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FRESH-PITTED DRIED PRUNES

. . . *for the grocery retail trade*

Progress in the development of equipment for producing pitted dried prunes for the grocery retail trade has included the design of conveyor rollers to orient the fruit lengthwise and the use of a six-bladed pitting knife capable of removing pits efficiently with little or no loss of fruit flesh. The pitted fruit dried in two-thirds less time and had a superior, fresh flavor and good storage qualities.

THE OBJECTIVE of this research project (begun in July, 1961) is to design procedures and equipment for the production of pitted dried prunes for the grocery retail trade—with an acceptable minimum of lacerations and retained pits or pit fragments and at a cost that would promote volume sales. The high-volume machines used to produce commercially pitted dried prunes were not found adaptable to the production of an appealing product for the retail trade. Manually operated equipment presently in use for producing an acceptable quality product is not adaptable to volume production.

Initial laboratory studies showed that heating dried prunes in boiling water for approximately five minutes usually loosened the pit so it could be punched from the prune with a minimum of flesh adhering. Excessive rupturing of flesh and skin resulted if the pit was not removed in a line with its major axis. This pitted product seemed acceptable for retail marketing but no way was found to mechanically orient the dried fruit prior to pitting.

A procedure was found for orienting fresh prunes before dehydration. A conveyor dips into a water-filled hopper which contains the fruit. The fruit picked up by the turning concave rollers of the conveyor rolls into a position with its major axis parallel to the roller shafts, as seen in photo (top of next page).

The pitting knife, shown in photo to right, passes through the aligned fruit, pushing the pit from the fruit. The knife was developed in the spring of 1961 and a quantity of fresh fruit was pitted in a hand-operated fixture and then dehydrated. A machine with 12 pitting units was constructed for study in connection with the orientator during the 1962 season. Transfer of the oriented fruit to the pitting cups was not effected in a satisfactory manner but approximately 250 pounds of fresh fruit were pitted in 1962.

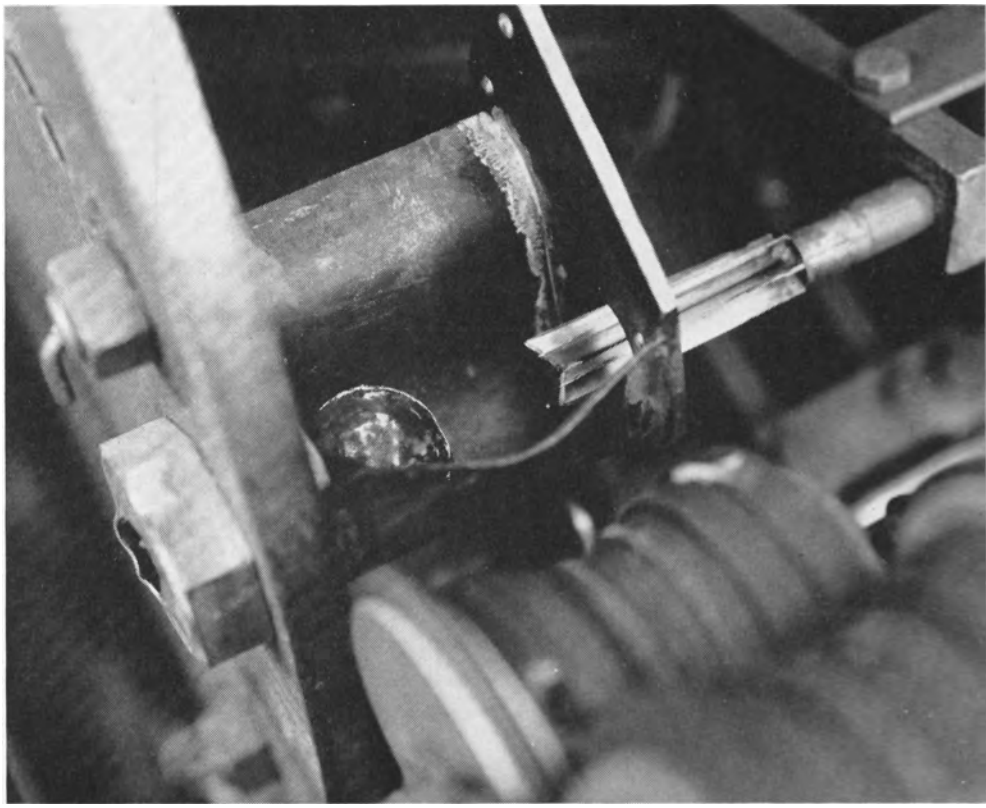
Results of the 1961 and 1962 studies were:

1. The six-bladed pitting knife removed the pits from oriented, fresh, mature, firm fruit with essentially

no loss of fruit flesh, as seen in photo to left. Pit removal from well-oriented fruit was over 99% effective from either the stem or blossom end. The knife cut and pit wound closed satisfactorily during drying.

2. Laboratory studies showed that the pitted fruit dries in two thirds the time needed for the unpitted fruit. The 1961 pitted fruit bled no more than the unpitted fruit during the drying process. Bleeding was extensive with the 1962 fruit but the effect on the dried product was not significant. The bleeding may have resulted from the unusually high sugar content of the 1962 fruit or from the mechanical pitting procedure. Additional studies of this bleeding factor will be made.
3. The dried, fresh-pitted fruit was superior to the pitted, dried fruit from the taste standpoint. The fresh-pitted, dried fruit had a fresh flavor which was absent in the pitted, dried product. The pit yields an essence which masks the fresh flavor of the prune, according to Dr. Martin Miller of the Department of Food Science, Davis.
4. Dried, fresh-pitted fruit stored in tight containers at 36°F for a year suffered no significant quality reduction. Studies of storage with inert gases at room temperature were not made.

The pitting machine is being redesigned for study during the 1963 harvest season, and procedures for pitting dried fruit will also be investigated further.



Pitting knife with six blades, pictured above, successfully removed pits from oriented, fresh fruit, for production of high-quality pitted dried prunes.

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Concave rollers of specially designed conveyor positioned fresh fruit lengthwise for pitting knife in removal of pits for pitted dried prune production.