

PowerFlex® Carryover and Injury to Alfalfa

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A study was established in Othello, WA to evaluate Powerflex (pyroxsulam) carryover and injury to alfalfa planted after winter wheat. The study was conducted first over the years 2012/2013 and repeated in 2013/2014. Winter wheat was planted on September 29th 2011. In place of winter wheat, spring wheat was planted on May 23rd, 2013. The soil was a silt loam with a pH above 8 and organic matter below 2 %. Plots were 8 by 35 ft and arranged in a randomized complete block design with 4 replications. Herbicides were applied with a CO₂-pressurized backpack sprayer (Table 1) at 15 GPA. Treatments included Powerflex, Maverick (sulfosulfuron) and Starane Flex (fluroxypyr plus florasulam) (Table 2). Alfalfa was planted in wheat stubble in the fall of 2012 and 2013. Stand counts of alfalfa seedlings were taken on October 17th in 2012 and will be taken in the fall of 2013 for the second study (Table 2). Stand counts did not significantly differ amongst treatments. Wheat yields were sampled in 2012 and were not statistically significantly different (Table 2) but not in 2013. No injury on alfalfa was observed during the 2013 growing season. Fresh weights were taken on June 3rd, 2013 and July 15th, 2013 by mowing a 3 ft. wide band along the center of each plot. Alfalfa yields were not significantly different among treatments (Table 2). Fresh alfalfa weights will be taken during the growing season of 2014.

Some of the pesticides discussed in this presentation were tested under an experimental use permit granted by WSDA. Application of a pesticide to a crop or site that is not on the label is a violation of pesticide law and may subject the applicator to civil penalties up to \$7,500. In addition, such an application may also result in illegal residues that could subject the crop to seizure or embargo action by WSDA and/or the U.S. Food and Drug Administration. It is your responsibility to check the label before using the product to ensure lawful use and obtain all necessary permits in advance.

Table 1. Environmental conditions at herbicide application on wheat for the years 2012 and 2013

Application date	4/5/2012	6/14/2013
Application timing	9-10 ‘‘	3-5 ‘‘
Air temperature (F)	48	72
Soil temperature (°C)	10	18
Wind velocity (MPH)	3	3.5
Cloud cover (%)	5)0	40

Table 2. Treatment means for wheat yield in 2012, alfalfa stand count and yields.

Treatment	Rate	8/1/2012	10/17/2012	6/6/2013	07/15/2013
		Wheat yield bu/a	Alfalfa stand count plants/m	Alfalfa yield ton/a	Alfalfa yield ton/a
Non treated		85.5	48	3.5	3.0
Powerflex	2	84.3	36	5.1	3.3
AGRAL 90*	0.5 % v/v				
Actamaster*	24.25				
Powerflex	4	94.0	44	5.0	3.4
AGRAL 90	1 % v/v				
Actamaster	48.5				
Powerflex	8	88.7	53	5.9	3.8
AGRAL 90	2 % v/v				
Actamaster	97				
Starane Flex	13.5	94.6	43	5.2	3.1
Starane Flex	27	90.4	43	4.5	3.5
Starane Flex	54	92.6	44	4.8	3.5
Maverick	0.67	93.3	44	5.4	3.6
AGRAL 90	0.5 % v/v				
Maverick	1.33	92.1	40	4.6	3.6
AGRAL 90	1 % v/v				
Maverick	2.66	89.3	42	4.6	3.5
AGRAL 90	2 % v/v				

*AGRAL 90 is a non-ionic surfactant marketed by NORAC. Actamaster is an ammonium sulfate based spray adjuvant marketed by Loveland.