

## Weed Control in Conventional-till Field Pea

Gregory J. Endres and Blaine G. Schatz

Weed control and field pea response to selected soil- and POST-applied herbicides were evaluated in a randomized complete-block design with three replicates. The experiment was conducted on a conventionally-tilled, Heimdahl loam soil with 7.9 pH and 3.1% organic matter at the NDSU Carrington Research Extension Center. Herbicide treatments were applied to 10- by 25-ft plots with a pressurized hand-held plot sprayer at 17 gal/A and 35 psi through 8002 flat-fan nozzles. PPI treatments were applied to a dry soil surface on April 23 with 44 F, 30% RH, clear sky, and 7 mph wind. Treatments were immediately incorporated twice with a cultivator+harrow tilling at a 3-inch depth. On April 25, inoculated 'Integra' field pea was seeded in 7-inch rows at a rate of 300,000 pure live seeds/A. PRE treatments were applied to a dry soil surface on April 26 with 37 F, 66% RH, 20% clear sky, and 17 mph wind. Rainfall totaled 1.12 inches 12 d following PRE application. The early-POST (EPOST) treatment was applied on May 23 with 72 F, 39% RH, 5% clear sky, and 7 mph wind to 2-inch tall field pea, 1- to 2-leaf green and yellow foxtail, 0.5-inch tall common lambsquarters, and 0.5-inch tall redroot pigweed. POST treatments were applied on June 6 with 70 F, 53% RH, 90% clear sky, and 4 mph wind to 7-inch tall field pea, 3- to 4-leaf green and yellow foxtail, 1- to 3-inch tall common lambsquarters, 0.5- to 1-inch tall redroot pigweed, and 1- to 3-inch tall wild buckwheat. Average plant density in untreated plots was measured on June 6: field pea = 9 plants/ft<sup>2</sup>, foxtail = 11 plants/ft<sup>2</sup>, common lambsquarters = 1 plants/ft<sup>2</sup>, pigweed = 6 plants/ft<sup>2</sup> and wild buckwheat = <1 plant/ft<sup>2</sup>. The trial was harvested with a plot combine on August 3.

Weed densities in the trial generally were light. Visual evaluation of soil-applied products on June 3 (before application of POST treatments) indicated excellent control of broadleaf weeds with imazethapyr (Table 1). Foxtail control was excellent with imazethapyr with ethafluralin or pendamethalin tank mixtures. Ethafluralin+imazethapyr and soil- followed by POST-applied treatments generally provided excellent weed control (Table 2). POST treatments provided good to excellent control of foxtail and common lambsquarters. Imazamox tank mixtures with bentazon provided 96 to 99% redroot pigweed control. Crop response generally was low (Table 3). Seed yield greater than 50 bu/A was achieved with ethafluralin+imazethapyr, imazethapyr&pendamethalin followed by bentazon+sethoxydim, and sequential application of bentazon+sethoxydim.

**Table 1. Weed control with soil-applied herbicides in conventional-till field pea , Carrington, 2005.**

Treatment <sup>1</sup>	Application timing <sup>2</sup>	Rate lb ai/A	6/3			
			Foxtail spp. <sup>3</sup>	Common lambsquarters	Redroot pigweed	Wild buckwheat
			-----% control -----			
Untreated check	x	x	0	0	0	0
Pendimethalin	PPI	1.5	87	72	96	81
Imazethapyr	PPI	0.031	77	99	99	89
Imazethapyr&pendamethalin	PPI	0.031&0.5	93	99	98	94
Ethafuralin+imazethapyr	PPI	0.75+0.031	96	99	99	99
Imazethapyr	PRE	0.031	75	98	98	99
LSD (0.05)			6	3	3	18

<sup>1</sup>Pendimethalin=Prowl H<sub>2</sub>O, BASF; Imazethapyr&pendamethalin=Pursuit Plus, BASF.

<sup>2</sup>PPI=April 23; PRE=April 25; EPOST=May 23; and POST=June 6.

<sup>3</sup>Foxtail spp.=Yellow and green.