

Electronic Gadgets May Soon Help Processing Tomato Inspectors

By John N. Yeatman and Arthur P. Sidwell

Most of us have about as much trouble judging a tomato by the looks of its skin as we do a book by its cover.

Sometimes Federal-State inspectors have the same problem. They grade tomatoes used for processing by judging outside color and defects. In doubtful cases, they cut the tomatoes in half and check the color of the flesh. But this inspection is entirely subjective.

Scientists in the Marketing Research Division of the Agricultural Marketing Service are investigating possible ways to develop more objective grading. Already, they've found it is possible to evaluate tomato quality by objective color analyses combined with a subjective estimate of defects.

Since color is one of the most important factors indicating the quality of tomatoes, researchers first concentrated their attention on this aspect of inspection. They used photoelectric instruments to objectively measure the color of raw tomatoes.

Five of these instruments were tested under field conditions. They measured small differences in the color of the skin flesh and raw juice. From these tests, researchers found that raw tomato juice offered the most promising method of objectively evaluating tomato color.

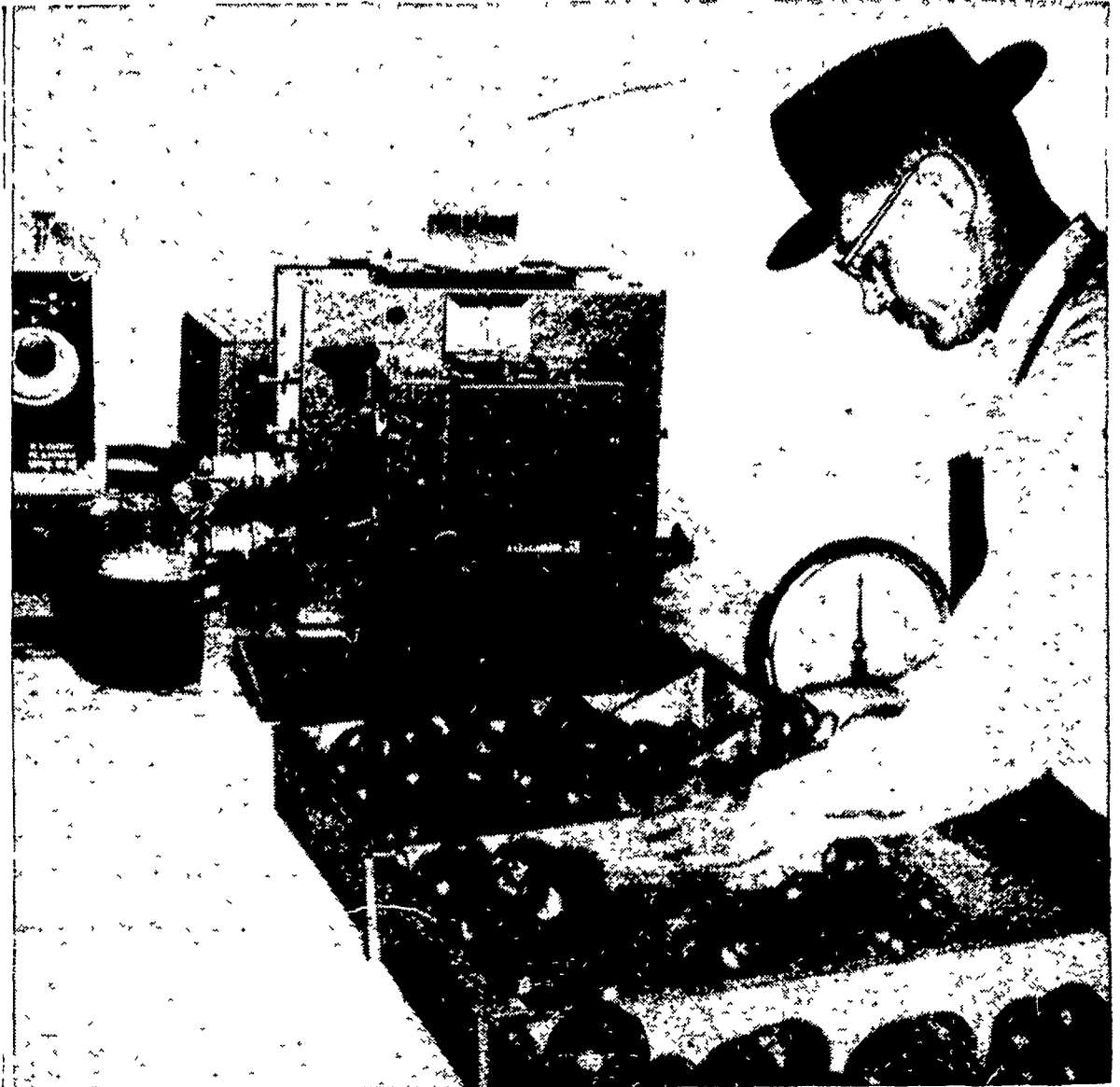
Under the present inspection system, inspectors place tomatoes for manufacture of strained tomato products in either of three grades—U.S. No. 1, U.S.

No. 2, or culis. These three separations are based on a combination of color and freedom from defects.

Any additional subdivisions on the basis of color alone are impractical, if not impossible. The new photoelectric instruments, however, would make color subdivisions more feasible.

It may also be possible, through current research, to establish new procedures for evaluating the extent of defects. At present, indurated growth cracks, shriveled spots also base their grades on mold, decay, sunburn, sunscald, freezing, and so forth.

A more objective analysis could be made by considering defects as a single factor and then combining this with a value for color. This could be done by selecting samples from the load and removing the defects. Subsamples could then be selected and the juice extracted, blended, and measured on the instruments. The color value, combined with the percent of defects, would determine the quality of the load.



GRADING OF TOMATOES may soon be done with machines like this. The juice is extracted and compared with standard col-

ors by the photometer. This is in addition to the usual exterior quality inspection given the vegetable. (USDA Photo)

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AMS researchers are also studying methods of sampling. They've looked into expected sampling errors with variations in the number of hampers selected from the loads and in the number of tomatoes selected from the hampers.

This rather extensive research into all phases of color and defect analysis has demonstrated that a new inspection procedure is possible. Some day such a method may supplement or replace the present grading procedure.

A more detailed account of the AMS work on objective tomato grading will be published this spring in a marketing research report entitled "Judging Quality of Tomatoes for Processing by Objective Color Evaluation with Subjective Estimation of Defects."

Farm Calendar

April 7
Eastern States membership meeting — 7:45 p.m. at Pequea Valley High School

April 7
4-H County Council — 7:30 p.m. at the home of Donna Heckendon, Marietta Pike, Lancaster.

New Holland Community 4-H Club — 7:30 p.m. at Bank Building.

April 8
Part-time farming committee — 8 p.m. at Production Credit Bldg., Roseville Rd., Lancaster. Emory Brown, economist from PSU, will summarize questioners. Elizabethtown - Donegal 4-H Club — 7:30 p.m. at Floim School

April 8
Eastern States Membership meeting — 7:45 p.m. at Elizabethtown Mill Road Elementary School.

April 9
4 H Guernsey Club — 7:30 p.m. at SPABC, Lancaster.

April 9
Miss Lynn Bracken of PSU will meet with the Elizabethtown Flower Club to discuss culture of annual and perennials — 1:30 p.m. at Recreation Room, Elizabethtown Bank.

April 10
Lancaster County Bankers Assn Banquet — 6 p.m. at Hotel Brunswick, Lancaster.

April 10
Eastern States Membership meeting — 7:30 p.m. at Eli Hostetters, Mt Joy.

April 10
Annual Dinner, Lancaster County Bankers Assn — 6 p.m. at Hotel Brunswick, Lancaster. Lititz-Manheim 4-H Club — 7:30 p.m. at Farland School

April 11
Boots & Saddles 4-H Club — 7:30 p.m. at the home of Galen Sweigert, Denver.

Broilers, Friers to Be On April Plentiful List

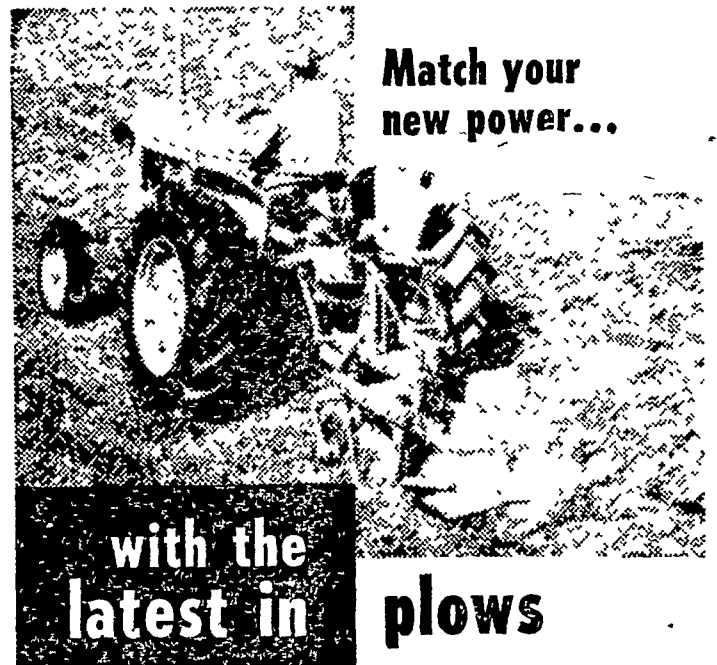
The Plentiful Foods Office of the USDA has announced that the April list will feature broilers and fryers.

The other items on the list include canned and frozen peas, canned and frozen corn, milk and dairy produces and honey.

Mushroom Chip Being Developed by USDA

The development of a mushroom chip is being planned by the USDA Research Lab in Philadelphia.

The mushroom chip will be similar to potato chips, not unlike chips from a variety of vegetables.



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