

HENSON, M. ANN¹, Robert Wilson², Karen Renner³, Alan Dexter⁴, Don Morishita⁵, Robert Norris⁶ and Mark Bredefoeft⁷, ¹ DuPont Ag Products, Longmont CO 80501, ² UN Panhandle Station, Scottsbluff, NE 69361, ³ MSU, East Lansing, MI 48824, ⁴ NDSU, Fargo ND 58105, ⁵ Univ ID, Twin Falls R&E Center, Twin Falls ID 83301, ⁶ Univ CA, Davis CA 95617, ⁷ Southern MN Beet Sugar Cooperative, Renville MN 56284. UpBeet™ herbicide weed control programs: comparison to commercial standards.

Abstract: Small, plot replicated trials were conducted in 6 locations for two years, 1994 and 1995. UpBeet™ programs for postemergence weed control were compared to standard commercial programs in ppi, pre fb post and total post programs. All post applications were made to small seedling weeds in 7 day intervals. Determination of yield, as lbs white sugar/A, were made as the best evaluation of benefit to farmer. Individual ANOVA analysis was done at each site and were significant, especially because of low yields in untreated checks. The MN sites, however, were eliminated from further analysis because there was no difference between handweeded and no weeding check yields. An additional ANOVA analysis of the yield data was made using a SAS program with untreated (labor or no labor) checks eliminated to better define the difference between herbicide treatments. Results: Weed Control Nine species in 6 locations were evaluated by visual control ratings. Programs that gave good weed control resulted in good sugar yields (data not presented). Overall early season control of kochia (*Kochia scoparia*), red root pigweed (*Amaranthus retroflexus*) and common lambsquarter (*Chenopodium album*) was good (+ 85% control) from the following treatments: split of UpBeet + Betamix®, .25 oz + .33 lb, the recommended program, the high rate split of UpBeet + Betamix program and the “aggressive” post program of UpBeet + Betamix fb UpBeet + Betamix + Stinger® and Nortron® fb Betamix, split. Crop Response Visual evaluation of injury was less than 15% from any treatment (data not presented). Sugar yield Four of 10 herbicide treatments were significantly better ($P = .05$ and $Lsd, .05 = 283.8$ lbs) in this study- high rate UpBeet program, “aggressive” UpBeet program and Nortron fb Betamix, UpBeet recommended program, in descending order. When considering the cost of the applied treatment program, a farmer can make several choices and save \$12.14/A in cost for the same yield result. Yields from the recommended UpBeet program were better than Roneet® as a ppi treatment and were similar to the Roneet fb Betamix program. However, the farmer could save \$21.01 in cost for the same yield. The recommended UpBeet program yielded significantly better than the commercial post control programs of Betamix and Betamix Progress® but at a higher cost of \$13.34/A. Similar cost of the “aggressive” post programs using UpBeet or Betamix was offset by significantly higher yields from the UpBeet treatments. Net return was impacted by weeds (Table 1) and cost the farmer \$410.96/A. Statistical analysis sugar yield from herbicide treatments showed an significant interaction between labor and herbicide ($Lsd, .05 = 999$ lbs). Herbicide treatments responded differently to labor: Roneet, ppi and Betamix, split and Betamix Progress, split programs resulted in improved yield when labor was added with a large net return increase to the farmer. The recommended UpBeet program gained only \$45/A when labor was added and the “aggressive” post UpBeet program gained only \$7/A. The yield from the high rate UpBeet program did not benefit from labor. Conclusion: UpBeet programs improved weed control which resulted in improved net return to the farmer. Yields from UpBeet programs do not greatly benefit from labor which gives the farmer the best chance of reducing hand labor.

Table 1 UPBEET: CPP REVENUE ANALYSIS
RETURN TO FARMER

Average of all locations- 1997 prices

LABOR PRODUCTION			Herbicide							LABOR			\$ Gain with Labor			
Trt #	Treatment	Rate pr/ Band	\$/A Average	PPI Appl	PPI \$/Appl	Pre Appl	Pre \$/Appl	Post Appl	Post \$/Appl	Herbicide \$/ total/A	GROSS \$ \$/0.22/LB	LABOR \$/A		Herbicide \$/ total/A	NET RETURN \$	
1	UpBt + Btmx 2x	.16 + 10.3	27.56	0.00	0.00			2	2.50	5.00	32.56	1484.95	86.85	32.56	1365.54	45.29
2	UpBt + Btmx 2X	.24 + 10.3	34.24	0.00	0.00			2	2.50	5.00	39.24	1472.07	86.41	39.24	1346.42	-52.34
3	UpBt + Btmx fb U+B+Sting	.16+10.3 fb .16+10.3+1.2	31.73	0.00	0.00			2	2.50	5.00	36.73	1498.27	80.14	36.73	1381.40	7.25
801	Btmx fb Btmx + Sting 2X	7.8 fb 10.3 + 1.2, 2X	27.94	0.00	0.00			3	2.50	7.50	35.44	1437.46	106.21	35.44	1295.81	60.68
802	Betamix 2X	10.3 fb 10.3	14.22	0.00	0.00			2	2.50	5.00	19.22	1472.12	138.66	19.22	1314.24	193.67
807	Btmx Progress, 2X	various (6 fb 8 proposed)	15.68	0.00	0.00			2	2.50	5.00	20.68	1479.26	148.95	20.68	1309.63	204.29
803	RoNeet fb Btmx 2X	various fb 10.3, 2X	44.42	1.00	4.15	0.00		2	2.50	9.15	53.57	1455.45	59.84	53.57	1342.04	132.42
804	Nortron fb Btmx 2X	various fb 10.3, 2X	37.20	0.00	1.00	2.5		2	2.50	7.50	44.70	1469.51	66.28	44.70	1358.53	-0.69
805	Ept+Ro fb Btmx, 2X	various fb 10.3, 2X	35.55	1.00	4.15	0.00		2	2.50	9.15	44.70	1428.04	74.25	44.70	1309.09	93.21
806	RoNeet ppi	various	30.20	1.00	4.15	0.00		0		4.15	34.35	1439.88	172.37	34.35	1233.16	278.07
998	No herbicides	NA	NA	0.00	0.00	0.00		NA	NA	NA	1351.37	345.57	0.00	1005.80	410.96	
NO LABOR PRODUCTION			Herbicide							NO LABOR			\$ Gain with Labor			
Trt #	Treatment	Rate pr/ Band	\$/A Average	PPI Appl	PPI \$/Appl	Pre Appl	Pre \$/Appl	Post Appl	Post \$/Appl	Herbicide \$/ total/A	GROSS \$ \$/0.22/LB	LABOR \$/A		Herbicide \$/ total/A	NET RETURN \$	
4	UpBt + Btmx 2x	.16 + 10.3	27.56	0.00	0.00			2	2.50	5.00	32.56	1352.81		32.56	1320.25	
5	UpBt + Btmx 2X	.24 + 10.3	34.24	0.00	0.00			2	2.50	5.00	39.24	1438.00		39.24	1398.76	
6	UpBt + Btmx fb U+B+Sting	.16+10.3 fb .16+10.3+1.2	31.73	0.00	0.00			2	2.50	5.00	36.73	1410.88		36.73	1374.15	
808	Btmx fb Btmx + Sting 2X	7.8 fb 10.3 + 1.2, 2X	27.94	0.00	0.00			3	2.50	7.50	35.44	1270.57		35.44	1235.13	
809	Betamix 2X	10.3 fb 10.3	14.22	0.00	0.00			2	2.50	5.00	19.22	1139.79		19.22	1120.57	
814	Btmx Progress, 2X	various (6 fb 8 proposed)	15.68	0.00	0.00			2	2.50	5.00	20.68	1126.02		20.68	1105.34	
810	RoNeet fb Btmx 2X	various fb 10.3, 2X	44.42	1.00	4.15	0.00		2	2.50	9.15	53.57	1263.19		53.57	1209.62	
811	Nortron fb Btmx 2X	various fb 10.3, 2X	37.20	0.00	1.00	2.5		2	2.50	7.50	44.70	1403.92		44.70	1359.22	
812	Ept+Ro fb Btmx, 2X	various fb 10.3, 2X	35.55	1.00	4.15	0.00		2	2.50	9.15	44.70	1260.58		44.70	1215.88	
813	RoNeet ppi	various	30.20	1.00	4.15	0.00		0		4.15	34.35	989.44		34.35	955.09	
999	No herbicides	NA	NA	0.00	0.00	0.00		NA	NA	NA	594.84		0.00	594.84		