

MARKETING FLORIDA CELERY:

A GROWER-SHIPPER SURVEY

A Report By

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## ABSTRACT

The objective of this study was to determine Florida celery growers and shippers' reactions to different stalk lengths and packaging methods. Thirty-five growers and shippers evaluated 11 different samples: whole stalks 10, 12 and 14 inches long, each naked, banded and sleeved; loose ribs, trimmed to 10 and 12 inches, both sleeved. Respondents were critical of all 10-inch treatments, but were more favorable toward 12-inch stalks. The 14-inch sleeved samples were preferred over 14-inch banded or naked stalks, but respondents were concerned with the additional costs of sleeving. All samples of loose ribs were judged undesirable. Growers and shippers felt that shorter stalks could alleviate some of their problems. However, wholesale, retail and consumer preferences might not allow major changes.

Key words: celery, marketing, stalk length, packaging.

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INTRODUCTION

Florida celery growers are interested in improving the marketing and merchandising of their product. Such improvements will result in increased profitability, or at least improve their competitive position with respect to California celery.

The primary objective of this phase of the study was to determine Florida celery growers and shippers' reactions to different stalk lengths and packaging methods which could conceivably be used to market Florida celery more effectively.

PROCEDURE

Agricultural Market Research Center staff conducted personal interviews with 35 Florida celery growers and shippers during the period March 10-26, 1976. The interviewees represented all active celery growing and shipping operations in the state. Interviewees were shown 11 samples of celery and asked to evaluate them.

There were three stalk lengths "packaged" in three alternative ways and also two lengths of bagged loose ribs. A concise description of the samples appears in Table 1. The whole stalks were trimmed to 10, 12, and 14 inches and the loose ribs to 10 and 12 inches. The "packaging"

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Table 1.--Celery lengths and packaging alternatives evaluated by Florida celery growers and shippers.

Length	Packaging Alternatives			
	Whole Celery Stalks			Loose Ribs, Trimmed, Sleeved
	Plain <sup>a</sup>	Banded <sup>b</sup>	Sleeved <sup>c</sup>	
10-Inch	X	X	X	X
12-Inch	X	X	X	X
14-Inch	X	X	X	

<sup>a</sup> Plain: Naked stalks.

<sup>b</sup> Banded: A narrow rubber band was placed around ribs near the first node.

<sup>c</sup> Sleeved: Stalks were placed in 3 1/2" X 6" X 15" vented polyethylene sleeves and closed at the top with 1" plastic clips.

alternatives consisted of "plain" or naked stalks, "banded" and "sleeved" whole stalks, and "sleeved" loose ribs. The banded samples had narrow (approximately 1/8-inch wide) green rubber bands which encircled the stalk near the first node. The sleeved samples were packaged in vented sleeves of medium-weight transparent polyethylene which measured 3 1/2 X 6 X 15 inches. The sleeves contained no printing or designs. One-inch orange plastic clips were used to keep the sleeves closed.

Two crates of size 2 celery were obtained for the samples, one in Oviedo, the other in Belle Glade. The crates were randomly selected directly from cold rooms of two different firms. The celery obtained from both firms was of high quality; stalks were reasonably uniform, well-shaped and compact, with generally long ribs. Outside ribs averaged 8.9 inches in length from the butt to the first node. Stalks for the individual samples were also randomly selected from the crates. Samples were kept on ice to insure freshness.

Each person interviewed was asked to complete a questionnaire to obtain his appraisal of the various samples. Interviewees were able to view and compare all samples at once, and were encouraged to handle them if desired. Everyone was asked whether or not each sample could be marketed successfully, and to elaborate on his answer. Further, each respondent was asked to select and rank his top four choices of samples. Each was also asked to discuss the advantages and disadvantages of the 14" plain stalk which is currently the most common way of marketing Florida celery.

### RESULTS

Since a number of Florida celery marketing firms already sleeve some celery (whole stalks and hearts), the sample characteristic which attracted the most attention was stalk length. However, packaging alternatives elicited considerable discussion as well.

Many respondents commented on the various lengths regardless of packaging or talked about packaging without regard to length. General comments on stalk length and packaging will be examined first, and will be followed by a detailed discussion of specific samples.

#### Stalk Length

All 10-inch samples were frequently criticized and rarely praised. Most respondents gave them a cursory examination, pausing only long enough to say that they were too short and that they lacked eye appeal or that the housewife would not consider the short stalk. Several shippers commented on possible transportation savings and longer shipping and shelf life due to elimination of problem-causing leaves, but in general, very few positive comments were made about the 10-inch cuts.

The 12-inch stalks attracted considerably more attention. There were a few criticisms of the general appearance, but most comments were favorable. The most frequently mentioned positive point was that the 12-inch cuts would reduce leaf problems considerably. Growers and shippers mentioned that disease and/or insect damage and unsightly



feather leaves could be removed in packing. Also, because leaves break down relatively fast, shipping stalks with fewer leaves would contribute to longer shipping and shelf life. Savings on containers and transportation were also mentioned repeatedly.

The 14-inch samples were generally well received. Respondents felt that the overall appearance and appeal of the conventional length is good. It was mentioned that the 14-inch cut is already accepted by the trade and by consumers, and that it competes well with California celery.

However, approximately half of those interviewed specifically mentioned leaf damage or deterioration as a major disadvantage of the longer stalks. Other problems mentioned were the additional packaging and transportation costs as compared with shorter cuts. Several also mentioned that 14-inch stalks were too long to store in typical refrigerator vegetable drawers.

#### Packaging Alternatives

Respondents indicated that several firms currently sleeve a portion of their pack either as hearts or stalks. The reaction to sleeving was mixed, likely due to differences in packing methods and efficiency in sleeving operation. Some respondents indicated that sleeving was profitable and desirable at current upcharge rates, while others sleeve celery at a financial loss as a service to some buyers. Almost everyone agreed that sleeving prolonged shelf life, but the primary concern was the additional cost. Several respondents felt that the sleeve improved the appearance of the product. Others thought sleeved celery reduced handling damage and was cleaner to handle at the retail level.

Reaction to the appearance of banded samples was generally favorable. Respondents commented on the "neat" "compact" look. But, many expressed concern over potential physical problems and costs associated with banding. Several interviewees questioned the value of banding to the consumer, and a few opposed banding because of the possibility of damage to the stalk by the band or the banding process.

The overall reaction to loose ribs was negative. The general appearance was repeatedly criticized; several said the loose ribs looked "damaged" or "dead". Specifically, respondents felt that the cut ends of the ribs would discolor rapidly and break down more quickly than whole stalks. Others anticipated that packing costs would be prohibitive. Several firms have unsuccessfully tried loose ribs; their reasons for discontinuing the product included poor retail sales, the discoloration and subsequent rotting of cut rib ends, and high packaging costs,

### Specific Samples

Respondents' evaluations of the various alternatives to the currently marketed 14-inch plain stalk are listed below. Their appraisals of each sample's market potential (Table 2) and respondents' ranked preferences for all samples including the 14-inch plain stalk are in Tables 3 and 4.

10-inch plain. Only 29 percent of those interviewed felt that the 10-inch plain product could be marketed successfully. Nearly half of those gave the product a conditional "yes" vote; they said the 10-inch plain stalk could be marketed if no other alternatives were given.

The 10-inch plain sample was included in respondents' top four choices more frequently than any other 10-inch cut (10 times vs. 8 for 10-inch sleeved) but considerably less frequently than 12 or 14-inch whole stalks (Table 3).

The primary criticism against the 10-inch plain stalk was general appearance. Most respondents said it was too short and lacked eye appeal. Several thought the housewife would not buy it because it lacked leaves. Others thought the trade might oppose such a short cut because the shorter stalk would permit less reworking of the tops at the retail level. There were very few positive comments made about the 10-inch plain stalk. Several interviewees mentioned possible transportation savings, and one person cited longer shelf life due to removal of problem-causing leaves.

10-inch banded. Reaction to the 10-inch banded sample was very similar to the 10-inch plain. Ten respondents, 29 percent of those interviewed, thought that it could be marketed, but half of those felt it had a chance only if no alternative sizes were offered by either Florida or California shippers.

Table 2.--Florida celery growers and shippers' appraisals of market potential for selected celery samples

Sample (Length & Package Type)	Could this sample be marketed successfully?						Overall Totals
	Yes	Yes*	Total Yes	No	No*	Total No	
	(Percent/Number of Respondents) <sup>a</sup>						
10" Plain	18 6	12 4	30 10	71 24	0 0	71 24	100 34
10" Banded	15 5	15 5	29 10	71 24	0 0	71 24	100 34
10" Sleeved	39 13	9 3	48 16	52 17	0 0	52 24	100 34
10" Loose Ribs	6 2	3 1	9 3	88 30	3 1	91 31	100 34
12" Plain	66 23	17 6	83 29	16 6	0 0	17 6	100 35
12" Banded	57 20	17 6	74 26	26 9	0 0	26 9	100 35
12" Sleeved	59 19	16 5	75 24	25 8	0 0	25 8	100 32
12" Loose Ribs	9 3	9 3	19 6	78 25	3 1	81 26	100 32
14" Banded	50 17	24 8	74 25	26 9	0 0	26 9	100 34
14" Sleeved	50 16	28 9	78 25	22 7	0 0	22 7	100 32

\* Responses included in starred columns are conditional, that is, respondents attached a qualification of their "yes" or "no" answer.

<sup>a</sup> The top number in each two-number group is a percentage and the bottom number the actual number of respondents. Slight discrepancies may occur in percentage totals due to rounding.

Table 3. --Preference rank of selected celery stalk lengths and packaging types, as expressed by celery growers and shippers, March, 1976

Treatment	Preference Rank				Total Times Ranked in Top 4
	1st	2nd	3rd	4th	
	(Frequency)				
10" Plain	0	2	5	3	10
10" Banded	1	0	1	0	2
10" Sleeved	3	0	3	2	8
10" Loose Ribs	0	1	1	0	2
12" Plain	6	5	5	1	17
12" Banded	2	6	3	5	16
12" Sleeved	3	2	3	6	14
12" Loose Ribs	0	0	0	1	1
14" Plain	6	7	3	2	18
14" Banded	9	3	3	0	15
14" Sleeved	0	3	2	3	8

Source: Completed Questionnaires.

Criticisms were directed primarily at the shortness of the stalk and the lack of leaves. Several respondents expressed concern over physical banding problems, the cost of banding, and band damage to the stalks. Only two respondents ranked the 10-inch banded in their top four choices; one selected it as his first choice, and the other as his third choice (Table 3). The 10-inch banded sample received few favorable comments. Several respondents mentioned transportation savings, longer shelf life due to fewer leaf deterioration problems, and housewife convenience as positive points.

Table 4.--Preference rank of selected celery packaging types and stalk lengths, as expressed by celery growers and shippers, March, 1976

Treatment	Preference Rank				Total Times Ranked in Top 4	
	1st	2nd	3rd	4th		
Plain	10	0	2	5	3	10
	12	6	5	5	1	17
	14	6	7	3	2	18
Banded	10	1	0	1	0	2
	12	2	6	3	5	16
	14	9	3	3	0	15
Sleeved	10	3	0	3	2	8
	12	3	2	3	6	14
	14	0	3	2	3	8
Loose Ribs	10	0	1	1	0	2
	12	0	0	0	1	1

Source: Completed Questionnaires.

10-inch sleeved. Nearly half of those interviewed, 48 percent, indicated that the 10-inch sleeved product could probably be marketed successfully and eight respondents included the 10-inch sleeved in their top four preferences (Tables 2 and 3). The 10-inch sleeved product received the same basic criticisms as the other 10-inch cuts: "too short" and "unattractive." There were fewer specific criticisms of lack of leaves, however. Apparently, the sleeve makes the amount of leaves less noticeable. Three respondents expressed concern about the costs of sleeving. On the positive side, several of those interviewed thought the sleeve enhanced the overall appearance. There were two favorable comments in regard to the expected transportation savings and one which mentioned longer shelf life as an important consideration.

10-inch loose ribs. The 10-inch loose ribs were very poorly received. Only three respondents thought that this product could be marketed

successfully, and one felt that it could be marketed only if no other alternatives were available (Table 2). The ranked preferences showed the same pattern: only two respondents included the 10-inch loose ribs in their top four choices (Table 3).

The criticisms largely coincided with the other 10-inch samples: "too short," "no appeal," "too much waste," etc. However, there were additional criticisms directed specifically at the loose ribs.

A major concern was the packing cost; several thought that loose ribs would be physically difficult to sleeve which would increase costs over sleeving whole stalks. A second major concern was shelf life. Many respondents said the cut rib ends would turn dark and start to rot quicker than whole stalks. Several felt that housewives would not consider the loose ribs, but in contrast, one interviewee said the loose ribs would probably be more convenient for housewives. Several of those interviewed reported that their firms had unsuccessfully tried selling loose ribs. The primary reasons for discontinuing the loose ribs were poor retail sales, poor product shelf life, and prohibitive packing costs.

12-inch plain. Reaction to the 12-inch plain samples was generally very favorable. A majority of those interviewed, 23 or 83 percent, felt this cut could be marketed successfully; of these, six respondents (17 percent) felt it could be marketed, but expressed some reservation (Table 2). Approximately one-fifth of all respondents selected the 12-inch plain as their first choice of all the samples. A total of 17 respondents ranked it among their top four choices (Table 3).

The majority of comments made about the 12-inch plain sample was positive. There were a few criticisms of the general appearance and the reduced number of leaves, but there were more positive responses than negative. Interviewees were quick to point out the advantages of packing stalks with fewer leaves: (1) leaf defects such as leaf miners, blight and feather leaves could be eliminated, possibly resulting in lower growing and packing costs; (2) fewer leaves would result in longer shipping and shelf life because leaves are the first part of the plant to deteriorate; (3) substantial transportation savings and (4) possible container savings.

The opinion was also expressed that the 12-inch length was a more convenient length for the housewife to use and store than the conventional 14-inch stalk.

12-inch banded. Twenty-six of those interviewed said that the 12-inch sample had market potential; but, of these, six expressed some reservation (Table 2). Overall appearance and appeal did not seem to be the primary cause for concern, but rather the cost of the banding operation. In addition to the cost involved, several felt that the bands would damage the stalk and accelerate deterioration. Transportation savings, container savings, longer shelf life, and housewife convenience were other positive points mentioned by a few respondents. The 12-inch banded was selected as a first choice by only two respondents, but was frequently selected as a second, third, or fourth alternative (Table 3).

12-inch sleeved. The overall reaction to the 12-inch sleeved sample was favorable, although there were some dissenters. About three-fourths of the respondents thought the product could be marketed successfully; however, several of these expressed some reservations. One mentioned the possibility of consumers confusing the whole stalks with hearts; another suggested that the length should be only 11 inches to facilitate storage in most home refrigerators.

The positive comments dealt primarily with the general appearance of the product, increased shelf life resulting from fewer leaf problems, and transportation and container savings. A few comments reflected a belief that the product would be more convenient for the consumer. Almost all negative reactions were based on sleeving costs. Most respondents said that the 12-inch sleeved product had no market potential because sleeving was too costly and thus restricted sales if all costs were passed on. The current upcharge for sleeving was reported to be three to four cents per stalk. Some respondents indicated that this was profitable; others reported losing money at these rates. The mixed reaction to sleeving is probably due to differences in packing operations, i.e., field packing vs. central packing sheds and the resulting efficiencies in the sleeving operation.

The 12-inch sleeved sample was selected as a first choice by only three respondents, but was selected as a second, third, or fourth choice by eleven others (Table 3).

12-inch loose ribs. The overwhelming reaction to the 12-inch loose ribs was negative. Only six of those interviewed felt that the 12-inch loose ribs had market potential. Three of the six gave various qualifications to their statements that the product had market potential. One said sales of loose ribs would probably compete with sales of whole stalks; another said it would sell if no alternatives were given, and a third said that it would probably sell if the bag contained information adequately describing the contents. Only two respondents gave specific, favorable comments; one said "it looks ok," the other indicated it would be convenient for housewives in preparing relish trays. There were many criticisms of the 12-inch loose ribs. Generally, poor appearance, lack of eye appeal, quick discoloration of cut rib ends, excessive packing costs, and fear of consumer resistance were the most common complaints.

The negative reactions were also reflected in respondents' preference ratings. No one selected the 12-inch loose rib product as a first, second, or third choice and only one selected it as a fourth alternative (Table 3). Several interviewees indicated that their firms had tried packing loose ribs but had discounted them because of poor retail sales, poor shelf life, and excessive packing costs.

14-inch plain. Growers and shippers estimated that 90 to 95 percent of Florida celery shipments consist of the 14-inch plain stalks. Because of this pack's importance, respondents were shown a 14-inch plain stalk of celery and asked to elaborate on its advantages and disadvantages.

The advantages most frequently mentioned was that 14-inch plain stalks are attractive and appealing to both the trade and to consumers. A few respondents felt the leafy tops appealed to the housewife because she could use them in cooking and thus get more for her money.

Another frequently mentioned advantage was the relatively low cost of packing, specifically mentioned by five of those interviewed. Several interviewees thought that the 14-inch cut was advantageous because of its



current trade acceptance, and one felt that the 14-inch plain was easier to re-trim at the retail level.

The appeal of the currently accepted product was also demonstrated in the preference rankings. Although the 14-inch plain stalk was selected as a first choice by only six respondents as compared to nine for the 14-inch banded, it was selected as one of the top four choices by 18 respondents.

There was considerable agreement regarding the disadvantages of the 14-inch plain stalk. Seventeen of those interviewed specifically mentioned leaf problems. The 14-inch length requires that the leaves be essentially free of insect damage, diseases, and feather leaves.

Most respondents also pointed out that the leaves are the first part of the celery plant to deteriorate, and a few felt that the 14-inch cut resulted in unnecessary transportation costs for tops. Several respondents felt that the 14-inch plain stalks were messy to handle at the retail level and also subject to damage by housewives. Three respondents felt that the 14-inch stalk was too long to be conveniently stored in home refrigerators. One respondent also felt that the 14-inch stalk was a disadvantage because retailers prefer more compact stalks in order to conserve shelf space and reduce stocking time.

14-inch banded. Generally, reaction to this sample was favorable. Approximately three-fourths felt the 14-inch banded had a good appearance and eye appeal and thus could be marketed successfully, but many respondents were concerned with the cost of banding. Almost one-fifth of those interviewed mentioned banding costs as the primary detriment; several suggested that the banding be done at the retail level.

Several respondents felt that the 14-inch stalks were too long for the housewife to store conveniently, but several others felt that housewives prefer the leafy tops. Three of those interviewed criticized the sample because they felt the 14-inch length included too many leaves and thus shelf life would be reduced. Two interviewees feared the band would damage the stalk, thereby creating problems.

The favorable reaction to the 14-inch banded sample was further reflected in the preference rankings. Nine of the respondents selected

it as their first choice; three selected it as their second choice, and three picked it as their third choice.

14-inch sleeved. Twenty-five of the respondents thought the 14-inch sleeved product could be marketed. However, nine of the 25 were somewhat hesitant. Some expressed concern over the additional cost of sleeving but several comments were directed at the length rather than the package. A couple of respondents mentioned relatively quick deterioration of leaves. Some also said that stalks were too long to fit in the average house refrigerator. On the positive side, six said the 14-inch sleeved was attractive and made a good appearance and three specifically mentioned longer shelf life as a benefit of sleeving.

The majority of those that saw no potential for the 14-inch sleeved product cited cost of sleeving as the reason. There was one person who objected to the appearance of sleeved celery and another that expressed a particular dislike for the 14-inch length because of leaf deterioration.

The 14-inch sleeved fared rather poorly in terms of preference rankings when compared to the other 14-inch lengths and the 12-inch sleeved sample. The 14-inch sleeved product was ranked in the top four choices by only eight respondents and none selected it as a first choice (Table 3).

### CONCLUSIONS

The basic sample characteristic which attracted the most grower and shipper attention was stalk length. Reducing the stalk length was generally viewed as having direct benefits, but packaging was not generally considered to be of much immediate direct benefit. Further changes in stalk length could easily be implemented by everyone in the celery industry. On the other hand, adoption of packaging alternatives could possibly require substantial changes in harvesting and packing procedures. Banding and sleeving, if acceptable to the trade and consumers, may improve some firms' marketing efforts and help other firms later.

There were a few dissenters in every case, but the consensus was that the 10-inch samples were too short. The feeling was that they

sacrificed too much eye appeal and thus would encounter resistance from the trade and consumers. Loose ribs, both 10 and 12-inch, were rejected. They apparently have little market potential because of reduced shelf life, prohibitive packing costs, and consumer resistance.

The 12-inch whole stalks were well received. Compared to the traditional 14-inch length, the 12-inch cut apparently offers a compromise which could reduce packing and shipping problems by eliminating many of the troublesome leaves. Substantial transportation savings and possibly some container savings could result from adopting the 12-inch length.

The traditional 14-inch length received many favorable comments. However, many growers and shippers are beginning to question the packing and shipping of leaves that may not be essential to retail sales. The 14-inch cut currently marketed may be the only viable alternative at the present because of competition from other celery growing areas or because of consumer preferences.

Growers and shippers had many opinions on consumer preferences with regard to the quantity of leaves and type of packaging desired. Many of these opinions were conflicting at this point, since no one really knows what the consumer wants.

While shorter stalk lengths or alternative packaging may be more efficient from the grower, shipper, wholesaler and retailer viewpoints, efficiency is not always translated into greater sales and greater profits. People anywhere in the marketing system can refuse to go along with efficiency because of "tradition" or preconceived, erroneous ideas about what the consumer "really wants."

APPENDIX

Growers and shippers were quite willing to give their views on the samples shown them, but they were usually quick to point out that the ultimate decisions on marketing alternatives were made by produce buyers and consumers. Thus, they raised the question of trade and consumer acceptance of the samples shown in this phase of the study. The following is an outline of possible research areas that emerged during the course of the interviews.

### Researchable Problems Affecting the Florida Celery Industry

- I. At the wholesale and retail level
  - A. What lengths and packaging alternatives are offered by competing areas?
  - B. How does Florida celery compare to competition in overall quality, with respect to:
    1. Uniformity of pack
    2. Shelf life
    3. Appearance
      - a. Shape and compactness
      - b. Color
      - c. Leaves
      - d. Rib length and curvature?
  - C. Are Florida celery containers acceptable to the trade; with respect to:
    1. Size
    2. Type: wirebound, waxed carton, plastic
      - a. Physical aspects of shipping and handling
      - b. Disposal problems related to different types of containers
      - c. Containers' effects on product quality?
  - D. Would simplified size standards be acceptable? (For example, use "Small, Medium, Large" or similar classifications to modify current count system.)
  - E. What are current merchandising practices and problems?
    1. What is the extent and nature of packaging at the wholesale and retail levels?
    2. What are the costs of wholesale and retail packaging activities?
    3. What are specific merchandising problems, such as:
      - a. The extent of reworking
      - b. How do various stalk lengths and packages affect display space and techniques?

- F. What are effects of length and packaging alternatives on retail sales?
  - G. What are the most effective promotional activities for Florida celery?
- II. At the consumer level
- A. What are the use patterns effecting length and/or package preferences?
    1. Frequency of purchase and use
    2. Serving methods - raw or cooked, regular use of special occasions
    3. Amount of trimming done at home
    4. Use of leaves
    5. Method and duration of home storage
    6. Perceived problems in purchasing and using celery?
  - B. How knowledgeable and selective are consumers regarding the geographic origin of celery?