

# **YELLOW NUTSEDGE CONTROL IN SUGAR BEETS**

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Oregon State University  
Ontario, OR, 2001

## **Introduction**

Yellow nutsedge is an increasing weed problem in the Treasure Valley in several crops, including sugar beets. Different herbicides with potential to assist in yellow nutsedge control and with the possibility of registration were added to the Betamix, Upbeet, and Stinger. Different rates and application timings with various products were evaluated.

## **Methods**

The study was conducted in a field with a heavy infestation of yellow nutsedge. The soil was a Feltham loamy fine sand with pH 8.2 and 1.4 percent organic matter. The field was plowed in the fall of 2000 and harrowed and bedded on March 16. On April 13, Hillehog variety 'WS PM-21' was planted at a 2-inch spacing to ensure a stand of sugar beets. Beets were planted on 22-inch rows. Counter 20 CR was applied for insect control directly after planting. After beet emergence, the stand was hand thinned to one plant every 8 inches. Plots were four rows wide, 27 ft long, and arranged in a randomized complete block design. The trial was sidedressed on May 24 with 200 lb N/acre as urea. Herbicide treatments were applied with a CO<sub>2</sub>-pressurized backpack sprayer calibrated to deliver 20 gal/acre at 30 psi. Postemergence treatments were applied three times. Treatments were applied to two-leaf beets on May 8, four-leaf beets on May 17, and six-leaf beets on May 24. Sugar beet injury and nutsedge control were evaluated throughout the growing season. Sugar beet yields were not taken.

Standard treatments consisted of Betamix (0.25 lb ai/acre) and Upbeet (0.0156 lb ai/acre) applied to two-leaf beets and Betamix, Upbeet, and Stinger (0.094 lb ai/acre) applied to four-leaf and six-leaf sugar beets. Variations of the standard treatment included increasing the Betamix rate to 0.5 lb ai/acre at each application timing, increasing the Upbeet rate to 0.0259 lb ai/acre for each timing, or increasing the last application of Upbeet to 0.0312 lb ai/acre. Dual Magnum (1.3 lb ai/acre) or Outlook (0.64 lb ai/acre) was added to the standard treatments at either the two, four, or six-leaf application timing. Dual Magnum or Outlook were also added to the standard treatment at both the two and six-leaf application timings. Eptam (3.0 lb ai/acre) or Ro-Neet (3.0 lb ai/acre) were applied with the standard treatment at the six-leaf timing as a lay-by treatment.

## **Results and Discussion**

All treatments exhibited significant sugar beet injury compared to the untreated check (18-35 percent) (Table 1). In general, the standard treatment with Dual Magnum or Outlook added at the two- and six-leaf stages had higher injury than most treatments. The standard treatment with Dual Magnum added at the four-leaf stage and the standard with Ro-Neet added at the six-leaf stage were also among those with the highest injury.

On June 7, yellow nutsedge control for all treatments was between 58 and 85 percent. The standard treatment when either Dual Magnum or Outlook were applied at both the two- and six-leaf stage were among the highest in yellow nutsedge control at 81 and 85 percent, respectively. It appears that yellow nutsedge control is improved when Dual Magnum or Outlook are added to the first or second application timing, but when delayed until the six-leaf stage, there is no gain in control over the standard treatment alone. There were also no benefits to adding Eptam or Ro-Neet to the six-leaf timing. On August 2, yellow nutsedge control was between 69 and 93 percent. The best treatment, the standard plus Dual Magnum added to the two- and six-leaf application, was statistically superior to all the treatments that included only Betamix, Upbeet, and Stinger.

Table 1. Sugar beet injury and yellow nutsedge control with soil-active herbicides added to standard sugar beet treatments, Malheur Experiment Station, Oregon State University, Ontario, OR, 2001.

Treatment	Rate	Timing*	Crop injury		Nutsedge control	
			6-7	6-7	6-7	8-2
	lb ai/acre	Leaf	----- % -----			
Betamix+ Upbeet	0.25 + 0.016	2-lf	21	61	69	
Betamix+ Upbeet + Stinger	0.25 + 0.016 + 0.094	4-lf				
Betamix+ Upbeet + Stinger	0.25 + 0.016 + 0.094	6-lf				
Betamix + Upbeet + Dual Magnum	0.25 + 0.016 + 1.3	2-lf	21	78	83	
Betamix + Upbeet + Stinger	0.25 + 0.0156 + 0.094	4-lf				
Betamix + Upbeet + Stinger	0.25 + 0.0156 + 0.094	6-lf				
Betamix + Upbeet + Outlook	0.25 + 0.016 + 0.64	2-lf	18	75	73	
Betamix + Upbeet + Stinger	0.25 + 0.016 + 0.094	4-lf				
Betamix + Upbeet + Stinger	0.25 + 0.016 + 0.094	6-lf				
Betamix + Upbeet	0.25 + 0.016	2-lf	31	75	81	
Betamix + Upbeet + Stinger + Dual Magnum	0.25 + 0.0156 + 0.094 + 1.3	4-lf				
Betamix + Upbeet + Stinger	0.25 + 0.016 + 0.094	6-lf				
Betamix + Upbeet	0.25 + 0.016	2-lf	25	72	75	
Betamix + Upbeet + Stinger + Outlook	0.25 + 0.016 + 0.094 + 0.64	4-lf				
Betamix + Upbeet + Stinger	0.25 + 0.016 + 0.094	6-lf				

Table 1. (continued) Sugar beet injury and yellow nutsedge control with soil-active herbicides added to the standard sugar beet treatments, Malheur Experiment Station, Oregon State University, Ontario, OR, 2001.

Crop injury      Nutsedge control

Treatment	Rate lb ai/acre	Timing* Leaf	6-7		8-2
			----- % -----		
Betamix + Upbeet	0.25 + 0.026	2-lf	25	62	73
Betamix + Upbeet + Stinger	0.25 + 0.026 + 0.094	4-lf			
Betamix + Upbeet + Stinger	0.25 + 0.026 + 0.094	6-lf			
Betamix + Upbeet	0.5 + 0.016	2-lf	26	58	72
Betamix + Upbeet + Stinger	0.5 + 0.016 + 0.094	4-lf			
Betamix + Upbeet + Stinger	0.5 + 0.016 + 0.094	6-lf			
Betamix + Upbeet	0.25 + 0.016	2-lf	23	68	79
Betamix + Upbeet + Stinger	0.25 + 0.016 + 0.094	4-lf			
Betamix + Upbeet + Stinger	0.25 + 0.031 + 0.094	6-lf			
Betamix + Upbeet	0.25 + 0.016	2-lf	21	60	75
Betamix + Upbeet + Stinger	0.25 + 0.016 + 0.094	4-lf			
Betamix + Upbeet + Stinger + Eptam	0.25 + 0.016 + 0.094 + 3.0	6-lf			
Betamix+Upbeet	0.25 + 0.016	2-lf	32	70	85
Betamix+Upbeet + Stinger	0.25 + 0.016 + 0.094	4-lf			
Betamix+Upbeet + Stinger + Ro-Neet	0.25 + 0.016 + 0.094 + 3.0	6-lf			
Betamix + Upbeet	0.25 + 0.016	2-lf	24	67	83
Betamix + Upbeet + Stinger	0.25 + 0.016 + 0.094	4-lf			
Betamix + Upbeet + Stinger + Dual Magnum	0.25 + 0.016 + 0.094 + 1.3	6-lf			
Betamix + Upbeet	0.25 + 0.016	2-lf	23	68	80
Betamix + Upbeet + Stinger	0.25 + 0.016 + 0.094	4-lf			
Betamix + Upbeet + Stinger + Outlook	0.25 + 0.016 + 0.094 + 0.64	6-lf			
Betamix + Upbeet + Dual Magnum	0.25 + 0.016 + 1.3	2-lf	30	81	93
Betamix + Upbeet + Stinger	0.25 + 0.016 + 0.094	4-lf			
Betamix + Upbeet + Stinger + Dual Magnum	0.25 + 0.016 + 0.094 + 1.3	6-lf			
Betamix + Upbeet + Outlook	0.25 + 0.016 + 0.64	2-lf	35	85	76
Betamix + Upbeet + Stinger	0.25 + 0.016 + 0.094	4-lf			
Betamix + Upbeet + Stinger + Outlook	0.25 + 0.016 + 0.94 + 0.64	6-lf			
Betamix + Upbeet	0.25 + 0.016	2-lf	26	67	83
Betamix + Upbeet + Stinger	0.25 + 0.016 + 0.094	4-lf			
Betamix + Upbeet + Stinger + Ro-Neet	0.25 + 0.016 + 0.094 + 3.0	6-lf			
Untreated	--	--	0	0	36
LSD (0.05)			9	11	19

\*Two-leaf (2-lf) application was made on May 8, four-leaf (4-lf) on May 17, and six-leaf (6-lf) on May 24.