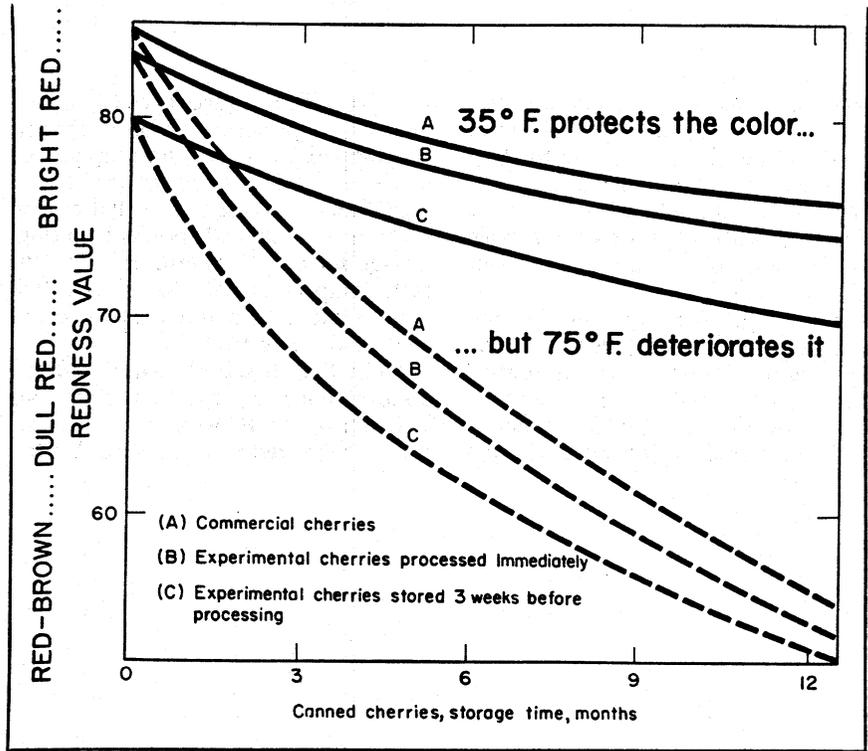


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Way to maintain fruit's attractive hue indicated as special USDA tests "spell out" bad effect of higher warehousing temperatures



How to Safeguard the Redness Of Stored Canned Cherries

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The bright red color of freshly canned cherries is a prime sales booster. Accordingly, both grower and processor take pains to guard that hue.

But this is wasted effort if the color is then permitted to deteriorate in storage. Here, low warehousing temperature can be credited with making the difference between a superior pack and one with washed-out shades of maroon.

To evaluate this effect on a quantitative basis, we studied the influence of storage temperature on the color retention of variously processed fruit. This showed:

► Some loss of red pigment after 2 months at 75F., serious loss after 6 months.

► But at 35F., loss of pigment is negligible after 6 months, and cherries are still attractive after 1 year of storage at this temperature.

► Furthermore, storage of fresh, unbruised fruit in air before processing causes insignificant color loss com-

pared with that occurring during subsequent storage of the canned product.

In our experimental procedure at Eastern Regional Research Laboratory, we heat-processed three lots of cherries in cherry-enamel tins, measured their color, and stored them.

The first lot—(A) on graph—consisted of commercially handled fruit from a processing plant. Second and third lots—(B) and (C), respectively—were experimental fruit picked and handled with a minimum of bruising.

The second lot was processed immediately, and the third was stored in air at 35F. for 3 weeks before processing. Half the tins from each lot were stored at 35F., the others at 75F. Color observations were made during storage.

Redness was gaged by comparing fruit color with colors on Munsell charts. Juice color was indicated by percent absorption at 520 mμ of a filtered, diluted (1 + 3) aliquot in a 1-cm. cell.

Spectrophotometric juice measure-

ments are shown on the graph, along with word descriptions of cherry color based on the Munsell study.

Test Results

Each lot of cherries differed in initial redness, the reddest being those from the processing plant. All lots, however, were similarly affected by storage in that their redness decreased. Color losses were especially rapid in samples stored at 75F.

It may be noted, in passing, that warehouse temperatures in the 90's are not uncommon.

After only 2 months at 75F. some loss of red pigment could be detected. But the loss had reached serious proportions at the end of 6 months.

In consumers' terms, the graph shows that these cherries retained their "extra good look" for 2 to 3 months when stored at 75F. But after about 6 months, they had lost much of their color appeal.

Storage at 35F., however, presented an entirely different picture. These cherries retained their bright appearance for 6 months and longer, and

were still attractive after a year's storage. At this low temperature, chemical reactions are slowed and destruction of red pigment is minimized.

► Moreover, limited taste-panel tests indicated that low-temperature storage inhibits the deterioration in flavor that normally occurs at 75F.

► And the graph shows another important point: Loss in redness associated with storing fresh, unbruised cherries is insignificant compared with that in storing the canned product.

True, storing of the fresh cherries

in air at 35F. for 3 weeks caused some loss of red pigment. This is shown by comparison of the starting points of (B) and (C) on the graph. However, this loss was less than that occurring in the canned product during storage for only 1 month at 75F. In fact, temperature of storage affected redness more than did relative freshness of the raw fruit.

Note that tree-fresh cherries processed at once (B) and then stored at 75F. for 1 month were just about as red as those held for 3 weeks before

processing (C) and stored for 1 month at 35F. after processing. Similar results have been obtained for other samples, too.

We do not, of course, recommend holding of harvested cherries for 3 weeks, or even 3 days before processing. Commercially handled fruit would spoil as a result of such delay and, as the graph shows, a holding period has some deleterious effect on color of unbruised cherries as well.

This experiment was included merely to provide a yardstick for measuring relative seriousness of color loss.