

WEED SURVEY AND CONTROL OF KEY WEED SPECIES IN SMALL GRAINS – 2015-2016

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Weed Survey

As part of the project we surveyed small grain fields for weeds, identifying them by species and relative abundance in the fall of 2015. In the fall of 2015 we sampled 20 fields and a total of 26 weed species were observed. The most frequently observed species were henbit and common chickweed, present in 19 fields. Field pansy was in thirteen fields and annual blue grass was in 11 fields.

Henbit density ranged 110 plants/m² to a few random plants. No other weed species was found at such high densities. Annual bluegrass was the only grass species present.

The average field had six weeds species present in the field. One field had 11 species present, while nine fields had 5 or fewer species present.

On-Farm Trials

We conducted replicated on-farm demonstration examining control of annual bluegrass, ivyleaf speedwell, and ALS-R common chickweed. In order to confirm some what we observed in the field we did a greenhouse trial for ivyleaf speedwell.

Annual bluegrass

Annual bluegrass control was evaluated under no-till conditions (Table 1). Plots either received a glyphosate application at planting (to control the initial flush of annual bluegrass) or no glyphosate application. Zidua plus Sharpen was used as the wheat began to emerge. Osprey, Maverick, or PowerFlex were applied to wheat at the 3-leaf stage (3 weeks after planting [Nov 11]) and PowerFlex was applied in the spring (March 17). Zidua provided excellent annual bluegrass control as well as fall applications of Maverick, Osprey, or PowerFlex following glyphosate as a burndown. This indicates that all of these products need to be applied to small annual bluegrass plants in order to be effective.

Ivyleaf speedwell

Ivyleaf speedwell control was evaluated on a field planted with cereal rye. Due to early termination of the rye, only fall treatments were included. Treatments were applied on November 16, 2015 and included Glory, Huskie, Huskie + Glory, Finesse, PowerFlex, Osprey, Harmony Extra, Quelex, Osprey + Clarity, and Osprey + 2,4-D (Table 2). Treatments with Glory, Finesse, and PowerFlex all provided excellent control of ivyleaf speedwell. No other treatment provided acceptable level of control.

A greenhouse trial included Clarity, Finesse, Glory, Harmony Extra, Huskie, Osprey, PowerFlex, Quelex, and 2,4-D, alone and in combinations (Table 3). Adjuvants were included and applications were made at 1/3 and 2/3 the normal use rates to better separate treatment differences. The only product to provide over 85% control was Glory and all other treatments were less than 65% control. The Finesse treatment did not reflect what was observed in the field. This may have been due to a number of reasons such as rate, observation time and/or lack of stress on the speedwell plants. The reduced rate of Finesse may have been too low for effective control. Finesse is a slow acting herbicide and termination at 4WAP may not have been long enough time for full effect to be observed. The other factor is that weeds were

grown without the presence of wheat and were not subjected to temperature fluctuations, and this may have allowed ivyleaf speedwell to remain growing. More observations are needed to confirm the consistency of Finesse effectiveness.

ALS-resistant Common Chickweed

A field demonstration of various herbicides for control of ALS-resistant common chickweed was conducting in commercial field in Kent County. Treatments are listed in Table 4. All treatments containing Glory or Quelex provided at least 94% control. Harmony Extra plus Starane Ultra provided 84% control. The addition of 2,4-D to Huskie did not improve the control of common chickweed, indicating its lack of effectiveness on this species.

Table 1. Annual bluegrass control rated on April 29, 2016, with at planting or postemergence treatments. Herbicide treatments were applied after with and without use of glyphosate at planting. Letters followed by the same letter are not significantly different from one another.

Treatment Name	Product	Rate	Adjuvants	Timing	No Glyphosate	With Glyphosate
Untreated					0 d	55 bc
Zidua + Sharpen	1.25 + 4	oz wt/a fl oz/a		Spike	85 a	100 a
PowerFlex	2	oz wt/a	NIS + AMS	3-lvs	43 c	85 a
Maverick	0.67	oz wt/a	NIS + N	3-lvs	73 ab	88 a
Osprey	4.75	oz wt/a	NIS + N	3-lvs	54 bc	95 a
PowerFlex	2	oz wt/a	NIS + AMS	Spring	50 bc	57 bc
LSD (P=.05)					18.1	
CV					16.2	
Treatment	Prob(F)				0.0001	

Table 2. Control ratings for ivyleaf speedwell treated in the fall of 2015. Letters followed by the same letter are not significantly different from one another.

Treatment Name	Product	Rate	Adjuvants	Ivyleaf Speedwell % Control 3/17/2016	
Untreated Check				0	
Glory	3	oz wt/a	NIS	100	a
Huskie	15	fl oz/a	AMS	27	c
Huskie + Glory	15 + 3	fl oz/a oz wt/a	NIS	100	a
Finesse	0.4	oz wt/a	NIS + N	100	a
PowerFlex	2	oz wt/a	NIS + N	100	a
Osprey	4.75	oz wt/a	NIS + N	40	bc
Harmony Extra	0.75	oz wt/a	NIS + N	33	bc
Quelex	0.75	oz wt/a	NIS + N	43	bc
Osprey + Clarity	4.75 + 4	oz wt/a fl oz/a	NIS + N	53	bc
Osprey + 2,4-D	4.75 + 8	oz wt/a fl oz/a	NIS + N	58	b
LSD (P=.05)				19.2	
CV				5.7	
Treatment Prob(F)				0.0001	

Table 3. Control of ivyleaf speedwell, based on greenhouse trial. Control ratings averaged over 1/3 and 2/3X rates. Letters followed by the same letter are not significantly different from one another.

Herb	1X Rate	Surfactant	Control (%)	
Huskie	13 fl oz	AMS	29	d
Osprey	4.8 oz wt	NIS + N	30	d
Harmony Extra	0.75 oz wt	NIS + N	38	d
Quelex	0.75 oz wt	NIS + N	50	c
Harmony Extra + Clarity	0.75 oz wt + 4 fl oz	NIS + N	51	c
Harmony Extra + 2,4-D	0.75 oz wt + 8 fl oz	NIS + N	54	bc
PowerFlex	2 oz wt	NIS + N	61	bc
Finesse	0.3 oz wt	NIS + N	65	bc
Huskie + Glory	13 fl oz + 3 oz wt	NIS	85	a
Glory	3 oz wt	NIS	90	A

Surfactant: AMS= dry ammonium sulfate; N= liquid UAN; NIS= non-ionic surfactant.

Table 4. Control of ALS-resistant common chickweed. All treatments were applied in the spring of 2016. Letters followed by the same letter are not significantly different from one another.

Treatment Name	Product	Rate	Adjuvants	Common Chickweed % Control 5/4/2016
Untreated Check				0
Glory	3	oz wt/a	NIS	98 a
Glory	4	oz wt/a	NIS	99 a
Huskie	15	fl oz/a	NIS + AMS	70 c
Huskie + Glory	15 + 4	fl oz/a oz wt/a	NIS + AMS	99 a
Huskie + 2,4-D	15 + 10.5	fl oz/a fl oz/a	NIS + AMS	68 c
Quelex	0.75	oz wt/a	NIS + N	94 a
Quelex + Glory	0.75 + 4	oz wt/a oz wt/a	NIS + N	99 a
Quelex + 2,4-D	0.75 + 10.5	oz wt/a fl oz/a	NIS + N	99 a
Harmony Extra + Starane Ultra	0.75 + 6	oz wt/a fl oz/a	NIS + N	84 b
LSD (P=.05)				6.2
CV				4.0
Treatment Prob(F)				0.0001

