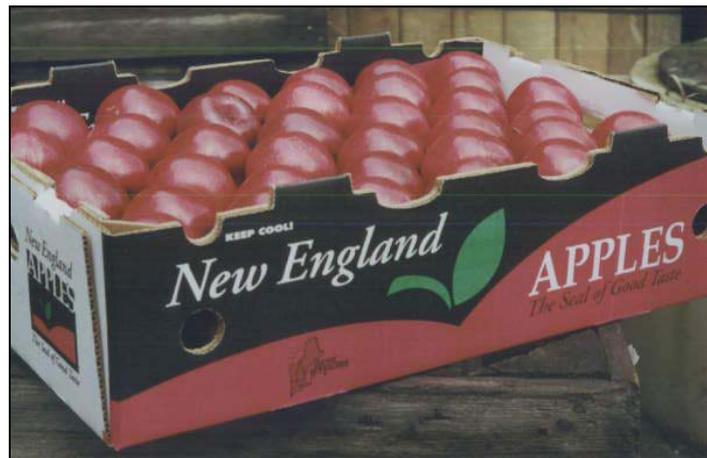


Final Report  
on  
**Innovative Packaging  
for Improved Marketing  
of  
New England Apples**



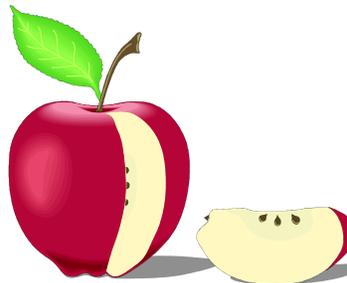
**Funded by the USDA Agricultural Marketing Service  
Federal-State Marketing Improvement Program**

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The Connecticut Department of Agriculture would like to thank the cooperators on this activity, including:

Maine Department of Agriculture, Food and Rural Resources  
Massachusetts Department of Food and Agriculture  
New England McIntosh Growers Association  
New England Produce Council  
New Hampshire Department of Agriculture  
Rhode Island Division of Agriculture  
U.S. Apple Association  
U.S. Apple Export Council  
U.S. Department of Agriculture, Agricultural Marketing Service  
Vermont Department of Agriculture, Food and Markets  
and the many growers, grower organizations, packer-shippers and retailers who participated in this activity.

## Introduction

In September 1999, the USDA Agricultural Marketing Service approved a request from the Connecticut Department of Agriculture and associated organizations (“the cooperators”) for funding to evaluate innovative technologies for packing, shipping, and marketing fresh apples in domestic and international markets. The proposal focused on two specific eligibility requirements of the Federal-State Marketing Improvement Program (FSMIP):

1. Developing and testing new or more efficient methods of processing, packaging, handling, storing, transporting, and distributing food and other agricultural products; and
2. Assessing customer response to new or alternative agricultural products or marketing services and evaluating potential opportunities for U.S. producers, processors and other agribusinesses, in both domestic and international markets.

Goals of the activity as included in the original proposal to USDA/AMS:

1. Build retail outlet interest for use of New Zealand-type (NZT) packaging for New England apples.
2. Build packer-shipper interest and confidence in the NZT package system.
3. Design and produce NZT packaging boxes especially for pilot.
4. Pilot the "New England" NZT packaging.
5. Assess the quality of apples packages in the "New England" NZT package.

6. Compile, analyze, and distribute pilot results.
7. Build retail outlet interest for New England apples in the European Union.

### Modularity or Common Footprint

As early as the mid-1990's, the U.S. produce industry began recognizing the need to standardize packaging. This need arose as the culmination of numerous factors, including:

- Consolidation of retailers (especially the globalization of retailers, including acquisitions of U.S. retailers by European-based multinationals);
- Workforce/labor issues in the retail produce industry;
- Ever-increasing competition and the drive for increased efficiencies in product shipping and distribution;
- Need to better accommodate mixed (pallet) loads of produce without damage to product; and
- Need for reducing the diversity of packaging inventories of packer-shippers.

In 1999, a number of organizations affiliated with the produce and packaging industries simultaneously began exploring the needs of both of both *retailers* and *packer-shippers*. Most notable of those organizations are:

- The Produce Marketing Association (PMA)
- The United Fresh Fruit & Vegetable Association (UFFVA)
- The Fiber Box Association (FBA)
- Reusable Pallet and Container Coalition
- The European Federation of Corrugated Board Manufacturers (FEFCO)

In September 2000, FEFCO announced the harmonization of fruit and vegetable trays on the European level, citing the following advantages of the system:

- *The footprint configurations have been calculated in order to avoid any overhanging of the industry standard pallets, often a source of damage and shrink.*
- *The interlocking system makes it possible to stack trays from every European country and any manufacturer. This will considerably improve pallet and load stability and optimise the space utilisation for transport and storage.*
- *The height of the trays remains variable in order to adapt the tray to the shipped product.*

- *The existing US Standard developed by the FBA (Fibre Board Association) has just been revised and is now compatible with the new European Standard developed by FEFCO. Shipments of fresh fruit and vegetables will be facilitated between our continents.*



Photo: Interlocking system of mixed-size cartons of modular system

FEFCO further explained potential benefits of the system, as follows:

*“Furthermore, the standard defines the position, the height, the length and the form of the tabs and receptacles of the interlocking system. This system makes it possible to stack trays from every European country and any manufacturer in stable mixed loads.*

*The height of the trays remains variable in order to adapt the tray to the shipped product. This is one of the major assets of corrugated that guarantees optimum loading of trucks.”*

The timing of this FSMIP activity allowed the cooperators an opportunity to make more substantial progress on this issue than otherwise might have been possible.

In early 1999, FBA began working with a limited number of “footprint” and design specifications for produce boxes and trays. Standardization of produce container options would provide greater compatibility in stacking, displaying and pallet fit. FBA had previously established goals of fitting two sizes of pallets, the 48 X 40 GMA (forty-eight inches by forty inches, used primarily in the U.S.) and the 1200 mm X 1000 mm “Euro pallets”, used throughout Europe and much of the rest of the world.

The concept of modularity is demonstrated graphically in Attachment A, a description of the common footprint standard supported by the Fiber Box Association.

While it was useful that the packaging industry was addressing the modularity issue from a technical perspective, it was both necessary and useful that the FSMIP funds allowed the project cooperators to look at the issue from the packer-shipper’s (i.e. farmer or producer) perspective.

The packer-shipper’s perspective, of course, would necessarily include the powerful retailer’s acceptance of any packaging changes. As stated candidly by senior consultant to Smurfit-Stone Container Corporation, Michael McLeod in an interview for *The Packer*, (a weekly produce industry publication): *“The market is dominated by increasingly powerful retail chains.... and they, rather than growers, will ultimately decide which packaging is used”*.

*“The market is dominated by increasingly powerful retail chains.... and they, rather than growers, will ultimately decide which packaging is used”*.

*Michael McLeod, Smurfit-Stone Container Corporation*



Summary of potential benefits of the common footprint design include:

<u>To Packer-Shippers</u>	<u>To Retailers</u>
<ul style="list-style-type: none"><li>• Minimizes inventories of carton sizes</li><li>• Provides increased branding opportunities</li><li>• Optimizes shipping cube utilization</li><li>• New designs provide product protection</li></ul>	<ul style="list-style-type: none"><li>• Reduces labor costs in distribution centers</li><li>• Minimizes shrinkage by limiting in-store handling</li><li>• Display ready</li><li>• Eases changeovers within produce section</li></ul>

Attachments B and C represent promotional materials describing additional potential benefits of one manufacturer’s brand of a standardized shipping carton to grower/packers and produce retailers.

Given the cooperators’ export and international trade experience, and in keeping with the original FSMIP activity proposal, it was decided to focus primarily on the European format, referred to by several terms, including:

- New Zealand-type box (where the design originated);
- “Euro box”;
- European standard;
- 60/40 carton (for dimensions of 60 centimeter by 40 centimeters)

## Report on Project Goals

*Goal 1: Build packer-shipper interest and confidence in the New Zealand-type (NZT) package system.*

Representatives from each of the New England state apple organizations and state departments of agriculture were contacted with information on the FSMIP pilot and to solicit participation from packer-shipper organizations. Regional meetings and the New England McIntosh Growers Association newsletter were the major vehicles for dissemination of information. Ultimately, three packer-shippers, representing over 50 percent of New England’s apple production, agreed to participate in the pilot. Those participants are shown in the table on page 10.

Recognizing that interest in the modularity issue was national (as well as international) and not just regional, the U.S. Apple Association conducted a packaging survey, shown in Attachment D. In a telephone conversation on November 11, 2001, Mark Nicholson, Industry Information Manager at USApple, reported that the survey was inconclusive. Reports from growers and packer-shippers indicated that, as noted on page, the primary drive for new packaging standards would come from the retail side, not the producer side.

The FSMIP project attracted substantial national publicity, including articles in the following produce industry publications:

Publication*	Date
The Produce News	May8, 2000
The Packer	May 22, 2000
American Fruit Grower	September 2000

\*Please see Attachments E and F

The activity was also featured on a number of industry websites, including those of the International Paper Company and the Vermont Apple Marketing Board. The New England carton was also featured in IP trade show displays at FMI (Chicago) and PMA (Atlanta).

*Goal 2: Build retail outlet interest for use of NZT packaging for New England apples.*

Cooperator developed a one-page survey questionnaire (Attachment G) for use in meetings with retailers in the New England apple industry's main market area. The survey included over 25 retailers, brokers and wholesalers in New England, New York, New Jersey and Pennsylvania.

Retailers contacted were:

C & S Wholesale	Stop & Shop	Shaw's
Donelans	Omni Foods	RoJacks
Victory	Big Y Foods	A & P
Bozzuto's	Associated Grocers	Food Emporium
Waldbaum's	Market Basket	Grand Union
Clemen's Markets	Norristown Whsle.	Adam's Superfoods
Laneco	SuperValu	Acme Markets

The cooperators also surveyed attendees (retailers and packer-shippers) at the Produce Marketing Association trade shows held in Atlanta, Georgia and Anaheim, California in 1999 and 2000, respectively. The cooperator demonstrated the model NZT carton at each of the events, broadening the retailer feedback to a national level.



Photo: PMA 2001, Philadelphia, PA

Overall, retailers liked the “field-to-display” concept of the NZT box, since it offered the possibility for cost savings through reduced labor for handling, and subsequently, for less shrinkage from handling by both produce clerks as well as consumers. Several of those surveyed like the “cleaner look” of the display carton, which provided uniformity throughout the produce section.

Some retailers felt that the NZT box was an upcoming trend, since other commodities, such as grapes, were looking at more consistency in packaging. Others felt that the mergers of U.S. supermarkets with European parent companies would accelerate the trend in the U.S., as the NZT design is seen as a “European” concept.

Those retailers currently using “European tables” for displays liked the idea of using decorative boxes to display apples. Those retailers using refrigerated tables for apples were less enthusiastic about the NZT box, citing that the boxes would block the flow of refrigerated air to the fruit, thus increasing shrinkage.

Getting retailers to act in concert was an expressed concern. Several retailers, particularly the smaller chains, cited concerns about mixing the NZT box with other types of packaging, possibly incurring more damage with mixed loads of produce. Smaller retailers also showed resistance to looking like the “big supermarkets”.

Wholesalers as well as retailers were concerned about the transition period that would occur if the NZT common footprint were universally adopted.

After initial interviews, four retailers were selected for in-store evaluations of the NZT box. Those retailers and participating packer-shippers (suppliers) are shown in the table below:

<u>Supermarket</u>	<u>Supplier</u>
Big Y Foods. 2145 Roosevelt Ave. West Springfield, MA	J.P. Sullivan & Company Ayer, Massachusetts
FoodMart/A&P 419 Cooley Street West Springfield, MA	Vermont Apple Orchards, Inc. Westminster, Vermont
Stop & Shop Supermarket Newington, CT	Rogers Orchards Southington, Connecticut
Shaw's Supermarkets Colchester & Berlin, VT	J.P. Sullivan & Company Ayer, Massachusetts

The in-store evaluations mirrored the findings of the surveys. Retailers expressed enthusiasm for the colorful graphics of the New England NZT carton both for the “excitement” the packaging added to the produce department, as well as for the capacity to designate the apples as locally- or regionally grown, which is an important factor in the New England region. The source branding was an important finding in the evaluation, since the larger supermarkets have moved towards “clean store” policies, which either

prohibit or strictly regulate the use of supplier branding or point of sale (POS) materials.

Another important finding of the in-store evaluation was the powerful control exerted by corporate headquarters of the larger retailers on local operations. Decisions to install the European tables (most compatible with the NZT or Euro-box) are generally made unilaterally, with the policy affecting all stores in the chain. While the cooperators were somewhat aware of this powerful corporate influence, the finding confirms that a supplier's ability to influence use of a particularly type of box is limited.



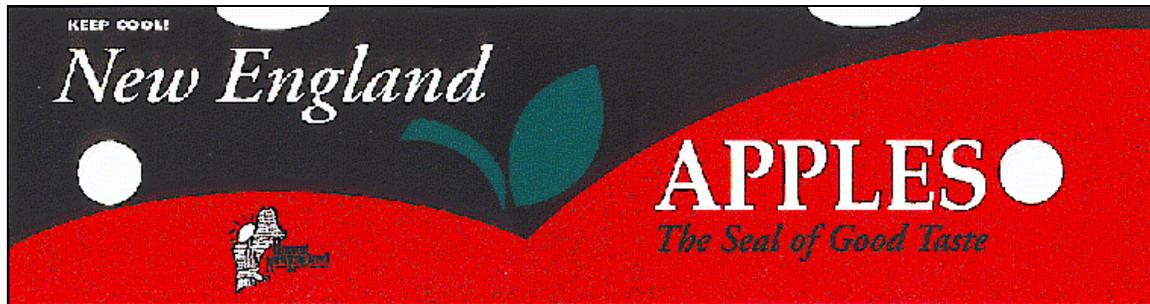
Photo: Big Y In-store evaluation, W. Springfield, MA

An example of the challenges facing the produce industry in completely standardizing the packaging footprint arose early in the activity: In September 1999, Albertson's Inc., based in Boise, Idaho and one of the largest grocery chains in the U.S., advised its suppliers of its preference for the *DeFor*<sup>TM</sup> packaging system, developed by International Paper. A produce manager for one of the New England chains surveyed commented that if Albertson's was going to use the *DeFor*<sup>TM</sup> system, then his chain would be using a different one.

***Goal 3: Design and produce NZT packaging boxes especially for pilot.***

Prior to beginning the retailer survey and in-store evaluation of the NZT carton, the cooperators contacted representatives of International Paper (IP) in Putnam, Connecticut to develop a carton for use by New England apple growers for this activity. As previously mentioned, IP had developed its own variation of the NZT carton, the *DeFor*<sup>TM</sup> system, and the company was enthusiastic about working with the cooperators.

A box design was developed incorporating the major graphic elements of the New England McIntosh Growers Association logo:



A full design layout of the New England carton design used in the pilot is shown in Attachment H.

*Goal 4: Pilot the "New England" NZT packaging.*

Vermont Apple Orchards, Inc. of Westminster Station, Vermont, offered to share costs of producing, storing, shipping and using the New England carton, and to make the box available to other packer-shippers interested in participating in the activity. Approximately 6,000 of the New England cartons and covers were printed.

The boxes were shown to the 25 retailers, wholesalers and distributors listed above as part of survey and at the PMA trade shows in Atlanta and Anaheim. Samples were also shown at winter meetings of the New England McIntosh Growers Association and the New England Tree Fruit Association in Sturbridge, Massachusetts.

Finally, the carton was used for the in-store promotions with four major New England retailers for a true field evaluation.

*Goal 5: Assess the quality of apples packed in the "New England" NZT carton.*

Requests for proposals were sent to the New England land grant universities. Although the packaging companies had conducted extensive evaluations of their products' strength and durability, cooperators wished to compare the NZT carton with the packaging currently being used by New England packer/shippers.

The universities were unable to execute the desired research given the timeframe available. However, the in-store evaluations and observations of

the NZT carton, particularly in the United Kingdom where packaging is more standardized than in the U.S., provided substantial insights into its protective capabilities. Also, packaging research findings discovered during this study showed that, in general, the packaging holds up well during cold storage, shipping and handling.

Cooperators did note that, as with non-standardized packaging currently in use within the U.S., there are varying qualities of NZT packaging, suggesting that the packer-shipper use caution when procuring cartons. Field evaluations also indicated that a one-piece cover was needed to prevent bruising of apples in the top layer.

*Goal 6: Compile, analyze, and distribute pilot results.*

Final results will be distributed to cooperators after December 2001.

*Goal 7: Build retail outlet interest for New England apples in the European Union.*

In May 2000, Mr. Robert Pellegrino and Mr. Steven Justis, on behalf of the cooperator, traveled to Europe to research packaging trends and to meet with a prospective contractor to conduct a survey of retailers in the United Kingdom. Western Europe is an important market for U.S. apples, as well as a producer and exporter.

On the recommendations of Ms. Elizabeth Berry, Agricultural Counselor for the American Embassy in Rome and Robert Curtis, the Agricultural Trade Office Director in Milan, the participants first traveled to Cesena, in Northern Italy, to visit MACFRUT, Italy's premiere horticultural product fair. At the show, the participants met with Mr. Franco Regini, Agricultural Specialist for the American Embassy in Rome, who arranged meetings with various produce shippers and packaging company representatives. At MACFRUT, it was clear that the NZT box was the industry standard for practically all produce entering commercial channels. The European Federation of Corrugated Board Manufacturers (FEFCO) has developed, with produce industry collaboration, a European standard for fruit and vegetable trays that integrate both the external dimensions and the interlocking systems needed to stabilize pallet loads. Important for U.S. producers and packaging companies, FEFCO has begun working with the U.S. Fiber Box Association to achieve compatibility of the European and U.S. standards.



Photographs: From MACFRUT show, Cesena, Italy

The participants took advantage of the overlap of MACFRUT with CIBUS, Italy's most important international food and beverage exhibition, which took place in the nearby city of Parma. While CIBUS was an impressive show, with pavilions from around the world, for the purposes of this activity, greatly overshadowed by MACFRUT.

The participants next traveled briefly to Paris for meetings with Messrs. Jacque Vanoye and Remy Leprette, President of the French Apple Marketing Commission and General Manager of InterFel, France's Fresh Fruit and Vegetable Professional Association, respectively, to discuss produce packaging and other international apple industry concerns. The participants also met briefly with Mr. Frank Piason, Minister-Counselor and Susan Reid, Agricultural Attaché, at the American Embassy.

From Paris, the participants traveled to Nantes, in France's Loire Valley, an important horticultural production region of the country, to attain a producer's perspective on packaging trends. Mr. Stéphane Pavy, the General Manager of a regional growers' cooperative, gave the participants a tour of production and processing facilities in the area.



Photos: Cold storage French and Italian apples in 60/40 cartons

Following the brief layover in Nantes, the participants flew to London, for meetings with Mr. Thomas Hamby, Minister-Counselor and Ms. Jennifer Jones, Agricultural Marketing Specialist with the American Embassy in London and with Mr. Neil McL.Gordon, of NMG Consulting. Mr. Gordon serves as the U.S. Apple Export Council's Marketing Director for the U.K. and Ireland.

Subsequent to the meetings at the American Embassy, the participants met further with Mr. Gordon to discuss details of the retailer survey and the related work contract.

Mr. Pellegrino remained in London to conduct supermarket checks while Mr. Justis continued on to Belfast to meet with an apple importer there and to visit the wholesale produce and conduct supermarket checks.

#### Summary of U.K Packaging Activity

NMG Consulting of London, England was commissioned in May 2001 to "survey the use of the 'New Zealand type' shipping display carton in the UK/Ireland market place". The survey included personal interviews with 10 retailers, a review of the UK/EU legislation pertaining to such packaging, and research into consumers' views on this packaging.

The decision on which box to recommend for apple exports to the UK is far from simple. One could imagine that the universal move to a 60/40 cm footprint box was the end of the story, but reality is that each major

supermarket chain is adopting different standards of design, color and materials for the trays they use. These include green trays, black trays, trays with liners, rigid plastic re-usable trays, and folding plastic re-usable trays. The UK supermarket industry remains extremely dynamic and very competitive- new concepts of retailing and display are emerging month by month and the current intention is to make shopping an enjoyable destination experience. Fresh fruit plays a major part almost invariably being placed at the entrance to stores and seen by the multiples as a “destination department”.

During NMG Consulting’s work with the retailers efforts were concentrated on the multiples (supermarkets and co-operatives) for the simple reason that 86.4% of the fresh apples sales were through these outlets, when surveyed by Taylor Nelson Sofres (TNS) [the UK’s leading fresh produce market research company] for the 52 weeks ending 12 December 2000. Furthermore consumer use of the multiples for buying fresh fruit is most marked for apples. NMG Consulting used TNS for its consumer market research.

The key conclusions that emerged:

1. The country of origin is only important to less than one third of consumers questioned.
2. Consumers mainly like to select fruit themselves rather than buying pre-packs.
3. There is a wide diversity of packaging requirements among the UK retailers, surveyed (the buyers of 10 supermarket groups). Sadly there is no universal solution, each shipper will have to agree with his customer/s what packaging specification is required.
4. During the course of the project a significant packaging side issue developed in the form of a European Union Emergency regulation to protect EU timber from infestations of Pine Wood Nematodes in untreated wooden pallets. Information on this issue will be included in the final report in December 2001.

An ultimate goal of proponents of the NZT standard packaging is the compatibility of mixed loads of produce. The standard 60/40 footprint is fully compatible with the half-size 40/30-dimension carton.

## Conclusions and Summary

In general, retailers and packer-shippers of McIntosh apples each saw substantial value for McIntosh apples in the NZT carton. McIntosh is New England's leading apple variety, and although very flavorful and popular, it is more susceptible than many other commercial varieties to bruising, particularly at the retail level.

During the span of this activity, there were significant strides towards the standardization of packaging materials. Albertson's Inc., the second largest supermarket chain in the U.S., based in Boise, Idaho, announced in October 1999 of their preference of the modular cartons. Since that time several smaller chains as well as several major produce marketing organizations have announced plans to encourage use of the 60/40 carton.

In October 2001, Tom Stenzel, President of the United Fresh Fruit & Vegetable Association provided an update on the modular system at the PMA show in Philadelphia. A survey of PMA/United Produce Packaging Committee members yielded the following comments:

### From packer-shippers

- Requests for common footprint had increased in the past year;
- Equipment conversion costs were a concern;
- Questions still existed regarding industry acceptance;
- Issue of acceptance by foodservice industry.

### From buyers

- Suppliers were increasingly being asked to shift to common footprint;
- Concerns existed about carton integrity;
- Concerns existed regarding changes in pack sizes.

The cooperators were successful in meeting each of the established project goals. While the issue of a universal "Common Footprint Standard Specification" is likely still several years away, this FSMIP-funded activity was extremely helpful in making not only New England apple growers, but producers across the country, more aware of the challenges they will be facing in the future, regarding standardized packaging materials.

The cooperators would like to thank the U.S.D.A. Agricultural Marketing Service for its support of this activity.

## Additional Notes

Cooperators investigated the possibility of developing a quarter-size carton, especially for the Christmas or other gift-giving seasons, but did not develop the concept within the current activity. The photograph below, taken at the MACFRUT trade show, illustrates existing packaging that “nests” within the 60/40 carton.



Photo: Smaller packs with the 60/40 footprint may be useful for gifts or other promotions

The photographs below show one of the many configurations of packs that can be contained in the 60/40 carton.



Photo: Bagged salad mix in 60/40 carton



Photo: Citrus in 60/40

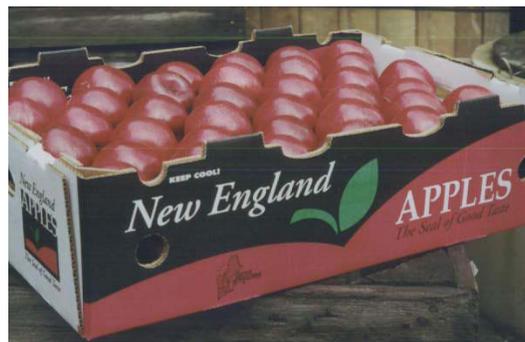


Photo: NE Apples in 60/40 carton

