

Yellow nutsedge application timing

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This study was conducted at the John Seaton Anderson Research Center at Mead, NE, on a thinned stand of perennial ryegrass with high populations of yellow nutsedge (YN). Separate but adjacent trials were initiated in 2013 and 2014. The stand was mowed at 2.5 inches and irrigated to prevent drought stress. Plots were 3' x 3' and sprayed with a CO2 backpack sprayer using a single nozzle boom with 8002vs nozzle at 30 psi in 2 gal/1000ft² water. Initial treatments of Sedgehammer or Dismiss were applied in the first week of June with or without sequential applications made 3 weeks after the initial application. Separate treatment timings were started on 3 week intervals with or without sequential applications until the final application timing was made during the 1st week of August. Plots were rated for % YN cover on a 0-100% scale.

Results

Timing of Applications

Applications made the first week of June resulted in the lowest YN cover throughout 2013 and 2014 considering untreated plots ranged from 22-55% YN cover (Table 1). In both years at the end of the season on the September rating no differences in YN cover were observed between timings, but all timings resulted in >70 percent control over the untreated plots (Table 2). Treatments started in the 3rd week of June also resulted in good YN reduction, but by this timing YN may be visible in the turf canopy. Applications made later in the season (July or August) will still provide YN reduction, but by that time the first killing frost will also control YN shoot growth.

Controlling YN shoot growth is important, but what about long term control. Ratings were taken the following season (June 6, 2014) to plots treated in 2013. No differences were observed between applications timings when rated the following season (Table 1). Additionally, no differences in control were observed between timings with all treatments ranging from 56-84% control of YN (Table 2). These same ratings will be taken in 2015 on the 2014 and 2013 treated plots to further explore the long term effects.

Herbicide

Few herbicide differences were observed in 2013 and 2014 throughout most of the growing season when looking at ground cover or control (Table 3&4). Ratings taken mid-September for both years resulted in herbicide differences. In 2013, sequential applications of Sedgehammer outperformed single or sequential applications of Dismiss (Table 3&4). In 2014, single Sedgehammer and sequential applications of Dismiss or Sedgehammer resulted in lower YN cover and higher control than single applications of Dismiss (Table 3 & 4).

Ratings taken the following season (June 6, 2014) to plots treated in 2013, resulted in herbicide differences. Sequential applications of Sedgehammer resulted in lower YN cover (3%) over single or sequential applications of Dismiss (10-11% cover) (Table 3). Similar results were seen in control with sequential applications of Sedgehammer resulting in higher YN control (85%) over single or sequential applications of Dismiss (54% control) (Table 3). These same ratings will be taken in 2015 on the 2014 and 2013 treated plots to further explore the long term effects.

Conclusion

Yellow nutsedge is a common weed in all landscapes that generally goes unnoticed until aggressive shoot growth occurs as soil temperatures rise. This trial was conducted to determine the most effective timing and/or herbicide to control nutsedge growth and its production of tubers short term and long term. Throughout both years earlier applications have an advantage over later applications when attempting to control YN.

Application Description	2013 Trial				
	A	B	C	D	E
Application Date:	6/3/2013	6/26/2013	7/12/2013	8/5/2013	8/26/2013
Application Method:	Spray	Spray	Spray	Spray	Spray
Application Timing:	post	post	post	post	post
Application Placement:	Broad	Broad	Broad	Broad	Broad
Air Temperature, Unit:	72 F	79 F	81 F	80 F	85 F
% Relative Humidity:	64	70	67	88	68
Soil Temperature, Unit:	66 F	80 F	82 F	77 F	81 F
Application Description	2014 Trial				
	A	B	C	D	E
Application Date:	6/6/2014	6/25/2014	7/17/2014	8/8/2014	9/2/2014
Application Method:	Spray	Spray	Spray	Spray	Spray
Application Timing:	post	post	post	post	post
Application Placement:	Broad	Broad	Broad	Broad	Broad
Air Temperature, Unit:	74 F	71 F	63 F	73 F	76 F
% Relative Humidity:	75	77	73	89	80
Soil Temperature, Unit:	72 F	75 F	76 F	75 F	73 F

Table 1. Effect of application date on yellow nutsedge ground cover (averaged over herbicides)

		2013 Nutsedge						2014 Nutsedge					
Description		Nutsedge	Nutsedge	Nutsedge	Nutsedge	Nutsedge	Nutsedge	Nutsedge	Nutsedge	Nutsedge	Nutsedge	Nutsedge	Nutsedge
Rating Date		6/3/2013	6/24/2013	7/24/2013	8/6/2013	9/17/2013	6/6/2014	6/6/2014	6/25/2014	7/17/2014	8/8/2014	8/26/2014	9/12/2014
Rating Type		Ground	Ground	Ground	Ground	Ground	ground	ground	ground	ground	ground	ground	ground
Rating Unit		%	%	%	%	%	%	%	%	%	%	%	%
Days After First Application		0	21	51	64	106	368	0	19	41	63	81	98
Timing of Application													
1 June 3		23	4	2	4	2	4	32	8	2	3	3	3
2 June 24		21	23	18	14	6	8	32	33	7	5	6	6
3 July 15		24	23	20	21	7	10	32	32	41	20	7	5
4 Aug 5		23	26	25	32	5	8	31	31	42	45	17	6
	LSD 0.05	NS*	4.7	4.4	6	NS	NS	NS	12.8	8.2	7.1	7.1	NS
	Untreated plots=	23§	28	25	28	25	22	28	33	40	47	55	52
*NS, Non Significant, § Untreated plots were not part of statistical analysis and are for reference only													

Table 2. Effect of application date on yellow nutsedge control (averaged over herbicides)

		2013 Nutsedge					2014 Nutsedge				
Description		Nutsedge	Nutsedge	Nutsedge	Nutsedge	Nutsedge	Nutsedge	Nutsedge	Nutsedge	Nutsedge	Nutsedge
Rating Date		6/24/2013	7/24/2013	8/6/2013	9/17/2013	6/6/2014	6/25/2014	7/17/2014	8/8/2014	8/26/2014	9/12/2014
Rating Type		CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit		%UNCK	%UNCK	%UNCK	%UNCK	%UNCK	%UNCK	%UNCK	%UNCK	%UNCK	%UNCK
Days After First Application		21	51	64	106	368	19	41	63	81	98
Timing of Application											
1 June 3		87	90	87	93	84	74	96	95	95	94
2 June 24		17	27	48	76	63	22	82	89	89	88
3 July 15		18	20	26	70	56	28	16	56	87	90
4 Aug 5		12	2	3	81	61	20	8	6	69	88
	LSD 0.05	14.9	17.2	17.2	NS*	NS	20.5	13.2	14.5	13.5	NS
*NS, Non Significant											

Table 3. Effect of herbicide on yellow nutsedge ground cover (averaged over application timing)

		2013 Nutsedge						2014 Nutsedge						
Description		Nutsedge	Nutsedge	Nutsedge	Nutsedge	Nutsedge	Nutsedge	Nutsedge	Nutsedge	Nutsedge	Nutsedge	Nutsedge	Nutsedge	
Rating Date		6/3/2013	6/24/2013	7/24/2013	8/6/2013	9/17/2013	6/6/2014	6/6/2014	6/25/2014	7/17/2014	8/8/2014	8/26/2014	9/12/2014	
Rating Type		Ground	Ground	Ground	Ground	Ground	ground	ground	ground	ground	ground	ground	ground	
Rating Unit		%	%	%	%	%	%	%	%	%	%	%	%	
Days After First Application		0	21	51	64	106	368	0	19	41	63	81	98	
Herbicide														
1	Sedgehammer (single app)	0.3 oz/1000ft2 +NIS	21	19	18	17	3	7	33	29	26	20	10	5
2	Dismiss (single app)	0.12 fl oz/1000ft2	23	20	18	22	7	10	31	23	23	19	14	11
3	Sedgehammer (sequential app)	0.3 oz/1000ft2 +NIS	24	18	16	14	2	3	32	26	22	14	6	1
4	Dismiss (sequential app)	0.12 fl oz/1000ft2	23	20	15	19	8	11	31	26	21	20	4	3
		LSD 0.05	NS*	NS	NS	NS	4.3	5.9	NS	NS	NS	NS	7.1	5.3
		Untreated plots=	23§	28	25	28	25	22	28	33	40	47	55	52
*NS, Non Significant, §Untreated plots were not part of statistical analysis and are for reference only														

Table 4. Effect of herbicide on yellow nutsedge control (averaged over application timing)

		2013 Nutsedge					2014 Nutsedge					
Description		Nutsedge	Nutsedge	Nutsedge	Nutsedge	Nutsedge	Nutsedge	Nutsedge	Nutsedge	Nutsedge	Nutsedge	
Rating Date		6/24/2013	7/24/2013	8/6/2013	9/17/2013	6/6/2014	6/25/2014	7/17/2014	8/8/2014	8/26/2014	9/12/2014	
Rating Type		CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	
Rating Unit		%UNCK	%UNCK	%UNCK	%UNCK	%UNCK	%UNCK	%UNCK	%UNCK	%UNCK	%UNCK	
Days After First Application		21	51	64	106	368	19	41	63	81	98	
Herbicide												
1	Sedgehammer (single app)	0.3 oz/1000ft2 +NIS	34	31	41	87	72	40	48	60	82	91
2	Dismiss (single app)	0.12 fl oz/1000ft2	31	30	33	71	54	42	49	59	75	78
3	Sedgehammer (sequential app)	0.3 oz/1000ft2 +NIS	38	38	51	93	85	34	53	69	90	97
4	Dismiss (sequential app)	0.12 fl oz/1000ft2	31	39	38	70	54	28	52	58	93	94
		LSD 0.05	NS*	NS	NS	17.4	23.8	NS	NS	NS	13.5	10.8
*NS, Non Significant												