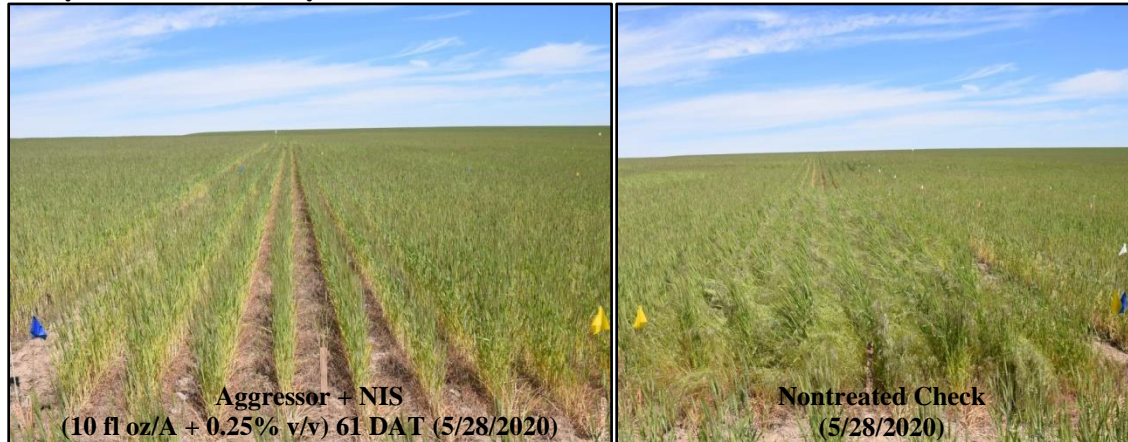


Evaluation of Aggressor™ herbicide for the control of downy brome in the CoAXium™ wheat production system

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The CoAXium™ wheat production system was recently developed by the Colorado Wheat Research Foundation, Inc., Limagrain Cereal Seeds, LLC and Albaugh, LLC. AXigen™ is the non-GMO trait in wheat that confers tolerance to the ACCase inhibitor (Group 1) herbicide Aggressor™ (quizalofop-P-ethyl). The AXigen trait is available to both private and public breeders, which is one of the reasons we were interested in evaluating the system. Aggressor is labelled to control annual grassy weeds such as downy brome, jointed goatgrass and feral rye that are problematic in the low to intermediate rainfall zones of eastern WA.

‘LCS Fusion AX’ winter wheat was conventionally seeded using a deep furrow hoe drill at Dennis Kenbel’s Farm near Ritzville, WA on September 10, 2019. The soil at this site is a Ritzville silt loam. Postemergence treatments were applied on April 4th with a CO₂-powered backpack sprayer set to deliver 15 gpa at 46 psi at 1.5 mph. The air temperature was 44°F, relative humidity was 37% and the wind was out of the east at 4 mph. The wheat was just beginning to joint and was 10 inches tall. Downy brome pressure was so high that it was difficult to take a plant count. At the time of application, downy brome plants on the furrow ridges were purple, whereas those plants in the furrow were green. While the snow came off in late February, cold starts to the days continued into the middle of April.

There was jointed goatgrass throughout the trial area. Since the downy brome density was so high, we could not easily distinguish between it and jointed goatgrass in the nontreated check plots. Thus, we were unable to take a jointed goatgrass control rating. Our observations included the following: OpenSky® and Osprey® Xtra provided poor downy brome control; and Aggressor-treated plots exhibited excellent downy brome control. There was no crop injury noted with any of the treatments in this trial. The level of downy brome control between the three rates of Aggressor evaluated was not significantly different. Downy brome control with Aggressor was not influenced by the addition of NIS, MVO or UAN. On the May 14th rating date, 40 days after application, all Aggressor treatments were providing greater than 91% control of downy brome (Table). On the same rating date, OpenSky and Osprey Xtra were providing 38 and 20% control, respectively, which is not commercially acceptable. It is likely that downy brome resistance to Group 2 herbicides was present in the trial area. In general, Aggressor-treated plots had a greater yield and test weight than the nontreated check plots (Table). OpenSky-treated plots had a

greater yield than the nontreated check plots, but test weights were similarly low in both treatments. We noted that downy brome maturity was delayed in the OpenSky-treated plots, but not the Osprey Xtra-treated plots. OpenSky may have held back the downy brome enough during wheat grain fill, to improve yield. Had the treatments in this trial been applied in the fall, we may have seen more significant effects on wheat yield. This trial demonstrated the effectiveness of the CoAXium Wheat Production System for the control of downy brome. However, overuse of this new technology is likely to quickly result in selection of downy brome biotypes resistant to the active ingredient, quizalofop-P.

		5/14	7/22	7/22
		40 DAT	109 DAT	109 DAT
		Downy brome		
Treatment	Rate	control	Yield	Test Weight
	fl oz/A	-----%-----	(bu/A)	(lb/bu)
Aggressor™ + NIS	10 + 0.25% v/v	91 a ¹	37 a ²	58.0 ab ¹
Aggressor + NIS	12 + 0.25% v/v	91 a	35 ab	59.9 a
Aggressor + MVO	10 + 1.0% v/v	95 a	35 ab	59.9 a
Aggressor + MVO	12 + 1.0% v/v	95 a	34 a-c	60.4 a
Aggressor + MVO	14 + 1.0% v/v	95 a	34 a-c	58.2 ab
OpenSky® + NIS + UAN	1.25 pt/a + 0.25% v/v + 3.0 gal/a	38 b	35 ab	53.5 c
Osprey® Xtra + NIS + UAN	4.75 oz/a + 0.5% v/v + 15% v/v	20 c	29 bc	55.4 bc
Aggressor + NIS + UAN	10 + 0.25% v/v + 3 gal/a	94 a	38 a	58.3 ab
Aggressor + MVO + UAN	10 + 1.0% v/v + 3 gal/a	95 a	34 a-c	59.8 a
Nontreated Check	--	--	28 c	53.1 c

¹Means, 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.

²Means, based on four replicates, within a column, followed by the same letter are not significantly different at P = 0.01 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.