period started in mid- to late-June and increased up to the beginning of hull split on the new-crop almonds in about mid-July.

At this point the egg traps became less effective as a monitoring device, apparently because splitting almond hulls produced attractive odors, so that the nuts competed with egg traps as oviposition sites. The traps showed continued egg laying by female NOW after drying of hulls and harvest in August and September. At this time of year, eggs are laid on residual or mummy nuts in the trees to produce the overwintering (third) generation of navel orangeworm that will emerge the following spring.

Oviposition by moths from the overwintered generation extended through a considerable period—from March 20 to June 5, 1974, and from April 24 to June 12, 1975. Because of this normal spring activity, timing chemical sprays to control navel orangeworm is difficult. Research efforts are currently being directed toward timing chemical applications to the beginning of significant egg hatch, as indicated by the traps, rather than to the peak of egg laying, which may occur after many eggs have already hatched. Age of eggs and egg hatch under orchard conditions are readily determined by removing the bait and then isolating within the orchard several traps with newly laid eggs.

Some specific uses of the trap to date include the timing of insecticidal sprays based on observed egg laying and egg hatch, evaluation of orchard sanitation programs for NOW control, and improved methods for studying the biology of navel orangeworm under field conditions. Experience with these traps in almonds during the 1974-76 seasons indicates that they can be used to time chemical applications accurately. It should also be possible to use them as a monitoring device for navel orangeworm in other host crops, such as walnuts and pistachios.

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Electronic color sorting of cantaloupes for ripeness

Robert F. Kasmire

Electronic sorting of cantaloupes into maturity grades in commercial packing sheds appears possible by use of reflected light measured from fruit of different maturities (colors). In recent studies at the University of California, Davis, both dry and wet melons were tested. Measurements were made on 10 melons in each of four maturity grades—Partly Slipped, Hard Ripe, Eastern Choice, and Western Choice. Measurements were made with a Beckman Ratio Recording Spectrophotometer with a reflectance unit attached.

With dry melons, percent reflectance varied consistently between the melon classes in the green, yellow, orange, and red ranges of the spectrum; on wet melons, reflectance varied consistently only in the yellow, orange, and red ranges (fig. 1 and 2). In both groups, however, the reflectance increases were highest in the violet to yellow ranges and tapered off in the orange and red portion.

In spite of these differences, the data indicate that readings between fruit colors are sufficiently consistent and large enough, with wet as well as dry melons, that standard selection ranges could be established for automatic sorting equipment.

Commercial cantaloupe maturities used in this test were:

- Partly Slipped: full size; netting grayish green, background color dark green; abscission crack one-half to three-fourths developed.
- Hard Ripe: same as for partly slipped melons, but abscission crack completely developed.
- Eastern Choice: full size; netting light creamy color, background color light green to greenish yellow; abscission crack completely developed.
- Western Choice: full size; netting and background area creamy colored; abscission crack completely developed.

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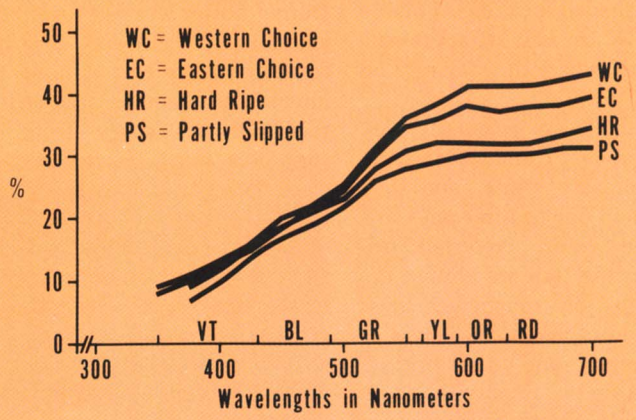

Fig. 1. Percent light reflectance from dry cantaloupes of various commercial maturities.

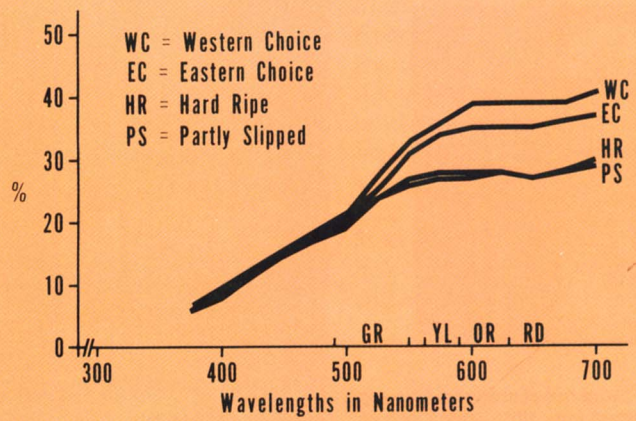

Fig. 2. Percent light reflectance from wet cantaloupes of various commercial maturities.