

Performance of Various Makes of Beet Harvesters In American Crystal Areas

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The 1951 beet harvest will be recalled as one of the most difficult experienced in American Crystal territory. Continuous rains in California after November 23 curtailed mechanical harvesting. Snow and rain in the intermountain area caused delays and factory slices to be reduced. Snow and freezing weather delayed harvest in the eastern territory and stopped harvest completely at times. In face of the almost universal adverse harvest conditions, a larger percentage of beets was harvested mechanically than in any previous year. Each factory district, without exception, increased the mechanically harvested acreage over previous seasons.

Table 1.—Percentage of Acres Harvested Mechanically in Nine American Crystal Sugar Company Factory Districts.

	1950	Percentage	1951
California	66		83.2
Oxnard	66		83.2
Imperial valley	71		97.3
Clarksburg	63.5		83.9
Average	66.3		88.3
Intermountain			
Missoula	78.3		86.5
Rocky Ford	56.2		60.0
Grand Island	55.3		61.9
Average	60.7		65.6
Eastern Territory			
Mascn City	61.2		72.7
Chaska	65.9		86.5
Red River valley	48.0		76.6
Average	51.3		77.1
Average American Crystal Territory	56.7%		77.8%

A pronounced shortage of harvest labor has developed in most areas because of increased labor demands for various industries and defense projects.

School requirements for children under 14 years of age does not permit sufficient income to maintain the family. For this reason heads of families are turning to permanent employment in other lines of work.

Growers purchased additional harvesters and neighbors helped each other as they completed their own deliveries. The equipment was pushed to the limit and it was difficult to maintain proper quality of work. After the first snow many of the non-resident workers returned to their homes. It became readily apparent that mechanical harvesters must harvest a large

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portion of the acreage remaining, and it can be said the machines performed the job in a creditable manner despite the many adverse conditions.

The number of beet harvesters operated over a nine-year period in American Crystal Sugar Company territory is as follows:

1943	9	1948	565
1944	36	1949	671
1945	82	1950	943
1946	172	1951	1177
1947	305		

Five makes of harvesters predominate in American Crystal territory, namely Marbeet, International, John Deere, Scott Urschel and King-Wyse.

In California the standard two-row Marbeet leads in quantity performance. Where the new disk topping unit is used, the topping job is equal to most other machines. The Marbeet Midget, however, is the coming machine and is already beginning to replace the two-row machines because of its being more adaptable to smaller farming operations, requiring less manpower, doing good quality work and being more flexible for a controlled harvest.

The intermountain area uses the International machine principally and this machine continues to perform in a satisfactory manner. Spiked wheel Terwilliger top-moving units were added to many machines in those areas where tops are conserved for feed. Picking table devices for removal of clods were used in larger numbers. Parma beaters for removal of hanging petioles and trash were used more extensively on the International machine.

The John Deere No. 54 is used at Grand Island and performed well this year because of the moist condition of the soil. Production for this machine was below the average.

In the eastern territory the International has fast become the leading machine and performed well this fall. The Scott-Urschel machine is used principally at Mason City and Chaska. The new Scott-Urschel equipped with rubber belts is definitely superior to the old chain type. Constant hard freezes deteriorated the foliage and with frozen dirt hanging to the beet it was difficult to pick up the beets and they were dropped back to the ground, resulting in a mediocre job. The King-Wyse machines in the area performed in an excellent manner. The wet condition of the soil prevented a clod situation which would undoubtedly present a problem in dry hard ground as the King-Wyse does not provide for clod removal. A roto-beater operation to remove foliage was often repeated several times ahead of the harvester.

The 56 John Deere 2-row machines released to American Crystal growers this year performed very well for the first year. Increased daily output of this machine appealed to larger growers. Spiked lifter wheels proved to be the outstanding feature. Elimination of clods in heavy dry soil was satisfactory. Quality of topping and disposal of tops are especially liked by growers in feeding areas.

Many John Deere 2-row machines were operated this year to better advantage as two links and had better recovery than the single unit. Growers

Table 2.—Make and Performance of Harvesters in American Crystal Sugar Company Areas.

Make	Number	Acres Harvested	Tons Harvested	Acres Per Unit	Tons Per Unit
Marbeet 2-Row	62	15,108	297,329	243	4,795
Marbeet 1-Row	22	2,988	55,890	135	2,540
Marbeet Midget	45	5,679	108,447	126	2,410
International	781	58,240	662,383	75	850
John Deere 2-Row	56	6,612	73,767	118	1,317
John Deere 54	45	1,690	18,013	37	400
Scott-Urschel	129	6,404	68,473	50	531
King-Wyse	33	3,350	37,096	101	1,124
Harvail	3	213	2,383	71	794
Homemade	1	4	56	4	56
Total	1,177	100,288	1,324,437		
Average				85	1,125

using 2-row John Deere harvesters should plant their fields in the spring with 12 border rows which can be harvested first to provide turning space on the balance of the field.

The machine was well accepted but under the severe harvesting conditions which existed this year weaknesses in construction developed, chiefly in the topping unit and top disposal unit. This was expected during the first year of use and probably will result in favorable changes being made as all 200 machines released commercially last year are being returned to the factory for necessary improvements.

The experimental 1-row John Deere tested out in Colorado last fall has definite possibilities to become one of the outstanding harvest machines because of its high production possibilities and quality work. When this machine will be ready for commercial release, I do not know, but ordinarily it takes several years from an experimental model to a production model.

Manufacturers of harvesting equipment are to be commended for their interest and determination in constantly improving their equipment.

Mechanical harvesters did their job in 1951 and did it well in the face of bad weather when labor left the fields and refused to work under such conditions. For this reason, growers are fast thinking of "spring mechanization" and total mechanization of the crop.