



PHOTO: RITA BRHEL

Organic Vs. Conventional Beef: A Look At Nutrition

BROOKINGS — Natural and organic beef market share has been increasing over the past few decades.

In 2010, the natural and organic beef market share was at 1.6 percent. In April 2014, the USDA Economic Research Service indicated organic sales accounted for more than 4 percent of U.S. food sales.

Focusing on the organic and natural beef share of the total beef dollar, the National Cattlemen's Beef Board reported that natural and organic beef had 6.3 percent share for the fourth quarter of 2014 with conventional beef market share at 93.7 percent.

What is the difference between organic and natural programs? "Organic production requires producers to manage livestock to meet both animal health and welfare standards," explained Julie Walker, SDSU Extension Beef Specialist & SDSU Associate Professor.

While vaccinations are allowed, Walker said antibiotics or growth hormones are not permitted. "Animals should be fed only 100 percent organic feedstuffs and should be allowed access to the outdoors," Walker said.

Organic producers work with certifying agents who ensure USDA organic products meet or exceed all organic standards.

The USDA definition of natural is focused on the beef product, and states that natural beef should contain no artificial ingredients or added colors and can only be minimally processed. "There are other voluntary programs related to how the animal is raised such as 'naturally raised.' These programs may have animal management requirements including no antibiotics, no growth promotants, no animal byproducts and third-party verification of management practices," said Amanda Blair, SDSU Extension Meat Science Specialist & SDSU Associate Professor.

What's driving consumers? Purchase drivers for selecting organic foods can be divided in two categories:

- 1) healthier choice and
 - 2) socially conscious reasons.
- A 3-ounce lean beef serving provides:

- 51 percent of the Daily Value (DV) for protein
- 37 percent DV for vitamin B12
- 38 percent DV for zinc
- 14 percent DV for iron

"The production system whether conventional or organic does not change the nutrients contained in a 3-ounce beef serving," Walker said.

She explained that conventionally-produced beef may have been implanted with growth promotants, however, according to numerous research studies, beef from non-implanted steers had 5 ng/500 g of estrogenic activity compared to implanted steers which had 7 ng/500 g. For reference, one pound equals 454 g.

"Consumers may prefer a specific production system for the beef they want to consume. However, it is important to remember that all production systems provide consumers with safe product selections, and that the nutrient content of beef is similar across the different production systems organic, natural or conventional," Walker said. "It is important to remember that, regardless of the production system, consumers are assured a safe wholesome product with similar nutrient content."

On The Rise

Study: Record Number Of Organic Producers In Us

BY RITA BRHEL
P&D Correspondent

It takes a minimum of three years to transition a farm to the point of qualifying for organic certification, and that process can include a steep learning curve for many farmers who have long been raising crops and livestock conventionally with nary a thought about the chemicals and other inputs put into their operation.

But that sometimes-daunting process isn't stopping a continued remarkable growth in the organic industry, here in the United States as well as worldwide.

According to data collected by the U.S. Department of Agriculture's Agricultural Marketing Service's National Organic Program (NOP) in Washington, D.C., there are currently 19,474 certified-organic operations in the United States. This accounts for a national record.

"As demand for organic products continues to soar, more and more producers are entering the organic market," said U.S. Agriculture Secretary Tom Vilsack. "Growing demand for organic goods can be especially helpful to smaller family operations."

The number of certified-organic operations in the United States has grown by more than 5 percent since this time last year. Since NOP records began in 2002, the number of domestic certified-organic operations has increased by more than 250 percent. The list of certified-organic U.S. operations is available at www.apps.ams.usda.gov/nop/.

Worldwide, there are a total of 27,814 certified-organic operations.

"It's nice to talk about something that is non-partisan, and that is today's organic market. Organic cuts across all regions, all ages, all income groups, all states whether red or blue. Organic is the face of America."

LAURA BATCHA

Likely the biggest impetus for the growth of certified-organic operations in the United States is due to the exponential growth in the demand for organic products by consumers. According to the Organic Trade Association (OTA) in Washington, D.C., U.S. sales of organic food and non-food products broke through another record in 2014, totaling \$39.1 billion and up by more than 11 percent from the previous year.

Of this total amount of sales, \$35.9 billion was due to food items — and 11 percent rise — and \$3.2 billion to non-food items, a nearly 14 percent rise and the biggest annual increase since 2008.

"On the heels of organic sales now nearing a milestone 5 percent share of the total food market, our latest industry data show robust demand and great opportunity for the organic sector," said Laura Batcha, OTA's executive director. "Organic doesn't have any demo-

graphic boundaries. It doesn't have regional or partisan boundaries."

While consumers on the West Coast and in New England buy more organic items than anywhere else in the country — 90 percent of households buy organic routinely — the South, with 68 to almost 80 percent of households budgeting for organic, depending on the state, isn't far behind. Even with states in the Heartland, sales of organic products are posting double-digit increases.

"It's nice to talk about something that is non-partisan, and that is today's organic market," Batcha said. "Organic cuts across all regions, all ages, all income groups, all states whether red or blue. Organic is the face of America."

Organic fruits and vegetables continue to be the biggest-selling organic category, according to OTA's 2014 data, with \$13 billion in sales. This makes up more than 36 percent of all organic food sales.

Of all the produce now sold in the United States, 12 percent is organic. A decade ago, the organic proportion was just 5 percent. Of non-food organic sales, the items with the most demand are fiber and personal care products.

Record consumer demand, combined with tight supplies of organic ingredients, equals high premiums for organic producers — an opportunity that neither producers nor communities should shirk.

"The more diverse type of operations and the more growing market sectors we have in American agriculture," Vilsack said, "the better off our country's rural economy will be."

Tailoring Sow's Diet To Gestational Needs May Lead To Healthier Piglets

BROOKINGS — Fulfilling a sow's increased nutritional needs in the last trimester may lead to greater productivity for both the mother and her piglets, according to assistant professor Crystal Levesque of the South Dakota State University Department of Animal Science.

South Dakota State University doctoral student Agatha Ampaire and assistant professor Crystal Levesque hold three-week-old piglets that are approximately 10 pounds each. Through a pilot project, they are comparing bump feed and phase feeding of sow in gestations to evaluate whether a diet specially formulated for changing gestational needs will improve performance of the sow and her offspring.

During her doctoral research at the University of Alberta, the pig nutritionist found that a sow's protein requirement in late pregnancy was substantially higher than in early pregnancy. The bulk of piglet growth takes place in the final trimester, she explained.

In 2012, the National Research Council developed nutritional models for gestating and lactating sows, but Levesque said, "those models are based on very little data."

Phase feeding is used to meet the changing nutritional requirements of nursery and growing pigs, but gestation barns are not designed for feeding multiple diets, according to Levesque. Consequently, the solution thus far has been simply to increase or bump up the sow's feed ration.

However, she pointed out, the question remains whether phase feeding a diet formulated especially to meet a sow's changing



PHOTO: METRO GRAPHICS

gestational needs would produce a better outcome.

IMPACTING MATERNAL HEALTH

A gilt is bred when she reaches 210 days of age and 300 pounds, depending on her genetics, Levesque explained. However, her body will not reach full maturity until she has borne three litters.

"The hierarchy of nutrient demand shifts during late gestation," she said. "The developing fetuses become the primary target for dietary nutrients and the sow takes what's left over."

Once the piglets are born, milk production in the first week or so generally requires more feed than the sow can consume, Levesque explained. That means that a sow that goes into lactation at a low body condition will become even more nutritionally deficient.

A young sow also needs to be able to develop her own body as well as support growing fetuses and then nursing piglets, she

added. "Then five days after the piglets are weaned, she is expected to cycle again."

INCREASING PIGLET SURVIVABILITY

In a 30-sow pilot study comparing bump feeding and stage feeding, Levesque has found "fairly clear preliminary evidence that we're impacting at least piglet survivability in the first week post-weaning."

Doctoral student Agatha Ampaire is working on the Agricultural Experiment Station project. The research is supported through a combination of U.S. Department of Agriculture National Institute of Food and Agriculture Hatch funds, matched with state of South Dakota funds allocated through the South Dakota Board of Regents.

As the number of pigs per litter increases, the variability of birth weight gets higher, resulting in more lightweight piglets, Levesque explained. Altering the diet is good for the sow, but she pointed out "ultimately what we get paid for is the piglet she pro-

duces. Can we develop a stronger, more vigorous piglet that is more likely to survive?"

According to 2014 National Pork Board statistics, the average preweaning mortality rate is 17.3 percent, Levesque noted. If bump feeding results in saving even one piglet per sow each year, the producer stands to gain in the neighborhood of \$200 per animal, depending on the market price, without changing herd size or genetics.

"This could be huge," she said.

SETTING UP LARGER STUDY IN NEW FACILITY

However, Levesque admitted, "The cost of changing the barn to allow us to phase feed is phenomenal." The economic benefit must justify the cost of retrofitting the barn and changing the way things are done.

To determine whether phase feeding is cost-effective, research trials using at least 100 animals of equal age per treatment are necessary. Doing this research at commercial facilities is expensive, Levesque explained. Therefore, proof-of-principle data must be gathered to justify moving to large-scale industry trials.

The upcoming SDSU Swine Education and Research Facility to be completed by 2016 will allow Levesque to expand this research and to determine repeatability. "I can also follow those piglets to market to complete a full-scale economic analysis," she added.

"It's about having access to a lot more animals which allows us to do much stronger proof-of-principle trials that will help the industry decide whether there is potential economic benefit in moving to phase feeding."