

## Evaluation of triallate formulations for the control of Italian ryegrass in spring wheat

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A field study was conducted at the Cook Agronomy Farm near Pullman, WA to assess the level of control provided by several triallate formulations on Italian ryegrass in spring wheat. Triallate (Group 8) is the active ingredient in Avadex MicroActiv and Far-GO. These products have been used primarily for the control of downy brome and wild oat in winter wheat.



The soil at this site is a Naff silt loam with 3.5% organic matter and a pH of 5.0. The field was previously in winter wheat. There was a fair amount of residue that was removed by harrowing, collecting and moving the wheat stubble off of the trial area so that more soil would be exposed to receive the soil applied herbicides. At this time, there was not a significant population of Italian ryegrass that had emerged, so a blanket glyphosate application was not made to the trial area. Granular triallate formulations were applied with a Valmar applicator on May 12, 2022. Conditions at application were an air temperature of 52°F and a relative humidity of 39%. Wind was variable from calm to 7 mph and was primarily out of the west. All treatments were applied driving towards the west. Liquid triallate formulations were applied immediately after the granular formulations with a CO<sub>2</sub>-powered backpack sprayer set to deliver 10 gpa at 58 psi at 2.3 mph. The applications were made at an air temperature of 58°F and a relative humidity of 40%, and with winds out of the south at 4 mph. Immediately after the treatments were applied, the trial area was cultivated/harrowed twice in the same direction that the treatments were applied. The trial area was seeded, at a right angle to the treatment applications, with ‘Tekoa’ spring wheat at 100 lb/a with a Great Plains double disk drill with openers on a 10-inch spacing at 1.5-inch depth. Plots treated with Zidua SC were applied delayed preemergence on May 18<sup>th</sup> with a CO<sub>2</sub>-powered backpack sprayer set to deliver 10 gpa at 52 psi at 2.3 mph. The applications were made at an air temperature of 49°F and a relative humidity of 64%, and with winds out of the east at 8 mph. The trial was harvested with a Kincaid 8XP plot combine on September 3<sup>rd</sup>.

The timing for the soil-applied herbicide treatments was ideal since from May 13<sup>th</sup> to 16<sup>th</sup>, the trial area received 0.69 inches of rainfall. The rain most likely initiated the germination of Italian ryegrass seed. After the Zidua SC was applied, the second half of May turned dry and the herbicide only received 0.25 inch of rain for activation, nine days after application. Periodic heavy rain returned between June 3<sup>rd</sup> and the 21<sup>st</sup> and amounting to 4.21 inches, compared to an average normal year of 2.99 inches for the month of June. Air temperatures were slightly cooler in June and July than an average year. These environmental conditions led to very high populations of Italian ryegrass developing in the trial area. Once the wheat began to emerge, it was very clear that the plots treated with Far-GO (triallate) + Treflan HFP (trifluralin), appeared much different than all the other plots. There was much more exposed soil than in the rest of the trial area that made them stand out. More exposed soil suggested early activity on the Italian ryegrass population. Spring wheat plants were counted in 10 linear feet of row per plot. Far-GO

+ Treflan HFP-treated plots had a reduced number of spring wheat plants when compared to the other herbicide-treated plots, but similar to the nontreated check plots (Table). Far-GO + Treflan HFP-treated plots were the only plots that showed a significant reduction of Italian ryegrass population on the initial rating made July 11<sup>th</sup> (Table). This treatment still stood out even until the final rating made August 18<sup>th</sup>, but only provided 64% control of Italian ryegrass by then. The relatively low level of Italian ryegrass control in this study was likely the result of a high Italian ryegrass population and environmental condition that were conducive for Italian ryegrass growth. Far-GO + Treflan HFP- and Far-GO + Zidua SC- treated plots had the greatest yields (Table). While Far-GO + Zidua SC did not control Italian ryegrass, the treatment may have some initial activity on the population providing spring wheat an early competitive edge. This treatment may have also weakened the Italian ryegrass population, making it less competitive with the spring wheat. Although we did not have a stand-alone treatment of Treflan HFP in this study, it seems likely that the Treflan HFP provided a majority of the control in the Far-GO + Treflan HFP treatment, because the stand-alone treatment of Far-GO provided little control of Italian ryegrass.

					5/31			
		Rate	Application	Application	# of spring wheat	7/11	8/18	9/3
Trt #	Treatment		Description <sup>1</sup>	Date	plants per 10 linear feet	Italian ryegrass control		Yield
		fl oz/a				-----%-----		bu/a
1	Nontreated Check	--	--	--	110 cd <sup>2</sup>	--	--	39 e
2	GWN-12184	48	PPI	5/12	119 a-c	10.0 bc	5.0 b	48 c-e
3	GWN-12017/0013	30	PPI	5/12	113 bc	23.0 bc	0.0 b	45 de
4	GWN-10623	34.4	PPI	5/12	113 bc	8.0 bc	0.0 b	43 de
5	Far-GO	32	PPI	5/12	122 a-c	5.0 bc	5.0 b	46 de
6	Avadex Microactiv	10 lb/a	PPI	5/12	119 a-c	0.0 c	0.0 b	48 c-e
7	GWN-0014163	6.67 lb/a	PPI	5/12	129 a	25.0 b	5.0 b	41 de
8	Zidua SC	2.5	DPRE	5/18	114 bc	13.0 bc	2.5 b	60 bc
9	Far-GO	32	PPI	5/12	126 ab	23.0 bc	5.0 b	71 ab
9	Zidua SC	2.5	DPRE	5/18				
10	Far-GO	32	PPI	5/12	97 d	73.0 a	64.0 a	76 a
10	Treflan HFP	24	PPI	5/12				
11	Buckle Microactiv	10 lb/a	PPI	5/12	122 a-c	15.0 bc	5.0 b	52 cd

<sup>1</sup> PPI Preplant Incorporated, DPRE Delayed preemergence.

<sup>2</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.

## Disclaimer

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