

Project Title: Wild Buckwheat Control with Beyond Herbicide in Clearfield Spring Wheat: Dose Response

Project Leaders: Bob Stougaard, Luther Talbert and Phil Bruckner

Project Personnel: Qingwu Xue

Objective: To evaluate the response of wild buckwheat to Beyond in the Clearfield spring wheat system.

#### Results:

This experiment was conducted to determine the optimum rate of Beyond for wild buckwheat control in the Clearfield spring wheat system. Clearfield spring wheat (cv. Gunner 2-gene) was planted on April 16, 2007 at a seeding rate of 70 lb/ac in 6" rows to a depth of 1.5 inches. Wild buckwheat was immediately planted between the rows at a rate of 20 plants per square foot.

Beyond was applied at 1X, 1/2X, 1/4X, 1/8X, and 1/16X of the normal use rate. An untreated check also was included. The treatments were applied on May 17, 2007 when spring wheat plants were at the 4-5 main stem leaf stage with 1-2 tillers and were 2-4 inches tall. At the same time, wild buckwheat plants were at the 2-leaf stage and were 0.5-1 inches tall. Treatments were applied using a backpack sprayer with Teejet XR11002 nozzles in 20 GPA.

Beyond demonstrated excellent crop tolerance. In general, the wild buckwheat control was lower than that in previous year. However, the 1/2X and 1X rates still provided good control of wild buckwheat (>85%). Although control decreased as the herbicide rate decreased, the 1/4X rate still had greater than 50% control of wild buckwheat. Weed biomass data showed similar trends.

There were no differences in spring wheat density, number of spikes, biomass, height, yield, test weight or protein among treatments. However, weed competition increased grain moisture and dockage.

#### Summary:

Consistent with the previous year's results, Beyond provided good wild buckwheat control at the 1/2X and 1X rates. Herbicide efficacy was reduced at lower rate, but 1/4X rate still afforded greater than 50% control of wild buckwheat.

[See tables on following pages.]

Table 1. The effect of Beyond dosage on spring wheat injury and wild buckwheat control in 2007.

Treatment Name	Rate lb ai/ac	Spring wheat		Wild buckwheat			
		% injury		% control		Plants	Biomass
		5/31/07	6/14/07	5/31/07	6/14/07	No./m <sup>2</sup>	g/m <sup>2</sup>
Beyond 1X	0.047	1.3	0	82.5	92.5	12.9	0.6
Beyond 1/2X	0.0234	1.3	0	68.8	87.5	23.9	2.0
Beyond 1/4X	0.0117	0	0	55.0	62.5	52.5	9.2
Beyond 1/8X	0.00586	0	0	35.0	42.5	59.0	13.1
Beyond 1/16X	0.00293	0	0	18.8	32.5	68.2	16.3
Check		0	0	0.0	0.0	54.4	49.1
LSD (P=.05)		1.95	0	8.74	8.29	30.03	20.37
CV		309.84	0	13.38	10.40	44.13	89.77
Treatment F		1.00	0	115.86	163.29	4.74	6.91
Treatment Prob(F)		0.45	1	0.0001	0.0001	0.0085	0.0016

Table 2. The effect of Beyond dosage on spring wheat agronomic variables in 2007.

Treatment	Rate lb ai/ac	Plants	Spikes	Biomass	Height	Yield	Grain moisture	Test weight	Dockage	Protein
		No./m <sup>2</sup>		g/m <sup>2</sup>	cm	bu/ac	%	lb/bu	%	%
		----- 7/5/07 -----		----- 7/13/07 -----		----- 8/1/07 -----				
Beyond 1X	0.047	175.7	533.8	837.0	84.5	58.2	8.9	57.2	0.43	15.9
Beyond 1/2X	0.0234	196.8	479.3	734.5	82.0	57.0	9.1	57.3	0.41	16.0
Beyond 1/4X	0.0117	164.6	489.3	774.3	83.5	58.3	9.1	57.8	0.39	15.9
Beyond 1/8X	0.00586	150.1	420.4	755.7	85.0	53.4	9.2	57.6	0.83	15.7
Beyond 1/16X	0.00293	181.3	488.2	769.9	84.5	53.2	9.9	56.7	2.04	15.9
Check		189.1	467.1	705.0	88.0	56.6	9.6	57.2	1.89	15.8
LSD (P=.05)		40.84	88.53	155.08	4.25	7.35	0.59	1.11	1.29	0.58
CV		15.38	12.25	13.49	3.33	8.70	4.19	1.29	85.70	2.41
Treatment F		1.56	1.57	0.75	1.99	0.89	3.77	1.08	3.22	0.33
Treatment Prob(F)		0.23	0.23	0.60	0.14	0.51	0.02	0.41	0.04	0.89