What do Beef Consumers Really Want?

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When consumers think about meat production, do they think about

this . . .

or this . . .
An Industry Under Attack

• As if drought, feed prices, disease weren’t enough . . .
• Consider the views of the “cultural elite” on
  – Environment
  – Health
  – Animal Welfare
  – Food Safety

Environment

“a holocaust of a different kind”
-Mark Bittman, cookbook and NYT columnist, in a TED Talk, 2008

Environment

Meat has “more of an impact on the environment than any other food we eat.”

*If you concentrate the animals, you also concentrate their waste. . . . It can pollute the water. It
  can also pollute the air. But the basic problem is just how much land and how many crops it
takes to produce all the meat. And when you add it up, the total impact on the planet is quite
huge. A third of all the crops that people grow all across the world go to
  feeding animals. . . . It’s one cause of deforestation, global warming, water pollution, a lot of
  environmental problems.*
- Dan Charles, NPR, 2012
Environment

“It’s true that giving up that average 176 lb. of meat a year is one of the greenest lifestyle changes you can make as an individual.”

Health

“toxic food environment”

Health

“This study provides clear evidence that regular consumption of red meat, especially processed meat, contributes substantially to premature death”
-Frank Hu, Professor of nutrition and epidemiology at Harvard School of Public Health
Health

“We can reduce saturated fats and reduce the risk of heart disease by 19 percent . . . While this is a symbolic gesture, it is asking people to think about the food choices they make. Eating less meat can reverse some of our nation’s most common illnesses.”
- Jan Perry, Los Angeles City Councilwoman

Message Takes Hold

Scientific Report of the 2015 Dietary Guidelines Advisory Committee

Advisory Report to the Secretary of Health and Human Services and the Secretary of Agriculture

Eat less meat, a government panel says. Is science on their side?

The meat industry’s worst nightmare could soon become a reality.

Message Takes Hold


Processed meats do cause cancer - WHO

Bad Day For Bacon: Processed Meats Cause Cancer, WHO Says
Join the Pamela Anderson pledge:
I want to eat better, feel better, and stop supporting cruelty to chickens, pigs, cows, fish, and other animals who are raised and killed for food. By signing my name, I pledge to explore veganism/vegetarianism for at least 30 days.
In Sum

“The industrial production of animal products is nasty business. From mad cow, E. coli and salmonella to soil erosion, manure runoff and pink slime, factory farming is the epitome of a broken food system.”


Are you depressed yet?

First, some good news
First, some good news

Expenditures on Beef (2014 dollars) - US Food at Home

First, some good news

First, some good news

"I plan to buy more beef"
(Food Demand Survey, Food5)
First, some good news

How to respond?
• Meat production is bad – compared to what?
  ➢ Need to think on the margin
• Are things getting better or worse?
• Are you prepared to respond to these issues?
• How do you engage on these issues?

Meat is Big Business
• People spend more on meat than any other food category
  ➢ the problems will look large because the industry is large
  ➢ US produced 24.4 billion lbs of beef in 2014 (54 lbs per person)
Evolution of the Industry

• Fewer, more productive cows

- 0.6 cows/person in 1975; Today, its only 0.3  (100% reduction!)
- In 1975, 179 lbs/cow ; today, the figure is 288 lbs/cow. We’re getting 109 lbs more from each cow!

Evolution of the Industry

• Consumers pay lower prices

Environmental Impacts

• Fewer, more efficient animals (at least per capita) means fewer greenhouse gasses, less land use, and possibly reduced environmental impacts
Environmental Impacts

To produce 1 billion kg beef...

<table>
<thead>
<tr>
<th></th>
<th>2007</th>
<th>2007</th>
<th>% change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Supporting population (1000s)</td>
<td>9,196</td>
<td>6,245</td>
<td>-45.9%</td>
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<tr>
<td>Steers (1000s)</td>
<td>2,896</td>
<td>1,767</td>
<td>-30.8%</td>
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<tr>
<td>Fedded cattle (1000s)</td>
<td>2,776</td>
<td>1,322</td>
<td>-52.0%</td>
</tr>
<tr>
<td>Calves (1000s)</td>
<td>941</td>
<td>523</td>
<td>-44.8%</td>
</tr>
<tr>
<td>Total cattle (1000s)</td>
<td>14,778</td>
<td>10,332</td>
<td>-30.8%</td>
</tr>
<tr>
<td>nutritional resources</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total energy requirement, MJ × 10^6</td>
<td>251,090</td>
<td>230,898</td>
<td>-8.7%</td>
</tr>
<tr>
<td>Feed of beef, kg × 10^6</td>
<td>72,883</td>
<td>59,320</td>
<td>-22.9%</td>
</tr>
<tr>
<td>Water, L × 10^6</td>
<td>2,996</td>
<td>1,747</td>
<td>-38.0%</td>
</tr>
<tr>
<td>Total feed energy, kcal × 10^6</td>
<td>9,996</td>
<td>9,228</td>
<td>-7.8%</td>
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<tr>
<td>Nutrient output</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manure, kg (millions)</td>
<td>50,636</td>
<td>41,076</td>
<td>-22.9%</td>
</tr>
<tr>
<td>Methane, kg (1000s)</td>
<td>500,162</td>
<td>438,858</td>
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<tr>
<td>Ammonia, kg (1000s)</td>
<td>50,555</td>
<td>49,580</td>
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<td>Greenhouse gas emissions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH4, kg (1000s)</td>
<td>689,895</td>
<td>520,978</td>
<td>-25.4%</td>
</tr>
<tr>
<td>N2O, kg (1000s)</td>
<td>9,157</td>
<td>8,153</td>
<td>-12.3%</td>
</tr>
<tr>
<td>CO2 footprint, kg of CO2 (millions)</td>
<td>23,685</td>
<td>27,040</td>
<td>-13.9%</td>
</tr>
</tbody>
</table>


Environmental Impacts

• Meat and climate change
  – Dr. Henning Steinfeld, UN FAO: the meat industry is “one of the most significant contributors to today’s most serious environmental problems” and that “urgent action is required to remedy the situation.”
  – livestock are responsible for 18 percent of greenhouse gas emissions

• BUT . . .
  – Frank Mitloehner has shown the FAO report overestimates livestock impacts (a fact they admit)
  – EPA estimated all agriculture only responsible for 8% of emissions (livestock is 3%)

Caloric Efficiency

• A lot of focus energy (or corn) used to produce a pound of beef
  – “respected environmental scientists have pointed out the tremendous inefficiencies and resulting costs to our planet of animal agriculture. For example, animals consume more protein than they produce. For every kilogram (2.2 pounds) of animal protein produced, animals consume an average of almost 6 kilograms . . . of plant protein from grains and forage,” (Francione 2004)
Caloric Efficiency

- “Although crops used for animal feed ultimately produce human food in the form of meat and dairy products, they do so with a substantial loss of caloric efficiency. If current crop production used for animal feed and other nonfood uses (including biofuels) were targeted for direct consumption, ~70% more calories would become available, potentially providing enough calories to meet the basic needs of an additional 4 billion people” (West et al., Science 2014)
- Do we consistently apply this to other industries? Should we?

An Analogy

• A food producing machine

[Diagram 1]

An Analogy

• A food producing machine

[Diagram 2]
Caloric Efficiency

• Inaccurate assumptions
  – people can eat grass
  – people will gladly eat efficiently produced grains (corn and soy) directly
  – there are tasty-edible crops that can be widely grown instead of corn and soy which can produce human calories as efficiently as corn and soy

Caloric Efficiency

• It is improper to only look at amount of energy (or crops) expended to get beef, pork, or poultry
  – We also have to look at what we get in return
  – Most people really like the taste of meat (and won’t eat grass or forage)

• Almost no one looks at their iPad and asks, “how much more energy went into producing this than my old Apple II.”
  – The iPad is so much better than the Apple II.
  – We’d be willing to accept more energy use to have a better computer
  – Likewise a nice T-bone is so much better than a head of broccoli. I’m willing to accept more energy use to have a T-bone than a head of broccoli

Caloric Efficiency

• Let’s compare across foods

  - Costs 0.46 to produce 1 kcal energy
  - Costs 6.90 to produce 1 gram protein

  - Costs 0.16 to produce 1 kcal energy
  - Costs 1.78 to produce 1 gram protein

Costs 4.24 times more to produce 1 kcal energy from lettuce than beef
Costs 3.95 times more to produce 1 gram protein from lettuce than beef
Environmental Impacts

“Let us also not gloss over what is beef’s most obvious benefit: Livestock take inedible grasses and untasty grains and convert them into a protein-packed food most humans love to eat. We may be able to reduce our impact on the environment by eating less meat, but we can also do the same by using science to make livestock more productive and environmentally friendly.”

Health and Meat

• Red meat eating is correlated with some bad health outcomes
  - Correlation ≠ causation
  - Heavier meat eaters tend to
    - be men, less educated, less physically active, heavier smokers, heavier beer drinkers, and eat fewer fruits and veggies
  - “Except for diabetes, [cardiovascular disease] risk factors have declined considerably over the past 40 years in all [body mass index] groups.”
    - Gregg et al. JAMA, 2005

Health and Meat

Scientific Certainty ≠ Size of Risk

Ed Yong, The Atlantic:

Perhaps we need a separate classification scheme for scientific organizations that are “carcinogenic to humans.”
What to Do?

What consumers know

Source: OSU Food Demand Survey (FooDS)
What consumers know

What about hormone use?
- Estrogen content of different foods

<table>
<thead>
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<th>10 ng</th>
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<tbody>
<tr>
<td>Burger</td>
<td>15%</td>
<td>15%</td>
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<tr>
<td>Beans</td>
<td>5%</td>
<td>5%</td>
<td>5%</td>
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<tr>
<td>Cabbage</td>
<td>95%</td>
<td>95%</td>
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What consumers know

Concern with Added Growth Hormones in Beef Production

<table>
<thead>
<tr>
<th>Grade</th>
<th>Very Concerned</th>
<th>Concerned</th>
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<tr>
<td>None</td>
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<td>24%</td>
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<tr>
<td>1.0%</td>
<td>15%</td>
<td>17%</td>
<td>18%</td>
<td>16%</td>
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<tr>
<td>1.3%</td>
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<td>13%</td>
<td>11%</td>
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<tr>
<td>2.0%</td>
<td>8%</td>
<td>10%</td>
<td>10%</td>
<td>8%</td>
<td>8%</td>
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</table>

What consumers know

Prime Choice Select

<table>
<thead>
<tr>
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<th>Prime</th>
<th>Choice</th>
<th>Select</th>
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</thead>
<tbody>
<tr>
<td>% indicated</td>
<td>leanest</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% giving correct ranking</td>
<td>14.4%</td>
<td>16.4%</td>
<td>18.4%</td>
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<tr>
<td>Juiciness</td>
<td>% indicated</td>
<td>juiciest</td>
<td></td>
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<tr>
<td>% giving correct ranking</td>
<td>32.6%</td>
<td>32.6%</td>
<td>32.6%</td>
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Source: OSU Food Demand Survey (FooDS), Journal of Animal Science

What consumers know

Prime Choice Select

<table>
<thead>
<tr>
<th>Test Content</th>
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<th>Choice</th>
<th>Select</th>
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</thead>
<tbody>
<tr>
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<td>picture</td>
<td>is</td>
<td></td>
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<tr>
<td>% giving correct ranking</td>
<td>14.5%</td>
<td>16.5%</td>
<td>18.5%</td>
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What consumers know

Price

<table>
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<th>Choice</th>
<th>Select</th>
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<tbody>
<tr>
<td>% indicated</td>
<td>price</td>
<td>is</td>
<td></td>
</tr>
<tr>
<td>% giving correct ranking</td>
<td>24.4%</td>
<td>26.4%</td>
<td>28.4%</td>
</tr>
</tbody>
</table>

Source: OSU Food Demand Survey (FooDS), Journal of Animal Science
What Consumers Want

What Consumers Are Willing to Trade

Source: OSU Food Demand Survey (FoodDS), November 2015

Will people pay what they say?

• Pay attention to what people do, not what they say

• Avoid unfunded mandates
Customers not Enemies

- Not helpful to bemoan “lack of knowledge” or “connection to agriculture”
- Sometimes you have to change because that’s what your customer wants
- The good news is that people want to know more about how food is produced
  - An opportunity!

Understand the Consumer

- Easy to demonize people you don’t know
- Risks seem greater when you can’t see the benefits
- Risks perceived as “uncontrollable” are more threatening
- Science and statistics often aren’t as persuasive as stories

So . . .

- Rethink your job duties
- Get in the game – tell your story
- Defend without being defensive
- Create shared values
- Talk about tangible benefits of technology to you
- Make tradeoffs salient and available
  - higher prices, more hunger, more imports vs. less technology
  - advocate policies that expand the size of the pie
How?

- Adopt a blogger
- Give tours to schools and media
- Social media
- Write an editorial
- Visit a college or university
  - Example food classes at Harvard in 2013
    - Food writing (JOUR S-170)
    - Gender, Food and Culture in American History
    - Freshman Seminar 25k – You Are What you Eat
    - History and Politics of the American Obesity Epidemic
    - Food Law and Policy
    - From Farm to Fork: Why What You Eat Matters

It works

- NYT Food for Tomorrow conference in Nov 2014
  - Bittman started by saying: “There is a war here!” . . . the current food system “pollutes, sickens, exploits, and robs.”
  - But USEFRA hosted a session where
    - Illinois hog farmer Julie Maschhoff said “I grew up on a corporate farm, and my grandfather had a corporate farm before it was bad.” She talked about her farm, biotechnology, and foodie friends
    - Nebraska cattle producer Joan Ruskamp said, “Please let us be involved in the conversation about food!” She added, “I don’t want it to be a war.”
  - By the end, Bittman’s tone change. He said, “We’ve learned that everyone wants to be sustainable . . . We all want the same thing” and “We have much more in common than not.”

My take

- Need an optimistic, forward looking vision for the future of food
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