Title: Effect of Varro Tank Mixes on Weed Control in Spring Wheat - 2016

Objective: To evaluate the efficacy and crop safety of Varro tank mixes in spring wheat.

Materials and Methods:

Varro was applied in combination with standard broadleaf herbicides to evaluate weed control and crop safety in spring wheat relative to that obtained with Huskie Complete and Wolverine Advanced. The experimental design was a randomized complete block with three replications. Egan spring wheat was planted on April 22, on 7.5 inch row spacings, to a depth of two inches. Common lambsquarters, canola, wild oats and wild buckwheat were planted in the center of each plot on April 28. Herbicide treatments were applied using a CO_2 backpack sprayer with Teejet XR11002 nozzles in 20 GPA of water. Treatments were applied on May 18 when the wheat was at the four-leaf stage and the weeds were at the two to three leaf stage.

Results:

Initial crop injury ranged from 13.3 to 23.3% for Huskie Complete and for treatments containing Varro, while Wolverine Advanced had only 3.3% injury. As the season progressed crop injury declined for all treatments and ranged 0 to 8.3 percent. Wild oats and canola were the primary weeds present, with lower densities of wild buckwheat and common lambsquarters. By July 1, weed control was 100% for all of the treatments except for Wolverine Advanced, which had 90% control for wild oats. Herbicide use improved yields by about 68% compared to the check, but there were no yield differences among the herbicides tested.

Summary:

The Varro tank mixes produced more crop injury than Wolverine Advanced. However, this early injury did not appear to impact yield. Wild oat control was excellent regardless of the tank mix partner.

Table 1. Materials and Methods.

Seeding Date:	4/22/2016	Harvest Date:	9/1/2016
Julian Date:	113	Julian Date:	245
Seeding Rate:	120 lb/A	Soil Type:	Creston SiL
Previous Crop:	No-till winter wheat	Soil Test:	104-24-652-154
Tillage:	Conventional	Fertilizer:	BC: 235-40-60 DR:3-14-0

Table 2. Effect of herbicides on agronomic performance of spring wheat, Kalispell, MT - 2016.

Name	Rate	Crop Injury		Percent control												YLD[1]	TWT[1]
				Wild Oat			Canola			Wild Buckwheat		Lambsquarters					
		5/28	6/3	5/28	6/3	7/1	5/28	6/3	7/1	5/28	6/3	5/28	6/3	7/1		lb/A	lb/bu
Check		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		60.5	60.7
VARRO +	6.85 fl oz/A																
BROMAC +	1 pt/A	20.0	3.3	25.0	82.0	100.0	85.0	93.3	100.0	85.0	93.3	88.3	93.3	100.0		95.8	61.0
AMMONIUM SULFATE	0.5 lb/A																
VARRO +	6.85 fl oz/A																
WELD HERBICIDE +	18 fl oz/A	23.3	5.0	25.0	87.7	100.0	69.3	90.0	100.0	66.7	90.0	68.3	90.0	100.0		93.7	61.6
AMMONIUM SULFATE	0.5 lb/A																
VARRO +	6.85 fl oz/A																
CARNIVORE HERBICIDE +	1 pt/A	23.3	5.0	21.7	76.7	100.0	83.3	95.0	100.0	85.0	95.0	83.3	95.0	100.0		94.9	60.7
AMMONIUM SULFATE	0.5 lb/A																
VARRO +	6.85 fl oz/A																
WIDEMATCH +	1 pt/A	23.3	8.3	25.0	87.0	100.0	71.7	83.3	100.0	73.3	86.7	73.3	86.7	100.0		93.3	60.9
2,4-D ESTER +	0.5 pt/A																
AMMONIUM SULFATE	0.5 lb/A																
VARRO +	6.85 fl oz/A																
WIDEMATCH +	1 pt/A	13.3	0.0	20.0	78.3	100.0	69.3	82.7	100.0	66.7	83.3	66.7	83.3	100.0		95.5	61.1
MCPA ESTER +	0.5 pt/A																
AMMONIUM SULFATE	0.5 lb/A																
VARRO +	6.85 fl oz/A																
WIDEMATCH +	1 pt/A	18.3	0.0	23.3	87.3	100.0	74.3	91.7	100.0	71.7	91.7	78.3	93.3	100.0		98.7	60.7
AFFINITY TANK MIX +	0.6 oz/A																
AMMONIUM SULFATE	0.5 lb/A																
VARRO +	6.85 fl oz/A																
OLYMPUS +	0.2 oz wt/A	21.7	1.7	23.3	68.3	100.0	88.3	95.0	100.0	88.3	95.0	86.7	95.0	100.0		95.1	61.4
CARNIVORE HERBICIDE +	1 pt/A																
AMMONIUM SULFATE	0.5 lb/A																
VARRO +	6.85 fl oz/A																
SENTRALLAS +	11 fl oz/A	18.3	0.0	21.7	72.3	100.0	71.7	82.7	100.0	71.7	83.3	71.7	83.3	100.0		97.6	60.8
AMMONIUM SULFATE	0.5 lb/A																
HUSKIE COMPLETE +	13.7 fl oz/A	20.0	3.3	25.0	70.0	100.0	88.3	93.3	100.0	90.0	93.3	88.3	93.3	100.0		97.2	60.5
AMMONIUM SULFATE	0.5 lb/A																
WOLVERINE ADVANCED	27.4 fl oz/A	3.3	0.0	33.3	91.0	90.0	90.0	95.0	100.0	90.0	93.3	88.3	95.0	100.0		101.8	60.9
Mean		16.8	2.4	22.1	72.8	90.0	71.9	82.0	90.9	71.7	82.3	72.1	82.6	90.9		93.1	61.0
CV		20.9	176.3	20.0	14.5	5.8	4.3	4.1	0.0	4.3	4.0	7.0	3.9	0.0		6.7	0.9
LSD		6.0	ns	7.5	18.0	8.9	5.3	5.7	ns	5.2	5.6	8.6	5.6	ns		10.6	ns
Pr>F		0.0001	0.2897	0.0001	0.0001	0.0001	0.0001	0.0001	1.0000	0.0001	0.0001	0.0001	0.0001	1.0000		0.0001	0.3564

YLD: yield, TWT: test weight, ns: nonsignificant.

[1]adjusted to 13% moisture.