The Loss of Ecological Knowledge: A look into the FDA Organic Label Movement and its effects on Local Communities

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The Loss of Ecological Knowledge: A look into the FDA Organic Label Movement and its effects on Local Communities

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Overview:

I. **Project Goal:** Addressing the Negative Impacts of Industrial Agriculture for Public Health and Sustainability

II. **Case Study:** Making Industrial Agriculture “Organic”: Applying Theoretical Critiques to Organic Food Access in USDA market

III. **Critiques of Industrial Agriculture:** The Loss of Local Ecological Knowledge and Crop Diversity

IV. **Biocultural Framework:** Ethnoecology & Environmental Philosophy

V. **Looking forward** - New framings of Organic and Industrial Agriculture

Research Question: How do we respond to destructive aspects of industrial agriculture for public health and sustainability?
I. Goal of Project

To explore solutions to the impacts of conventional agriculture drives on

a) local ecological knowledge of rural and urban groups and heirloom seeds
b) the changing nature of the relationships with food
c) the role of the “organic” food category within industrial agriculture
II. Case Study: Organic as a Sustainable Standard within Industrial Agriculture

*How can the USDA organic standard aid in sustainable management practices within industrial agriculture?*

- Organic standards were created by the USDA
- Made to ensure that natural ecological systems were being utilized
- Effects both plant and livestock productions
II. Background: Organic as a sustainable standard within industrial agriculture

- Must use soil that hasn’t has exposure to prohibited substances three years prior to harvest
- Livestock must be raised in living conditions that are conducive to their natural behaviors,
- Are feed 100% organic food/forage
- Are not given hormones or antibiotics
- Banned synthetic fertilizers, pesticides and any genetic manipulation of organisms.
II. Case study: The USDA Certification Process

1. USDA-accredited certifying agent
   - Individual submits application and fees to the agent

2. Review and Verification
   - Application is reviewed for compliance to USDA organic regulations is determined

3. On-site inspector
   - Thorough inspection of the operation is done
   - Review of application and the inspectors report is finalized

II. Case study: The Cost and Commodification of Organic Agriculture

- Cost is dependent on “the size, type and complexity of the operation” (“Becoming a Certified Operation”)
- Includes the annual fees and certification validation every year
- Commodification still exists within organic agriculture

II. The Growth of the Commodification of Organic Products

- Survey conducted by US Organic Trade Association

- Organic food sales have increased from 13.5 billion dollars in 2005 to 45.2 billion in 2017

Source
II. Case Study: The Organic Food Consumer

- Consumer organic produce choices is the collection of their attitudes (Ghia, 2019)
- Like health concerns, taste preference, concern about potential pesticide exposure and safety
- Trust in the organic status increases the likelihood that it’ll be bought
- An individual will buy a product despite its price (USDA Organic Label) (Ghia)

Source (Ghia)
II. Farmers’ Markets and Local Food Environment: Identifying Perceived Accessibility Barriers for SNAP Consumers Receiving Temporary Assistance for Needy Families (TANF) in an Urban Oklahoma

- Nutrient-related health disparities occur in low-access food environments
- Consumer choice is limited to less nutrient-dense food (Wetherhill, 2015).
- The Supplemental Nutrition Assistance Program (SNAP) and the Special Supplemental Nutrition Assistance Program for Woman, Infants and Children (WIC) can be used at Farmers markets (Wetherhill, 2015)
- This expands the opportunity to get local food (Wetherhill, 2015).
II. Five Dimensions of Access to Farmer Markets

a) Local Availability
b) Accessibility to Transportation/Costs
c) Affordability (direct and indirect costs)
d) Accommodations to Consumer needs (by the FM)
e) Venue and product acceptability
   (Wetherhill, 2015).

- Over 1.7 million low income households make up this program
  (Wetherhill, 2013)
III. Research Problem: The Loss of Ecological Knowledge:

Ecological Knowledge:
- Information an individual gathers and experiences about their local culture and environment over time (Sanchez, 142).

Biocultural heritage:
- The acknowledgment of indigenous communities’ connection with the Earth and the way this relationship reflects in language, cultural memory, ecological knowledge and values (Poole, 2018).
### III. Research Problem: Defining Industrial vs Organic Agriculture

<table>
<thead>
<tr>
<th>Conventional/ Industrial Agriculture</th>
<th>Organic/Biological Agriculture</th>
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<tbody>
<tr>
<td>- Intensive plant production</td>
<td>- Holistic production management system</td>
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<td>- Use synthetic fertilizers, growth hormones,</td>
<td>- Doesn’t rely external agriculture outputs (Shiva, 2013)</td>
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<tr>
<td>- Pesticides, fungicides, insecticides and other chemical products</td>
<td>- Consumer/market driven organic agriculture,</td>
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<tr>
<td>- High use of GMOs (FAQ)</td>
<td>- Service driven organic agriculture, and farmer driven organic agriculture (FAQ).</td>
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</table>
III. Critiques of Industrial Agriculture: Theoretical Critiques

1. Vandana Shiva

- Author, physicist, philosopher and feminist
- Calls for citizens to act against environmental destruction
- Against industrial agriculture

2. Janisse Ray

- Activist, naturalist and writer of five novels,
- Writes about traditional seed saving practices and seed banks
- Against industrial agriculture
III.1 Vandana Shiva’s Critique of Industrial Agriculture

- Discusses the detachment of the ecological systems
- The practice is merely one dimensional
- Uses broken integrations of outputs of ecological systems
- Causes erosion of the multidimensional outputs
- No longer sustains traditional cultures and food diversity (Shiva, p 61)
III.1 Vandana Shiva’s Critique of Industrial Agriculture: Why Does It Matter?

- Lost of ecological knowledge causes displacement and destruction of food biodiversity (Shiva, 2016).
- Causes loss of nutritional value and seed varieties
- Causes vital ecological systems to be lost (Shiva, p 16)
III.2 Janisse Ray’s Critique of Industrial Agriculture

- Industrial agriculture causes the loss of biodiversity, land and cultural memory.
- Erases traditional seed saving practices.
- Traditional practices ensure seed varieties are saved.
- Protects the genetic history of Earth’s ecological history.
In 2005 the United Nations stated that seventy-five percent of the world’s garden vegetables are lost and their adaptive and productive traits are disappearing with them (Ray 2013).
### III.2: Heirloom Seeds vs Hybrid Seeds

<table>
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<tr>
<th>Heirloom seeds:</th>
<th>Hybrid seeds:</th>
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<tr>
<td>- are saved every year after a harvest,</td>
<td>- are genetically modified</td>
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<tr>
<td>- are diverse</td>
<td>- used to create specialized traits</td>
</tr>
<tr>
<td>- are grown and mixed without GMO’s or other biotechnologies (Ray, 2013)</td>
<td>- prevents biodiversity</td>
</tr>
<tr>
<td></td>
<td>- creates superweeds and resistant plants (Ray, 2013).</td>
</tr>
</tbody>
</table>
III.2 Janisse Ray’s Critique of Industrial Agriculture: Nutrient Loss

- USDA Nutrient data showed:
  - High levels of nitrogen in fertilizer
  - Higher water content in produce
  - Low amount of dry matter.
  - Overall lower nutrients in per calorie consumed (Ray, 42)

Since 1975:
- Iron levels dropped 22 %
- Calcium levels dropped 19%

- Vitamin A levels dropped 21.1%
- Vitamin C levels dropped 29.9%

- Organic produce has 20% higher levels of dry matter
Seed saving has become criminalized. Crops are no longer able to evolve, crops have no natural adaptation, and no biodiversity (Ray, 2013).

Traditional systems lost their access to heirloom seeds and lost rights to intellectual property (Ray, 2013).
III. Summary of Limitations or Negative Impacts of Industrial Agriculture

- Biodiversity becomes intellectual property when modified genetically by a corporation
- This has negative consequences for:
  - Biodiversity loss and displacement
  - Reduction of genetic diversity and crop species
  - Cultural diversity
  - Food sovereignty
  - Destructive to ecological systems
  - Unsustainable
  - Access for low income
  - Commodification of crops and profit loss
  - Impoverishment of nutritional value of food crops
III. Summary of Limitations or Negative Impacts of Industrial Agriculture

- Displacement on many levels:
  - Loss of genetic diversity of biodiversity that has evolved with the land
  - Displacement of agrarian communities who depend upon “heirloom species” and subsistence agriculture
  - Loss of ecological knowledge about these species and loss of food sovereignty
  - Proto-capital plant crops
IV. Solutions - Biocultural Framework: Acknowledging the Intersection of Culture, Values and Biodiversity for Sustainability

- Reframes the relationship between humans and nature

- Refers to the deep interconnection between biological, cultural and linguistic diversity

https://sk.sagepub.com/reference/hdbhk_envirosociety/n18.xml
IV. Biocultural Diversity

V. Biocultural Ethical Framework

- Biocultural homogenization is growing by industrial agricultural practices
- Ensures biocultural conservation is conducive with ecological practices
- Follows traditional practices and socio-environmental policies (Rozzi, 2013).
- Ethnoecology explains assumed “savagness”, and inferiority toward other thinking systems (Nazarea, 2003).
IV. Biocultural Framing’s Role in Traditional Food System Conservation

- Is vital to the conservation and reintroduction of traditional food systems
- Encourages better health, cultural and ecological relationships (Rozzi, 2013).
V. Take Away: Steps towards a more sustainable industrial agriculture system

Research Question: How do we respond to destructive aspects of industrial agriculture for public health and sustainability? Specifically, the role of “organic” USDA standard

- Has caused a lack of trust among farmers
- USDA certification is essential to smaller farm operations
- The lack of regulation in other commodity markets needs to be addressed
V. Take Away: Steps towards a more sustainable industrial agriculture system

- Expand access to farmers market for SNAP and WIC communities
- Spread information about local food and their traditional practices
- Initiate urban agriculture to fight nutritional loss and instill a closer sense of community
Works Cited


Works Cited


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