

## **Evaluation of soil incorporation methods for Sonalan® HFP and their effects on safety for use in lentils**

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Sonalan HFP (ethalfluralin) is a Group 3 herbicide that inhibits microtubule formation in sensitive plants. The primary effect on sensitive grass and broadleaves is preemergence control. Sonalan HFP is not registered for use on lentils in WA. This study was to evaluate soil incorporation methods of Sonalan HFP to determine its effect on safety and yield in ‘Pardina’ lentils.

An area, previously in spring wheat, was selected at the Cook Agronomy Farm and was sprayed with RT 3<sup>®</sup> (32 fl oz/A) and AMS (12 lb/100 gal) on April 24<sup>th</sup>. The trial area was prepared for planting with a one pass cultivator/harrow implement on April 30<sup>th</sup>. Each of the four blocks contained two sets of four plots, nontreated check, hand-weeded check, Sonalan HFP (1.5 pts/A) and Sonalan HFP (2.0 pts/A). Plot size was 10 ft by 35 ft and each plot had a 2 ft border between them to minimize the spread of herbicide between treatments after mechanical incorporation. Within the block, immediately after herbicide application, four of the plots were harrowed (1- to 2- inch depth) and the other four were cultivated (3- to 4- inch depth) and harrowed in the same tillage pass. Sonalan HFP treatments were applied in 10 GPA of spray solution on May 1<sup>st</sup>. The applications were applied with a CO<sub>2</sub>-powered backpack sprayer set to deliver 10 gpa at 51 psi at 2.3 mph. Winds were out of the north at 6 mph, air temperature was 52°F and relative humidity was 62%. Immediately after application, herbicide treatments were incorporated as described above. Soil incorporation occurred at a 45 degree angle to the treatment application. On May 4<sup>th</sup>, ‘Pardina’ lentils were planted at a rate of 40 lb/acre at a depth of 1.5 inches using a Monosem vacuum planter with a 10-inch row spacing. Eight days after the treatments were applied, the trial area received 0.33 inch of rainfall. The soil at this site is a Palouse silt loam with 3.1% organic matter and a pH of 5.5. The trial area was harvested with a Zurn plot combine on August 24<sup>th</sup>. Weed pressure was light and not uniformly distributed. Predominant species included volunteer wheat, Italian ryegrass, mayweed chamomile and common lambsquarters. The type of cultivation did not significantly influence crop injury or yield in ‘Pardina’ lentils. The initial crop injury, which consisted of reduced stand density and plant stunting, seemed substantial but the plants appeared to have mostly recovered by 6 weeks after application. Although there was not a significant difference between the two rates of Sonalan HFP, likely the result of variability within the plot area, the injury tended to look worst at the higher application rate. Sonalan applied at 2.0 pts/A significantly reduced lentil yield when compared to the nontreated and hand-weeded check treatments.

Treatment	Crop injury				Yield
	5/17	5/25	6/1	6/8	
	-----0-100%-----				lb/A
Nontreated check	--	--	--	--	1030 a <sup>1</sup>
Hand-weeded check	--	--	--	--	1020 a
Sonalan HFP @ 1.5 pts/A	49 a	11 a	6 a	4 a	920 ab
Sonalan HFP @ 2.0 pts/A	63 a	18 a	16 a	10 a	840 b

<sup>1</sup> Means, based on four replicates, within a column, followed by the same letter are not significantly different at P = 0.10 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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