Cling Peach Cannery Losses

pilot plant tests with equipment designed to minimize losses in pitting and peeling operations indicate reduction in costs

Jerry Foytik, Sherman Leonard, and B. S. Luh

Cannery losses during the pitting and peeling of cling peaches substantially lessen the volume of fruit reaching the can. Reducing those losses would increase the canner's case yield per ton—a greater pack from a given quantity of peaches—and cannery costs could be reduced.

Because each change in processing technique alters the loss experienced by canners, a pilot plant test was conducted during the 1954 season—to determine actual losses incurred at the various processing stages—with equipment designed to reduce pitting and peeling losses. Three principal problems were studied: *1*, the variation of pitting and peeling losses with the type of equipment used for canning peaches; *2*, the variation of such losses with the size and maturity of fruit; and *3*, the shrinkage losses occurring during hauling and storage.

Forty tons of peaches—twelve varieties—to be used for the test were obtained during the period of July 20 to September 13 from all major producing areas. Loss data compiled represented about 200 different lots of peaches handled under controlled experimental conditions.

All peaches were carefully graded for maturity under a standard light source. Most lots were of medium maturity; some were green, others were ripe. About three fourths of the lots were graded into six size categories, of diameters varying from 1⅞"–2⅜" to 3" and over. The remainder were pitted and peeled without grading for size.

The various lots of peaches were pitted and peeled with different combinations of equipment. Three pitting machines were used: knife pitter, wire pitter, and torque pitter. Peeling was performed by two machines: cup-down spray lye peeler and immersion peeler.

Shrinkage losses during hauling and storage were determined by weighing the peaches three times—at the grading station, upon receipt at the pilot plant, and at the beginning of the canning operation.

Pitting and peeling losses in the test varied substantially with fruit size and with equipment used, and, to a lesser extent, with fruit maturity, as shown in the accompanying diagram. Losses were plotted for six sizes of fruit, but there were insufficient lots of either large peaches or small peaches to warrant accepting those particular losses as representative for those sizes. However, the losses do fit into the general pattern suggested by losses for the intervening fruit sizes.

Pitting and peeling losses in the 1954 test run were substantially greater for smaller peaches than for larger fruit. For example, losses with the wire and knife pitters ranged from approximately 12% for small peaches to about 8% for large fruit. Similar variations were apparent for the torque pitter and both peelers.

Furthermore, losses were definitely influenced by the type of pitter or peeler used. With the torque pitter, losses were significantly lower than with the other two pitters. For example, with peaches of the two medium sizes, the difference in loss was about three percentage points —equivalent to some 60 pounds of fruit per ton of peaches.

Even greater differences were observed with the peeling operation. For most fruit sizes, the loss with the cup-down peeler was about half as large as with the immersion type. The difference, averaging some five percentage points, represents about 100 pounds per ton.

The data were also examined to determine the influence of maturity on pitting and peeling losses. Only with knife and wire pitting is this relationship definite and pronounced. With these pitters, losses were high on green peaches and low on ripe fruit. But with the torque pitter, losses for both green and ripe peaches were comparable to those obtained for fruit of medium maturity.

There was no tendency for peeling loss for ripe peaches to be different from that for fruit of medium maturity. Green peaches, however—especially with the immersion peeler—had a considerably lower peeling loss.

Cumulative Losses

Total losses during the pitting and peeling operations — beginning with peaches available at the pitting machine —can be determined for various combinations of machines and for different fruit sizes. For example, losses on peaches ungraded for size with the knife pitter followed by immersion peeling—giving the highest loss—can be compared with the losses from the torque pitter followed by cup-down peeling—giving the lowest loss in the pilot plant test.

The combined loss for torque pitting followed by cup-down peeling was approximately one third less than for the knife pitting-immersion peeling se-

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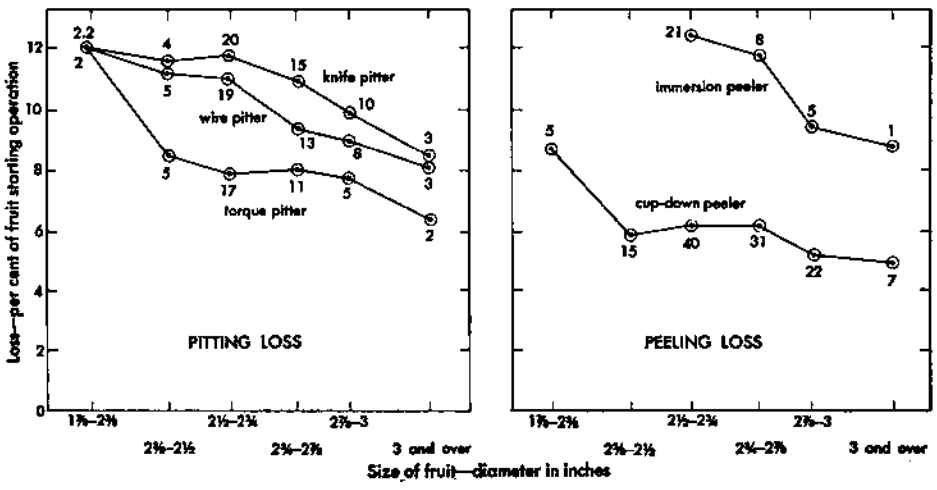
Pitting and peeling losses for cling peaches, by fruit size and equipment, pilot plant test, 1954 season.



Note. Numbers beside the plotted points indicate the number of lots used for determining the average losses.

SEEDING

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increase the fertility of the soil for the perennial grasses—a plant count survey was made to compare broadcast seeding and drilling with fertilizer.

At least 10 pounds of seed per acre were used with the broadcast method. The seeding rate was cut to six pounds per acre by drilling. An excellent stand was obtained with ⅔ as much legume seed and ⅓ as much grass seed by drilling, and the saving in seed cost helped to defray some of the expense of the fertilization.

Broadcast legume seed—without help from the phosphate fertilizer—produced small plants and set very little seed.

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PEACHES

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quence. The reduction in loss averaged eight percentage points. This means that a ton of fruit yielded an additional 160 pounds.

An additional allowance must be made for losses in weight that take place while the peaches are hauled from the grading station and stored at the plant prior to pitting. For the test period, an average shrinkage loss of 2.7% was observed.

This value may not be representative of normal operating conditions in commercial canneries. Peaches obtained for the test were hauled promptly from the grading stations to the pilot plant, and handled rapidly at the plant. The total elapsed time averaged only 18 hours—considerably less than for peaches canned commercially. Certain other factors may have contributed to low shrinkage losses for the test lots.

Results of the pilot test suggest that cannery losses may be decreased appreciably below the levels now prevailing.

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CANTALOUPE

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Spoilage, retail margins, and consumer prices vary among the stores surveyed. Location, size, and type of store provide a partial explanation for such differences.

Losses due to waste and spoilage tend to be higher in small cities, in small stores, and in independent stores than in large cities, large stores, and chain stores, respectively. Retail margins are usually higher in southern California, large cities, and independent stores than in northern California, smaller cities, and chain stores. Prices paid by consumers are considerably higher in small stores and credit-delivery stores than in large stores and cash-and-carry stores, and somewhat higher in small cities than in large cities.

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A more complete report, the sixth in a series, entitled California Cantaloupe Marketing Channels and Farm-to-Retail Margins, 1949 Season, *is available by addressing the Giannini Foundation of Agricultural Economics, 207 Giannini Hall, University of California, Berkeley 4.*

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