Bio-stimulant and Harvest Energy

2008-Preliminary Results

UW-Research & Extension Center

Powell, Wyoming

Bio-stimulant and Harvest energy in Corn

Plots were established under furrow irrigation at the University of Wyoming Research and Extension Center, Powell, Wyoming to evaluate the effect of Bio-stimulant and Harvest energy on Roundup Ready corn grown for silage. Plots were 7.5 by 30 ft. with three replications arranged in a randomized complete block design. Roundup Ready corn was planted in 22-inch rows on May 9, 2008 in a clay loam soil (40% sand, 24% silt, 36% clay, 1.3% organic matter and pH 7.6). Bio-stimulant and Harvest energy treatments were applied broadcast with a CO_2 pressurized knapsack sprayer delivering 20 gpa. at 40 psi., on June 12 at 4 leaf corn stage. Plots were cut on September 15, 2008.

Weather data at time of application: Air temperature (56F), relative humidity 45 (%), Northeast wind at 2 mph, soil temperature at the depth of 0" (68F), 2" (60F), and 4" (56F).

Weed control: Roundup (weatherMax) was applied twice at (2 and 8 leaf corn stage) at the rate of 22 oz/A.

Results:

Table. Corn response to post treatment of Bio-stimulant plus harvest-energy.

Treatment	Rate	Time of	Population	Yield	Dry matter
	(oz/A)	application	(plants/A)	(t/A)	(t/A)
Check			33244	32.6	9.26
Bio-stimulant+HarvestEnergy	8 + 16	4-leaves	32868	34.1	9.56

Bio-stimulant and Harvest Energy in Barley

Plots were established under furrow irrigation at the University of Wyoming Research and Extension Center, Powell, Wyoming to evaluate the effect of several Bio-stimulant+Harvest Energy rates on barley yield grown under two nitrogen fertility regimes. Plots were 7.5 by 30 ft. with three replications arranged in a randomized complete block design. Barley (var. Conrad) naked and treated seeds were planted at the rate of 100 lb/A on April 2, 2008 in a clay loam soil (40% sand, 24% silt, 36% clay, 1.3% organic matter and pH 7.6). Bio-stimulant and Harvest energy treatments were applied broadcast with a CO_2 pressurized knapsack sprayer delivering 20 gpa. at 40 psi., on June 12 at 4-5 barley leaf stage. Fertility consisted of no nitrogen applied (zero N) and 60 lb/A of Nitrogen applied before planting. All plots were harvested on August 19.

Weather data at time of application: Air temperature (56F), Relative humidity (45%), Northeast wind at 2 mph, soil temperature at the depth of 0" (68F), 2" (60F), and 4" (56F).

Weed control: A mixture of Broanate, Starane, and Axial herbicides was applied at the 4 to 5 barley leaf stage.

Results:

Table. Barley response to post treatment of bio-stimulant plus harvest-energy (Naked seed vs. Treated seed) and (no nitrogen applied vs. 60lb/A).

Seed	Post-treatment	Rate	Nitrogen	Height	Yield
		(oz/A)	(lb/A)	(inches)	(bu/A)
Treated	None (check for treated)	None	0	34.5	110.9
Treated	Bio-stimulant+Harvest Energy	8 + 16	0	34.6	115.2
Treated	Bio-stimulant+Harvest Energy	16 + 32	0	35.1	93.3
Treated	Bio-stimulant+Harvest Energy	24+ 48	0	34.7	96.3
Average treated seed			**0**	**34.7**	**103.9**
Naked	None (check for naked)	None	0	32.5	107.6
Naked	Bio-stimulant+Harvest Energy	8 + 16	0	33.5	110.3
Naked	Bio-stimulant+Harvest Energy	16 + 32	0	34.0	109.3
Naked	Bio-stimulant+Harvest Energy	24+ 48	0	33.4	109.2
Average naked seed			**0**	**33.4**	**109.1**
Treated	None (check for treated)	None	60	34.8	116.5
Treated	Bio-stimulant+Harvest Energy	8 + 16	60	33.1	117.6
Treated	Bio-stimulant+Harvest Energy	16 + 32	60	32.6	115.1
Treated	Bio-stimulant+Harvest Energy	24+ 48	60	33.2	126.8
Average treated seed			**60**	**33.4**	**119.0**
Naked	None (check for naked)	None	60	35.3	110.9
Naked	Bio-stimulant+Harvest Energy	8 + 16	60	35.5	111.0
Naked	Bio-stimulant+Harvest Energy	16 + 32	60	35.2	103.1
Naked	Bio-stimulant+Harvest Energy	24+ 48	60	34.6	111.9
Average naked seed			**60**	**35.2**	**109.2**

Bio-stimulant and Harvest energy in Dry Beans

Plots were established under furrow irrigation at the University of Wyoming Research and Extension Center, Powell, Wyoming to evaluate the effect of Bio-stimulant and Harvest energy rate and application timing on Pinto bean yield grown under no applied Nitrogen. Plots were 7.5 by 20 ft. with three replications arranged in a randomized complete block design. Pinto bean naked and Bio-stimulant/Harvest energy treated seed were planted in 22-inch rows on June 3, 2008 in clay loam soil (40% sand, 24% silt, 36% clay, 1.2% organic matter and pH 7.6). Bio-stimulant and Harvest energy treatments were applied broadcast with a CO_2 pressurized knapsack sprayer delivering 20 gpa., at 40 psi. Plots were cut on September 23 and threshed on October 8, 2008.

Weather data at time of application: (Table 1)

Weed control: A mixture of Sonalan and Outlook herbicides was applied and incorporated before planting on April 16, 2008.

Table 1. Weather data at time of application. Powell, WY.

Date	Crop stage	Air temp.	Relative H	Wind	Soil temp. (F) at		
	(leaf #)	(F)	(%)	(mph)	0”	2”	4”
July 7/2008	5	76	35	N at 1	90	78	62
July 21/2008	Pre-flowering	83	36	SW at 4	89	84	80

Results: (Table 2)

Table 2. Pinto bean response to Biostimulant+harvest energy treatments.

Seed	Post-Treatment	Rate	Time of	Yield	100 seed
		(oz/A)	Application	(lb/A)	weight (g)
Naked	None (check I)	--	--	3321	36.3
Naked	Bio-Sti+HrvstEnrgy	12 + 24	4-5lf / pre-flower	3484	35.7
Treated	None (check II)	--	--	3602	34.7
Treated	Bio-Sti+HrvstEnrgy	6 + 12	4-5lf / pre-flower	3661	35.7
Treated	Bio-Sti+HrvstEnrgy	12 + 24	4-5lf / pre-flower	3698	34.7
Treated	Bio-Sti+HrvstEnrgy	18 + 36	4-5lf / pre-flower	3764	34.3

Bio-stimulant and Harvest energy in Established Alfalfa Grown for Hay

Plots were established under furrow irrigation at the University of Wyoming Research and Extension Center, Powell, Wyoming to evaluate the effect of Bio-stimulant and Harvest energy rates on established stand of alfalfa for hay production. Plots were 7.5 by 30 ft. with three replications arranged in a randomized complete block design. Alfalfa was planted in 22-inch rows in 2002 in a clay loam soil (40% sand, 24% silt, 36% clay, 1.3% organic matter and pH 7.6). Bio-stimulant and Harvest energy treatments were applied broadcast with a CO_2 pressurized knapsack sprayer delivering 20 gpa., at 40 psi., on June 12, before first cutting.

Weather data at time of application: Air temperature (56F), relative humidity 45 (%), Northeast wind at 2 mph, soil temperature at the depth of 0" (68F), 2" (60F), and 4" (56F).

Cutting dates: First cutting (June 18), second cutting (August 4), and third cutting (October 2).

Results:

Table. Alfalfa response to Bio-stimulant plus Harvest Energy treatments.

Treatment	Rate	Timing	Dry matter first cut	Dry matter second cut	Dry matter third cut	Dry matter total
	(oz/A)		(tons/A)	(tons/A)	(tons/A)	(tons/A)
Bio-S + H-Egy	16+32	Pre-cut	4.38	2.16	1.14	7.68
Bio-S + H-Egy	24+49	Pre-cut	4.17	2.40	1.26	7.82
Check	--	--	3.67	2.31	1.23	7.22

Bio-stimulant and Harvest energy in Roundup Ready Sugarbeet

Plots were established under furrow irrigation at the University of Wyoming Research and Extension Center, Powell, Wyoming to evaluate the effect of Bio-stimulant and Harvest energy treatments tank mixed with roundup herbicide (weatherMax) on Roundup Ready sugarbeet yield and sugar content grown under no Nitrogen applied. Plots were 7.5 by 30 ft. with three replications arranged in a randomized complete block design. Roundup Ready sugarbeet (Beta variety) seeds were treated and planted in 22-inch rows on April 25, 2008 in a clay loam soil (40% sand, 24% silt, 36% clay, 1.2% organic matter and pH 7.6). Bio-stimulant and Harvest energy treatments were applied broadcast with a CO_2 pressurized knapsack sprayer delivering 20 gpa., at 40 psi. All plots were harvested and weighed on October 18, 2008. Root samples were sent to Western Sugar Coop., Billings, Montana for sugar content analysis.

Weather data at time of application: (Table 1)

Weed control: Roundup herbicide (WeatherMax) at the rate of 22 oz/A was tank mixed with Bio-stimulant/Harvest energy.

Table 1. Weather data at time of application. Powell, WY.

Date	Crop stage	Air temp.	Relative H	Wind	Soil temp. (F) at		
	(leaf #)	(F)	(%)	(mph)	0”	2”	4”
June 4/2008	4	55	72	N at 3	80	65	60
June 17/2008	8	60	55	SW at 5	88	74	73

Results: (Table 2)

Table 2. Sugarbeet response to Bio-stimulant plus Harvest Energy tank mixed with Roundup (weatherMax) treatments.

			Sugarbeets		
Treatment[(1)]	Rate	Timing	Population	Yield	Sucrose
	(oz/A)	(leaf #)	(plants/A)	(tons/A)	(%)
Bio-S + H-Egy + Roundup	6+12+22	4-lf / 8-lf	23760	19.95	18.23
Bio-S + H-Egy + Roundup	12+24+22	4-lf / 8-lf	18810	17.53	18.27
Bio-S + H-Egy + Roundup	18+36+22	4-lf / 8-lf	21186	18.83	18.25
Check (naked seeds)	--	--	40392	21.21	18.34

[(1)]treatments were applied twice; at 4-leaf and 8-leaf sugarbeet stages