



2012

**Control of *Peganum harmala* (African Rue) with Broadcast Applications of
GrazonNext, Spike 20P, and Arsenal herbicides**

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Summary

African rue (*Peganum harmala*) is a multi-branched perennial herb that reproduces both by seed and vegetatively from roots and root fragments. It is generally ≤ 1 foot tall with a woody stem and the fruits are 2 to 4 celled leathery capsules. The leaves are narrow and succulent and emit a strong odor when crushed. It blooms June – August and the flowers consist of 5 white petals with a yellow center.

African rue is known to contain four poisonous alkaloids that are toxic to cattle, sheep and horses. The seeds are the most toxic part of the plant. It is very unpalatable so if livestock are eating it, there is not enough forage in the pasture or they may be suffering from a nutrient deficiency. As with many toxic plants, poisoning is more common during the spring and summer months when grasses and other forbs are still dormant.

These plants have an extensive root system, which limits the success of mechanical control methods. Soil and foliar applied herbicides are more effective. Soil applied herbicides, such as tebuthiuron (Spike 20P®) and hexazinone (VelparL®), move into the soil with the rainfall wetting front. Soil active herbicides can generally be applied any time during the year, but preferably preceding rainfall. Soil active herbicides may be ineffective on fine textured soils, such as clays, and caliche roadbeds and drill pads where rainfall infiltration is limited. Foliar herbicides are a better choice for these locations, but application timing is more critical. Imazapyr (Arsenal®) is currently the only recommended foliar applied herbicide for control of African rue.

Objective

The purpose of these demonstration plots is to compare the efficacy of the current recommended broadcast foliar and soil applied herbicides, imazapyr and tebuthiuron, with GrazonNext® (aminopyralid +2,4-D).

Materials and Methods

Three treatments plots each 50'x150' separated by untreated buffers were established in a pasture adjacent to the Ward County 4-H Center (Figure 1.) In October 2010, Arsenal® and GrazonNext® were applied at a rate of 2 pints per acre using an ATV equipped with an 11 foot spray boom. The sprayer was operated at 25 psi and delivered a total spray volume (TSV) equal to 5.5 gallons. Both foliar treatments included 0.25% v/v 90% non-ionic surfactant and were mixed in a water carrier. In October 2011, Spike 20P was applied at a rate equal to 7.5 pounds of pellets per acre with a rotary spreader mounted on the back of an ATV.

Results and Discussion

Plots 1 and 2 were evaluated 1 year after treatment (YAT). All plants within the Arsenal plot were yellow and appeared to be dead. Only small plants in the GrazonNext plot appeared to be dead but all plants showed signs of stress/injury. All treatments will be evaluated in October 2012.

Plot No.	Herbicide and Formulation	Application		TSV (gallons)	Density (plants/ac)	Cost	Apparent Mortality	
		Rate	Material per Plot				Yr. 1	Yr.2
1	Arsenal + NIS	2 pts. product/ac	1.75 oz. NIS + ½ pint	5.5	3388	\$27	100%	80%
2	GrazonNext + NIS	2 pts. product /ac	1.75 oz. NIS + ½ pint	5.5	3436	\$21	0%	60%
3	Spike 20P	7.5 lbs. product /ac	1.65 lb.		1646	\$16.50	NA	95%

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