PANEL
LABOR REDUCTION METHODS
By: Ross Thayer 1/

Mechanical thinning and labor reduction methods seem to be practical and also economical on some farms in my area.

This is not a report on experimental plots but actual labor reduction practices on entire acreages of the farms in this report.

The idea started from experiments in the Freeland area over the past several years. The farmer must not plant too thick if he is going to use a labor reduction method. We prefer to aim for about 2.4 inch spacing, but we may get less. This is when we have to decide -- do we mechanically thin or do we just hoe the weeds only? If the spacing is about 4 inches or more, we do not use the mechanical thinner but just hoe weeds.

Results of labor saving practices on 5 farms in my area are as follows:

Farm #1: This 23 acre field was band sprayed with 1-1/2 lbs. of Pyramin per acre. Due to the weather the spray application was delayed until the time beets were emerging. This may have had some effect on the stand. Seven acres of this field with a good stand were mechanically thinned and hoed twice. Sixteen acres with a fair stand were hoed twice for weeds only. Results at harvest were practically the same. The results for the entire 23 acres were stand 77%- yield, 19.17 tons per acre.

Cost per acre-Pyramin	$ 5.15
Applying Pyramin	1.50
Hoeing twice @ $1.15 per hour	12.07
Total	$18.72

Farm #2: Had 2 hoeings and no mechanical thinning. Stand 101% Yield 17.34 tons per acre.

Labor cost hoed twice @ $1.15 per hour	$12.00

Farm #3: No mechanical thinning. Stand 90% yield, 16.19 tons per acre.

Farm #4: These beets were mechanically thinned with a Blackwelder thinner. Stand 90% yield, 18 tons per acre

Labor cost hoe trimmed	$12.50
1 Hoeing	5.40
Total	$17.90

1/Fieldman - Monitor Sugar Division

Farm #5: Mechanically thinned with Blackwelder, plus hand blocking and thinning and 1 hoeing. Stand 63% yield, 17.73 tons per acre.

Cost hand blocking	$15.00
1 Hoeing	5.40
Total	$20.40

Some important things to consider with labor reductions. Practices: Weed control, seeding rate, soil tilth and fertility.

Weed Control is our most important problem. This problem is the difference between complete mechanical labor reduction or just partial labor reduction.

Seeding Rate: We favor the 2.4 inch seed spacing. If we get a good stand we can mechanically reduce the stand. If we get something less than 2.4 inch spacing we may decide it would be better to just hoe the weeds. This did happen on 16 acres of Farm #1 and the total acreage of Farms 2 and 3 of this report.

Soil Tilth and Fertility are always important for beets but especially important with mechanical thinning to give beets in the thickly populated area an extra push to a market size beet. With good herbicides it is believed we can look forward to almost complete mechanical thinning.

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By: Robert Zilles [1]

SEED

In northern Ohio we have four sizes of monogerm seed. It is packaged in bags with different color tabs on each bag, and the proper plate numbers to be used for the different planters. We recommend eight to twelve seeds per foot. We have had some farmers who use plates that are a size larger than that recommended, hoping to get on more seed in this way but it just doesn't work.

DRILLS AND PLANTING

In northern Ohio we have gone into an all-out program of recommending Flexi-Planters. We feel there is only one way to plant beets and that is with a precision planter and not a corn planter. We have received some valuable assistance from The Ohio State University in discouraging the use of corn planters, and encouraging the use of Flexi-Planters. We want the beets planted as early as possible to insure better emergence.

WEED CONTROL

We have found in northern Ohio, if Endothal-TCA is applied properly and at recommended rates it will do a very effective job of eliminating weeds at thinning time and this allows our labor to do a much better job and more acres per worker.

Many fields in our area would have been impossible to thin if it had not been for pre or post-emergence herbicides, and some fields were lost simply because herbicides were not used.

As it looks now, our labor supply could be greatly reduced and the only way fewer workers will be able to thin our sugar beet acreage is if they are relatively free of weeds. Our job is to sell every grower on the advantages of chemical weed control.

Most of our weedy beet fields are a result of too little cultivation. Effective chemical weed control alone will not do the job -- cultivation is still very important. All too often a grower will do a good job of chemical weed control and then not cultivate often enough or late enough in the season, and his herbicide appears to have been ineffective.

One of the most frequent complaints of labor is about the method or lack of cultivation. A field that is cultivated frequently and late enough in the summer will very seldom need a second weeding which is a considerable labor and cost reduction to the grower. The growers who cultivate most in my area

[1]/Northern Ohio Sugar Company Fieldman

generally have the cleanest beets at harvest time. To do a good job of cultivation, a grower must have good equipment. I am sure one of my growers this year greatly improved his yield by the use of a new 4-row, rear-mounted cultivator.

THINNERS

This is one area where we have failed to sell the growers. We have the knowledge and the practices such as space planting, chemical weed control, and in many areas we even have the thinners available but simply cannot get the farmers to use them. They are usually too busy at thinning time with tomatoes or other crops.

HOE TRIMMING

Most of the beets in my area are worked under the government classification, "Hoe Trimming". This means removing excess beets and weeds with a long handle hoe. This has allowed the labor to work more acres per person and increase the earnings of most workers.

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By: Rudy Kammerzelt[1]

Although our company, as all sugar companies, tries to show the farmer how he can reduce his labor costs in growing sugar beets, we have not had up to now the euccess we would like to have in getting the farmer to follow various approved practices.

The first requirement in labor savings naturally is a clean field which in most cases is obtained through the use of an approved weed spray as a band application. If a weed free field is achieved then we are confronted with the various methods that can be used to reduce labor costs.

If the stand is heavy a mechanical thinning machine can be used. This can be followed by labor doing just a hoe trimming. If the farmer does a good job cultivating thereafter, only one weed hoeing is necessary. This will show a substantial savings per acre with no tonnage loss compared to a field done in the usual manner.

If the stand is good, beets being from one to two inches apart, mechanical thinning can be applied, followed by just weed hoeing jobs either under regular contract prices or labor by the hour.

Sometimes a situation exists where the stand is very thin, but the row is clean. In a case like this no labor need enter the field except probably to hoe weeds later in the season. This could be done at hourly rates which may result in a further savings over and above the regular weed hoeing rates.

The methods I have presented are not just wishful thinking toward labor savings, but are actual methods some of our farmers used last summer with good results.

Our company test plots which most of you may have seen last summer during the spring demonstration, was handled in every conceivable manner. Plots sprayed for weeds, mechanically thinned, and weed hoed once, came up just as good in tonnage as the adjoining plot given the full labor treatment.

The field without any spring labor or mechanical thinning was a 20.5 acre field. The stand count was from 0 to about 25 beets per rod. Through this particular area we suffered heavily from lack of rain and, consequently, our tonnage also suffered. Comparing this field with two adjoining neighbors' fields that were planted at the same time and worked at regular contract labor prices, this pet field did .12 of a ton per acre better than the one grower's field and 1.1 tons better than the other neighbor's field. The farmer hoed this field twice for weeds. Once by regular contract price and the last time by the hour. This in labor alone showed an over-all savings of $368.60 on

1/ Fieldman - Buckeye Sugars, Inc.

these 20.5 acres. This figure should be an inducement for any grower toward the positive thinking of labor saving.

One grower was given a mechanical thinner with the understanding that if he was dissatisfied with its performance, he did not have to pay for it. He used it only on a small part of his field. Being a particular farmer he didn't like the looks of the job and did the rest of the field with hand labor. During the harvesting of his field he watched the comparison of the mechanically thinned rows versus the adjoining hand labor rows. The results were such that he voluntarily bought the mechanical thinner this winter.

There are also other ways in which there can be a saving. A tine tooth harrow can be used to good effect, depending upon the condition of the ground at the time that the beets are the right size. Outside of two cultivations, one before the beets were up and one shortly after, I have seen this harrow used with excellent results until the beets were about one foot high, then the farmer cultivated again. Final analysis -- no labor costs at all with equally as high a tonnage as his neighbor.

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By: Fred Latimer 1/

The sugar beet industry in Ontario is centered almost entirely in the southwestern portion of the Province. This area is quickly developing into a cash-crop type of farming so the competition for labor is extremely keen. Our sources of transient labor are very limited, due to growing industrial demands, so the cost of labor is continually rising in the industry.

The Canada & Dominion Sugar Company is attempting to overcome this problem by introducing labor-reducing methods with a six-point program.

(1) The reduction of labor begins with the proper processing of seeds to definite sizes. In Ontario, we are at present using only two sizes - $6\frac{1}{2}/64$" to 8/64", the recommended quantity for seeding is $2\frac{1}{2}$ lbs. per acre; 8/64" to $9\frac{1}{2}/64$", which is a larger seed, recommended quantity is $3\frac{1}{2}$ lbs. per acre.

In 1964, our average number of pounds per acre of seeding was 3, which indicates that the growers are following these recommendations and it averaged about even for the two seed types used.

(2) Drills and precision planting are the next areas where reduction of labor methods may be improved. The grower must be familiar with his drill before he attempts to plant seed. He must be able to check the drill plates for correct sizing to correspond with the seed number which is clearly given on the outside of each bag of seed. He must also check for any wear on the plates to get proper "cell fill" which will result in the recommended 2-inch spacing for planting. These are labor saving methods.

(3) Spraying - The Canada & Dominion Sugar Company has experimented extensively with a number of sprays, and after considerable research it was concluded that to combat the weed types of our region, it was necessary to obtain a spray particularly adapted to kill broadleaf weeds. It was found that PCA (Pyramin) gave the best results for this, and when combined with TCA, grasses were also controlled. The cost of such a mixture is quite high, so we have adopted a plan where we have a spray band of 6 inches applied by the planter as the seed is planted. Then the cultivator will remove those weeds between the spray bands.

(4) Method of Cultivation is another place where labor reduction may be increased. The cultivator should be properly adjusted to give the most efficient performance. It should be set to reduce the man hours required for hoe trimming. The cultivator, on the first cultivation, should be set to leave a seed row of 2-inch width, which eliminates the weeds and reduces the necessity of hand labor in hoeing.

1/ Fieldman - Canada & Dominion Sugar Co. Ltd.

(5) Thinners - In past years, the thinning of the sugar beet crop required extensive labor, so in this area we have also attempted to reduce the labor load by mechanized equipment. One of the first mechanical thinners was the Eversman thinner. It worked -- but it was complicated, and required precision and patience in adjusting the various parts to do the job required, and because time is so valuable, it was not quite what we had hoped for.

Next we tried the Jauniaux thinner, but it was difficult to keep it properly adjusted, also. We finally turned to the Blackwelder. It is being used by a number of growers who find it easy to adjust and it operates satisfactorily in reducing the stand.

(6) Hoe-Trim - When the thinner has completed its part, there still remains the hoe-trim operation. This means to clean up any remaining weeds, after the spray, cultivator and thinner have completed their share of the work. This is done by hand labor, but it is not necessary to scour the country for this labor as time is not so important when these other factors have taken such a large share of the labor load.

In concluding, I would like to point out that a grower in my particular district followed this program with the exception of the spray which he did not use, and the result was an average cost of $11.00 per acre for hand labor in a 50 acre field, and the average tonnage for this field was over 20 tons with an average sugar content. Had the grower been equipped to apply the spray as recommended in our program, the labor reduction may have been reduced another fifty percent.

We, of the Canada & Dominion Sugar Company, feel that this program will definitely result in reducing labor and costs, if each of the six points is followed by our growers throughout Southwestern Ontario.