HENSON, M. ANN<sup>1</sup>, Robert Wilson<sup>2</sup>, Karen Renner<sup>3</sup>, Alan Dexter<sup>4</sup>, Don Morishita<sup>5</sup>, Robert Norris<sup>6</sup> and Mark Bredefoeft<sup>7</sup>, <sup>1</sup>DuPont Ag Products, Longmont CO 80501, <sup>2</sup> UN Panhandle Station, Scottsbluff, NE 69361, <sup>3</sup> MSU, East Lansing, MI 48824, <sup>4</sup>NDSU, Fargo ND 58105, <sup>5</sup>Univ ID, Twin Falls R&E Center, Twin Falls ID 83301, <sup>6</sup>Univ CA, Davis CA 95617, <sup>7</sup>Southern MN Beet Sugar Cooperative, Renville MN 56284. <u>UpBeet<sup>™</sup> herbicide weed control programs:</u> <u>comparison to commercial standards.</u>

Abstract: Small, plot replicated trials were conducted in 6 locations for two years, 1994 and 1995. UpBeet<sup>™</sup> 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 vielded 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 locationa- 1997 prices

	LABOR PRODUCTION									100					transferred warry	
	THE REAL TOTAL STREET		Herbicide			1111		-	- Constant					LABOR		
	Treatment	Rate pr/ Band	S/A		PPI	Pre		Post	Post		Herbicide			Herbicide		\$ Onin with
Tn		.16+10.3	Average 27.56		\$/App	_	2 Appl		and the second division of	_			LABOR SA			Contraction of the local division of the loc
	1 UpBt + Btmx 2x 2 UpBt + Btmx 2X	.16 + 10.3	34.24			0.00		2	2	5.00		1484.95	86.85 \$6.41	32.56	1365.54	45.29
	3 UpBt + Btmx fb U+B+Stinge		31.73			0.00		2		5.00		14/2.0/	\$0.14	36.73	1381.40	
	5 Оры + Банх 10 Отвтока	1010.310.1010.311.2	31.73	0.00		0.00		4	2.30	3.00	30.73	1498.27	60,14	30.73	1381.40	7.25
5	101 Bitmx fb Bitmx + 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
	102 Belamix 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
5	107 Bitmx 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
8	03 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
8	104 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
1	to5 Ept+Ro fb Btmx, 2X	verious 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
8	106 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
9	98 No herbicides	NA	NA	0.00	0.00	0.00		NA		NA	NA	1351.37	345.57	0.00	1005.80	410.96
10.0	NO LABOR PRODUCTIO	NW.	Herbicide	1141			1171	21110	1.04	-6-1.0	dan's	Carlier Street	CHERTER	12.102	NO LABOR	
	NO ISBOR PRODUCTION			the second						OROSS S	Herbicide NET			2116-013		
		Average Appl \$/Appl Appl \$/Appl # Appl \$/Appl \$ Appl \$ total/A \$0.22/LB									\$ total/A RETURN \$					
	4 UpBt + Btmx 2x	.16 + 10.3	27.56			0.00	1.1	2	_	5.00		1352.81	######################################	32.56	1320.25	Styline"
	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+Stinge	.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	
8	08 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	
8	09 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	
8	14 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	
8	10 RoNeet fo Binx 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	
8	11 Nortron fo 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	
8	12 Ept+Ro fb Binnx, 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	
8	13 RoNest ppi	various	30.20	1.00	4.15	0.00		0		4.15	34.35	989.44		34.35	955.09	
9	99 No herbicides	NA	NA	0.00	0.00	0.00		NA		NA	NA	594.84		0.00	594.B4	

as the recommended program of places - theorem of Operees is access program and the magessive goat program of places - theorem D t placet - heather 'SingerB and Neuron to 'Linnon out (1992)''' going Vinual evaluation of injury was for the 1%'s mon my better (2° of and Led, 25 - 2003 flast in the study high rate C placet program, "aggressive" when considering the cost of the anglied from study high rate C placet program, "aggressive" of the considering the cost of the anglied treatment gragating a treatmentant of the constraint of the anglied treatment gragating a treatment of the former 'A' the form the tecommendate Upfleet of the considering the cost of the anglied treatment gragating a treatment and index several entrees are the treatment with the meaning state that ', while form the tecommendate Upfleet program. The severa the interview could save 'C' to the cost for the accessmentation of the treatment of the program visited treatment was informed as the 'O' to A' state that the second of a program the L place treatment. The tech '' a continense post control program of the true was been interviewed by the treatment and we set (10%). The accommendate and the L place treatment. 'We return was inspected by weens (10%). The dot the formet measurement between the and herbicide (126, 0° - 9°%) (b). Here incide treatments reasond the dot information between the treatment and ween a (10%). A straine was reasond to the format an antroved yield when herbicide (126, 0° - 9°%) (b). Here incide treatments reasond to the commended Upfleet program spined on better than the access the format and antroved yield when herbicide (126, 0° - 9°%) (b). Here incide treatments reasond to a study of the applicate program spined on 5%. The yield from the herbit reatments reasond to a study of the tobact treatment was treated on the treatments reasond to a