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Why?

What is driving consumer interest in alternatives to meat?

**Push drivers**
- **Health concerns**
- **Animal welfare and ethics**
- **Sustainability**

**Pull drivers**
- **Investors**
- **Growth of alternative proteins**
- **Personal nutrition**
- **Curiosity**
- **Convenience**

Source: USDA Ag Outlook Forum, Gilles Boumeester, Rabobank
COMMERCIAL MEAT & POULTRY PRODUCTION
By Type of Meat, Annual

Data Source: USDA-NASS, Compiled & Forecasts by LMIC

Summer Commodity Conference | August 2018
US RED MEAT & POULTRY CONSUMPTION
Per Capita, Retail Weight, Annual

Data Source: USDA-NASS and USDA-ERS, Compiled & Analysis by LMIC

219.4 Lbs.
The Timeline

2000

2002
NASA funds a goldfish protein

2003
Frog cells Steak and Art make a splash

2008-2014
PETA Offers $1 Million for commercially viable cell cultured chicken

2012-2016
Nicholas Genovese (founder of Memphis Meats) Creates framework for cell cultured muscle tissues made from stem cells

2013
Memphis Meats Unveils $330k burger

2017
“Clean Meat” is Trademarked by Zurich NA.

2017
Memphis Meats says COP is now $2400/ LB

2017
Hampton Creek vows to bring cultured meat to supermarket in 2018

2018
Available to Consumers? Regulation and labeling

2018
Goal: $11 Hamburger
What is Cultured Meat?
Who is producing it?
Other Interesting Ideas

• International Companies

• Israeli Start-Up: Future Meat Technologies
  – Bioreactor Banks in Integrator Production Model
  – $2.2 Million Seed Funding from Tyson Ventures (also invested in Memphis Meats and Beyond Meat)
  – “We can probably get the price down in 6-8 months to $8/kilo…we are around $800/kilo now”
When will it come to market in a serious way?

• First to market: Beef, Chicken, Pork, Eggs or Dairy?
• Startup space: Still Seeking Investors
• Beef: “Could be 2018”, previous estimates were 2020
• Lengthy approval process?
  • GRAS?
Production Challenges:

- Scalability - bio-reactors
- Texture – Ratio of tissue/fat
- Nutrients - replicating the critter’s nutrient profile
- Consumer Acceptance
- Sustainability
Popularity and Coverage: Google Trends “clean meat”
Popularity and Coverage

• Dozens of articles in the last year.
  – PR vs. Political
• Desensitizing
• “Eat Meat, Not Animals”
• Limited Information on the Production/Taste/Texture
• Alternative Protein: One Big Headline
Consumer Acceptance: An Odd Battle
Who will regulate it?

- **FDA**
  - Foods for human consumption
  - Prescriptions/OTC drugs
  - Biologics (Vaccines, blood, gene therapy products, tissue- tissue products
  - Medical Devices
  - Veterinary drugs
  - Tobacco
  - Cosmetics

- **FSIS**
  - Mission: “Protecting the public’s health by ensuring the safety of meat, poultry, and processed egg products.”
Well, Is It Meat?

**Meat:** The part of the muscle of any cattle, sheep, swine, or goats which is skeletal or which is found in the tongue, diaphragm, heart, or esophagus, with or without the accompanying and overlying fat, and the portions of bone (in bone-in product such as T-bone or porterhouse steak), skin, sinew, nerve, and blood vessels which normally accompany the muscle tissue and that are not separated from it in the process of dressing. As applied to products of equines, this term has a comparable meaning. (i) Meat does not include the muscle found in the lips, snout, or ears. (ii) Meat may not include significant portions of bone, including hard bone and related components, such as bone marrow, or any amount of brain, trigeminal ganglia, spinal cord (9 CFR 301.2)

The Food Additives Amendment of 1958 (Section 7) states that nothing in the amendment shall be construed to exempt any meat product from any requirement imposed under the Poultry Products Inspection Act or Meat Inspection Act. A food additive used in a meat (or poultry) product is subject to both FDA and USDA jurisdiction. Either agency may accede to the other's food additive regulation, or may publish its own regulation. In the absence of either agency taking such action, a meat product may not contain a food additive that has not been approved by both agencies.
Regulatory Timeline

• USDA and FDA, **were** quiet

• U.S. Cattlemen’s Petition February 2018
  – Challenged the labeling of Cultured Meat as Meat

• State Legislation: Missouri Bill (April 2018): “Meat is derived from harvested production livestock or poultry”

• Appropriations Bill: May 2018
  – Section 736: USDA to regulate cultured meat
Regulatory Timeline

- WMC: USDA Secretary Perdue insisted USDA would have the authority to regulate the product.
- Politico: FDA Commissioner announced June 15, 2018 that FDA had jurisdiction.
  - Public meeting in July 12, 2018 in College Park, MD
  - Openly Requesting Comments through Sept 25, 2018
FDA Public Meeting

• Tone/Emphasis
• Science
  – “Gold Standard: Growing Tissue into an actual cut of meat.”
• Takeaway

Credit: Luis Tamayo//CC By SA-2.0
The Rub- Do We Want Them to Play By the Same Rules?

• Truth in Origin/Labeling- Cook times, Food Safety Handling, Nutritional Information

• USDA Quality Seals
  – Premiums and Discounts Related to Grading

• Mandatory Price Reporting

• Inspection-flow system
  – HACCP, Inspectors, Monitoring Systems
  – Cross-roads: Premise Inspection and Packing
Labeling

• Meat or Not

• Comingling product

• Consumption
  – Cruelty-free,
  Environmental,
  Sustainable
  – Vegetarian/Vegan?
Application:

• Market Share
  – CNN reported in a 2014 Pew survey 80% of Americans would not be willing to eat meat grown in a lab
  – 2018 Survey: 66% of Americans are willing to try it; Only 25% have heard of it.
  – Branding- “Clean”

• Food Service-Fillers, Components-fat, protein, etc
Other Resources

- U.S. Cattlemen’s Petition
- USDA Ag Outlook Forum Speaker from NAMI and Rabobank
- Appropriations Draft for Section 736
- Other Interesting Stories:
- FDA Public Meeting
  - Presentations, Agenda, etc
Questions?

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