NO LABOR OR LABOR REDUCTION TEST 1964

By: C. E. Broadwell 1/

The idea of labor reduction is certainly not a new one, but it is one which is becoming more important each year. Labor itself is becoming more scarce and the quality of labor is deteriorating. As a result of these factors and others, a preliminary test was established by the Canada & Dominion Sugar Company, Ltd., Chatham, in 1963. This test was modified in 1964, and established in such a way that the results could be statistically analyzed. The test was conducted on the farms of the Canada & Dominion Sugar Company at Wallaceburg and Chatham.

DOVER EXPERIMENTAL FARM - 1964

PLANTED - April 17th - John Deere 74 - 3 Replications

SEED 6½ - 8 Monogerm - 2.1" Spacing - 1.75 lbs. Seed/Ac.
24" Row Width

FERTILIZER - 5-20-20 - 300 lbs. - banded 2" below seed
5-20-20 - 400 lbs. - broadcast

Anhydrous Ammonia - 64 lbs. actual nitrogen
June 19, 1964

PLOT SIZE - 8 rows - .60 acres per plot

CHEMICALS USED - 4 lbs. (1 1/3 lbs. product) TCA +
4 lbs. (1 1/3 lbs. product) PCA

METHOD OF CHEMICAL APPLICATION - 8" band - 3½ M.P.H. 50 P.S.I.
Water - 7 Gals. per acre on
8" band

TREATMENTS -
1. Standard blocking and thinning with a long handle hoe
2. Band sprayed with TCA and PCA mechanically thinned with a Blackwelder thinner, long handle hoe trimmed
3. Band sprayed with TCA and PCA mechanically thinned
4. Mechanically thinned and long handle hoe trimmed
5. Mechanically thinned only

All treatments received hoeings the first part of July and the third week of August.

1/ Research Supervisor
Canada & Dominion Sugar Co. Ltd.

COSTS OF SPRING WORK

TREAT-MENT NO.	TCA +PCA	MECH THIN	HOE TRIM	HAND BLOCKING	HOEING (JULY 1)	HOEING (AUG. 21)	TOTAL
1				19.46	4.77	1.91	26.14
2	8.00	4.00	9.22		3.42	1.50	26.14
3	8.00	4.00			4.97	1.63	18.60
4		4.00	13.21		4.34	1.63	23.18
5		4.00			27.08	1.68	32.76

All hoeing done at $1.25 per hour

RESULTS

TREAT-MENT NO.	TONS PER ACRE	TARE %	SUGAR %	GR.LBS. SUGAR/ ACRE	VALUE PER TON	GROSS VALUE /ACRE	SPRING COSTS	NET RETURN /ACRE
1	22.86	2.9	15.26	6978	12.44	284.37	26.14	258.23
2	21.32	2.8	15.00	6398	12.20	260.10	26.14	233.96
3	21.07	3.6	15.06	6349	12.28	258.74	18.60	240.14
4	21.80	2.5	14.76	6442	12.04	262.47	23.18	239.29
5	19.28	3.1	15.26	5891	12.44	239.84	32.76	207.08

OBSERVATIONS AND RESULTS

YIELD - Treatment 1 was not statistically greater than 4, but was greater than all others.
Treatments 3, 2 and 4 were statistically the same
Treatments 1, 2, 3 and 4 were all greater than number 5

SUGAR - Gross lbs. per acre
Treatment number 1 was statistically greater than 3 and 5, but not distinguishable from 2 and 4

SUGAR % - No difference in any treatment

SPRING COSTS - Treatment 5 was significantly higher than all of the rest
Treatments 2, 1 and 4 were similar

NET RETURNS - There was no significant difference between 2, 4, 3 and 1
Number 5 was lower than 4, 3 and 1

WALLACEBURG EXPERIMENTAL FARM - 1964

PLANTED - May 4th - John Deere 74 - 4 Replications

SEED - 6½ - 8 Monogerm - 2.1" Spacing - 24" Row Width

FERTILIZER - 5-20-20 - 700 lbs.
Ammonia Nitrate - 200 lbs.(Broadcast-Incorporated with disk and harrows)

PLOT SIZE - 8 Rows - .33 acres per plot

CHEMICALS USED - 4 lbs. TCA (Product) + 4 lbs. PCA (Product)
(1 1/3 lbs. product + 1 1/3 lbs. product)

METHOD OF CHEMICAL APPLICATION - 8" Band - 3½ M.P.H. - 50 P.S.I.
Water - 7 Gals. per acre on 8" band

TREATMENTS - 1. Standard blocking and thinning with a long handle hoe
2. Band sprayed with TCA and PCA mechanically thinned with a Blackwelder thinner, long handle hoe trimmed
3. Band sprayed with TCA and PCA mechanically thinned
4. Mechanically thinned and long handle hoe trimmed
5. Mechanically thinned only

All treatments received hoeings the first part of July and the third week of August.

COSTS OF SPRING WORK

TREATMENT NO.	TCA + PCA	MECH. THIN	HOE TRIM	HAND BLOCKING	HOEING (JULY 1)	HOEING (AUG. 21)	TOTAL
1				16.57	3.26	1.25	21.08
2	8.00	4.00	10.97		3.91	1.25	28.13
3	8.00	4.00			4.52	1.25	17.77
4		4.00	13.97		3.67	1.25	22.89
5		4.00			15.97	1.25	21.22

RESULTS

TREATMENT NO.	TONS PER ACRE	TARE %	SUGAR %	GR.LBS. SUGAR/ ACRE	VALUE PER TON	GROSS VALUE /ACRE	SPRING COSTS	NET RETURN /ACRE
1	24.44	2.7	15.88	7762	12.92	315.76	21.08	294.68
2	23.81	3.6	15.85	7548	12.92	307.62	28.13	279.49
3	22.78	5.5	16.02	7299	13.00	296.14	17.77	278.37
4	24.68	3.3	16.05	7923	13.00	320.84	22.89	297.95
5	22.47	3.3	15.85	7124	12.92	290.31	21.22	269.10

OBSERVATIONS AND RESULTS

YIELD - Treatments 2, 1 and 4 were all the same statistically
Treatments 5 and 3 were the same statistically, but treatments 2, 1 and 4 were significantly greater than 5 and 3

SUGAR - Gross lbs. per acre
Treatments 1 and 4 were statistically the same
Treatments 1 and 4 were definitely greater than 5

SUGAR % - No difference in any treatment

SPRING COSTS - Treatment 2, 4, 5 and 1 were similar
Treatment 2 was significantly higher than treatment 3

NET RETURNS - Treatments 1 and 4 were similar and significantly greater than 5, 2 and 3

CONCLUSIONS

The experiment points out the fact that a mechanical thinning treatment alone (No.5) without hoe trimming or chemical weed control, was not practical or economical. The weed competition reduced the yield and increased the spring costs.

It is quite reassuring to note that with labor becoming more scarce, it is both practical and economical to grow sugar beets with a reduced amount of labor used for hoe trimming, especially if this is used in conjunction with mechanical thinning and chemical weed control.

This experiment will be repeated in 1965.