

Rangeland-Pasture Recommendations

Kochia and Russian Thistle Identification and Management

Kochia and Russian thistle are annual plants in the goosefoot family that mature into tumbleweeds spreading their seeds as the wind carries them. Both plants can also accumulate high levels of nitrates making them toxic to livestock. Both are also considered nuisance species for landowners.

Kochia (*Kochia scoparia*) can germinate as early as March and continues through the summer. It usually flowers July through October. Each plant can produce 2,000-30,000 seeds. The good news is that 40-76% will germinate the first year with further germination drastically falling off in subsequent years. Under most conditions kochia is usually two to four feet tall but can grow up to six feet tall. Kochia leaves are soft with fine hairs. The stems may have red streaks running vertically.



Kochia rosette



Kochia flowers



Kochia plants

Russian thistle (*Salsola iberica*) usually germinates when the temperatures are warm, May and June. It typically flowers August through October. Each plant can produce up to 200,000 seeds. The good news is that around 90% of the seeds either germinate or decay the first year. Research indicates that 30 – 60% germinate the first year with the rest decaying. Under most conditions Russian thistle is one to three feet tall. Russian thistle branches and leaves become very stiff and have sharp points as the plant matures. The stems tend to have red streaks running vertically.



Russian thistle rosettes



Russian thistle flowers



Russian thistle plant

Some kochia and Russian thistle plants have become resistant to specific herbicides such as Glyphosate, 2,4-D, Dicamba and Imazapyr products. To be the most effective at controlling these two species regardless of herbicide resistance or not, the earlier the treatment is applied while the plants are small and not well established or under drought stress, the more effective the control will be.

Non- Chemical Resistant Kochia and Russian Thistle Herbicide Options

Herbicide	Rate	Application Timing/Comments
Glyphosate – at least 41% active.	2% solution or 2.66 oz/gal water	Rosette stage. Safe near trees, shrubs and other ornamental plants. Check label for more information. Non-Selective. Will kill all vegetation it touches.
2,4-D Amine (4 lb. product)	1 qt./acre or 1 oz/gal water	Spring rosette stage up to 6-10” growth stage to be the most successful. Add non-ionic or methylated seed oil surfactant @ 0.32 oz/gal water or 1 qt/100 gal water. DO NOT apply when outside temperatures will exceed 85 degrees. Grazing restriction is 7 days.
Dicamba (Clarity)	8-16 oz/acre for small, actively growing plants. 16-24 oz/acre for established growth.	Spring rosette stage up to 6-10” growth stage to be the most successful. Add non-ionic or methylated seed oil surfactant @ 0.32 oz/gal water or 1 qt/100 gal water. DO NOT apply when outside temperatures will exceed 85 degrees. Grazing restriction is 21 days.
Range Star (Dicamba + 2,4-D Amine mixes)	Kochia: 1-2 pints/acre up to 4 pints/acre Russian thistle: 2 pints/acre	For Kochia lower rate if plants are up to 20 inches tall. Max rate for taller and actively growing plants. DO NOT apply when outside temperatures will exceed 85 degrees. Add non-ionic or methylated seed oil surfactant @ 0.32 oz/gal water or 1 qt/100 gal water. Grazing restriction is 7 days.

Chemical Resistant Kochia and Russian Thistle Herbicide Options

Herbicide	Rate	Application Timing/Comments
WideMatch (Clopyralid & Fluroxypyr)	1 pint/acre	Treat when plants are less than 4 inches tall. Add non-ionic surfactant @ 0.32 oz/gal water or 1 qt/100 gal water. Grazing restriction is 7 days and Haying restriction is 14 days.
E2 (2,4-D, Dicamba & Fluroxypyr)	1 - 2 qt./acre or 1 – 2 oz/gal water	Best control is at time weeds are germinating up to 1 inch tall. Add non-ionic surfactant @ 0.32 oz/gal water or 1 qt/100 gal water. DO NOT apply when outside temperatures will exceed 85 degrees. Grazing and haying restriction is 7 days and 30 days for slaughter animals.
Rejuvra (Indaziflam)	5 oz/acre	Pre-emergent herbicide only.
Vista XRT (Fluroxypyr)	6-12 oz/acre	The higher end of the low rate for smaller plants and infestations. Increase the rate up to 23 oz/acre with the addition of 2,4-D ester at 1-2 qts. for larger, more established plants. Add methylated seed oil surfactant @ 0.32 oz/gal water or 1 qt/100 gal water. No grazing restrictions. Do not apply 7 days before haying.
Detail (Saflufenacil)	2 oz/acre	Treat when plants are less than 6 inches tall. Can be tank mixed with glyphosate. Add methylated seed oil surfactant @ 0.32 oz/gal water or 1 qt/100 gal water. Grazing is permitted.
Prowl H2O (Pendimethalin)	1.1 – 4.2 qt./acre Max rate is 4.2 qt/acre	Pre-emergent herbicide only. Smaller rates can be applied up to the max rate 30 days or more apart. Grazing restrictions on cool-season grasses is 14 days. No grazing restrictions for warm-season grasses.

The label is the law. Refer to the label prior to purchasing and the application of any herbicide.

If you have any questions or would like more information, please contact the Weld County Public Works Department, Weed Division at (970) 400-3770; or visit our website www.weldweeds.org.