

Piling of Beets from Railroad Cars

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One of the consequences of mechanical harvest in California has been a marked upswing in the daily harvesting capacity of growers coupled with a strong desire to complete their harvest before the rainy season begins. But daily factory capacity is fixed, and beet deliveries in excess of slicing capacity can be accepted only if storage facilities can be provided. Such storage facilities are customarily arranged as soon as seasonal temperatures fall to a point where piling is a reasonably safe risk.

However, piling with existing equipment has always been limited to beets delivered by truck to the piling machines. Under these conditions, it was impossible to divert beets from railroad cars to pilers unless by rehandling with trucks. (Such a system has never been practical because of the cost of rehandling together with the attendant damage to beets.)

When the factory at Spreckels, California, was faced with an unprecedented influx of beets from the 1950 harvest, the need for all possible piling facilities became acutely evident. George P. Wright, district manager at the Spreckels factory, urged the immediate construction of facilities for piling beets received by railroad, and his encouragement and suggestions made the accomplishment of this procedure a reality.



Figure 1. Two 36-inch pilers were located on either side of a trestle carrying the cars to be unloaded.

The elements of rail piling system as finally worked out were:

1. A piling area approximately 100 ft. wide and 1,200 ft. long.
2. A track extended along the center of this area on a trestle 7 ft. high.
3. Conventional pilers to receive beets discharged from bottom dumping gondola cars spotted on the trestle.
4. Receiving aprons mounted on the piler hoppers to transfer the beets from the cars to the pilers;

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Figure 2. Each piler was provided with a special receiving hopper long enough to accommodate beets discharged from half a car length-



Figure 3. The capacity of the special hopper on each piler was adequate to receive beets as rapidly as discharged from the car.

The system, as above outlined, was accomplished by making use of one of the old "wet bins." The flumes of these bins were filled in, and the adjacent ground surface leveled and covered with plant-mix road surfacing ("black top"). The sloping sides of the trestle which supported the original track were replaced with vertical sides in order to permit two pilers to operate as close to the center of track as possible.

Aprons were designed to attach to the piler hoppers, and these were arranged to accommodate the contents of one-half carload of beets. In operation, the bottom doors of the car to be unloaded were opened for one-half the length of the car and the beets discharged. The car was then pulled one-half of its length so that the second half was spotted over the aprons. The remaining bottom doors were then opened and emptying of the car completed.

Performance of the Installation

After the unloading crews and piler operators had become accustomed to this new procedure, it became possible to unload cars at the rate of three per hour. This is substantially the same unloading rate as could be realized when unloading similar cars, either into a "wet bin" or into a conventional car dumping hopper.

There was a tendency of beets to spill or bounce off the apron, but this was corrected by installing wings on the apron, and by paying close attention to the details of unloading.

Condition of Beets in the Piles

Rail beets piled with the equipment as described were subjected to one more cleaning operation than they would be had they been dumped direct from grower's trucks. This was very fortunate because, as the season progressed, the amount of dirt delivered with the beets mounted higher and higher and the additional cleaning afforded by the rail piling procedure was a tremendous benefit. The figures were not available to show the percentage of additional dirt removed, although sample weighings indicated that the dirt removal through the second handling was substantially less than that through the first handling.

The overall performance of the system may be summarized as follows:

1. Piling of 40,000 tons of rail beets became possible.
2. Unloading time per car was substantially the same as when similar cars were dumped into conventional hoppers or "wet bins."
3. The double cleaning of beets entering piles resulted in lower piling losses for rail beets than for truck beets subjected at the same transit time.