

## WEED TEST

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One of the perennial problems in sugar beet production is weeds. The growers and the processing company are both affected. When weeds are not controlled the grower can lose money. The processor has losses from weeds in both storage and factory operations. The herbicide options available are not perfect, but many growers leave more weeds in their fields than ideal. Growers need to be convinced weeds cause them a loss in profits.

This test was designed to compare the loss due to different populations of weeds; 0, 6, 12, 18, and 24 weeds per 100 feet. The weeds were mainly redroot pigweed, *Amaranthus retroflexus*, lambsquarters, *Chenopodium album* and a few common ragweed, *Ambrosia artemisiifolia*. The beets were planted thick, and no pre-emergence herbicide was used. The beets were thinned to a uniform population, and, at the same time, the weeds were thinned to the desired stand. The test area was four rows wide and 50 feet long with six replications in 30 inch wide rows. Weeds were seeded, but most grew from the native population. There was very limited success from seeding the weeds. In 1994 the test was planted in a relatively weed-free field. Weed seeds of all three species were planted, but a sufficient number of weeds did not grow to have a test.

The results varied some between years. Table 1: In 1992 the weeds were smaller, and the only stand causing a significant loss was 24 weeds per 100 feet. In both 1993 and 1995, there was a significant loss in recoverable sugar per acre, RWSA, at just six weeds per 100 feet (Tables 2 & 3). In 1993 the weeds were larger and produced considerable competition. The weeds were the largest in 1995, causing the most competition and loss in production. In two years there was a significant reduction in the harvested stand of beets at some weed populations.

When comparing results over the three given years, (Table 4), a significant reduction in both tons per acre and RWSA were caused by twelve beets per 100 feet. The loss in income at only six weeds is \$80.31 per acre. One full rate application of Betamix and H-273 would only cost about \$27.40.

**CONCLUSION:**

In two of the three years there was a significant loss, at the 5% level, in RWSA from only six weeds per 100 feet. For the average of three years, there is a significant loss in both RWSA and tons per acre from twelve weeds per 100 feet.

**Table 1 -- 1992 Weed Test**

WEEDS PER 100 FEET	%					BEETS/ 100' AT	INCOME PER ACRE
	RWSA	SUGAR	RWST	TON/A	% CJP	HARVEST	
0	5637	19.59	292.7	19.27	95.23	118	771.59
6	5400	19.55	290.1	18.62	94.91	113	744.04
12	5369	19.74	294.7	18.22	95.17	115	735.13
18	5352	19.46	290.0	18.46	95.13	117	734.25
24	5171	19.53	292.8	17.67	95.43	113	705.36
GM	5386	19.57	292.1	18.45	95.18	115	738.00
LSD (5%)	417	N/S	N/S	1.58	0.43	N/S	
CV%	5.87	1.69	1.8	6.50	0.34	4.74	

**Table 2 --1993 Weed Test**

WEEDS PER 100 FEET	%					BEETS/ 100' AT	INCOM PER ACRE
	RWSA	SUGAR	RWST	TON/A	% CJP	HARVEST	
0	5558	19.36	278.3	20.00	93.46	102	816.02
6	4617	18.55	263.0	17.48	92.97	92	683.36
12	4274	19.25	269.1	15.87	92.26	100	643.83
18	3748	18.58	261.5	14.38	92.60	92	563.08
24	3248	19.15	273.7	11.88	93.23	79	479.46
GM	4289	18.98	269.1	15.92	92.90	93	636.80
LSD (5%)	809	N/S	N/S	2.77	1.17	19	
CV%	15.9	4.75	6.8	14.63	1.06		

**Table 3 -- 1995 Weed Test**

WEEDS PER 100 FEET	%					BEETS/ 100' AT	INCOME PER ACRE
	RWSA	SUGAR	RWST	TON/A	% CJP	HARVEST	
0	4081	18.02	256.8	15.92	93.28	101	632.94
6	3593	18.33	264.5	13.57	93.81	99	548.79
12	2315	18.08	257.9	8.97	93.32	84	357.81
18	2170	18.16	260.0	8.29	93.43	80	332.15
24	1437	18.03	258.6	5.56	93.58	60	221.17
GM	2719	18.13	259.6	10.46	93.49	85	418.40
LSD (5%)	437	N/S	N/S	1.57	N/S	14	
CV%	13.3	3.62	4.9	12.48	0.74	13.8	

**Table 4 -- Weed Test -- Average of 3 Years**

WEEDS PER 100 FEET	%					BEETS/ 100' AT	INCOME PER ACRE
	RWSA	SUGAR	RWST	TON/A	% CJP	HARVEST	
0	5092	18.99	276.0	18.40	93.99	107	739.90
6	4537	18.81	272.6	16.56	93.90	101	659.59
12	3986	19.02	273.9	14.35	93.59	99	577.95
18	3756	18.73	270.5	13.71	93.72	96	543.76
24	3285	18.90	275.0	11.71	94.08	84	468.65
GM	4131	18.89	273.6	14.95	93.86	98	597.97
LSD (5%)	951	N/S	N/S	3.58	N/S	16	