

Cutting Costs of Marketing Citrus



By GEORGE W. BARR

The highly competitive nature of the Desert grapefruit industry calls for careful attention to all items of cost in marketing the fruit. For three years the Department of Agricultural Economics of the University of Arizona has worked closely with box fabricating companies and with citrus packing houses and grower's organizations to find ways of reducing costs between producers and consumers.

5 Million Boxes Annually

The Desert grapefruit crop, annually around five million boxes, is produced in Maricopa and Yuma counties in Arizona and in Imperial and Coachella valleys in California. Sixty percent of the fruit travels an average of five hundred miles to market while the remainder averages about two thousand miles. It competes for a share of the consumer's dollar with Texas and Florida grapefruit and also with oranges and other fruits.

This study has shown that certain changes in the marketing process will reduce the cost of marketing. A number of these changes have already been put into use. They include: (1) use of labor-saving devices in moving the fruit from tree to packing shed; (2) adjustments to bring about lower packing house costs; (3) substitution of less expensive shipping boxes; (4) the use of more attractive retail packages; and (5) a downward adjustment of per mile shipping charges.

A comparison of the costs of bulk-handling of fruit in the field with the costs of the same plant's previously

used field-box system showed substantial savings. During the first year of bulk-operation the savings approximately equaled the costs of the bulk-handling equipment including the installation charges. In addition bulk-handling is said to be cleaner and to reduce the fire hazard and accidents. The information developed by the study encouraged a rapid change-over to bulk-handling. (See picture above.)

Packing costs were studied by itemizing the cost of thirteen Desert grapefruit packing plants. From 1939-1940 to 1947-1948, packing costs nearly doubled. The greatest single increase was in the cost of a wooden box and lid which cost nearly tripled during the period. A wide range in total packing costs was found. A comparison of a plant's individual costs with the average cost of the thirteen plants helped some operators find ways of reducing costs.

In 1948 and 1949 a paperboard box manufacturer cooperated with the University of Arizona and developed a paperboard box which would protect the grapefruit shipment, provide aeration and withstand the moisture

conditions that prevail in a refrigerated car. In 1950 the same box manufacturer and also a second one cooperated in this work. Experimental shipments up to carlot size were made by the University in 1948, 1949 and 1950. In each case shipments in paperboard boxes were compared with shipments in wooden boxes.

Save 15 Cents a Box

It is estimated that a saving of about 15 cents per box may be possible through the use of paperboard boxes. Certain Desert grapefruit packing houses are using some paperboard boxes on a commercial scale during the present 1950-1951 season.

Formerly grapefruit were packed in red mesh bags which were designed to enhance the natural color of oranges. The favorable consumer response shown by the study to an experimental yellow mesh bag quickly brought about a change by the industry to the more attractive yellow bag for grapefruit.

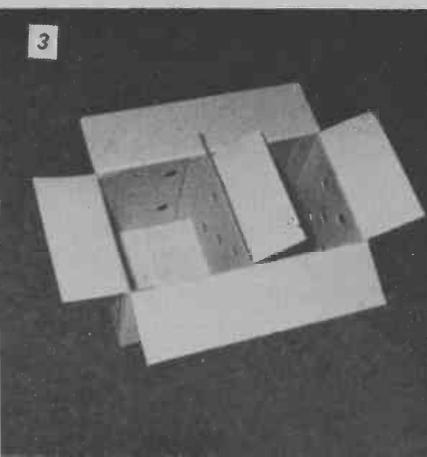
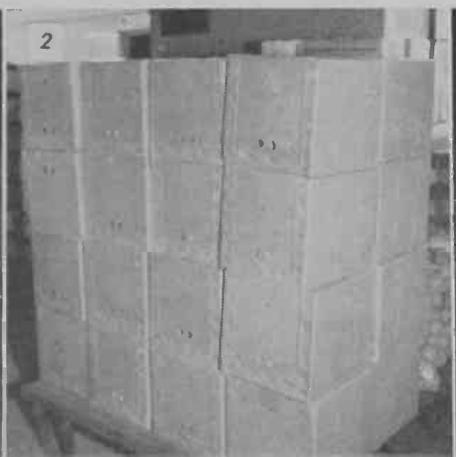
The former 76-pound estimated weight of the packed box of Desert grapefruit as used in calculating freight charges was found by this study to be six pounds too high. A 70-pound weight has gone into effect, saving about \$75,000 per year in truck and rail freight charges. Ton-mile freight rates have been shown to favor the movement of Texas grapefruit over Desert grapefruit to all major markets in the Intermountain and Pacific Northwest states. In the interest of the Desert grapefruit industry an adjustment of these rates seems advisable.

Some ratification of the study developed interesting points. The largest single cost in the marketing of grapefruit was *retailing* (Table I). Surveys of about 500 retail grocery stores in

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Table I. The Consumer's Desert Grapefruit Dollar, 1946-1947.

Cost item	Cost per packed box	Percent of total price
Consumer paid	\$3.60	100 percent
Retailer's margin	1.20	33 percent
Wholesaler's margin .....	.18	5 percent
Transportation and refrigeration .....	.61	17 percent
Selling and advertising .....	.14	4 percent
Packing .....	.81	23 percent
Picking and hauling .....	.19	5 percent
Grower received .....	.47	13 percent



Pictures 1 and 2 show condition of 1948 shipments of package citrus upon arrival in Chicago. No. 3 shows the box used in the 1950 shipment to San Francisco.

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Los Angeles and about 125 in Tucson revealed that the average retail mark-up for fresh grapefruit was comparable to that for more perishable produce (such as apples).

Many leaders in the Desert grapefruit industry believe that the present laboratory maturity standard does not accurately reflect consumer acceptability of grapefruit. A series of taste tests with consumers and a selected taste panel indicated that taste testing, after much more research, might be incorporated in the laws which de-

termine minimum maturity. Then "legally" mature fruit would be more acceptable to consumers.

Agricultural Experiment Station Bulletin 230 outlines the history of acreage, production, utilization, shipments, markets and prices of the Desert grapefruit industry. Also included are the descriptions of the process of harvesting, packing, wholesaling, retailing, and the activities of the industry's marketing committees.

—George W. Barr is Head of the Department of Agricultural Economics.

ARIZONA MELONS

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melon growing conditions in the Imperial Valley. It would seem that sugar beet acreages within melon growing districts create biological conditions unfavorable for healthy melon production.

Honey Dew melons are grown in newly irrigated desert areas because the vines are sensitive to mosaic damage brought on by insect vectors which become more serious in older cultivated areas.

Fertilizer Requirements

The fertilizer requirement for improved melon production in Arizona has not been satisfactorily determined. Some growers do not fertilize melons, especially when following a crop of lettuce. Dr. W. D. Pew, University of Arizona Vegetable Research Farm at Tempe, has initiated field tests with respect to fertilizer, irrigation and spacing requirements of cantaloups. These tests have already indicated favorable responses from applying manure, nitrogen and phosphate.

Irrigations following first picking showed no benefit. Spacing plants six inches apart in the row was favorable. Art Lange of the staff is developing melon leaf diagnosis techniques.

The improvement of Arizona's leading position in the nation's early season melon industry is one of the chief objectives of the University of Arizona agricultural research program.

—Leland Burkhart is Head of the Horticulture Department.

The Newer Insecticides

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Other Controls

It must be emphasized that the use of insecticides represents but one form of insect control. Whenever practical, the use of non-chemical methods, such as the encouragement of natural insect enemies or the use of cultural practices should be followed.

The widespread use of the newer and more effective insecticides has also reduced the numbers of native insect parasites and predators and may also affect the number of pollinating insects present in an area.

Research projects involving the study of the performance of the newer insecticides on crops and insects of importance in Arizona are now being conducted by the Arizona Agricultural Experiment Station and by members of the Bureau of Entomology and Plant Quarantine of the U. S. Department of Agriculture working in the state.

The Arizona Agricultural Experiment Station is now developing new facilities for the preliminary testing of insecticides at the Campbell Avenue Farm north of Tucson. The more promising materials and combinations will be tested further under commercial conditions found in the major agricultural areas of the state.

Current recommendations concerning the use of insecticides on Arizona crops may be obtained from your County Agricultural Agent.

—Laurence A. Carruth is Entomologist and Head of the Department.

Better Meals

Away From Home

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recipes, purchase amounts, duties of committees, and comments.

Additional Information

Additional information for community meals may be obtained from institution books and booklets. Some which would be of assistance in planning community meals are:

1. Cooking for Fifty, by Betty Crocker. General Mills, Inc., Minneapolis, Minnesota. (Price 15c.) This booklet includes recipes, amounts to purchase and suggestions for church suppers.

2. Armour Meats for Quantity Cookery, Buying Guides and Recipes, by Marie Gifford, Director of Food Economics, Armour and Company, Chicago, Illinois. (No charge.)

3. Cooking Meat in Quantity. Department of Home Economics, National Live Stock and Meat Board, 407 South Dearborn Street, Chicago 5, Illinois. (Price 25c.)

4. Large Quantity Bread Recipes, by Clara Gebbard Synder. Wheat Flour Institute, 309 West Jackson Blvd., Chicago, Illinois. (No charge.)

5. Canned Food Recipes for Serving Fifty, and a leaflet, Servings Per Unit for Various Canned Foods in Common Can and Jar Sizes. Home Economics Division, National Canners Association, Washington, D. C. (No charge.)

6. Recipes for Quantity Service. PA-112, June 1950 (Food Service I) and PA-135, September 1950. (Food Service II). Bureau of Home Nutrition and Home Economics. Agricultural Research Administration, U. S. Department of Agriculture. (No charge.)

7. Meals for Many, by Katherine W. Harris and Marion A. Wood (1942). Cornell Bulletin No. 477, New York State College of Home Economics, Cornell University, Ithaca, New York. (Price 30c.)

8. Manual for School and Institutional Lunchrooms, Revised 1946. Prepared and published by the Ohio Dietetic Association, Room 1016, 1001 Huron Road, Cleveland 15, Ohio. (Price \$2.00.)

9. Food for Fifty, by Sina Faye Fowler and Bessie Brooks West. 3rd edition 1950, John Wiley and Sons, Inc., New York City. (Price \$4.50.)

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