

Annual Invasive Grass Weed Control with Indaziflam & Propoxycarbazone

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The study was established on a conservation reserve program (CRP) site near Albion, WA. The objective of the study was to evaluate Esplanade (indaziflam), Lambient (propoxycarbazone), Rezilon (rimsulfuron), Plateau 2XL (imazapic), and Accord XRT II (glyphosate) for control of annual grasses (ventenata, *Ventenata dubia* (Leers) Coss. and downy brome, *Bromus tectorum* L.) in Palouse prairie. Treatments were applied in the fall of 2016 when perennial grasses were dormant as a broadcast foliar application, detailed in Table 1 and Table 2. The study was conducted in a randomized complete block with 4 replications with 10' by 30' long plots. Climate for 2016 through 2017 was much wetter than normal, with normal temperatures (Figure 1).

Weed cover and perennial grass (crop) stand was visually assessed 205 and 233 days after treatment (DAT) (Table 2, 3 & 4). All data were subjected to an analysis of variance using the statistical package built into the Agricultural Research Manager software system (ARM 8.5.0, Gylling Data Management).

Ventenata (VETDU) cover was reduced 205 days after treatment (DAT) for all treatments with less than 6% VETDU cover compared to the nontreated which had 13% VETDU cover (Table 2). At 233 DAT, all treatments, except Plateau 2XL (39%) and Accord XRT II (63%), reduced the percent cover for VETDU (less than 8%) compared to the nontreated control (51%) (Table 3). Esplanade in combination with either Lambient, Rezilon, Plateau, or Accord XRT had the greatest reduction in VETDU cover. Treatments had no effect on weed cover of downy brome (BROTE), medusa-head rye (ELYCM), prickly lettuce (LACSE) and field bindweed (CONAR) compared to the nontreated control; however, low and uneven populations throughout the trial created non-assessable populations of those weeds (Table 2 & 3).

Perennial grass, smooth brome, had greater percent stand coverage for Esplanade in combination with either Lambient (73%), Rezilon (68%), Plateau (76%), or Accord XRT (84%) compared to any of the herbicides alone (less than 46%) and the nontreated control (8%) (Table 4). Plateau 2XL (16%) and Accord XRT II (12%) alone had no differences in smooth brome stand cover when compared to the nontreated control (8%) (Table 4). Results indicate that as ventenata is managed, the perennial grass spp. stand begins to recover, but that there is considerable injury in certain treatments – cover was less than the nontreated check.

Table 1. Treatment application details.

Study Application	A
Date	November 9, 2016
Application volume (GPA)	15
Air temperature (°F)	54
Soil temperature (°F)	49
Wind velocity (mph, direction)	7, E
Cloud cover	35%
Next rain occurred on	November 13, 2016

Table 2. Percent cover of ventenata (VETDU), downy brome (BROTE), medusa-head rye (ELYCM), prickly lettuce (LACSE), and field bindweed (CONAR) following application of indaziflam with different tank partners. Albion, WA, 2017. DAT = days after treatment. Means followed by the same letter are not statistically significantly different ($\alpha=0.05$). A (-) indicates a non-assessable population.

Trt	Rate		June 2, 2017 205 DAT				
			VETDU Cover	BROTE Cover	ELYCM Cover	LACSE Cover	CONAR Cover
			field rate	lb ai/A	%	%	%
Nontreated	-	-	13 a	8	17	5	3
Esplanade	7 fl oz/A	0.091	1 b	1	3	9	3
NIS	0.25% v/v						
Lambient	1.2 oz/A	0.053	6 ab	-	15	3	9
NIS	0.25% v/v						
Rezilon	4 oz/A	0.063	1 b	-	2	26	-
NIS	0.25% v/v						
Plateau 2L	7 fl oz/A	0.109	1 b	100	13	3	10
NIS	0.25% v/v						
Accord XRT II	12 fl oz/A	0.475	4 b	3	1	-	13
NIS	0.25% v/v						
Esplanade	7 fl oz/A	0.091	0 b	-	0	3	3
Lambient	1.2 oz/A	0.053	0 b	-	0	3	3
NIS	0.25% v/v						
Esplanade	7 fl oz/A	0.091	0 b	3	0	3	5
Rezilon	4 oz/A	0.063	0 b	3	0	3	5
NIS	0.25% v/v						
Esplanade	7 fl oz/A	0.091	0 b	-	7	3	3
Plateau 2L	7 fl oz/A	0.109	0 b	-	7	3	3
NIS	0.25% v/v						
Esplanade	7 fl oz/A	0.091	0 b	-	3	-	4
Accord XRT II	12 fl oz/A	0.475	0 b	-	3	-	4
NIS	0.25% v/v						
		LSD	7	NS	NS	NS	NS

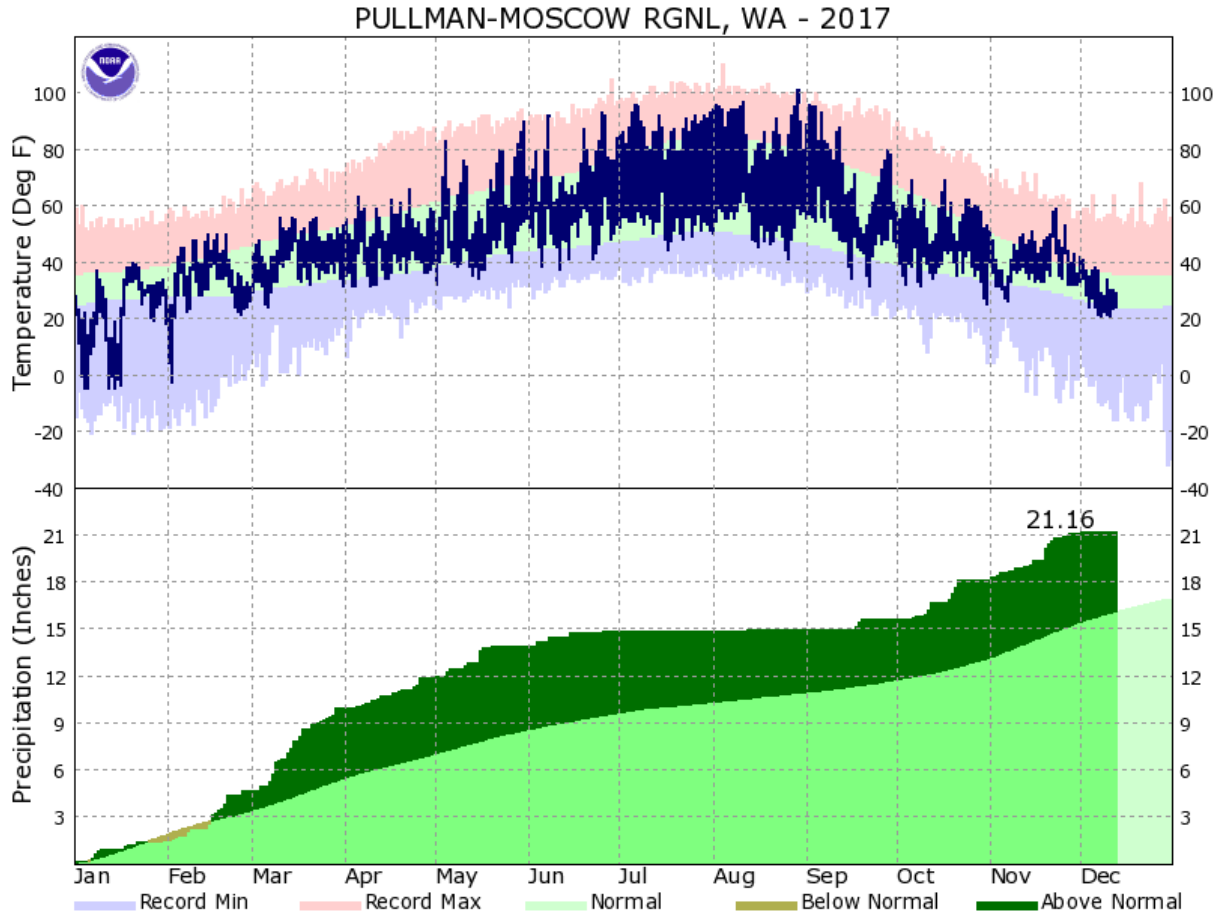
Table 3. Percent cover of ventenata (VETDU), downy brome (BROTE), medusa-head rye (ELYCM), prickly lettuce (LACSE), and field bindweed (CONAR) following application of indaziflam with different tank partners. Albion, WA, 2017. DAT = days after treatment. Means followed by the same letter are not statistically significantly different ($\alpha=0.05$). A (-) indicates a non-assessable population.

Trt	Rate		June 30, 2017 233 DAT				
			VETDU Cover	BROTE Cover	ELYCM Cover	LACSE Cover	CONAR Cover
			field rate	lb ai/A	%	%	%
Nontreated	-	-	51 a	5	27	3	6
Esplanade	7 fl oz/A	0.091	5 b	-	22	10	5
NIS	0.25% v/v						
Lambient	1.2 oz/A	0.053	8 b	3	29	14	3
NIS	0.25% v/v						
Rezilon	4 oz/A	0.063	1 b	-	13	20	10
NIS	0.25% v/v						
Plateau 2L	7 fl oz/A	0.109	39 a	3	19	5	2
NIS	0.25% v/v						
Accord XRT II	12 fl oz/A	0.475	63 a	5	0	-	8
NIS	0.25% v/v						
Esplanade	7 fl oz/A	0.091	0 b	-	0	-	3
Lambient	1.2 oz/A	0.053	0 b	-	0	-	3
NIS	0.25% v/v						
Esplanade	7 fl oz/A	0.091	0 b	-	0	10	-
Rezilon	4 oz/A	0.063	0 b	-	0	10	-
NIS	0.25% v/v						
Esplanade	7 fl oz/A	0.091	0 b	-	0	5	5
Plateau 2L	7 fl oz/A	0.109	0 b	-	0	5	5
NIS	0.25% v/v						
Esplanade	7 fl oz/A	0.091	0 b	-	0	-	18
Accord XRT II	12 fl oz/A	0.475	0 b	-	0	-	18
NIS	0.25% v/v						
		LSD	24	NS	NS	NS	NS

Table 4. Percent cover of perennial grasses, bluebunch wheatgrass (*Agropyron spicatum*) and smooth brome (*Bromus inermis*), following application of indaziflam with different tank partners. Albion, WA, 2017. DAT = days after treatment. Means followed by the same letter are not statistically significantly different ($\alpha=0.05$). A (-) indicates a non-assessable population.

Trt	Rate		June 2, 2017 205 DAT		June 30, 2017 233 DAT	
			Bluebunch wheatgrass Cover	Smooth brome Cover	Bluebunch wheatgrass Cover	Smooth brome Cover
			<i>field rate</i>	<i>lb ai/A</i>	%	%
Nontreated	-	-	13	34	-	8 c
Esplanade NIS	7 fl oz/A 0.25% v/v	0.091	50	31	3	36 bc
Lambient NIS	1.2 oz/A 0.25% v/v	0.053	33	28	-	25 c
Rezilon NIS	4 oz/A 0.25% v/v	0.063	34	29	25	46 abc
Plateau 2L NIS	7 fl oz/A 0.25% v/v	0.109	22	43	25	16 c
Accord XRT II NIS	12 fl oz/A 0.25% v/v	0.475	3	48	14	12 c
Esplanade Lambient NIS	7 fl oz/A 1.2 oz/A 0.25% v/v	0.091 0.053	29	57	23	73 a
Esplanade Rezilon NIS	7 fl oz/A 4 oz/A 0.25% v/v	0.091 0.063	50	63	63	68 ab
Esplanade Plateau 2L NIS	7 fl oz/A 7 fl oz/A 0.25% v/v	0.091 0.109	38	51	25	76 a
Esplanade Accord XRT II NIS	7 fl oz/A 12 fl oz/A 0.25% v/v	0.091 0.475	-	47	-	84 a
		<i>LSD</i>	<i>NS</i>	<i>NS</i>	<i>NS</i>	27

Figure 1. Climate for nearest weather station located ~4 miles east of trial site.



Disclaimer

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.