

A Review of the 1947 Mechanical Harvest in California

AUSTIN ARMER¹

IN THE YEARS following 1943, the mechanical harvest of sugar beets in California has followed a growth curve of such proportions as to point toward almost total mechanization in 1949. The factors influencing this rapid acceptance of mechanical harvest have been many and have changed with the passing of the years.

The original impetus to the adoption of harvesting machinery was imparted by the war-caused labor shortage, but other factors served to accelerate the acceptance of mechanical harvest during the post-war years. These are the factors which will receive special attention in this discussion.

The general scheme of mechanical harvest in California has gone through three phases. These are:

1. Renting of sugar beet harvesters by growers from processors.
2. Acquiring of sugar beet harvesters by growers and commercial operators.
3. Increased utilization of the services of commercial operators and a decrease in the number of harvesters rented or owned by growers.

The year 1947 definitely fell into the third phase. Commercial operators performed a large fraction of the total harvest, and their acceptance by growers has grown in proportion to their dependability and quality of work. At least five commercial operators so planned their 1947 program as to start in the earliest harvest district (Imperial Valley) and terminate in the latest northern California districts. Thus, they were able to harvest well over a thousand acres with each two-row Marbeet harvester in this service.

Extent of Mechanical Harvest in California During 1947.—It is unfortunate that the relatively accurate performance records maintained by processors during 1945 and 1946 were not continued during 1947. It would appear that since 1947 marked the passing of mechanical harvest from the first to the second phase, the details of this harvest were left up to the individual grower and commercial operator with far less processor participation. Due to this lack of accurate record keeping by processors in 1947, it is not possible to present an accurate measure of the percentage of California's sugar beet acreage harvested mechanically in 1947.

The data derived from the records of processors and commercial operators, however, form a basis for the 1947 estimate, and it appears

¹Agricultural Engineer, Spreckles Sugar Company, California.

that very close to 69 percent of California's sugar beet acreage was harvested mechanically in 1947. (This compares to 55.5 percent harvested mechanically in 1946.) This 69 percent figure has a probable accuracy of plus or minus 2 percent.

Types of Harvesters Used in California During 1947.--The early acceptance of the Marbeet harvester in California has been maintained with the result that this harvester accounted for far the largest portion of the acreage harvested. Approximate figures for various harvester makes are herewith tabulated:

Marbeet	66 percent
McCormick-Deering	2 percent
Other	1 percent

The Marbeet harvesters were divided into single- and double-row types--the latter having been responsible for most of the mechanically harvested acreage in California. These harvesters benefited as a result of several minor improvements conceived principally by the sugar beet processors and executed by the Blackwelder Manufacturing Company. There was a moderate acceptance by growers of the top windrowing attachment, the defoliator and rear mounted coulters. The Agricultural Engineering Department of the Spreckels Sugar Company developed these devices which were made available by the Blackwelder Manufacturing Company. There can be little doubt that these devices contributed to the acceptance of mechanical harvesters and served to accelerate their adoption in 1947.

The International Model HM-1 sugar beet harvester likewise benefited from minor improvements, and its utilization in 1947 was approximately double that of 1946.

Harvester Performance Improvement Necessary to Induce Complete Mechanization.--With labor becoming constantly more available, the extent to which mechanical harvest becomes complete depends to a large extent upon the mechanical perfection of the machines. Whereas those growers availing themselves of commercial operators do not concern themselves greatly with the operating inconveniences of existing harvesters, they are directly concerned with the performance of the machines in regard to quality of topping and field losses. These two items, therefore, remain the subject calling for the most attention on the part of harvester manufacturers in the immediate future. Needless to say, these manufacturers are well aware of these requirements and are exerting much effort toward improving their machines. The processors likewise are mindful of the contribution they can make and will undoubtedly contribute to the near future improvement of harvesting equipment.

Impairment of Harvester Efficiency by Adverse Field Conditions.--The prediction that 1949 will see almost complete mechanization in California is clouded by the fact that California's cultural practices frequently tend to produce sugar beet fields in which mechanical harvest

is very difficult. Foremost among the difficult field conditions encountered is the problem of weeds at harvest time.

The presence of weeds in sugar beet fields is certainly not intended by California growers; neither is it permitted when circumstances make it economically possible to minimize weed growth. It is the economical limit of weed control which will continue to act as an inhibitor to complete harvest mechanization and which may conceivably contribute to the continued use of hand labor in a few fields.

To those concerned with the eventual complete mechanization of the California sugar beet harvest, it therefore becomes their duty to concentrate on the redesign of harvesting equipment to cope with the weed problem, as well as to bend every effort toward developing harvester improvements such that reasonably high field recovery can be accomplished under the many soil conditions encountered throughout the State.

To this end processors and harvester manufacturers alike have pledged their cooperation, and if predictions are in order, it appears that eventual complete mechanization will not be hindered by technical problems.