



# Packaging Economics

## Enhancing Food Safety & Quality

The webinar will begin promptly at 11:00 am Pacific / 12:00 pm Mountain



# Packaging Economics

## Enhancing Food Safety & Quality

Presented by:

Ariel Agenbroad

Area Extension Educator

Food Systems & Small Farms



# Webinar Tips



Close all other programs running on your computer



Check your sound – problems with clarity, speed, etc. switch to the phone

Call-in number provided in the welcome email  
Mute computer sound when using phone



Type in questions for speakers (or for help with viewing & sound) into question box



Handouts are available to download on your computer



## Today's Webinar

- Food safety – why it matters, where it begins
- Harvest and handling crash course
- How produce is packaged and sold, and why
- Evaluating direct market packaging options for sustainability, marketability and price



## POP QUIZ!! True or False?

**T** Bacteria such as Salmonella and E. coli O157:H7 cause food borne illnesses.

**T** Food crops can become contaminated by coming in contact with animal droppings, human waste, polluted water, dirty equipment or utensils.



## POP QUIZ!! True or False?

**T** Customers at Farmers Market will often accept produce that looks different from what is in the grocery store.

**F** Farmers Market Customers are not concerned with freshness, quality or the overall appearance of produce.



# POP QUIZ!! True or False?



Farmers Markets are never implicated in foodborne illness outbreaks, so we don't have to worry about food safety.



NEW YORK BERRY NEWS  
VOLUME 10 NUMBER 7  
AUGUST 22, 2012

Cornell University  
College of Agriculture and Life Sciences

## New York Berry News

Cornell University Berry Team

**Inside this issue:**

- [Lab Tests Confirm E. Coli Source](#) 2
- [Where Do I Start Getting GAPs Ready?](#) 3
- [Charlotteville Small Fruit Tour](#) 4
- [Southern Tier Berry Workshop](#) 4
- [Upcoming Berry Events](#) 6
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**Fresh Strawberries Implicated in E. coli O157 Outbreak in NW Oregon**

*Christine Stone, Oregon Health Authority, Public Health Division*

**Editor's note:** Given our high white-tailed deer population such an outbreak could occur on any berry operation in New York State. If you haven't already started developing a GAPs plan for your farm now is the time! Four additional trainings will be conducted throughout NY this winter which will be an opportunity for you to move forward in their GAPs thinking and plan creation. Check the GAPs website events page for details: <http://www.gaps.cornell.edu/events/calendar.html>

**P**ORTLAND, OR, August 14, 2012. Oregon Public Health officials have identified fresh strawberries from a Newberg farm with fields in Washington County as the source of a cluster of Escherichia coli O157:H7 infections that sickened at least 15 people last month, including one person who died.

## Let's Talk About Food Safety

- Food safety is everyone's responsibility
- Fresh produce is not inherently "dirty"
- But produce can become contaminated under certain situations and make people sick
- Bacteria and viruses are of primary concern



## Humans are a Food Safety Concern!

- People contract, share and transfer pathogens!
  - When sick or injured (blood and bodily fluids)
  - When hands have been contaminated by
    - Human feces (the fecal-oral route), animal feces, manures
    - Contaminated surfaces, clothing, shoes, tools, equipment
    - Contaminated water



## Is Everyone on Board?

- Train employees, customers and visitors in food safety policies on your farm
- Don't harvest or handle produce when sick
- Wash hands often and after any non-harvest activity
- Keep animals (wild and domestic) out of production and packing areas when possible



## Quality Starts in the Field

- Whether field packed or packed elsewhere
- Harvest with clean hands, clean gloves
- Harvest into clean containers if field packing
- Avoid harvesting bruised or damaged produce
- Avoid appearance of feces, dirty or dropped produce
- Consumers should wash their produce, but...



## Clean, Clean, Clean

- Clean and sanitize all harvest tools, field packing equipment and machinery
- Store harvest, packing and transport containers in clean, dry areas free from rodents or contaminants.
- Wash hands or change gloves after breaks, eating, smoking, using the restroom, handling animals, etc



## Timing for Quality

- Harvesting at the right stage of maturity for appearance, peak flavor, nutrition and storability
- Selling direct to the consumer within days or even hours of harvest means you have a considerable advantage in terms of what you can provide



## Harvest Containers

- Use only clean, **food grade** containers to harvest, transport and pack produce
  - Harvest totes or individual market containers designed for the produce being harvested
  - Plastic or stainless steel kitchen containers or food grade buckets
  - Paper or plastic grocery bags



## The Cold Chain

- If appropriate, cool produce by washing, icing, using forced air cooling or room cooling
- Cooled produce should be immediately placed in temperature controlled storage until sale or use
- Temperature controlled storage should be clean and monitored for accuracy, condensation, cross contamination or overloading



# Market Day Quality Control

- Plan ahead
- Bring ice, ice packs, towels, spray bottles
- Transport produce under cover or in coolers
- Look for display items that can also keep produce fresh and cool
- Consider how your packaging will transport



## Why Package? To:

- Enclose the produce in convenient units for handling and distribution
- Protect the produce from mechanical damage and environmental conditions during handling and distribution
- Identify and provide useful information about the produce or the producer



## Choices, Choices, Choices

- You can choose whether or not to package
- You can choose how and what to package
- You can choose what kinds of packaging
- But if you're going to package...
- You have to follow a few rules



# How Produce May Be Sold

## Selling Commodities by Weight

1. You must post the price per pound of the commodities at the point of sale
2. Commodities sold by weight at the point of sale must be weighed on a Legal for Trade Class III or better scale
  - Scales that are POSTAL, DIET, KITCHEN, BATHROOM SCALES or NOT LEGAL FOR TRADE SCALES are not acceptable)



# Scale Licensure

- Scales must be licensed annually by the Idaho Bureau of Weights and Measures
- License applications may be obtained by contacting your local weights and measures official or contacting the main weights and measure office



IDAHO STATE DEPARTMENT OF AGRICULTURE

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What can we help you find?

Home About Animals Plants & Insects Inspections Pesticides Labs Marketing Licensing and Registration I need to... ISDA Divisions

HOME > WEIGHTS AND MEASURES > Device Licensing

Weights and Measures	Device Licensing
Contact Information	Device Type, License Fee
<b>Device Licensing</b>	<b>Scales</b>
Inspections & Exams	A - $\leq 50$ lb capacity - \$6
Metrology Laboratory	B - $>50 \leq 1,159$ lb capacity - \$12
	C - $>1,160 \leq 7,499$ lb capacity - \$24
	D - $>7,500 \leq 59,999$ lb capacity - \$100
	E - $>60,000 < 100,000$ lb capacity - \$100
	F - $\geq 100,000$ lb capacity - \$100

## What Can Be Sold By Weight?



All fresh fruit and vegetables except for avocados and corn on the cob, which must be sold by the count



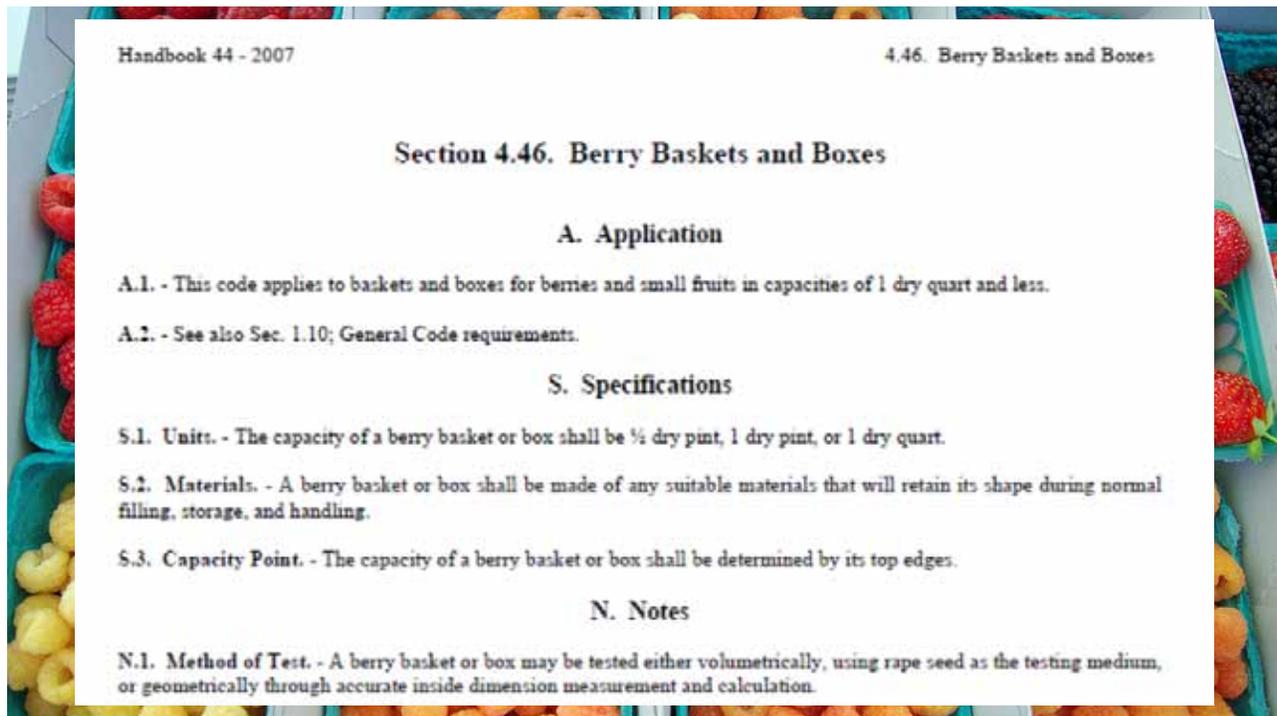
## What Can Be Sold By Count?

- Well, corn and avocados
- But also apples, artichokes, cantaloupes, cucumber, eggplant, garlic, citrus, lettuce, melons, nectarines, pomegranates, pumpkins, peaches, pears, peppers, persimmons, and tomatoes



# By Measure/Container

- All berries, cherries, currants, mushrooms and cherry tomatoes
- Commodities sold by measure must be sold in standardized containers



# By Dry Measure

- Dry measure, in units not less than 1 peck\*: apples, beans, peaches, pears, plums, and tomatoes



WEIGHTS AND MEASURES <sup>1</sup>			
UNIT	ABBREVIATION OR SYMBOL	EQUIVALENTS IN OTHER UNITS OF SAME SYSTEM	METRIC EQUIVALENT
<b>WEIGHT</b>			
<i>Avoirdupois<sup>2</sup></i>			
ton		2000 pounds, 20 short hundredweight	0.907 metric ton
short ton		2240 pounds, 20 long hundredweight	1.016 metric tons
hundredweight	cwt		
short hundredweight		100 pounds, 0.05 short ton	45.359 kilograms
long hundredweight		112 pounds, 0.05 long ton	50.802 kilograms
pound	lb or lb avdp also #	16 ounces, 7000 grains	0.454 kilogram
ounce	oz or oz avdp	16 drams, 437.5 grains, 0.0625 pound	28.350 grams
dram	dr or dr avdp	27.344 grains, 0.0625 ounce	1.772 grams
grain	gr	0.037 dram, 0.002286 ounce	0.0648 gram
<i>Troy</i>			
pound	lb t	12 ounces, 240 pennyweight, 5760 grains	0.373 kilogram
ounce	oz t	20 pennyweight, 480 grains, 0.083 pound	31.103 grams
pennyweight	dwt also pwt	24 grains, 0.05 ounce	1.555 grams
grain	gr	0.042 pennyweight, 0.002083 ounce	0.0648 gram
<i>Apothecaries<sup>3</sup></i>			
pound	lb ap	12 ounces, 5760 grains	0.373 kilogram
ounce	oz ap or ℥	8 drams, 480 grains, 0.083 pound	31.103 grams
dram	dr ap or ℥	3 scruples, 60 grains	3.888 grams
scruple	s ap or ℥	20 grains, 0.333 dram	1.296 grams
grain	gr	0.05 scruple, 0.002083 ounce, 0.0166 dram	0.0648 gram
<b>CAPACITY</b>			
<i>U.S. liquid measure</i>			
gallon	gal	4 quarts (231 cubic inches)	3.785 liters
quart	qt	2 pints (57.75 cubic inches)	0.946 liter
pint	pt	4 gills (28.875 cubic inches)	473.176 milliliters
gill	gi	4 fluid ounces (7.219 cubic inches)	118.294 milliliters
fluid ounce	fl oz or f℥	8 fluid drams (1.805 cubic inches)	29.573 milliliters
fluid dram	fl dr or fʒ	60 minims (0.226 cubic inch)	3.697 milliliters
minim	min or ℥	1/60 fluid dram (0.003760 cubic inch)	0.061610 milliliter
<i>U.S. dry measure</i>			
bushel	bu	4 pecks (2150.42 cubic inches)	35.239 liters
peck	pk	8 quarts (537.605 cubic inches)	8.810 liters
quart	qt	2 pints (67.201 cubic inches)	1.101 liters
pint	pt	1/2 quart (33.600 cubic inches)	0.551 liter

## By the Bunch



- Asparagus, Beets, Broccoli, Carrots, Cauliflower, Escarole, Onions (spring or green), Parsley, Spinach, Turnips



## Pre-Packaged Commodities

- Prepackaged commodities are required to have a label with the following information:
  - Identity of the commodity and name of the grower/seller
  - Net quantity of the contents in terms of weight, measure or count









## “Unpacking” Packaging

- More than 1,500 different types of packages are used for produce in the United States
- In the near future, almost all produce packaging will be recyclable or biodegradable, or both.
- Many of the largest buyers of fresh produce are also those most concerned about environmental issues.

– NC State Extension



# Packaging & the Bottom Line

- What does your packaging cost you?
- Do you have alternatives?
- Does your packaging set you apart?
- What are your competitors doing?
- What will your customer pay?



Duro 2 lb. Brown Paper Bag - 500/Bundle

★★★★★ Read 21 reviews Item # A30826G

Quantity Discounts

Buy 10 or more  
**\$5.42/Bundle**  
Ships free with Prime

Buy 1 - 9 **\$5.89/Bundle**

1 **Add to Cart**

Wish List Report a Problem

✓ 4 5'16"W x 2 7'16"G x 7 7'8" H  
✓ Basis weight: 30# (standard duty)

Quality Rating: **Good**

UPC Code: 60169005096

**Quick Shipping**  
Usually ships in 1 business day

**1¢**

### Standard Produce Bags - 12 x 20"



Convenient, self-serve bags for produce and bulk foods at farmers' markets.

- Continuous, perforated roll. Easy-open design.
- High-density polyethylene.
- Traditional paper towel roll style.
- FDA and USDA compliant.
- Standard Stand and Twist-Ease® Ties sold separately.

**2¢**  
Now with twist ties!

Enlarge

9 MICRON

MODEL NO.	SIZE W x L	BAGS/ROLL	ROLLS/CARTON	PRICE PER CARTON		ADD TO CART
				1	3+	
S-19470	12 x 20"	875	4	\$60	\$55	<input type="text"/> <input type="button" value="ADD"/>

### 6x3.5x15 Produce Bags, Vented

[650915PDCV]



\*Price Per Case: \$19.41

Quantity:

\*Price for 1-5

#### Specifications

- Width: 6 IN
- Side Gusset: 3.5 IN
- Length: 15 IN
- Bottom Gusset: N/A
- Color: Clear
- Package Type: Case
- Units per Package: 1000
- Density Type: Low

**3¢**  
Now with twist ties!



### Compostable Produce Bags | Green | 800 count roll

By BioBag

\$64.10

Price Per Unit: \$0.08

- › SKU: PB1117-R
- › Availability: 1-2 Days from California
- › Quantity Per Case: 800
- › Product Dimensions: 11" x 17"
- › Material: PLA
- › Size: Produce
- › Temp: Cold



Quantity:

1

ADD TO CART



### Plastic Food Bag 6" x 8" Pint Size Seal Top with White Write On Block - 1000/Case

★★★★★ Based on 7 reviews Item #: 100P20000000000000



Buy 2 or more  
**\$22.05/Case**  
Saves free with

Buy 1 - 2 **\$22.99/Case**

1 **Add to Cart**

What's New **Register Now**

✓ Gauge 2 mil  
✓ Meets FDA requirements for use in food applications

UPC Code: 854896002228

**Quick Shipping**  
Usually ships in 1 business day or less



**\$8.59**

Spend \$20 get a \$5 gift card with pickup or Target Restock offer details

★★★★☆ 27

Size 80 Count

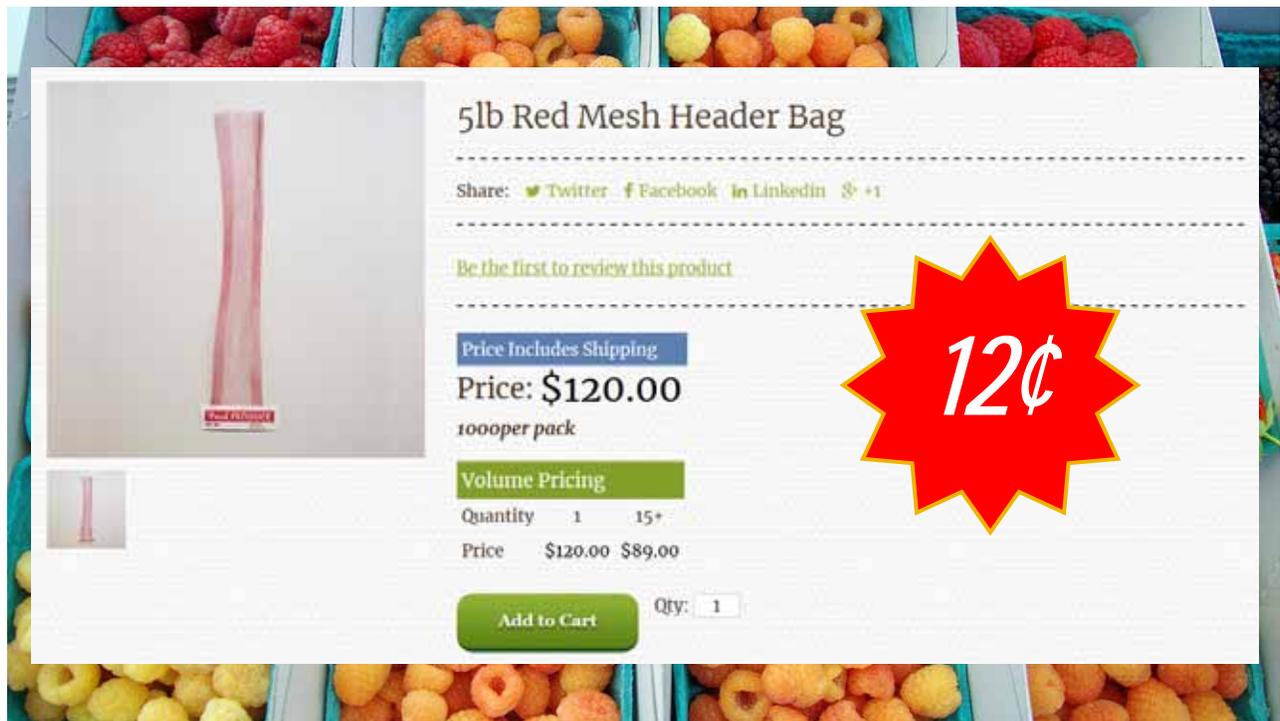
48 Count 80 Count

**11¢**

## How Does it Add Up?

- Over the course of a season, Farmer "A" who uses \$.02 bags will spend \$6 to package 300 bags of salad mix.
- Farmer "B" who uses \$.11 bags will spend \$33





5lb Red Mesh Header Bag

Share: [Twitter](#) [Facebook](#) [LinkedIn](#) [+](#)

Be the first to review this product

Price Includes Shipping  
**Price: \$120.00**  
100 per pack

Volume Pricing

Quantity	1	15+
Price	\$120.00	\$89.00

[Add to Cart](#) Qty:

**12¢**



Kraft Paper Tote Bags

Share: [Twitter](#) [Facebook](#) [LinkedIn](#) [+](#)

Cadet 5# Paper Tote Bag - Kraft

Be the first to review this product

Price Includes Shipping  
**Price: \$76.50**  
500 per pack

Volume Pricing

Quantity	1	12 - 19	20+
Price	\$76.50	\$61.50	\$58.50

\* Size  
5 lb - Cadet

**15¢**

Home > Shop > Paper Bags > Locally Grown Kraft Paper Tote Bags



## Locally Grown Kraft Paper Tote Bags

Share: [Twitter](#) [Facebook](#) [LinkedIn](#) [+](#)

Paper Handle Bag Quarter Peck - Locally Grown - Kraft

[Be the first to review this product](#)

**Price Includes Shipping**

**Price: \$82.00**

500 per pack

**Volume Pricing**

Quantity	1	12 - 19	20+
Price	\$82.00	\$67.00	\$62.00

\* Size

Quarter Peck

16¢



Choose By Size

Buy Larger Quantities [Click Here](#)

Buy Smaller Quantities [Click Here](#)

ITEM #	LENGTH	WIDTH	DEPTH	PACKAGE QUANTITY	EACH PRICE	PACKAGE PRICE	BUY
A / B	4 1/4"	3 1/4"	1 1/8"	250	\$0.03	\$6.28	<a href="#">Select</a>
A / B	5"	3 5/8"	1 1/4"	250	\$0.03	\$6.48	<a href="#">Select</a>
A / B	5 3/8"	3 3/4"	1 1/4"	250	\$0.03	\$6.93	<a href="#">Select</a>
A / B	6 1/2"	4 3/8"	1 1/2"	250	\$0.03	\$7.38	<a href="#">Select</a>
A / B	6 1/2"	4 3/4"	1 3/4"	250	\$0.04	\$9.10	<a href="#">Select</a>
A / B	7 1/4"	5 1/4"	1 7/8"	250	\$0.06	\$13.95	<a href="#">Select</a>

Home > Shop > Berry Packaging > Berry Trays > Plastic Trays > Pint Clear Plastic Tray



### Pint Clear Plastic Tray

Share: [Twitter](#) [Facebook](#) [LinkedIn](#)

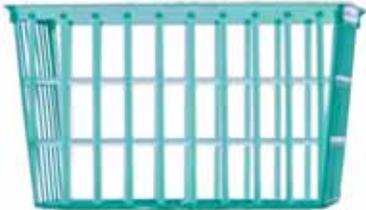
Be the first to review this product

Price Includes Shipping  
Price: **\$99.00**  
1000per pack

Volume Pricing			
Quantity	1	8 - 29	30+
Price	\$99.00	\$89.00	\$74.00

[Add to Cart](#) Qty:

**9¢**



### 1 pint green PP berry basket

ITEM ID: M700 | For pallet pricing call 1-800-473-4144

0 [ADD TO CART](#) [REQUEST SAMPLE](#)

1 to 1199 QTY: **\$0.15** 1200+ QTY: **\$0.11**

COLOR | **Green**

[Green](#)

CAPACITY | **1 pint**

[1 pint](#)

**15¢**

Home > Shop > Berry Packaging > Berry Trays > Clamshells > One Pint Clamshell Tray



### One Pint Clamshell Tray

Share: [Twitter](#) [Facebook](#) [LinkedIn](#)

Be the first to review this product

Price Includes Shipping  
**Price: \$101.76**  
48oper pack

Volume Pricing			
Quantity	1	8 - 27	28+
Price	\$101.76	\$72.96	\$56.64

[Add to Cart](#) Qty:



Home > Shop > Berry Packaging > Berry Trays > Pulp Trays > Pint Pulp Berry Tray - Keyes



### Pint Pulp Berry Tray - Keyes

Share: [Twitter](#) [Facebook](#) [LinkedIn](#) [Google+](#) [+1](#)

Be the first to review this product

Price Includes Shipping  
**Price: \$90.50**  
50oper pack

Volume Pricing				
Quantity	1	8 - 29	30 - 59	60+
Price	\$90.50	\$53.00	\$35.50	\$33.00

[Add to Cart](#) Qty:



Home > Shop > Berry Packaging > Berry Trays > Pulp Trays > **Pint Pulp Berry Tray - Pactiv**



### Pint Pulp Berry Tray - Pactiv

Share: [Twitter](#) [Facebook](#) [LinkedIn](#) [+](#)

[Be the first to review this product](#)

Price Includes Shipping  
**Price: \$84.42**  
420per pack

Volume Pricing				
Quantity	1	8 - 29	30 - 59	60+
Price	\$84.42	\$54.60	\$42.84	\$37.38

**Add to Cart** Qty:

**20¢**

Home > Shop > Berry Packaging > Berry Trays > Pulp Trays > **Pint Wood Berry Tray**



### Pint Wood Berry Tray

Share: [Twitter](#) [Facebook](#) [LinkedIn](#)

[Be the first to review this product](#)

Price Includes Shipping  
**Price: \$166.00**  
500per pack

Volume Pricing		
Quantity	1	8+
Price	\$166.00	\$139.00

**Add to Cart** Qty:

**33¢**

## How Does it Add Up?

- Over the course of a season, Farmer "A" who uses \$.09 clear plastic berry baskets will spend \$22.50 to package 250 pints of berries
- Farmer "B" who uses \$.33 wooden baskets will spend \$82.50



**Wax Produce Boxes - 1.8 Bushel**



Safely package and ship fresh vegetables and fruits.

- Wax coating inside and outside to resist humidity and moisture.
- Vent holes minimize spoilage. Self-locking.
- Space provided to identify product and grower/packer.

**40¢**

[More Images](#)

MODEL NO.	DESCRIPTION	INSIDE DIMENSIONS L x W x H	USE	BN DL. QTY.	LBS./BN DL.	TEST	PRICE PER BOX (SOLD IN BUNDLE QUANTITIES)		ADD TO CART	
							15	90+	15	ADD
S-20443	1.8 Bushel	22 1/2 x 15 7/8 x 11 3/4"	Cabbage, Greens	15	44	44 ECT	\$5.85	\$5.05	<input type="text" value="15"/>	<input type="button" value="ADD"/>

SHIPS VIA UPS

# The Waxed Box Dilemma

- Nearly 1.5 million tons of non-reusable waxed boxes go to landfills each year
- One California organic grower alone spends at least \$250,000 each year on dumping nonrecyclable vegetable boxes in the landfill



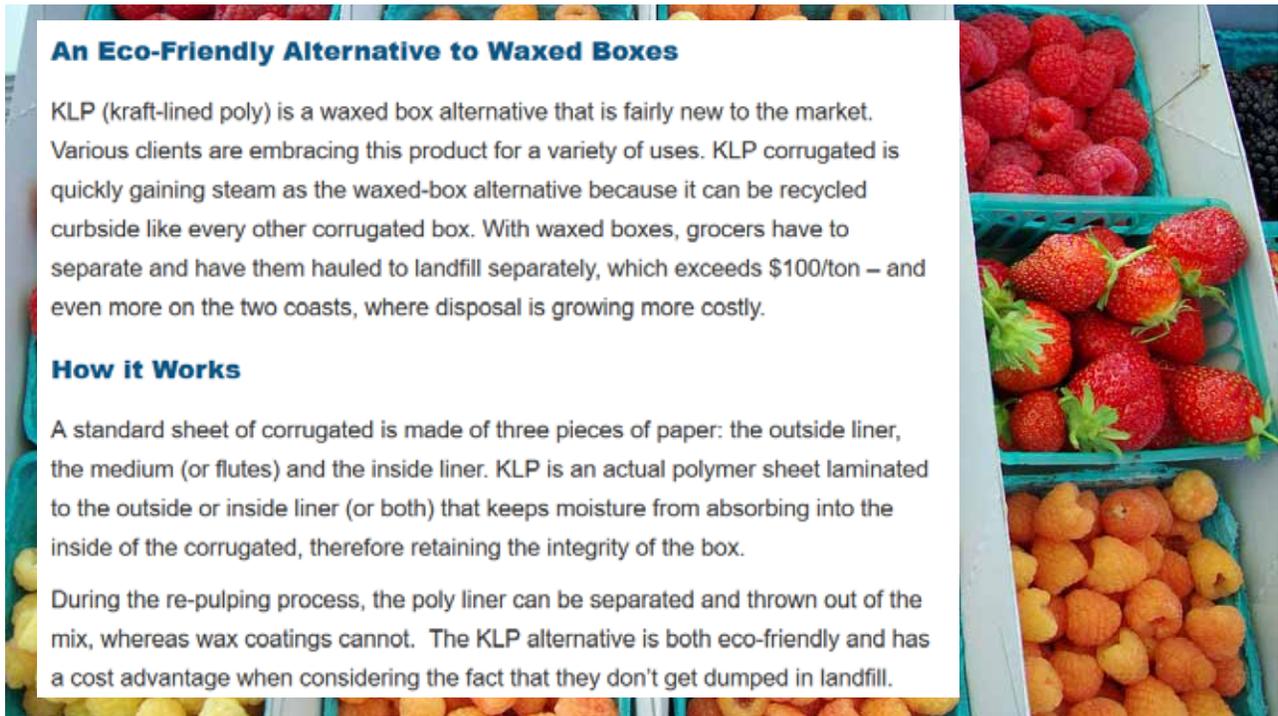
## An Eco-Friendly Alternative to Waxed Boxes

KLP (kraft-lined poly) is a waxed box alternative that is fairly new to the market. Various clients are embracing this product for a variety of uses. KLP corrugated is quickly gaining steam as the waxed-box alternative because it can be recycled curbside like every other corrugated box. With waxed boxes, grocers have to separate and have them hauled to landfill separately, which exceeds \$100/ton – and even more on the two coasts, where disposal is growing more costly.

### How it Works

A standard sheet of corrugated is made of three pieces of paper: the outside liner, the medium (or flutes) and the inside liner. KLP is an actual polymer sheet laminated to the outside or inside liner (or both) that keeps moisture from absorbing into the inside of the corrugated, therefore retaining the integrity of the box.

During the re-pulping process, the poly liner can be separated and thrown out of the mix, whereas wax coatings cannot. The KLP alternative is both eco-friendly and has a cost advantage when considering the fact that they don't get dumped in landfill.





# Webinar Recording & Resources



Upcoming Webinars

[www.cultivatingsuccess.org](http://www.cultivatingsuccess.org)

Food Safety Resources

<https://www.uidaho.edu/extension/food-safety-for-produce-growers>



## Next Steps

Please complete our post-webinar evaluation!

<https://www.surveymonkey.com/r/PackagingEconomicsWebinar>

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