



Know-how for Horticulture™

A better packaging system for celery

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J&JM Schreurs & Sons

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VG0 2003:

A better packaging system for celery.

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Summary:

Over a period of three weeks, from June 1st until June 20th 2003, consumer surveys were conducted on whether retail customers preferred packaged celery in plastic sleeves to the traditional display of celery. The retail owners were also given a product development survey discussing the new style of carton and their perception on the sleeved celery. Due to the lack of feedback from interstate and local retailers, it was decided that on-the-spot surveys, conducted personally by employees from *J & JM Schreurs & Sons*, was the only option in obtaining accurate and sufficient results. Four locations were chosen: Camberwell, Chadstone, Mornington and Prahran out of which a total of 105 people were surveyed. In brief, 27% preferred celery in a plastic bag, 50% did not prefer packaged celery whilst the remainder were unsure. This indecisiveness can mostly be attributed to a lack of consumer knowledge in the hygienic and longer lasting benefits of pre-packed celery. On the retail level, the benefits of the tray style carton were not fully shown. The owners opted to remove the celery out of the carton rather than using the tray as part of their overall display. Whether this had an effect on the consumer response to the pre-packed celery is inconclusive at this stage. However, the major benefit of the tray was its easy handling and weight factor. Each tray weighed an average 12 kg. On the down side, the new packaging system presents added cost factors in the plastic bag and labour time in packing. Unless the grower is willing to absorb these extra costs, the end-of-the-line consumer will have to pay. The problem of educating the public about the benefits of pre-packed celery then proposes itself as a new challenge.

Introduction:

The aim of this project was to design and trial a new packaging system that is safer, more efficient, and appealing to wholesalers, retailers and consumers. Various packaging systems were designed that paid particular attention to the work safety requirements of lighter cartons and food safety guidelines in providing uncontaminated fresh produce. It was established tray style packing best suited these requirements. The carton's lighter weight of approximately 12 kg is expected to reduce the risk of personal injury from the packing shed through to the retailer. Additionally, the tray carton enables the retailer to directly display the celery without handling each individual stick. This in turn increases labour efficiency and reduces the quality effects of extra product handling. The plastic sleeve over the produce creates a barrier for increased risk on microbial contamination through consumer handling. The industry food safety guidelines, (HAL project 98093), suggests that consumer handling can spread bacterial organisms including *Staphylococcus aureus*, *Shigella* spp. and *Salmonella* spp plus viruses, Hepatitis A, the Norwalk and small round shaped viruses (SRSV's). Apart from reducing such risks, the plastic sleeve also prolongs the life of celery. Adding to the product's shelf life, the shorter length creates less surface area, reducing the wilting effect on celery. Ideally, this is a benefit for both the retailer and the consumer. The shorter stick also gives way to less household wastage and allows for easier storage in the refrigerator's crisper. With these packaging characteristics in mind, the tray cartons were used with display dimensions of 570L × 375W × 200H mm and packaged/transport dimensions of 570L × 375W × 130H mm.

Over a period of three weeks, from June 1st until June 20th 2003, consumer surveys were conducted on whether retail customers preferred packaged celery in plastic sleeves to the traditional display of celery. The retail owners were also given a product development survey discussing the new style of carton and their perception on the sleeved celery. Due to the lack of feedback from interstate and local retailers, it was decided that on-the-spot surveys, conducted personally by employees from *J & JM Schreurs & Sons*, was the only option in obtaining accurate and sufficient results. Four locations were chosen: Camberwell, Chadstone, Mornington and Prahran out of which a total of 105 people were surveyed.

Results:

Customer Survey Results					
Region	People Surveyed				
Camberwell - <i>Petrero's Fruit Barn</i>	16				
Chadstone - <i>Chadstone Fruit Market</i>	3				
Mornington - <i>Peninsula Farmers' Market</i>	60				
Prahran - <i>Pino's Fine Produce</i>	26				
TOTAL	105				
1. How often do you purchase celery?					
	Camberwell	Chadstone	Mornington	Prahran	Total %
Weekly	7	1	26	9	40.95%
Fortnightly	6		22	10	36.19%
Monthly	3	2	7	4	15.24%
Rarely			5	3	7.62%
2. What is your main use for celery?					
	Camberwell	Chadstone	Mornington	Prahran	Total %
Salads		1	3	1	4.76%
Soups	2		3	2	6.67%
Sandwich					0.00%
Sticks	1		2	2	4.76%
Other			5	2	6.67%
2 or more	13	2	47	19	77.14%
3. The ideal size for celery is (cm long):					
	Camberwell	Chadstone	Mornington	Prahran	Total %
60 cm	2		19	5	24.76%
45 cm	2		12	7	20.00%
35 cm	8	3	22	10	40.95%
30 cm	4		7	4	14.29%
4. The ideal presentation is:					
	Camberwell	Chadstone	Mornington	Prahran	Total %
Whole Bunch	8	1	31	5	42.86%
Half Bunch	5	2	24	15	43.81%
Individual Pieces	1		2		2.86%
Depends	2		3	6	10.48%
5. How do you rate the new display for celery?					
	Camberwell	Chadstone	Mornington	Prahran	Total %
Not much difference	12	3	21	9	42.86%
More attractive	3		23	8	32.38%
Worse than before	1		16	9	24.76%
6. I can easily check the quality of celery through the plastic bag:					
	Camberwell	Chadstone	Mornington	Prahran	Total %
Definitely Agree	1		12	2	14.29%
Agree	4	1	21	14	38.10%
Not sure	3	1	3	5	11.43%
Disagree	5		18	3	24.76%
Definitely Disagree		1	6	1	7.62%
Didn't look closely	3			1	3.81%
7. I prefer celery in a plastic bag:					
	Camberwell	Chadstone	Mornington	Prahran	Total %
Definitely Agree	3		6	2	10.48%
Agree	4	1	7	6	17.14%
Not sure	6	1	11	5	21.90%
Disagree	2		25	8	33.33%
Definitely Disagree	1	1	11	5	17.14%
8. I think the celery in a plastic bag is cleaner:					
	Camberwell	Chadstone	Mornington	Prahran	Total %
Definitely Agree	5		12	6	21.90%
Agree	4	2	20	7	31.43%
Not sure	3		13	6	20.95%
Disagree	4		12	4	19.05%
Definitely Disagree		1	3	3	6.67%
9. Do you think celery will last longer in a plastic bag?					
	Camberwell	Chadstone	Mornington	Prahran	Total %
Yes	9	2	17	13	39.05%
No	2	1	29	4	34.29%
Not sure	5		14	9	26.67%
10. Do you think packaged celery will fit in your crisper more easily?					
	Camberwell	Chadstone	Mornington	Prahran	Total %
Yes	13	3	43	20	75.24%
No	1		13	1	14.29%
Not sure	2		4	5	10.48%

Product Development Survey Results

Location

Camberwell - *Petraro's Fruit Barn*
 Chadstone - *Chadstone Fruit Market*
 Mornington - *Peninsula Farmers' Market*
 Prahran - *Pino's Fine Produce*

Owner Surveyed

Max
 Unavailable at the time
 Brett Williams
 Sam Narduzzo

1. Do you think the new carton can display celery:

	Camberwell	Chadstone	Mornington	Prahran
A Much better than traditional cartons				
B Better than traditional cartons	C	-	C	A
C No significant difference				
D Worse than traditional cartons				

2. I find that:

	Camberwell	Chadstone	Mornington	Prahran
A I save time with the new display carton because I can use it directly on the shelves	C	-	D	B
B The new display carton does not save me much time, but the product looks better				
C The new display does not make any Difference				
D I prefer to remove the celery sticks from the carton and prepare my own display				

3. The new celery carton is:

	Camberwell	Chadstone	Mornington	Prahran
A Much easier to handle				
B Easier to handle	B	-	C	B
C No significant difference				
D More difficult to handle				

4. Consumers can easily evaluate the quality of the product through the plastic bag:

	Camberwell	Chadstone	Mornington	Prahran
A Definitely Agree				
B Agree	C	-	C	C
C Not sure				
D Disagree				
E Definitely Disagree				

5. The plastic bag is very effective in preventing contamination through consumer handling:

	Camberwell	Chadstone	Mornington	Prahran
A Definitely Agree				
B Agree	A	-	A	B
C Not sure				
D Disagree				
E Definitely Disagree				

6. The shorter length celery sticks will easily fit into refrigerator crisper. Do you think this will:

	Camberwell	Chadstone	Mornington	Prahran
A Eliminate a lot of product wastage				
B Eliminate some product wastage	A	-	B	C
C No significant reduction				
D Produce more product wastage				

7. If you could choose between the new and traditional celery cartons, would you:

	Camberwell	Chadstone	Mornington	Prahran
A Definitely choose the new carton				
B Probably choose the new carton	C	-	D	F
C Not sure				
D Probably choose the traditional carton				
E Definitely choose the traditional carton				
F Choose both				

8. Consumers have noticed the new carton and bag:

	Camberwell	Chadstone	Mornington	Prahran
A Definitely Agree				
B Agree	A	-	C	C
C Not sure				
D Disagree				
E Definitely Disagree				

9. The new carton and bag will increase celery sales:

	Camberwell	Chadstone	Mornington	Prahran
A Definitely Agree				
B Agree	C	-	D	C
C Not sure				
D Disagree				
E Definitely Disagree				

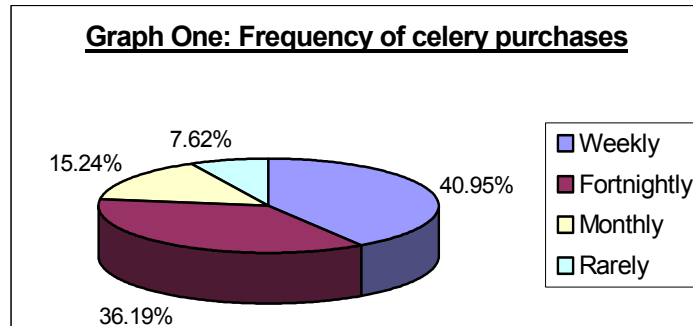
Discussion:

The consumer and product development surveys were conducted either on a Friday or Saturday; being the busiest retail days. Of the four locations, Chadstone produced the most disappointing results purely for the fact that only three customers were willing to be surveyed. *Chadstone Fruit Market* is located in the Chadstone Shopping Complex directly opposite *Bi-Lo*. The survey in Chadstone took place on June 13th at the time when *Myer* and *David Jones* were having their half-yearly stocktake sale and *Bi-Lo* was conducting a special on celery at \$1.49. Consequently, the turn over in celery at the fruit market was low and insufficient results were recorded.

It was decided for the purposes of this investigation that the sleeved celery should be set at a price above the normal retail cost of celery. Agreed upon between the retailer and *J & J.M Schreurs & Sons*, the sleeved celery would cost 10 to 20c extra. The celery size used was "12s" of which eight sticks fitted into a tray. A total of two trays were given to Camberwell and Chadstone whilst Prahran received four trays and Mornington three.

The idea of presenting the celery in the tray to the consumer never eventuated at either of the retail outlets. Brett Williams from *Peninsula Farmers' Market* much prefers presenting his own display from traditional cartons. He states that, "if 'traditional' celery in its cases is handled and displayed correctly, it remains one of the most important vegetable lines." Following this statement, Mr Williams believes that educating the retailer would be a more "beneficial line of attack" in that retailers "receive a premium product at market level, yet it quite often looks ordinary on their shelves." On the other hand, Sam Narduzzo from *Pino's Fine Produce*, thought the celery looked better in the new carton but again preferred his own display. Whether this factor had an effect on the consumer response to the pre-packed celery is inconclusive at this stage. However, the major benefit of the tray was its easy handling and weight factor. With each tray weighing an average of 12kg, a majority of retailers believed it was much easier to handle. Given the choice between the new and traditional cartons, mixed results across the retailers were shown. Sam Narduzzo, would choose both cartons mainly because he thought his home-delivery customers would prefer the shorted, packaged celery. Brett Williams preferred the traditional carton for reasons already explained whilst Max from *Petrero's Fruit Barn* in Camberwell, was indecisive at that stage.

Looking closely at the customer survey results, it was interesting to note how often celery is purchased, what its main use was and whether people preferred whole or half bunches. Graph one visually illustrates the total percentage result of frequent celery purchases across all locations. Out of this result, 77% of customers utilise

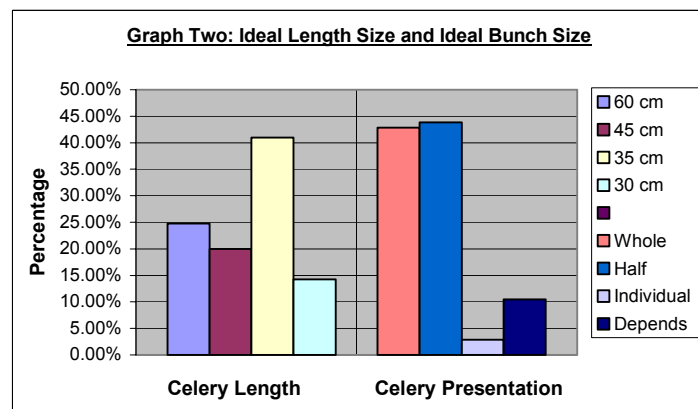


celery for two or more home dishes. The majority of celery combination uses were for soups, salads, stir-frys and snacks. A growing number of consumers are also using celery more frequently in their juices. With most

consumers either purchasing celery on a weekly or fortnightly basis, the vast majority prefer whole or halve bunches at a length of 35cm or greater (graph two). The celery presented in the trays was

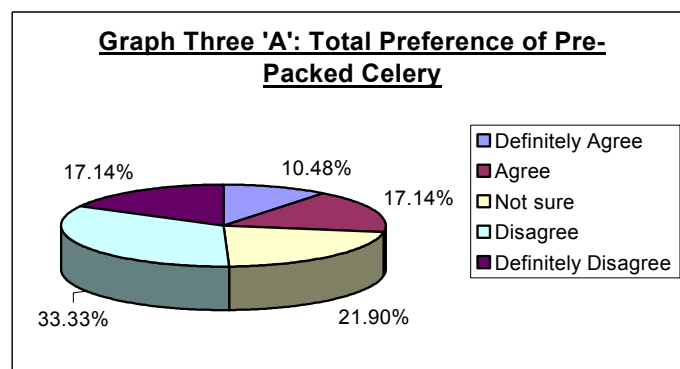
approximately 37cm in length with the plastic bag covering the sticks being non-transparent at each end.

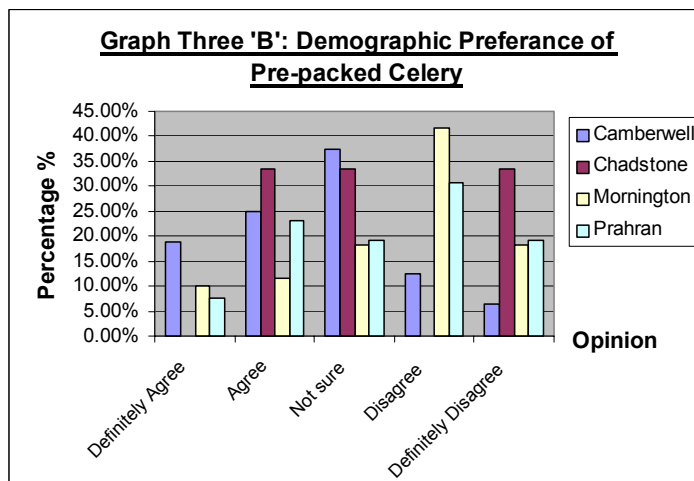
Thus, the consumer could not see the butt and the top of the celery. With the tops chopped off, the majority of



leaf is removed and what leaf remains, was hard to detect in the bag. A majority of consumers did not like the look of the bag for they could not see the leaves. Celery leaves are commonly used for food dishes and even food presentation. Even though 41% prefer a shorter celery stick, the visual aspects of having some leaf remain makes the celery more attractive for the customer. Basically, consumers are familiar in seeing celery with a leafy top, retrospect to the fact they want a shorter stick purely for convenience sake.

Likewise, approximately 50% of consumers either disagreed or definitely disagreed in preferring to have pre-packed celery, (graph three 'A' & 'B').





Although a staggering 75% identified that the shorter stick would easily fit into a refrigerator's crisper, consumers are not willing to purchase pre-packed celery solely based on that particular feature. Additionally, many consumers chose the

traditional stick over the pre-packed celery for environmental reasons. People are becoming more aware of the environmental impact of plastic bags with the definite social trend in their reduced usage. However, some consumers did suggest that if growers wanted to pre-pack celery, it would be wise to use 'environmental friendly' bags. On the other hand, some consumers thought celery in a bag was a great, innovative idea.

Less wastage and easier handling were the major reasons as to why most consumers purchased the pre-packed celery. Only 39% thought the celery would last longer and 27% believed the celery was cleaner. When consumers were asked the question if they thought the celery was cleaner in a bag, there was much confusion on definition of 'clean'. A majority of people thought that the celery was washed better rather than understanding microbiological risks of contamination through consumer handling. In fact, some consumers were more worried about the germs inside the bag as well as the mildew and sweat. Yet all of the retailers agreed that the bag was a very effective way of preventing contamination. Clearly this suggests that there is a lack of consumer knowledge in the hygienic and longer lasting benefits of pre-packed celery. Due to this, the reasons why consumers *did not* purchase pre-packed celery far out weighed the reasons as to why people *did* purchase the product.

Surprisingly, cost was not the major reason as to why people chose the traditional stick. Although, a few consumers did argue, "why buy it, if it costs more?" However, more often, consumers were concerned about the processed look of the celery. Many believed that since the celery is in a bag they are actually receiving an inferior product, whether it was damaged or just old. Brett Williams agrees. He states, "It's

commonly perceived that consumers don't have a lot of faith in packaged products through years of receiving packed lines that aren't 100%."

It must be noted that this survey was not conducted in supermarkets. Therefore, there was a bias towards the 'fresh market perception' on the produce. Consumer comments that the celery looked like 'supermarket celery' were not uncommon. The difficulty in obtaining co-operation with the supermarkets made evaluating consumer responses in this field impossible for this report.

Conclusion:

It is vital that these surveys are carried out in supermarkets in order to obtain a proper, overall understanding of consumer needs and wants. In light of what has just been discussed, pre-packed celery may have the potential to offer something different to consumers in the smaller retail chains. However, it is unlikely at this stage that pre-packed celery would be preferred over the traditional stick. In stating that, there is always a potential to create a niche market so long as the retailers are willing to hold this product line. The benefits of the tray style carton were not fully shown in that the retailers opted to set their own display. Although this was the case, the 12kg weight made the carton easier to handle. If retailers prefer to do their own display, different carton designs may be available that would accommodate the packaging, transport and handling of celery safer and better than the trays. Overall, the new packaging system presents added cost factors in the plastic bag and labour time in packing. Unless the grower is willing to absorb these extra costs, the end-of-the-line consumer will have to pay. The problem of educating the public about the benefits of pre-packed celery then proposes itself as a new challenge.

Acknowledgments:

Retailers:

- *Chadstone Fruit Market*: 1341 Dandenong Rd, Chadstone.
- *Peninsula Farmers' Market*: 360 Moorooduc Rd, Mornington.
- *Petroro's Fruit Barn*: 692 Burke Rd, Camberwell.
- *Pino's Fine Produce.*, 318 Commercial Rd, South Yarra (Prahran Market).

Personnel:

- Adam Schreurs
- Donna Schreurs
- Tania Schreurs

