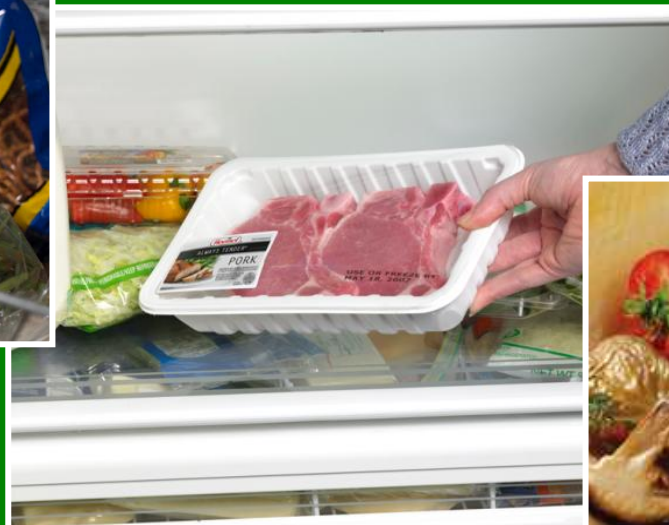




Increasing Consumer Satisfaction While Enhancing Food Safety Initiatives



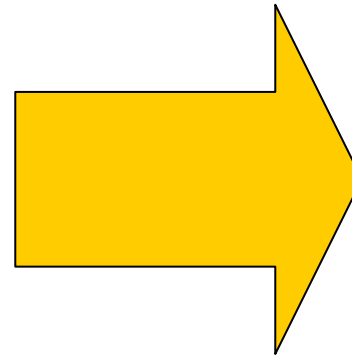
1. Packaging History

2. Low Oxygen Packaging

3. Consumer Satisfaction

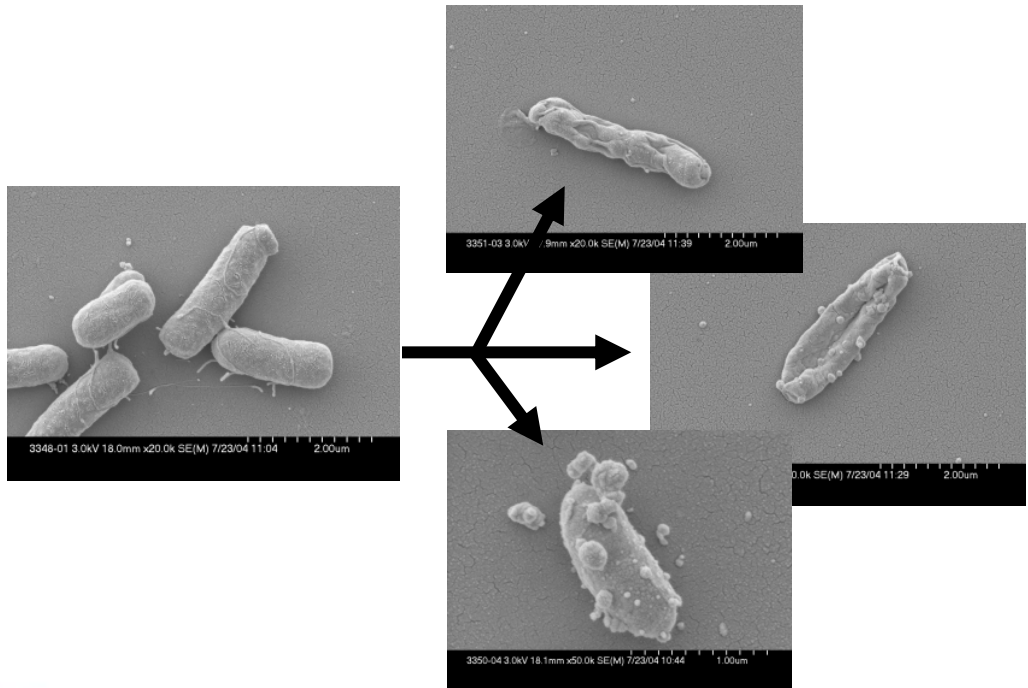


Innovative & Branded Food Co.





High Pressure Pasteurization





PACKAGING HISTORY



Enhancing Product Quality

- **Controlled Atmosphere Storage (CAS)**
 - Introduced in '30s
 - Vacuum packaging for meats in late '50s and early '60s

 - **Modified Atmosphere Packaging (MAP)**
 - Introduced in '70s in Europe and '80s in United States
-



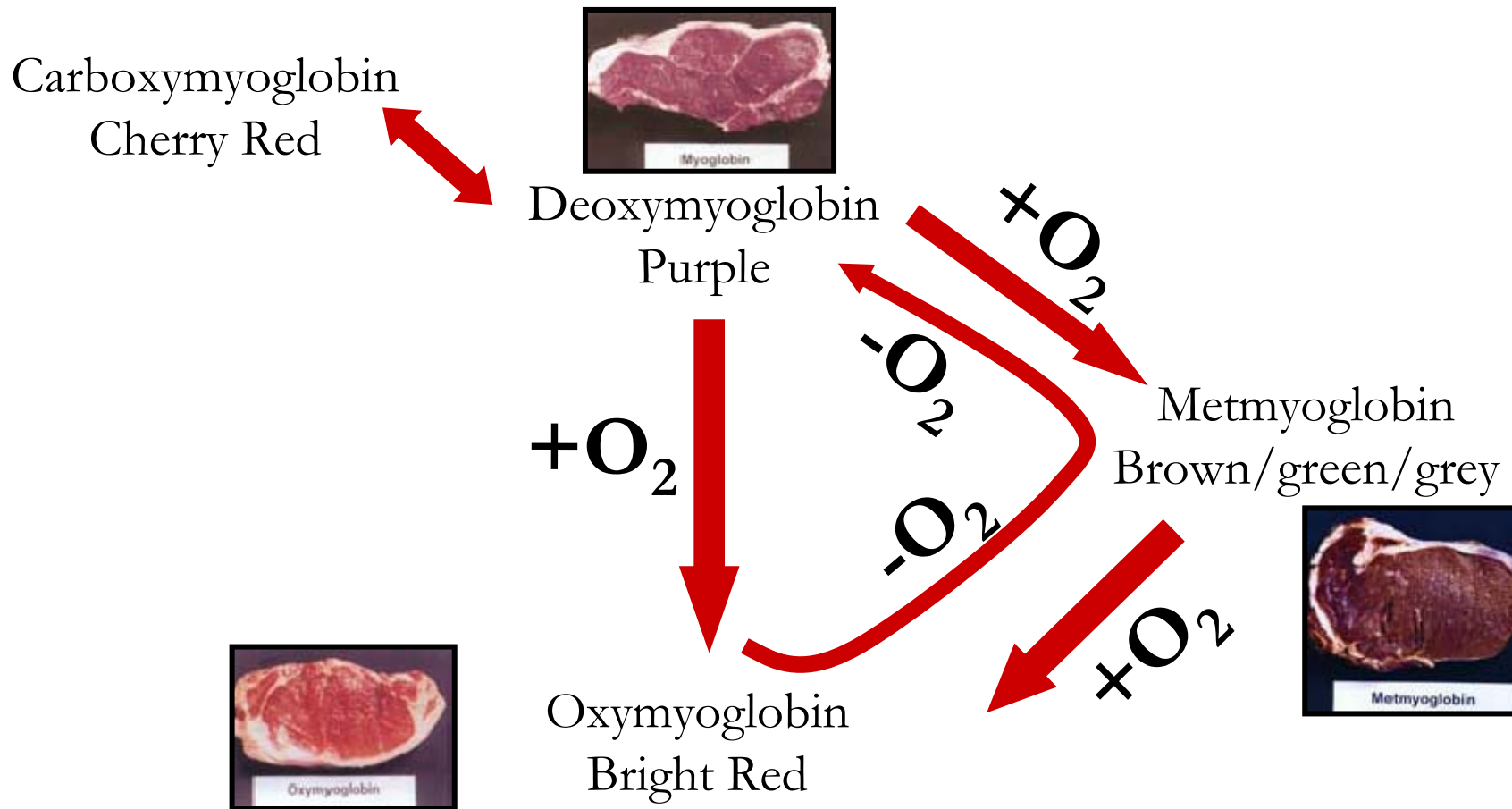
Packaging History



- | | |
|---|---|
| <ul style="list-style-type: none">• What is MAP?<ul style="list-style-type: none">– Modified Atmosphere Packaging– Normal atmospheric air is modified to protect content of package | <ul style="list-style-type: none">• What is Case Ready?<ul style="list-style-type: none">– A means to pre-package meat in a USDA inspected, controlled facility and to provide the retailer/customer with a consistent, convenient and safe product |
| <ul style="list-style-type: none">• Why MAP?<ul style="list-style-type: none">– Keep meat fresh– Protect meat– Prevent cross-contamination (tamper resistant/leak-proof)– From the plant to the consumer's kitchen | <ul style="list-style-type: none">• Why Case Ready?<ul style="list-style-type: none">– Efficient production– Food safety – HAACP controlled/USDA inspected product– Consistency of production– Reallocation of retailer labor for service– Easy inventory management for retailer, resulting in fewer out of stocks for consumers |



Forms of Myoglobin and Color of Meat



Source: Dr. Melvin Hunt, Kansas State University. Kropf, 1997. 8



Examples of Color Variiances Due To Packaging



Cryovac Meal Solution



Cryovac Primal



Cryovac Retail



Backroom Foam Tray & Overwrap



Low Ox Chub



Roll Stock



High Ox Lid Stock



Multivac



Low Ox Bag



Pouch



Low Ox Lid Stock

This is the only packaging which requires a code date. GRAS Notification 000143



Skin Pack



Beef Case Ready History

Color will vary by packaging technology



1. **Rail Beef** → Cut, Tray & Overwrap → Display 2-3 days

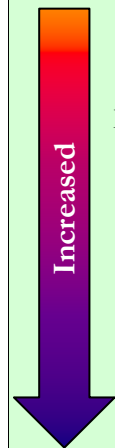


2. **Vac-Pack Primal Cuts** → 35-60 Days → Cut, Tray & Overwrap → Display 2-3 days



3. **Store Grinds** → Display 2-3 days

**Food
Safety
Control**



Meat cut at USDA inspected facility, sealed in mother bag



Low Ox Bag → 25 days → Remove outer bag & code date → Display 3-5 days

Meat ground at USDA inspected facility, sealed in chub, and code dated at production facility



Ground Meat Chubs → Shelf Life 18-21 days

Meat cut at USDA inspected facility, sealed in tray, and code dated at production facility



High Ox Lid Stock → Shelf Life 10-17 days

Meat cut at USDA inspected facility, sealed in tray, and code dated at production facility



Low Ox Lid Stock → Shelf Life 21-24 days

*Case Ready packaging reduces cross contamination, especially lid stock packaging.



Consumers Rely On Sell By Dates

81% of consumers rely on sell by dates. (FMI 2005)

Color is not an accurate indicator of freshness



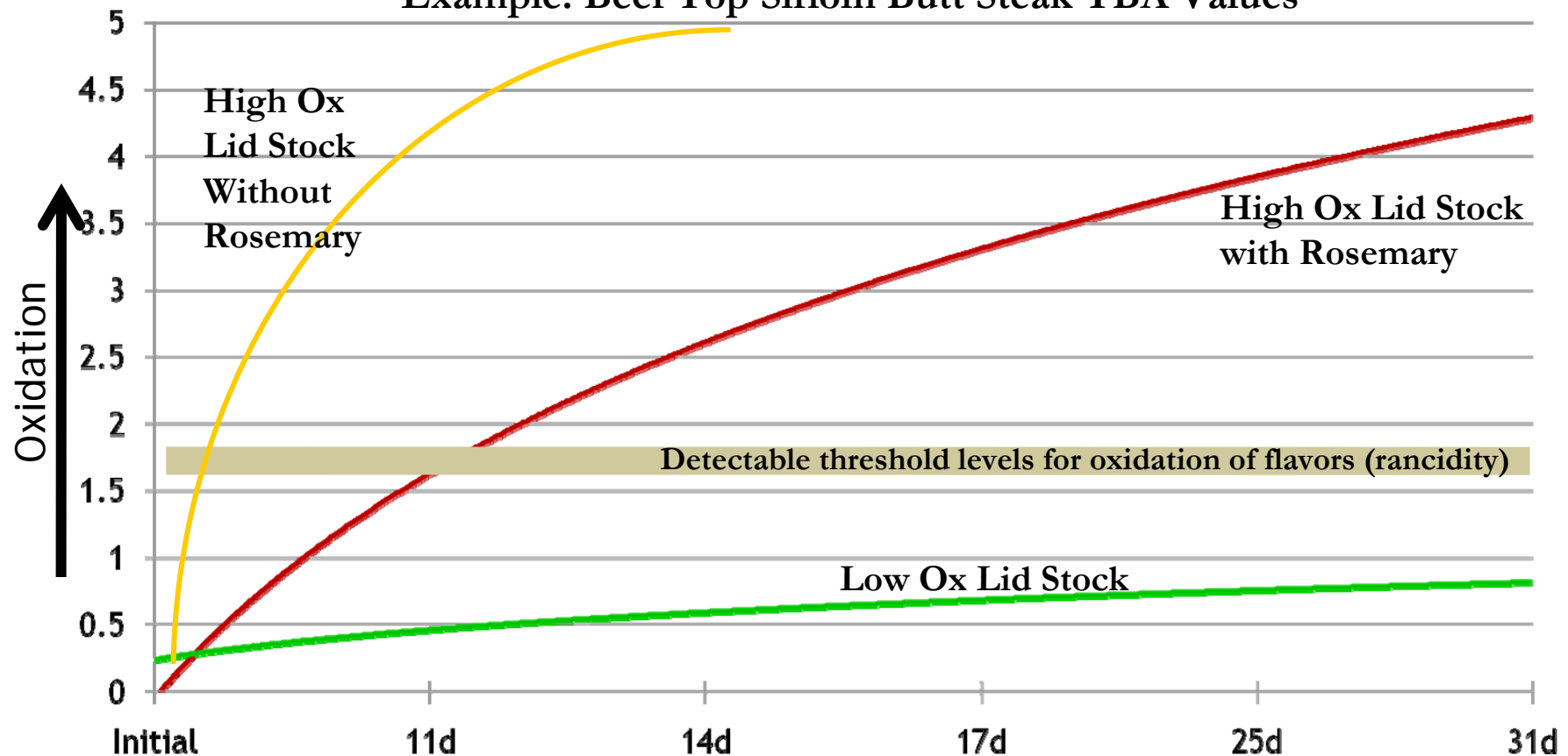


LOW OXYGEN PACKAGING



High Oxygen Packaged Beef Becomes Oxidized Sooner

Example: Beef Top Sirloin Butt Steak TBA Values



*Precept Foods data. Dr. Daren Cornforth, Utah State University paper supports above data. 13



High Ox Packaging Creates Premature Browning



Low Oxygen
155F°

High Oxygen
155F°



Dr. Joseph Sebranek, Iowa State University, Dr. Terry Houser, University of Florida. Research demonstrates premature browning effects. 14



- Internal color of cooked burger after holding in 80% O₂-MAP for 1 week. Note premature browning at internal temps of 49-66 C

(John et al. 2004. J Food Sci 69:C pgs 608-14).

*Study funded by NCBA check-off dollars

Slide provided by Dr. Cornforth, USU

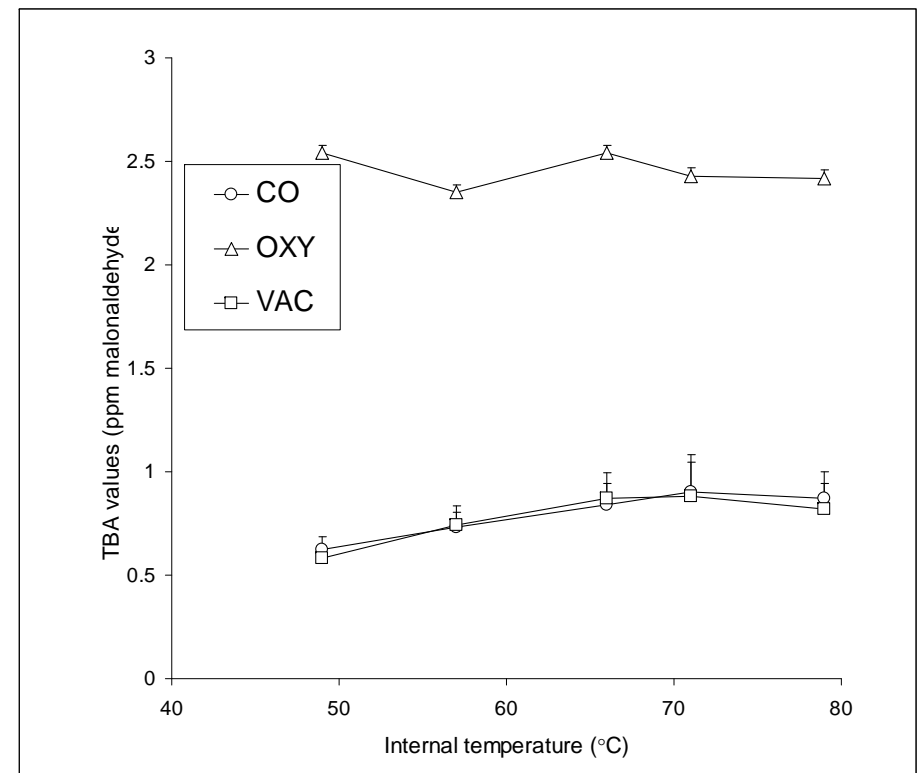




Cooked Meat Quality

Cooked patties have less oxidation & better flavor (lower TBA values) when raw meat is packaged in 0.4% CO-MAP, versus meat held in 80% O₂-MAP

(John et al., 2004. J Food Sci 69:C608-14).



Slide provided by Dr. Cornforth, USU



Low Oxygen Packaging Formats

Low Ox Bag Technology (FDA GRAS Notification 000083)



Low Ox Lid Stock (FDA GRAS Notification 000143)

*As part of GRAS Notification, product must be date coded at plant.



MORE "GREEN"
More sustainable,
less waste, more
packages per truck

Dr. Mindy Brashears, Texas Tech University. Pathogens decrease in Low Ox packaging



Tamper-Proof Trays in Accordance with 9-11 Food Safety Initiatives

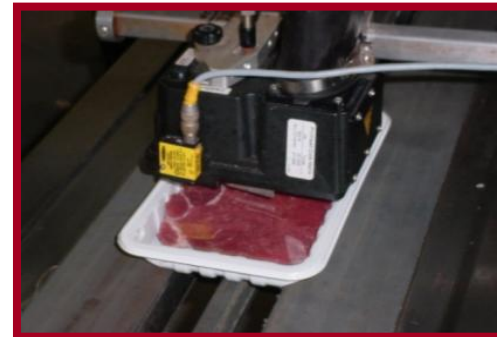
Packaged under
USDA inspection



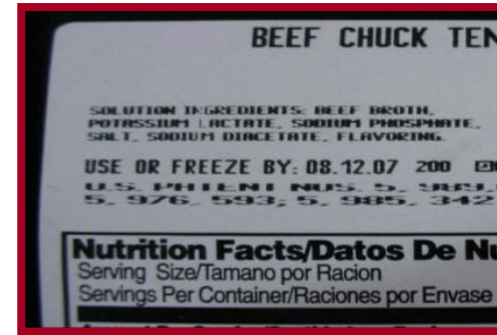
Date is printed
in bold,
15 point font
on front



Tamper-proof
lidded tray
reduces cross-
contamination



Print is tamper-
proof and
printed directly
on package



Date is also
printed on back



Customer service
800# printed on
every package



Scientists Endorsing the Safety & Quality of Low Oxygen CO MAP Packaging:

- **Dr. Alden Booren – Michigan State University**
- **Dr. Joseph Sebranek – Iowa State University**
- **Dr. Melvin Hunt – Kansas State University**
- **Dr. Daren Cornforth – Utah State University**
- **Dr. Chance Brooks – Texas Tech University**
- **Dr. Mindy Brashears – Texas Tech University**
- **Dr. Gary Acuff – Texas A&M University**
- **Dr. Mike Doyle – Director of the Center for Food Safety at University of Georgia**
- **Dr. Michael Osterholm – Director of Center for Infectious Disease Research & Policy – University of Minnesota**
- **Dr. Oddvin Sorheim – Norwegian Food Research Institute***
- **Dr. Roger Mandigo – University of Nebraska**
- **Dr. Susan Brewer – University of Illinois**
- **Dr. Terry Houser – University of Florida**

*CO MAP was used successfully for many years in Norway. It was not “borrowed” in the EU, but for competitive reasons, was not approved when Norway joined the EU.



CONSUMER SATISFACTION



Consumers use the following to determine wholesomeness...

1. Sell By Dates
2. Packaging Appearance
3. Smell
4. Color
5. Texture
6. Taste



*Studies conducted by FMI, AMI, and CFA show that consumers rely on sell by dates. 21



Consumers Want Fresh Meat Packaging That...

- Prevents leaks & mess
- Keeps meat fresh
- Facilitates a good eating experience
- Promotes attractive meat appearance





What Do Consumers Want?

Cleanliness...



...in the cart



...at the register



...in the refrigerator

Low Ox Lid Stock Packaging Reduces Cross-Contamination



Advantages for the Consumer of Low Ox Modified Atmosphere Packaging



Cleanliness in the case...



Leak-proof packaging keeps hands clean...



No need to touch raw product...

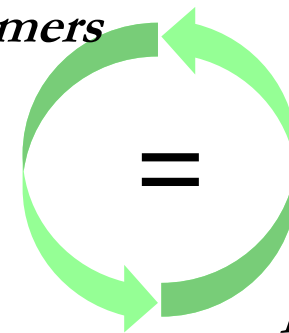
The ultimate result...



A great eating experience.



Happy Consumers



Repeat Customers

Repeat Customers...



Consumers Rely On Sell By Dates Throughout The Store!



*95% of consumers would be very unlikely to prepare a product past the use or freeze by date. (AMI, 2007)



Spoilage vs Food Safety

- “Spoiled” foods are consumed by the public every day. These foods are “spoiled” to generate specific flavors, textures, aromas, colors, and other desired quality attributes
 - Curdled milk —————→ yogurts and cheeses
 - Fermented —————→ dry sausages
 - Fermented liquids —————→ vinegars, beers and wines
 - Fermented cabbage —————→ sauerkraut
- These “spoiled” foods provide the consumer with a desired eating experience.
- Un-desired spoiled foods provide the consumer with a poor eating experience in off-flavors, textures, appearance or odors. They may be discomforting to consume, but do not cause food-borne illness.



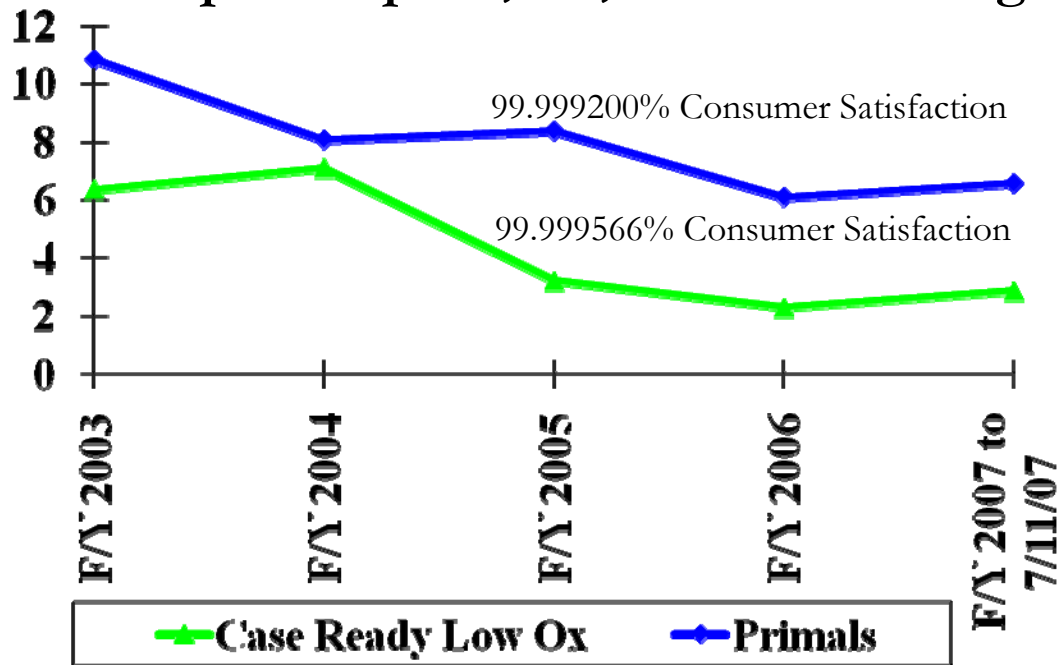
Spoilage vs Food Safety

- Often-quoted 1999 CDC review
 - 76 million Food-Borne Illness per year (80% viral, 13% bacterial)
 - 320,000 hospitalizations
 - 5,000 deaths
- 2001 CDC Morbidity & Mortality Weekly Report (“something I ate”)
 - 267 million Norwalk-Like Viruses per year
 - 612,000 hospitalizations
 - 3,000 deaths
- Dr. Mike Osterholm, Director; Center for Infectious Disease Research and Policy (CIDRAP)
 - “...in my more than 30 years working at the forefront of foodborne disease outbreak investigations around the world, I am not aware of a single case of human illness associated with consumption of spoiled food.”



Reduced Consumer Complaints With Low Oxygen Packaging

Complaints per 1,000,000 3 oz. Servings



- 125 million packages purchased
- 600 million servings consumed
- No documented foodborne illnesses

Complaints = any and all consumer reported quality or formula issues with our product (e.g. packaging, flavor, texture, fat, etc.)

*Percent Daily Values are based on a 2,000 calorie diet.
*Los Porcentajes de Valores Diarios estan basados en una dieta de 2,000 calorías.



†IF NOT SATISFIED, CALL 1-800-523-4635 FOR A REFUND WITH PROOF OF PURCHASE

800 number listed on every package for consumer feedback



Statements from Scientists Concerning the Safety and Quality of Low Oxygen Modified Atmospheric Packaging with Carbon Monoxide

<p>Dr. Alden Booren, Professor, Michigan State University</p>	<p>May 4, 2006, in a letter to the Honorable Carl Levin, U.S. Senate</p>	<p>“The risk of a significant food safety hazard occurring in meat packaged using this low-oxygen carbon monoxide modified atmosphere packaging (MAP) technology does not change when this technology is compared to conventional retail meat wrap technologies. For this reason I would not hesitate to utilize the technology in the Meat Laboratory Pilot Plant, a facility I help manage at Michigan State University.”</p>
<p>Dr. Joseph Sebranek, Iowa State University; Dr. Melvin Hunt, Kansas State University; Dr. Daren Cornforth, Utah State University; and Dr. Susan Brewer, University of Illinois</p>	<p>May, 2006, Perspectives Article in <i>Food Technology</i>, a scientific publication of the Institute of Food Technologists</p>	<p>“The claim that CO packaging will result in unsafe products is not scientifically sound.”</p> <p>“Because scientific studies have validated the safety of low-CO packaging technology for fresh meat, it seems appropriate to let the marketplace decide the success or failure of the process.”</p>
<p>Dr. Melvin Hunt, Professor, Kansas State University</p>	<p>March 14, 2006, Letter to the Editor, submitted to the Kansas City Star</p>	<p>“Over the last few weeks, media have persuaded some consumers that they are being misled because meat that would have otherwise turned brown is still red. Some retailers are now fearful of selling products packaged in this impressive, safe and cutting edge technology. The effort to discredit the science that went into it – and efforts to discredit the federal agency that reviewed it three times – is scientifically inaccurate and unfortunate.</p> <p>A close look at this media scare shows motives that are as transparent as carbon monoxide itself. But carbon monoxide packaging technology has a real benefit to consumers. The only benefits generated by these unfounded safety allegations are to the company that stirred the controversy – and to the media outlets that benefit from the attention grabbing story.”</p>



Statements from Scientists Concerning the Safety and Quality of Low Oxygen Modified Atmospheric Packaging with Carbon Monoxide

Texas Tech University researches, Dr. Chance Brooks and Dr. Mindy Brashears	June 26, 2006, Texas Tech University Press Release	“In a related microbiological study, a research team headed by Dr. Mindy Brashears found that beef inoculated with pathogenic bacteria, <i>Salmonella</i> and <i>E. coli</i> o157, and then packaged with carbon monoxide had less pathogenic bacteria after 14 days than similarly inoculated beef wrapped in traditional packaging without carbon monoxide.”
EU Scientific Opinion	2001, EU Scientific Committee on Food	“The EU Scientific Committee on Food (SCF) in 2001 determined that the use of CO under intended conditions of use in meat packaging is safe. The committee concluded “there is no health concern associated with the use of 0.3% to 0.5% CO in a gas mixture of carbon dioxide and nitrogen as a modified atmosphere packaging gas for fresh meat provided temperature during the storage and transport does not exceed 4 C.”
Dr. Gary Acuff, Professor of Microbiology, Texas A&M University	May 26, 2006, Letter to Editor of Meating place Magazine	“Low-oxygen modified atmosphere packaging is a safe technology that provides significant consumer benefits, not the least is a longer shelf-life than aerobic packaging. Adding very low levels of carbon monoxide to the atmosphere provides an acceptable color that helps meet consumer expectations. The use-by date on every package tells consumers the point at which the product will no longer be acceptable. This is not a misleading technology, however facts seem to be getting lost in the publicity generated by critics.”
Dr. Daren Cornforth, Professor Food Science, Utah State University	March 16, 2006, Letter to the Deseret News	“The FDA has looked at, and approved the use of CO in meatpacking on three separate occasions, most recently noting that the use of CO “will not mislead consumers into believing that they are purchasing a product that is fresher or of greater value than it actually is or increase the potential for masking spoilage.”
Mike Doyle, Director of the Center for Food Safety at the University of Georgia	July 27, 2006, Interview with Food Production Daily USA	“I don’t think that carbon monoxide packaging is a deceptive process at all, certainly not from a safety standpoint. I think that carbon monoxide packaging technology deserves an award, from a scientific perspective this is a profound idea,” said Doyle. “If manufactures have a reasonable date on the product and it looks good, smells good and tastes good...well, what’s wrong with that?”



Recommendation

- **No regulatory changes are needed.**
- **MAP gases are “Processing Aids”, as previously ruled, and are not “Additives”.**
- **FDA has addressed shelf life and safety issues of fresh meat in low CO-MAP.**
- **Therefore, allow market forces to determine the acceptability of competing packaging technologies.**

Slide provided by Dr. Cornforth, USU

NAME: Phillip L. Minerich, Ph.D.

TITLE: Vice President Research & Development

FAMILY: Gail Minerich - Spouse
Gena Winkels - Married to Casey Winkels
Daughters - Isabella, Twins - Ayla & Audrey
Benjamin - Married on March 24 to Rachel Schamber

COLLEGE: 1976 -- B.S. Degree in Food Technology -The Ohio State Univ. in Columbus, Ohio
1990 -- Masters in Food Science - Univ. of Minnesota - St. Paul, MN
2002 -- Doctorate in Food Science - Univ. of Minnesota - St. Paul, MN

HOMETOWN: Medina, Ohio

HORMEL HISTORY

START DATE: July 6, 1976

CAREER INFO: 31+ years

PHILLIP L. MINERICH

07/06/1976	QUALITY CONTROL TRAINEE-AUSTIN
02/28/1977	QUALITY & PROCESS CONTROL ENGINEER I-AUSTIN
08/08/1977	FOREMAN PROTEIN/STOCK PRODUCTION-AUSTIN
07/03/1978	FOREMAN BULK GELATIN PROCESSING-AUSTIN
09/17/1979	FOREMAN GELATIN PROTEIN WET PROCESSING-DAVENPORT
02/02/1981	RELIEF FOREMAN-GELATIN PROTEIN PLANT-DAVENPORT

11/16/1981 FOREMAN PROTEIN WET PROCESSING-DAVENPORT
08/30/1982 FOREMAN PRECOOKED LINE NIGHTS-AUSTIN
09/27/1982 FOREMAN PRECOOKED LINE-AUSTIN
05/16/1983 SANITATION SPECIALIST-CO
09/12/1983 CORPORATE MANAGER SANITATION-CO
07/09/1984 FOREMAN-HAM PROCESSING-GP-AUSTIN
08/06/1984 FOREMAN-HAM PROCESSING & CURING-GP-AUSTIN
08/04/1986 FOREMAN-GP HAM FATTING, BONING AND TRIMMING-GP-AUSTIN
09/12/1988 FOOD TECHNOLOGIST-R&D-CO
03/18/1991 SENIOR FOOD TECHNOLOGIST-R&D-CO
01/01/1996 RESEARCH SCIENTIST-PACKAGING-R&D-CO
08/30/1998 RESEARCH SCIENTIST-PACKAGING-HFLLC (SUBSIDIARY FORMED)
07/22/2002 DEVELOPMENT LEADER-NEW INTERVENTIONS-HFLLC
07/14/2003 DIRECTOR PRODUCT & PROCESS DEVELOPMENT & PACKAGING-R&D-CO
01/01/2006 VICE PRESIDENT, RESEARCH & DEVELOPMENT

MISC: Hobbies: Golf, travel, sailing, snorkeling and hooked on t.v. show "24".

Committee on Agriculture
U.S. House of Representatives
Required Witness Disclosure Form

House Rules* require nongovernmental witnesses to disclose the amount and source of Federal grants received since October 1, 2004.

Name: Dr. Phil Minerich
Address: 1 Hormel Place, Austin MN 55912
Telephone: _____
Organization you represent (if any): Hormel Foods Corporation

1. Please list any federal grants or contracts (including subgrants and subcontracts) you have received since October 1, 2004, as well as the source and the amount of each grant or contract. House Rules do **NOT** require disclosure of federal payments to individuals, such as Social Security or Medicare benefits, farm program payments, or assistance to agricultural producers:

N/A
Source: _____ Amount: _____
Source: _____ Amount: _____

2. If you are appearing on behalf of an organization, please list any federal grants or contracts (including subgrants and subcontracts) the organization has received since October 1, 2004, as well as the source and the amount of each grant or contract:

N/A
Source: _____ Amount: _____
Source: _____ Amount: _____

Please check here if this form is NOT applicable to you: _____

Signature: *Phil Minerich for Dr. Phil Minerich*

* Rule XI, clause 2(g)(4) of the U.S. House of Representatives provides: *Each committee shall, to the greatest extent practicable, require witnesses who appear before it to submit in advance written statements of proposed testimony and to limit their initial presentations to the committee to brief summaries thereof. In the case of a witness appearing in a nongovernmental capacity, a written statement of proposed testimony shall include a curriculum vitae and a disclosure of the amount and source (by agency and program) of each Federal grant (or subgrant thereof) or contract (or subcontract thereof) received during the current fiscal year or either of the two previous fiscal years by the witness or by any entity represented by the witness.*

PLEASE ATTACH DISCLOSURE FORM TO EACH COPY OF TESTIMONY.