

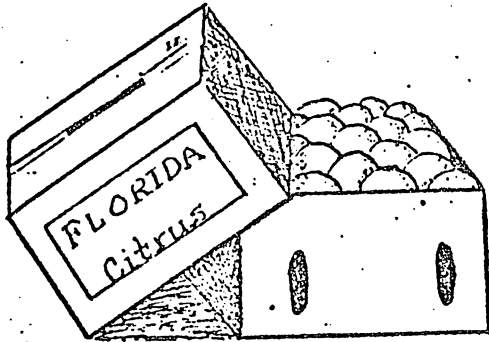
Newsletter No. 16

(*-*)
Citrus Station Mimeo Report CES 69-1
July 10, 1968

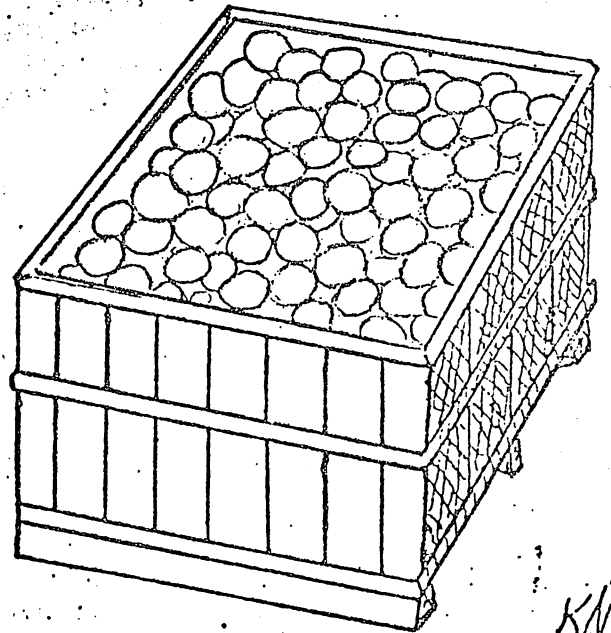
UNIVERSITY OF FLORIDA INSTITUTE OF FOOD AND AGRICULTURAL SCIENCES

and

FLORIDA CITRUS COMMISSION



Packinghouse Newsletter



Harvesting and Handling Section
University of Florida
Citrus Experiment Station
P.O. Box 1088
Lake Alfred, Florida, 33850

(Complimentary to members of the Florida Fresh Citrus Shippers Association.
Others wishing to receive this newsletter, send a dozen stamped preaddressed
envelopes to the above address.)

Harvesting and Handling Section

P A C K I N G H O U S E N E W S L E T T E R

FULLY AUTOMATIC BAGGING OF ORANGES

For a year or more, the Automation Committee of the Florida Fresh Citrus Shippers Association has sought to interest manufacturers in using the facilities of the Citrus Experiment Station for testing and demonstration of items of equipment, not already in use in the Florida citrus industry, that might aid in packinghouse automation.

On May 28-29 the first cooperative test under this program took place. The Dow Chemical Co. loaned the Florida Fresh Citrus Shippers Association the prototype model of their "Zip-Zag^R Bagger", supplied printed bags and paid all incidental costs involved. The Citrus Experiment Station packing line was modified to supply fruit from a PacRite counter (loaned by the American Machinery Corporation). Two packinghouses, Haines City C.G.A. and Alcoma Packing Company, each supplied 100 boxes of size 200 prepared 'Valencias' to be packed automatically and shipped out in regular truck loads to market. Mr. Earl K. Bowman of the USDA's Transportation and Facilities Research Division office at Gainesville did time-motion studies of actual packing rates. Sixty visitors (mainly members of the F.F.C.S.A. and their staffs) came to observe.

Thirty-two hundred bags were packed in all. Of these, time and motion figures were obtained on 3,080 for an average packing rate of just under 15 bags per minute of actual running time. Mr. Bowman has used these and other observations to arrive at preliminary project cost relationships. This study is included as an appendix to this newsletter.

Excellent market reports were obtained from both loads (one to a major supermarket in the Detroit area and the other to a jobber in Knoxville, Tennessee). The square-sealed, slack pack caused comment, but no real buyer resistance is expected---the same customers buy radishes that way all the time.

This machine has gone back to Dow for further modification. The next machine to be tested will be the Wright Tilt-fill Bagger. Dr. W. Grierson has checked its operation in the factory at Durham, N.C. and the Citrus Experiment Station packing line has once again been modified to receive it. All arrangements are being made through the office of Mr. W. G. Strickland, General Manager, F.F.C.S.A.

THE D.A.R.E. CITRUS CONFERENCE

The Citrus Conference, held as part of the D.A.R.E. (Developing Agricultural Resources Effectively) program at Gainesville May 14-15, was attended by a high proportion of the citrus industry's major executives. A paper on "Improving

July 10, 1968

Packinghouse and Processing Plant Technology and Efficiency" was given by W. Grierson and C.D. Atkins. Distribution copies were not prepared, but this paper will be carried, in two installments, in the next two issues of Citrus World magazine.

PACKINGHOUSE DAY

Our Seventh Annual Packinghouse Day Program will be held on Wednesday, September 4. Please mark this date on your calendars and feel welcome to join us. Details of the program will be published in later newsletters.

AVAILABLE PUBLICATIONS

"Mode of Entry of Diplodia natalensis and Phomopsis citri into Florida Oranges". G. Eldon Brown and W.C. Wilson. Reprint from: Phytopathology 58 (6): 736-739, June 1968. (Available from Drs. Brown and Wilson of the Florida Citrus Commission staff in this Section).

"Chilling Injury in Tropical and Subtropical Fruits: II Limes and Grapefruit". E.B. Pantastico, J. Soule, and W. Grierson. Multilithed MS for Tropical Region, Am. Soc. Hort. Sci. 1968. (Available from Dr. Soule at Fruit Crops Dept., Univ. of Fla., Gainesville, and Dr. Grierson in this Section).

PRELIMINARY PROJECTED COST RELATIONSHIP OF SEMI-AUTOMATIC
AND FULLY AUTOMATIC BAG-FILLING EQUIPMENT FOR CITRUS¹

3 Semi-Automatic machines with closing devices; one operator for each machine;
16 five-pound bags per minute combined output.

Equipment cost \$6000 (total)

| <u>Dep. (8 yr.)</u> | <u>Int. (5%)</u> | <u>Taxes & Ins. (3%)</u> | <u>Annual Ownership Cost</u> |
|---------------------|------------------|------------------------------|----------------------------------|
| \$750 | \$169 | \$180 | \$1099 |

Annual volume of 1,000,000 bags, at 960 per hr. requires 1042 elapsed hours.

Labor: $1042 \times \$1.60 \times 3 = \5002

Total Cost: $\$1099 + \$5002 = \$6101$

1 Fully Automatic machine; 1/2 time of one person as attendant (assumed);

16 five-pound bags per minute output.

Lease Plan: Charge per 1000 bags through machine

| | |
|---------------------------------|--------------------------------|
| (a) <u>Up to 5,000,000 bags</u> | (b) <u>Over 5,000,000 bags</u> |
| \$2.50 | \$1.00 |

| |
|---|
| <u>Cost for annual volume of 1,000,000 bags</u> |
| \$2,500 |
| \$1,000 |

Ownership cost for counting unit costing \$1800 is \$330 (computed by same procedure as above).

Labor: $1042 \text{ hrs.} \times \$1.60 \times .50 = \$834$

Additional cost of \$2.00 per 1000 bags for fan-fold supply form (assumed)

means \$2000 on 1,000,000 bags.

Total Cost: (a) $\$2500 + \$330 + \$834 + \$2000 = \underline{\underline{\$5664}}$

(b) $\$1000 + \$330 + \$834 + \$2000 = \underline{\underline{\$4164}}$

¹ Operating costs such as electric energy and equipment maintenance not included.