VALUE-ADDED Food Production

Fadi M. Aramouni, Ph.D
Professor, Extension Specialist Food Systems

Presented by: Sarah Falke, M.S. Graduate Student

K-STATE
Research and Extension
• Value added agriculture overview
• Regulations for selling value-added
• Labeling requirements
• Kansas Value Added Foods Lab services
Value-added agriculture overview

• Increase value of raw commodities by adding ingredients or processing
• Make them more attractive to buyer/ more readily usable by the consumer
  – Expands customer base
• Creates new jobs, more $$ stays in community
• Profit margin of a value-added product is generally higher than a raw commodity
• Greater total product value goes to producer
• A change in physical state or form of the product (such as making peaches into jam).
• Production of a product in a manner that enhances its value (i.e. organic products).
• Physical segregation of commodity to enhance its value (i.e. identity preserved marketing)

**Providing value to consumer**
Why do value-added foods?

• Studies show that growth in produce is in value-added

• Growing consumer emphasis on eating healthier foods and convenience

• Provide local food in a form that people may be more accustomed to
Realities of value-added foods

• Value-added may be a longer-term solution
• More capital may be required
• New skills may be required
• Value-added products may require a license
• Need a good product, AND hard work, patience, planning, etc.
Selling meat and poultry?

USDA
HACCP required

KDA
Your farmers market

Selling any other food?

FDA*
FSMA

KDA
Your farmers market

Note - includes products where raw meat or poultry comprises >3% total product weight or 2% meat by cooked weight.

*HACCP currently required for juice, seafood
<table>
<thead>
<tr>
<th>Product</th>
<th>License required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fruit jams and jellies</td>
<td>None</td>
</tr>
<tr>
<td>LOW SUGAR fruit jams and jellies</td>
<td>testing required</td>
</tr>
<tr>
<td>Pepper jams and jellies, salsa</td>
<td>testing required</td>
</tr>
<tr>
<td>Formulated acid foods- mainly acidic ingredients</td>
<td>Testing required- no license</td>
</tr>
<tr>
<td>Naturally fermented foods (sauerkraut)</td>
<td>KDA license</td>
</tr>
<tr>
<td>Canned applesauce, fruits</td>
<td>none</td>
</tr>
<tr>
<td><em>Shelf stable</em> canned pickles, meats, vegetables</td>
<td>KDA license-scheduled process</td>
</tr>
<tr>
<td><em>Refrigerated</em> canned salsa, sauces, etc.</td>
<td>KDA license</td>
</tr>
<tr>
<td>Other value-added foods</td>
<td>See FM publication</td>
</tr>
</tbody>
</table>
• No such thing as a “certified kitchen”
• Every processor/producer must have own license
  – Inspector will look at YOUR process in a facility
  – Can use a facility that has already been licensed
  – Need to meet KDA facility requirements
• Can check with local restaurants, schools, fairgrounds, etc.
Food labeling requirements

1. Identity of product
2. Quantity
3. Declaration of responsibility
4. IF 2 or more ingredients, ingredient list (by weight; include sub-ingredients)

- Applies to all products
  - Additional information required for meat products
• In ingredients statement, allergens must be listed either adjacent to (Example A) or in (Example B)

*Undeclared allergens could lead to a recall
Nutrition Facts - required if:

• Selling > $50,000 food/year OR >$500,000 direct to consumer
• Making nutritional or health claim on label
• Fortified food
• Baby food
• Buyer requirement
• Consumer preference
Nutrition Facts requirements

• Must be accurate
• Check serving size
• If making health claim(s)
  – Must be an allowed claim
  – Must be accurate
  – Must have nutrition facts
• “Bar code”
• Not regulatory, buyer may require
• Provides info on product ID, size, price, etc.
• About 75-100 requests monthly
• e-mail, telephone, letters, extension agents
• Funded by grants from KDA
EXTENSION VALUE-ADDED

• 2 components of the program

• Educational:
  – Seminars, workshops, training

• Service
  – Analyses, labels, ingredients, technical support
• Provide technical assistance to food companies

– Analytical Services
  • Physical and chemical
    – pH (4.6), water activity (0.85), sodium, brix
  • Microbiological
    – Coliforms (contamination), yeast & mold (spoilage), total aerobic count (contamination/spoilage)
  • Sensory

• Certifications
  – Gluten Free
New Product Development

• Formulations
  – Macro-ingredients
    • Flour (% protein, etc), sugar, main components
  – Micro-ingredients
    • Flavor, color, additives
    • Dough conditioners, anti-staling
  – Consumer friendly
    • Clean-label
Processing considerations

• Raw material handling (throughout process)
  – Storage temperatures, allergen/cross-contamination control, cool/dry/clean

• Equipment
  – Clean, efficient, affordable (pay for what you need)

• Regulations
  – GRAS ingredients
  – Labeling (allergens)
  – Food safety

• Process certification
  – Time/temp, water activity, preservatives
Packaging

• Equipment
  – Clean/efficient
  – Avoid cross-contamination/cross-contact

• Systems
  – Automatic, semi-automatic, extent of automation

• Material
  – Glass, metal, pouches
    • Need to consider how to avoid physical contamination

• Suppliers
  – Affordable for small-scale
• HACCP
• GMPs
• Organic certification
• Quality assurance/control programs
• Recall programs
• Audits
• Specifications
Shelf-life testing

• Accelerated (ASLT)

• Modes of Failure
  – Oxidation, staling, off-flavors, browning, microbial spoilage

• Certification - best by, use by
• Trouble shooting  
  – ID the problem
• Microbial profiling  
  – Coliforms vs. aerobic vs. yeast and mold - safety
• Air sampling  
  – Bacteria in the air = cross-contamination
• Process review  
  – Safe time/temp for product
A lot of research in the value-added area across colleges and departments

- Food: Dairy drinks, meats, sorghum based products, baked goods, extruded products...
- Non-Food: Feed, fiber, bio-fuels, adhesives
- Other: food safety
• aramouni@ksu.edu  Fadi Aramouni

• sbfalke@ksu.edu  Sarah Falke

• 785-532-1668

• http://www.ksre.ksu.edu/kvafl/p.aspx
Londa Nwadike

Extension Consumer Food Safety Specialist
Kansas State University/ University of Missouri

Cell Phone: 913 313 9273
Email: lnwadike@ksu.edu
http://www.ksre.ksu.edu/foodsafety/