Weed Control in Winter Wheat with Huskie® plus various Tankmix Partners.

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Herbicide options for weed control in wheat include many commercial pre-mixes with different active ingredients. The wide spectrum of available options can make it difficult to choose an optimum tank mix for weed control in wheat, or to plan a herbicide resistance management strategy. A study was established near Pullman, WA to evaluate weed control provided by different Huskie (pyrasulfotole plus bromoxynil) tank mixes. A first study (study 1) looked at tank mixes including Huskie plus Everest 2.0 (flucarbazone), plus fluroxypyr (active ingredient in Starane Flex, Widematch and Supremacy) or MCPA (active ingredient in Orion and Curtail). A second study ("study 2") featured tank mixes including Huskie plus Osprey (mesosulfuron), plus fluroxypyr or MCPA. Study 3 included Huskie tank mixed with pinoxaden (Axial XL or Axial TBC), plus florasulam (active ingredient in Starane Flex, Orion and Axial TBC) or thifensulfuron plus tribenuron (active ingredient in Harmony Extra and Supremacy). Treatments in study 4 were composed of Huskie tank mixed with Powerflex (pyroxsulam) plus florasulam or thifensulfuron plus tribenuron.

All four studies were carried out first in the years 2011-2012 and repeated in 2012-2013. Winter wheat was planted on October 19 2011 and on October 18 2012 at a rate of 95 lbs/A. Treatments were applied on May 11 2012 and on May 6 2013 (Table 1).

In all studies in 2013, treatments did not provide significantly different levels of weed control or caused significantly different levels of crop injury (Tables 2, 3, 4 and 5).

In 2012 in study 1, Huskie alone provided the lowest level of control of mayweed chamomile, while Huskie tank mixed with Everest 2.0 plus Orion provided the highest level of control. Although not significantly so, Huskie tank mixed with Orion or with Starane Flex provided greater control of mayweed chamomile whether tank mixed with Everest 2.0 (Table 2) or Osprey (Table 3). Huskie plus MCPA Ester plus Harmony Extra plus Osprey resulted in significantly higher yield in 2012 than any other Huskie plus Osprey tank mixes (Table 3).

Except when tank mixed with Everest 2.0 in 2012, Huskie alone did not provide a lower level of control for broadleaf weeds than when tank mixed with other broadleaf herbicides. Yields in Huskie-only treatments were not significantly different from yields in treatments including tank mix partners. Similar levels of control were observed among treatments; therefore, choosing a tank mix partner for Huskie should be based on knowledge of the individual active ingredients and their activity on specific weeds.

Table 1. Treatment applications for all studies in 2012 and 2013.

Application date	May 11 2012	May 6 2013
Crop stage	2-8 tillers	Flag leaf just visible
Air temperature (F)	61	79
Soil temperature (°C)	15	14
Wind velocity (mph)	3.8	3.3
Cloud cover (%)	0	10

Table 2. Wheat injury, weed control and wheat yield for systems with Huskie plus fluroxypyr or MCPA with Everest 2.0. Years 2012 and 2013.

Treatment	Rate	Wheat injury 2012	Weed Control 2012		Yield 2012	Wheat injury 2013	Weed Control 2013		Yield 2013
			Mayweed chamomile	Prickly lettuce			Mayweed chamomile	Catchweed bedstraw	
	lbs. ai/a	%	----------%----------		bu/a	%	----------%----------		bu/a
Non treated		0	0	0	55	0	0	0	75
Huskie	0.303	0	71 b[1]	91	65	2	99	97	70
Huskie Everest 2.0 (flucarbazone)	0.303 0.027	0	80 ab	89	65	1	99	99	70
Huskie Starane Flex (fluroxypyr plus florasulam) Everest 2.0	0.303 0.092 0.027	3	79 ab	91	65	3	99	99	70
Huskie Widematch (fluroxypyr plus clopyralid) Everest 2.0	0.303 0.175 0.027	1	85 ab	90	60	3	99	99	75
Huskie Supremacy (fluroxypyr plus tribenuron plus thifensulfuron) Everest 2.0	0.303 0.109 0.027	3	89 ab	86	70	3	99	99	70
Huskie Orion (MCPA plus florasulam) Everest 2.0	0.303 0.31 0.027	1	90 a	94	70	6	99	98	70
Huskie Curtail (MCPA plus clopyralid) Everest 2.0	0.303 0.313 0.027	0	83 ab	93	65	3	99	97	75
Huskie MCPA Ester (generic form) Harmony Extra (tribenuron plus thifensulfuron) Everest 2.0	0.303 0.265 0.023 0.027	4	88 ab	94	65	1	99	97	75

All treatments except for the non-treated check included a non-nonionic surfactant at 0.25% v/v.
[1]Means followed by the same letter are not statistically significantly different.

Table 3. Wheat injury, weed control and wheat yields for systems including Huskie plus fluroxypyr or MCPA with Osprey. Years 2012 and 2013.

Treatment	Rate	Wheat injury 2012	Weed Control 2012		Yield 2012	Wheat injury 2013	Weed Control 2013		Yield 2013
			Mayweed Chamomile	Prickly Lettuce			Mayweed Chamomile	Catchweed Bedstraw	
	lbs. ai/a	%	----------%----------		bu/a	%	----------%----------		bu/a
Non treated		0	0	0	60 b[1]	0	0	0	70
Huskie	0.303	0 c[1]	56	95	90 ab	1	99	93	70
Huskie Osprey (mesosulfuron)	0.303 0.013	6 bc	66	95	70 ab	2	99	97	70
Huskie Starane Flex Osprey	0.303 0.092 0.013	6 bc	81	95	80 ab	2	99	98	75
Huskie Widematch Osprey	0.303 0.175 0.013	4 bc	60	95	75 ab	2	99	99	70
Huskie Supremacy Osprey	0.303 0.109 0.013	8 abc	76	95	90 ab	2	99	99	70
Huskie Orion Osprey	0.303 0.31 0.013	15 a	74	95	70 ab	2	99	93	75
Huskie Curtail Osprey	0.303 0.313 0.013	6 bc	65	91	85 ab	2	99	92	75
Huskie MCPA Ester (generic form) Harmony Extra Osprey	0.303 0.265 0.023 0.013	9 ab	70	95	100 a	3	98	99	70

All treatments except for the non-treated check included a non-nonionic surfactant at 0.25% v/v.
[1]Means followed by the same letter are not statistically significantly different.

Table 4. Wheat injury, weed control and wheat yield in systems including Huskie plus pinoxaden with florasulam or thifensulfuron plus tribenuron. Years 2012 and 2013.

Treatment	Rate	Wheat injury 2012	Weed Control 2012		Yield 2012	Wheat injury 2013	Weed Control 2013		Yield 2013
			Mayweed Chamomile	Prickly Lettuce			Mayweed Chamomile	Field Bindweed	
	lbs. ai/a	%	----------%----------		bu./a	%	----------%----------		bu./a
Non treated		0	0	0	NA	0	0	0	65
Huskie NIS	0.303 0.25 % v/v	1	86	94	55	0	99	76	70
Huskie Axial XL (pinoxaden)	0.303 0.054	1	79	94	55	2	99	99	70
Huskie Starane Flex Axial XL	0.303 0.092 0.054	0	85	95	60	2	99	96	65
Huskie Axial TBC (pinoxaden +florasulam)	0.303 0.058	1	88	95	NA	2	99	87	65
Huskie Orion Axial XL	0.303 0.31 0.054	0	86	73	60	3	99	99	65
Huskie Supremacy Axial XL	0.303 0.109 0.054	0	90	95	55	2	99	99	70
Huskie Harmony Extra Axial XL	0.303 0.023 0.024	3	89	95	55	3	99	99	70
Huskie MCPA Ester (generic form) Harmony Extra Axial XL	0.303 0.265 0.023 0.013	0	90	95	60	3	99	99	65

Table 5. Wheat injury, weed control and wheat yield for systems including Huskie plus Powerflex plus florasulam or thifensulfuron + tribenuron.

Treatment	Rate	Wheat injury 2012	Weed Control 2012	Yield 2012	Wheat injury 2013	Weed Control 2013		Yield 2013
			Italian ryegrass			Prickly Lettuce	Field Bindweed	
	lbs. ai/a	%	%	bu./a	%	----------%----------		bu./a
Non treated		0	0	NA	0	0	0	65
Huskie	0.303	0	10 b[1]	100	2	99	99	65
Huskie Powerflex (pyroxsulam)	0.303 0.016	3	73 a	95	2	99	99	60
Huskie Starane Flex Powerflex	0.303 0.092 0.016	4	88 a	100	2	99	99	60
Huskie Orion Powerflex	0.303 0.31 0.016	0	83 a	95	2	99	98	60
Huskie Axial TBC Powerflex	0.303 0.058 0.016	3	85 a	95	1	99	98	65
Huskie Supremacy Powerflex	0.303 0.109 0.016	0	70 a	100	1	99	99	60
Huskie Harmony Extra MCPA Ester Powerflex	0.303 0.023 0.265 0.016	3	68 a	95	3	99	86	60
Huskie Axial XL Harmony Extra Powerflex	0.303 0.054 0.023 0.016	1	78 a	90	0	99	97	60

All treatments except for the non-treated check included a non-nonionic surfactant at 0.25% v/v.
[1]Means followed by the same letter are not statistically significantly different.