



## **Knotroot Foxtail Trials**

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### **Introduction**

Knotroot foxtail is an invasive perennial summer grass weed that has low forage quality. The foxtail seed head emerges in July, so most producers don't recognize the infestation problem until late in the growing season. In recent years it has become a concern to forage producers throughout Arkansas.

Some horse hay customers are very concerned about the presence of foxtail seedheads in hay. The tiny seeds can lodge between the horse's teeth and gums and cause some mouth irritation. Foxtail seedheads in horse hay will greatly reduce its value or sales.

Internet searches for foxtail control provides several herbicide options, but these recommendations are for annual foxtails. Research conducted in Arkansas and other states has shown knotroot foxtail control to be difficult and erratic.

### **Objective**

Forage producers have limited herbicide options for grass control in forage grass crops.

Our objective was to compare the effectiveness of grass herbicides, non-selective herbicides, and combinations of both for knotroot foxtail control in forage grasses.

From 2012 – 2019 the UA-CES conducted 38 demonstration in 21 counties. There were 13 fall treated demonstrations, 22 summer treated demonstrations and 3 spring pre-emergence herbicide demonstrations.

Treatments were applied @ 15 gallons per acre. Nonionic surfactant was added to all treatments at one quart per 100 gallons of spray mix.

**Knotroot Foxtail Control – Summer (22 sites)**

<b>Herbicide</b>	<b>Rate/acre</b>	<b>\$/acre</b>	<b>Control %</b>
Select	8 ounce	\$12	40
Patriot + Roundup	0.5 ounce 12 ounce	\$3	85
Roundup	16 ounce	\$2	90
Pastora + Roundup	1.5 ounce 12 ounce	\$24	80
Pastora	1.5 ounce	\$22	65
Paramount	32 ounce	\$44	50

The best options for knotroot foxtail control are the summer herbicide treatments. Roundup at 16 oz/acre and Patriot at 0.5 oz/acre plus Roundup 12 oz/acre resulted in the most consistent control. Both the Select at 8 oz/acre and Roundup at 16 oz/acre caused 20% injury to the bermudagrass.

Other treatments that were evaluated in some of the summer trials.

- Plateau/Panoramic 8 oz/ acre – 60% control, 30 days of stunting
- Journey (Roundup + Plateau) 16 oz/acre – 60% control, 30 days stunting, 30% injury
- Pastora 1.5 oz/acre followed by Pastora 1.5 oz/acre, 80% control (\$42/acre)

**Knotroot Foxtail Control – Fall (13 sites)**

<b>Herbicide</b>	<b>Rate/acre</b>	<b>\$/acre</b>	<b>Control %</b>
Select	8 ounce	\$12	30
Patriot + Roundup	0.5 ounce 12 ounce	\$3	60
Roundup	16 ounce	\$2	70
Pastora + Roundup	1.5 ounce 12 ounce	\$24	50
Pastora	1.5 ounce	\$22	50
Paramount	32 ounce	\$44	0

Research conducted in Arkansas has shown good control of dallisgrass with fall applications of Roundup. Since dallisgrass and knotroot foxtail are both perennial grasses, fall treatments were applied at 13 sites. None of the fall treatments provided good control of knotroot foxtail. Fall applications of Roundup at 16 oz/acre resulted in 70% control of knotroot with 20% injury to bermudagrass.

**Knotroot – Pre-emergence Control (3 sites)**

Herbicide	Rate/acre	\$/acre	Control %
Prowl	1 quart	\$12	0
Prowl	2 quart	\$24	20
Dual	2 pints	\$25	20
Velpar	2 quarts	\$38	70
Karmex	1 quart	\$9	0

Preemergence herbicide applications for perennial grass control is expensive and erratic. Velpar at 2 quarts per acre provided 70% control, but it is expensive and caution should be used before applying Velpar. Dual is not labeled for forage grasses.

**Benton County treatments**

These treatments were applied to a field near Decatur in Benton County.

The summer applications were applied July 29 to a mostly Bermuda grass field. Plots were rated on September 16, 2019.

Results were as follows.

Product used	% Foxtail control	%Crabgrass control
Select (8 oz/acre)	60	90
Patriot (0.5 oz/acre) + Roundup at 12 oz/ac	90	90
Roundup (16 oz/acre)	90	90
Pastora 1.5 oz/acre + Roundup at 12 oz/ac	90	90
Pastora (1.5 oz/ac)	50	0
Paramount (32 oz/ac)	60	0

Fall treatments were applied in a fescue field. As noted earlier, these treatments were less successful in controlling foxtail. Some of them also caused considerable injury to the fescue stand.

A special thanks to the agents and producers in counties that participated in one or more of the knotroot foxtail demonstrations: Baxter, Benton, Cleburne, Crawford, Faulkner, Franklin, Hot Springs, Johnson, Marion, Madison, Newton, Perry, Scott, Stone, Washington and Yell.

### **Knotroot Foxtail infestations and Soil Fertility**

In over half of the knotroot demonstrations the soil phosphorus and/or soil potash levels were in the low to very low range. Low soil fertility is often noted in hay fields with broomsedge, knotroot foxtail, or dallisgrass infestations. Soil sampling and maintaining adequate fertility levels are very important in forage production.

### **Conclusion**

- The best treatments for knot foxtail control is summer applications of Patriot/metsulfuron 0.5 ounces per acre + Roundup 12 ounces per acre or Roundup at 16 ounces per acre
- Roundup at 16 oz per acre and Select at 8 ounces per acre can cause injury and stunting to bermudagrass
- Fall herbicide treatments and spring pre-emergence treatments resulted in less control than summer treatments
- Low soil fertility levels can be a contributing factor to knotroot foxtail infestations.

For more information, contact the Benton County Extension office at 479-271-1060.



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