improved soil health.
- Reduced nutrients and sediment in surface water.
- Improved water infiltration.
- Weed removal increases desirable plant community health, vigor and biodiversity.
- Maintain or improve forage productivity.
- Reduced wildfire hazard.
- Improved fish and wildlife cover and habitat.
- Increased production of forage.
- Improved livestock health.
- Increased profitability in the long run.

Treatment Risks:

- Annual grass treatment costs.
- Annual operation and maintenance costs.
- Forbs and non-target plant species may be negatively impacted.
- New, un-proven treatment.