

Interim Report

PREPACKAGING OF OHIO APPLES ON THE FARM AND THEIR MARKETING

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# PREPACKAGING OF OHIO APPLES ON THE FARM AND THEIR MARKETING

## Introduction

At the request of a group of Ohio apple growers, the Department of Agricultural Economics of the Ohio Agricultural Experiment Station initiated a study of the prepackaging of apples at producers' farms.

The principal inquiry was divided into two parts: (1) the costs and methods of prepackaging and (2) the consumer and store manager's experience and preferences in regard to prepackaged apples.

This report is primarily an interim report of the first year of study in the field of methods, costs, marketing, and consumer acceptance of farm prepackaged Ohio apples.

Prepackaging or consumer packaging can be defined as entailing the preweighing, prepackaging and, often, prepricing a product in units ready for purchase by the ultimate consumer.

Twelve growers with complete records were included in the farm study. A few other producers prepackaged some apples, but not on a very large scale. Twenty-four retail stores and 371 apple purchasers were contacted to ascertain marketing practices and consumer acceptance.

## Prepackaging Ohio Apples on the Farm

There is wide variation in all parts of the prepackaging operation on the farm. No standardized methods were found. It was a hand operation in all instances.

## Packages

Eleven producers were using pliofilm bags. Five of these growers used the four pound, four used the five pound, and two used the three pound pliofilm bags. Four quart baskets were the second most popular with four users. Polyethylene bags and mesh bags were used by one grower each at the time the reports were taken. Later in the season several others used the Polyethylene and expressed preference for them due to their strength and ease of handling. Plioilm bags stuck together and were difficult for the packers to separate.

Eight producers used only one type of package, three used two types of packages, and one grower used three types.

Various methods of closing the bags were used. The three most common were the use of wire, metal clamps, and rubber bands.

The price range per thousand packages extended from \$16.00 to \$73.20. Polyethylene five pound size bags had the lowest average at \$27.30 per thousand; pliofilm four pound at \$28.31 <sup>1/</sup>, three pound at \$28.50 <sup>1/</sup>, and five pound at \$35.60 per thousand. Five pound mesh bags averaged \$42.50. Baskets were the highest with four quart size at \$57.76 per thousand average. These averages are of prices paid by the users.

Table 1. Type, Size, Average Costs, and Price Range of Packages Used by Twelve Ohio Apple Prepackagers, 1950

Type of Package	Number Using	Average Price per Thousand	Price Range per Thousand
Plioilm			
Five pound	4	\$35.60	\$33.50 to \$38.90
Four pound	5	28.31	16.00 to 34.00
Three pound	2	28.50	27.00 to 30.00
Polyethylene			
Five Pound	1	27.30	27.30
Baskets			
Four Quart	4	57.76	48.50 to 73.20
Mesh Bag			
Five Pound	1	42.50	42.50

The average loss from breakage during the prepackaging operation was six bags per thousand or less than one percent. Almost one-half of the prepackagers reported no loss at all.

Prepackaged apples were taken to stores or warehouses in master containers which usually were cardboard boxes. Other types of master containers were egg crates, wooden bushel boxes, and used lettuce crates. The cost of master containers to the producers ranged from zero to 44 cents each. Many growers were obtaining these containers second hand from various wholesalers, retailers, and grocery chain companies.

<sup>1/</sup> This seeming paradox was probably the result of large purchase orders of the four pound than of the three pound bags.

Approximately two-thirds of the growers had their master containers returned from the store to them. The majority were returned free, others at a nominal charge. The average trip life of the master container was 6.5.

About half of the farm prepackagers delivered direct to the retail stores and the other half delivered to the warehouse.

All varieties and sizes of apples lend themselves to prepackaging. Ten different varieties were prepackaged by the 12 Ohio apple farm prepackagers furnishing records. Jonathan and McIntosh were each packaged by four different growers. The 2 1/4 inch apple was the leading size prepackaged.

From the standpoint of prepackaging operations none of the producers have volume enough to constitute a large scale operation. Average packers employed numbered less than three. Mechanization probably would not increase efficiency materially because of this small volume and also from the fact that labor costs averaged only 1.8 cents per package. Any savings made by mechanization would have to come by lowering the 1.8 cents per package cost. The small producer should be able to prepackage at about the same cost as large producers as long as the prepackaging is hand work.

Number of packages packed per worker varied from 23 to 80 per hour with an average of 55.7 packages. The average hourly rate paid packers was \$.7425 and the average hourly rate paid helpers was \$.805. On the average one helper was necessary for each three packers. Some helpers placed the prepackaged apples in the master container, but usually this was the duty of the packer. The duty of the helper was that of keeping apples to the packers and taking the filled master containers away.

#### Returns from Prepackaged Apples

The appearance of uniformly sized apples in an all visible package apparently stimulated sales greatly. This was especially noticeable for the 2 1/4 inch apple which was discounted in price only very slightly from similar quality of the larger sizes.

Most farm prepackagers agreed that prepackaging tends to move more apples in the same or shorter time, increases gross cash income, significantly raises the price received for 2 1/4 inch apples, and increases the net income. The percentage of increase varies greatly among growers.

A natural question would be how much did growers receive by prepackaging their apples over what they would have received if the apples were marketed in the bulk. In some cases the percent of increase in total returns was negligible, such as the 3.4 percent increase reported on similar 2 3/4 inch apples selling for \$3.25 per bushel. On the other

hand, increases such as the 144 percent on similar apples selling for \$1.00 per bushel appear to be tremendous. Any advantage from packaging where increased returns would no more than cover added cost would have to be in moving more apples.

No comparison was available on four growers as two of them prepackaged all apples and no information was obtained from the other two.

The average increase in return for the prepackaged over bulk apples was \$.986 per bushel. This increase of prepackaged apples over similar apples sold in the bulk was 58.3 percent.

Table 2. Reported Gross Cash Increase Per Bushel in Selling Apples Prepackaged Over Similar Apples Sold in Bulk by Eight Ohio Apple Prepackagers, 1950

	Increase Per Bushel	Percent Increase	Number of Growers	Size of Apples
	.11	3.4	1	2 3/4 inch
	.44	17.0	1	2 1/4, 2 1/2, 2 3/4 inch
	.81	43.2	1	2 1/4 inch
	.86	34.4	1	2 1/2 inch
	1.25	65.8	1	2 1/4 inch
	1.44	144.0	1	2 1/4, 2 1/2 inch
	1.49	79.2	2	2 1/4 inch
Average	.986	58.3		

#### Cost of Prepackaging

The average cost of packaging a bushel of apples was 59.1 cents. These costs per bushel, including package, master container and labor expenses varied from a low of 45 cents to a high of 73.9 cents. Widest variation was in costs of master container and labor.

Of the average cost of 59.1 cents for packaging a bushel of apples, 32.9 cents was for individual packages, 8.7 cents for the master container, and 17.5 cents for labor.

If the producers who packaged their apples had marketed their apples in bulk they would have had container cost and labor expense for bulk packing. These costs would have to be subtracted from the total cost of prepackaging to arrive at the net difference in the two methods. While exact cost of bulk packing was not determined the estimate of several producers indicate that prepackaging costs about 20 cents more per bushel than bulk packing.

Marketing Practices Relating to Ohio Apples  
Prepackaged at the Farm

Store managers and their produce managers were interviewed for their experience with prepackaged and bulk apples, their attitudes and their opinions about the future and what should be done in the prepackaged apple field.

The attitude and cooperation of the retail trade was excellent. Retailers expressed a desire to do anything within reason to aid the Ohio apple producers.

A total of 24 representative stores were visited during November, January and February in Akron, Cleveland, Columbus, Dayton, Youngstown, Xenia and Yellow Springs in obtaining the data. Prerequisite for a store to be included in this study was that they were handling Ohio prepackaged apples and bulk apples and that a sufficient volume was done to warrant the interviewer's time. Volume of produce sold per store ranged from \$300 to \$9,000 a week.

Stores in the survey had been handling some prepackaged apples for an average of two years or more and usually purchased prepackaged apples from only one grower. Displaying of prepackaged apples was fair to poor. Condition of the apples was good. Most growers had done a good job of grading and sizing before packaging.

The average store handled only one size of package with the five pound pack predominating. Most stores handled only one size and two different varieties in the prepackaged apples. In bulk apples, the stores averaged 2.36 varieties made up of 1.39 local varieties, and .87 western varieties. Twenty of the 24 stores handled Western apples which made up 67.1 percent of all bulk sales.

The stores sold an average of 420.9 pounds of apples daily, made up of 238.5 pounds of bulk apples, and 182.4 pounds of farm prepackaged apples. Bulk, however, only outsold farm prepackaged Ohio apples in 52.2 percent of the stores; 4.4 percent of the stores sold equal amounts of bulk and Ohio prepacked apples, while in the remaining 43.5 percent of the stores the Ohio prepackaged apples outsold the bulk apples. During the survey when prepackaged apples were available all the time, the farm prepackaged Ohio apple outsold all other apples by 753 pounds to 523 pounds or by 44 percent.

Eighteen of the 24 stores prepackaged some apples themselves in varying size bags. If store prepackaged apple sales were combined with the farm prepackaged apples, the prepackaged apples outsold bulk apples in 19 of the 24 stores. Where store prepackaging was done, 41.9 percent of the apples received in bulk were packaged.

The average sale of farm prepackaged apples was 4.33 pounds or 47.2 percent more than the average bulk sale of 2.94 pounds. The average mark-up for the prepackaged apples was 31 percent and 52.6 for bulk apples.

### Spoilage

Store reported losses show prepackaged farm apples spoilage to be one-fifth that of all other apple spoilage. Spoilage losses for those reporting loss were 2.2 percent for bulk apples and .44 percent spoilage for prepackaged apples.

Six retailers reported absolutely no spoilage losses in prepackaged apples. The extended shelf life, better turnover, good grading and less customer handling all aid in lessening the spoilage in prepackaged apples.

### Retailer's Opinion of the Prepackaged Unit

Of no little importance is the attitude of the retailer toward farm prepackaged Ohio apples. Upon their buying and selling rest much of the success or failure of farm prepackaged apples.

Retailers were asked their opinion about farm prepackaged Ohio apples. The retailer was allowed to comment as he cared to. Very few commented on the same details and, in no case were they asked specific questions which might influence their opinions.

Seventy-eight percent of the retailers stated that they liked the prepackaged farm apples. Only one retailer complained of poor quality in the packages. None stated any dislike for the farm prepackaged apples, but they did state certain things they thought would make for improvement in the prepackaged apples. Increases of apple sales from 50 percent to 300 percent were reported with the offering of the prepackaged units.

Uniformity, good quality and less spoilage in prepacked apples were mentioned by many retailers as advantages. Clerks' time saved and convenience both for the retailer and customer were also claimed. Retailers also mentioned sanitation and good acceptance by consumers (especially for families with children) as advantages of prepackaged apples.

For improvements in the future, the most frequent comment was a desire for two sizes of bags. The three pound and five pound packages were commonly requested among the 56.5 percent of retailers desiring two package sizes.

Thirty percent of the retailers wanted a more consistent supply. Five retailers stated they would like all apples to be prepackaged. Four retailers wanted more variety in the prepackaged apples.

Consumer Acceptance of Farm Prepackaged Ohio Apples

Three hundred seventy-one apple purchasers were interviewed for their opinions concerning their purchase of apples. These purchasers, usually housewives, were asked why they purchased the apples they did.

Reasons for purchasing prepackaged apples are given in Table 3. Most of the purchasers who said they purchased the prepackaged apples regularly went on to give some reasons why. The purchasers statement "buy regularly" is left in the tabulation as a significant figure. It shows that about one out of six become a regular customer despite the short period during which apples have been offered in this way.

Table 3. Reasons Given by 183 Customers in 23 Ohio Stores for Purchasing Prepackaged Apples, 1950-51

Reason	Number <sup>1/</sup>
Buy regularly	59
Convenience	52
Better eating quality	47
Better quality	46
Cheaper	31
Bought for cooking and baking	19
Likes prepackage	17
Uses bag over	15
Sanitary	14
Size of package	13
Likes for cooking and eating	13
Appearance	11
Likes small size apples	11
Buys for children	10
Trying first time	9
Prefers Ohio apples	9
Well satisfied	7
Apples keep better	6
Reliable	4
Uniformity	4
Heard they were better	1
Bought first thing they saw	1

<sup>1/</sup> Total number of reasons exceed number of customers as many customers gave more than one reason.



The main reasons given for the purchase of bulk apples rather than packaged were: 1) that they had never tried prepacks, 2) the packages offered were too large, 3) like to pick out own apples, 4) size of the bulk apples suited better, and 5) variety desired was available only in bulk. Other answers given less frequently were that the apples in bulk were cheaper, don't trust any kind of packaged produce and that they merely purchased the first apples they saw.

A large number of purchasers of bulk apples had purchased western apples but as far as possible their answers were eliminated because they pertained to preferences for western apples over Ohio apples, rather than for prepackaged over bulk apples.

The reasons given for purchasing bagged apples and for purchasing bulk apples provide good material from which merchandising of apples could be better fitted to consumer desire.

