

Apples Exposed to Sunlight Turn Redder Than Untreated Fruit

Some farmers grow red apples by selecting specific varieties. Other farmers live in areas where the skins seem to grow brighter. Still other growers expose apples to sunlight for several days after harvest.

The last method — sometimes considered an old wives' tale — turned USDA's scientists into detectives to seek the truth of the matter. H. W. Siegleman, Agricultural Marketing Service horticulturist, and S. B. Hendricks, ARS chemist, started experimenting with the relationship of light to color of apples a year ago.

They found the practice of spreading apples on the ground in orchards for a few days is backed by more than imagination — if fruits are of a variety capable of turning red.

They proved that light does

have an effect on the development of red color in apples. And they found out why. In addition, these researchers made another discovery that possibly relates color to breathing.

First, they analyzed the red pigment. This contains anthocyanins; which are responsible for the color in red cabbage and turnip seedlings as well as apples. By conducting round-the-clock experiments (first with seedlings, then apples) under different colors of the spectrum, the scientists watched anthocyanins develop.

Tests were made with early-harvested fruits with green skins — Jonathan, Rome Beauty, and Arkansas varieties — held in storage at 32 degrees F.

Different apples were placed under fluorescent light for about 40 hours, then under 12 hours of light from various regions of the spectrum ranging from red to blue-violet. This determined the effect of different wave lengths of light on anthocyanin formation. Then the apples were placed in a dark room for 24 hours to allow the red color to develop without interference of other rays.

The researchers learned that each variety of apple turned red fastest when exposed to the red light of the spectrum. Then, after doing more detective work, they discovered that the pigment absorbing the light appeared to be related to Vitamin B-12—associated with copper. The combination forms copper flavo-protein. This is probably similar to a green enzyme that appears in animal liver and takes part in

NATIONAL MEAT PROMOTION

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ing station breaks and between programs. Through its Plentiful Foods Program, the United States Department of Agriculture cooperates closely with the National Meat Promotion Committee by disseminating information to consumers on meats that are in plentiful supply.

The National Meat Promotion Committee was established in the summer of 1955 to facilitate the cooperative planning of promotion activities for beef, pork, lamb and poultry interests. The committee's work has helped avoid overlapping of campaign dates and to set up preparations in advance of periods when any particular meat might be in difficulty and in need of special promotion efforts.

In the several campaigns which have been carried out since the Committee was organized, it has been found that promotion for any one meat also increase the volume of sales of other meats.

It was pointed out at the recent meeting that the great variety offered by meat products tends to cut down on competitive pricing. Moreover, the high income of

the control of the animal's metabolism of fats.

Scientists believe that this copper flavo-protein within the pigment of the red apples is likely to be coupled with the enzymes that burn sugar with oxygen in respiration. Experiment points the way to new questions now under study on the relationship of color and respiration.

So science now has a new basis for searching for ways to improve the quality of apples after harvest.

consumers have encouraged people to take greater advantage of the variety of meats found in retail markets today. The scientifically-proven fact that all meats are nutritionally desirable has also encouraged greater emphasis on variety in meat purchases by the consumer.

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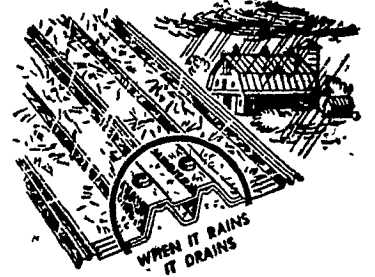
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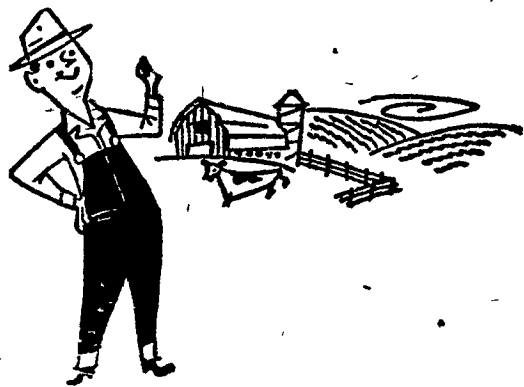
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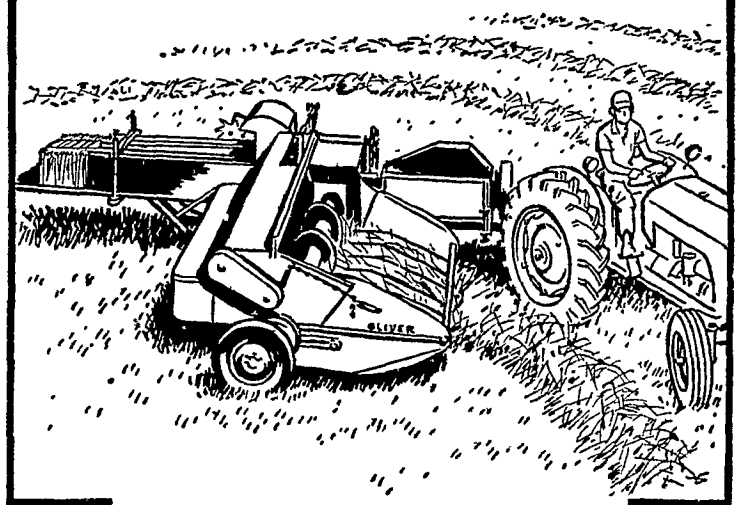
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