The Extent of Spring Mechanization in the Eastern Beet Area, 1951

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The prospect of a seriously diminished labor supply for thinning and weeding sugar beets in the spring was an important factor in bringing about a great increase in mechanical thinning of sugar beets in the eastern area in 1951. Through the efforts of the Farmers and Manufacturers Beet Sugar Association and the sugar companies of this area sufficient numbers of 4-row Dixie thinners were made available to supply the demands of the growers. The extent of the use made of these machines is shown in Table 1.

Table 1.. Spring Sugar Beet Mechanization—1951, Eastern Area.

Acres Mechanically Worked—1951		21,837.21
% of total Acres Thinned Mechanically—1951		26.3
% of total Acres Thinned Mechanically—1950		2.9
Breakdown of Thinning Weeding Operations, Acres—1951:		
Once over with weeder head	21,717.21	
Twice over with weeder head	8,446.69	
Three times over with weeder head	796.46	
Once over with 50% head	5,267.49	
Once over with 30% head	169.0	
Total Acres, Cumulative Basis		36,396.85
Acres Thinned per Machine, Cumulative Basis		39.25
Acres Thinned per Machine, Once Over Basis		23.5
1950 and Older Machines Used	84	
1951 Dixies Used	845	
Total Machines Used, 1951		929
Number Grower-owned Machines	907	
Number Company-owned Machines	14	
Number Contracts Worked Mechanically		1,561
Average Acres per Contract Mechanized		13.2
Total Acres Custom Worked		2,772
% of Total Acres Worked Mechanically which were done on a Custom Basis		12.7

Through the efforts of the sugar companies, their field men, and the Farmers and Manufacturers Beet Sugar Association a very marked increase in mechanization was achieved in one year. However, the average acreage worked per machine was probably considerably below their capacity for the thinning season. Some of the factors affecting extent of machine use were: (1) more labor available than anticipated, (2) grower inexperienced with mechanical thinning, (3) unfavorable weather in some areas and heavy soils which crusted badly, (4) reduced total acreage, (5) small acreage of many machine owners, (6) limited inclination among machine owners for doing custom work, (7) reluctance of some growers to change traditional methods of hand thinning.

The practice of mechanical stand reduction and weeding of sugar beets will undoubtedly be extended from year to year. In general, the prospect of

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a declining supply of agricultural labor will continue to be an important motivating factor leading to more extensive mechanization. The application of practices which will improve the performance of mechanical thinners will also help. Some practices in that category are: (1) crop rotations for maintenance of good soil structure and fertility, (2) reasonably uniform seed bed, (3) control of weeds in crops in the rotation with sugar beets, (4) planting at a rate to provide a seed segment every inch, (5) use of a drill which will distribute the seed uniformly, (6) working beets early. The spring tine heads can generally be used when beets are in the two to four leaf stage.

Conclusions

1. Mechanization is here to stay. The long term trend of a diminishing supply of agricultural labor is a potent force exerting pressure for more mechanization in all phases of agricultural production.

2. It has been adequately demonstrated that mechanical thinning is a practice which can greatly increase production per man-hour of thinning labor. With a limited supply of labor, the production per man-hour becomes an increasingly important factor when equated with yield per acre.

3. In the eastern area when the ground becomes dry enough in the spring to work it is almost invariably late enough to plant sugar beets. Consequently, with the high capacity tools and tractor power available for seed bed preparation and planting, most of the beets are planted *in* the space of two or three weeks. This means that most of them are ready to thin within an equally limited time. Since there is far less labor available than would be required to thin all the beets in the area at the optimum growth stage, it is quite probable that the use of thinners can make possible not only a greater acreage but also a higher yield by extending the period for hand trimming. The beets which are subjected to mechanical stand reducing and weeding will not suffer from overcrowding as soon as unthinned beets, and consequently delay in hand trimming the stand is not as serious as in the case of beets not machine worked.

By reducing the hand labor required per acre, more acres can be handled with a given number of workers in a given period. The length of the period for hand trimming can also be extended by using thinning machines when the plants are in an early growth stage. Partial thinning by machine can extend the time before overcrowding becomes serious and could quite conceivably result in greater yields than otherwise would be the case where hand thinning is delayed, as it frequently is by the lack of sufficient labor to work all fields at the proper time.

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