

## **Everest® 2.0 and PowerFlex® HL for the control of downy brome**

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A field study was conducted at the Wilke Research Farm near Davenport, WA to evaluate downy brome control in winter wheat. Flucarbazone-sodium and pyroxsulam are Group 2 herbicides. Group 2 herbicides are inhibitors of acetolactate synthase (ALS), a key enzyme in the biosynthesis of the branched-chain amino acids isoleucine, leucine, and valine.

The soil for this site is a Broadax silt loam with 3.2% organic matter and a pH of 4.9. On September 9, 2014, 'ARS-Crescent' winter wheat was planted into chemical fallowed ground using a Case IH, Flexicoil no-till drill with 12-inch row spacing. Seeding rate was 70 lb/acre and seed was planted to a 3-inch depth. Starter fertilizer was applied below the seed at planting at a rate of 10 and 9 lb/acre of P:S. Treatments 2 through 5 were applied early post-emerge (downy brome at 2-leaf stage) on November 2, 2014 using a CO<sub>2</sub> backpack sprayer set to deliver 15 gpa at 30 psi and 3 mph. Conditions were an air temperature of 51°F, relative humidity of 48% and the wind out of the southwest at 7 mph. Treatments 6 through 10 were applied early spring (downy brome at 3-tiller stage) on April 10 using a CO<sub>2</sub> backpack sprayer set to deliver 15 gpa at 30 psi and 3 mph. Conditions were an air temperature of 52°F, relative humidity of 65% and the wind out of the south at 4 mph. Treatments 11 through 14 were applied at typical spring post (downy brome at 3-tiller stage) on May 6 using a CO<sub>2</sub> backpack sprayer set to deliver 15 gpa at 30 psi and 3 mph. Conditions were an air temperature of 56°F, relative humidity of 44% and the wind out of the northwest at 7 mph. The plots were harvested on August 5 using a Kincaid 8XP combine.

No significant crop injury was observed in this study (data not shown). Downy brome emergence in the fall was light, but additional plants emerged over the mild winter and by spring a moderate infestation of downy brome was present. Regardless of timing, Everest 2.0 applied alone at 1.0 fl oz/A or in combination with Audit® 1:1 (0.6 oz/A) did not provide acceptable control of downy brome. Fall applications of Everest 2.0 (1.0 fl oz/A) + PowerFlex HL (1.0 oz/A) or PowerFlex HL (2.0 oz/A) provided excellent control of downy brome. Early spring applications of Everest 2.0 (1.0 fl oz/A) + PowerFlex HL (1.0 oz/A) or Everest 2.0 (1.0 fl oz/A) + PowerFlex HL (0.5 oz/A) provided excellent control of downy brome. Only the Everest 2.0 (1.0 fl oz/A) + PowerFlex HL (1.0 oz/A) provided commercially acceptable control of downy brome at the typical spring post-emerge timing. Fall applied herbicides did not provide good control of tumble mustard, much of which emerged over the winter. With the exception of Everest 2.0 (1.0 fl oz/A), all early spring and typical spring post-emerge treatments provided excellent control of tumble mustard. There were no significant differences among the nontreated check and herbicide treatments in relation to yield and test weight (data not shown). The average test weight and yield were 56 lb/bu and 68 bu/a, respectively.

Treatment	Rate fl oz/A	Application Date	Application Description	5/29/15	
				Downy	Tumble
				Brome Control (0 to 100)	Mustard Control (0 to 100)
Nontreated Check				--	--
Everest 2.0	1	11/2/14	Late fall 4-5 weeks after planting	59 de <sup>1</sup>	79 a-c
NIS	0.25% v/v	11/2/14	Late fall 4-5 weeks after planting		
AMS	1 lb/a	11/2/14	Late fall 4-5 weeks after planting		
Everest 2.0	1	11/2/14	Late fall 4-5 weeks after planting	50 e	67 b-c
Audit 1:1	0.6 oz/a	11/2/14	Late fall 4-5 weeks after planting		
NIS	0.25% v/v	11/2/14	Late fall 4-5 weeks after planting		
AMS	1 lb/a	11/2/14	Late fall 4-5 weeks after planting		
Everest 2.0	1	11/2/14	Late fall 4-5 weeks after planting	85 ab	59 cd
PowerFlex HL	1.0 oz/a	11/2/14	Late fall 4-5 weeks after planting		
NIS	0.25% v/v	11/2/14	Late fall 4-5 weeks after planting		
AMS	1.0 lb/a	11/2/14	Late fall 4-5 weeks after planting		
PowerFlex HL	2.0 oz/a	11/2/14	Late fall 4-5 weeks after planting	91 a	56 d
NIS	0.25% v/v	11/2/14	Late fall 4-5 weeks after planting		
AMS	1.0 lb/a	11/2/14	Late fall 4-5 weeks after planting		
Everest 2.0	1	4/10/15	Early Spring	61 c-e	61 cd
NIS	0.25% v/v	4/10/15	Early Spring		
AMS	1.0 lb/a	4/10/15	Early Spring		
Everest 2.0	1	4/10/15	Early Spring	61 c-e	95 a
Audit 1:1	0.6 oz/a	4/10/15	Early Spring		
NIS	0.25% v/v	4/10/15	Early Spring		
AMS	1.0 lb/a	4/10/15	Early Spring		
Everest 2.0	1	4/10/15	Early Spring	85 ab	94 a
PowerFlex HL	1.0 oz/a	4/10/15	Early Spring		
NIS	0.25% v/v	4/10/15	Early Spring		
AMS	1.0 lb/a	4/10/15	Early Spring		
Everest 2.0	1.0	4/10/15	Early Spring	84 ab	84 ab
PowerFlex HL	0.5 oz	4/10/15	Early Spring		
NIS	0.25% v/v	4/10/15	Early Spring		
AMS	1.0 lb/a	4/10/15	Early Spring		
PowerFlex HL	2.0 oz	4/10/15	Early Spring	81 a-c	89 a
NIS	0.25% v/v	4/10/15	Early Spring		
AMS	1.0 lb/a	4/10/15	Early Spring		
Everest 2.0	1	5/6/15	Typical Spring Post	59 de	97 a
NIS	0.25% v/v	5/6/15	Typical Spring Post		
AMS	1.0 lb/a	5/6/15	Typical Spring Post		
Everest 2.0	1	5/6/15	Typical Spring Post	61 c-e	92 a
Audit 1:1	0.6 oz/a	5/6/15	Typical Spring Post		
NIS	0.25% v/v	5/6/15	Typical Spring Post		
AMS	1.0 lb/a	5/6/15	Typical Spring Post		
Everest 2.0	1	5/6/15	Typical Spring Post	78 a-d	92 a
PowerFlex HL	1.0 oz/a	5/6/15	Typical Spring Post		
NIS	0.25% v/v	5/6/15	Typical Spring Post		
AMS	1.0 lb/a	5/6/15	Typical Spring Post		
PowerFlex HL	2.0 oz	5/6/15	Typical Spring Post	69 b-e	92 a
NIS	0.25% v/v	5/6/15	Typical Spring Post		
AMS	1.0 lb/a	5/6/15	Typical Spring Post		

<sup>1</sup> Means, based on four replicates, within a column, followed by the same letter are not significantly different at P = 0.05 as determined by Fisher's protected LSD test, which means that we are not confident that the difference is the result of treatment rather than experimental error or random variation associated with the experiment.

**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.**