

Sustainability: The Next Step

Without doubt, sustainability is here to stay. Dairy producers can equip themselves by gaining an appreciation of the bigger picture, producing more milk per cow through biological opportunities and developing on-farm sustainability plans.

These were some of the points made by Dr. Roger Cady in his presentation at the 60th annual meeting of National All-Jersey Inc. (NAJ) in Canton, Ohio, in June. Widely recognized in Jersey circles, Cady was co-author with Jude Capper of the NAJ-funded study to evaluate the environmental impacts of Jersey vs. Holstein milk for cheese manufacture. He was Global Sustainability Lead with Elanco Animal Health from March 2010 to December 2017 and is now an independent consultant, working to increase understanding of the complexity and all-inclusive nature of sustainability in the food supply chain.

Cady painted a global picture of sustainability for his audience, explaining why it is paramount for agriculture to produce more food from less land and how the corporate world is getting on board and driving sustainability decisions at the farm level.

He also told the group new predictions for methane's contribution to global warming from the Intergovernmental Panel on Climate Change (IPCC) will provide new challenges for the cattle industry.

Cady summed with a recommendation for Jersey breeders: if you haven't done so already, take advantage of the FARM Environmental Stewardship Program of the National Milk Producers Federation (NMPF). The study evaluates an individual farm's carbon footprint and is a basis for making improvements.

The Big Picture

"Sustainability is moving into the corporate world in a very strong way," noted Cady. Far beyond activists marching with picket signs, the sustainability movement has been integrated in the investment realm by giants like Bloomberg, who are using indexes and other tools to evaluate corporate responsibility and sustainability as a basis for investment decisions.

Companies in the food system are getting direction from the Food and Agriculture Organization of the United Nations, which has established 17 goals for sustain-

able global development. Typically, companies incorporate 2-3 of these goals in their corporate plans to illustrate their efforts to improve global sustainability. Working with organizations like the Carbon Disclosure Project and the Global Reporting Initiative, corporations can publicly disclose their sustainability efforts and goals.

"Ultimately, these companies are making decisions that will determine what you will be doing on your farms," said Cady. And they may be based outside the U.S.

A recent example of this came when French-owned Danone (Dannon) announced it was transitioning to a Non-GMO Project Verified product line and would only accept milk from cows fed non-GMO rations from their direct-ship customers.

This influence is huge as Danone, along with Nestlé (Switzerland), Unilever (United Kingdom) and several other non-U.S. companies with processing plants in this country, currently process about 15% of our milk. When you add in the 15% of milk equivalent that is exported, about a third of our milk is being influenced by entities outside our borders.

Additional influence on our domestic milk market comes from grocery markets owned outside the U.S., like German-owned Aldi's and Trader Joe's, and world marketplace competitors like Fonterra in New Zealand and Murray Goulburn (Saputo) in Australia.

We need to keep in mind that the U.S. dairy industry is really a global industry now, summed Cady.

Dairy Industry Focus

What are the key environmental performance indicators (evaluation measures) for agriculture? If we go back to the basics of sustainability, we are dealing with earth, wind (air), fire (energy) and water.

"For agriculture, I believe the tipping point is earth, or land, which comprises

26% of its surface." Right now, 10% of the earth's surface is devoted to agriculture, with 7% as grassland for pasture and 3% tillable for crops (.5 acres per person).

Based on trends—urbanization, rising oceans and overgrazed land—grassland is projected to drop to 5% and tillable acreage to 2% (.3 acres per person) by 2050.

"Yes, we are going to need more food from less land," noted Cady.

So, what is the solution for the dairy industry? Energy should be our focus. If we manage our biological energy demand, we will also take care of our water and air issues, Cady reported.

We have three biological opportunities to affect environmental impact: metabolic feed efficiency; dilution of animal maintenance; and animal maintenance. The first can be improved through better feed quality and rumen environment; the last by factors such as animal size, stocking rate, cooling/ventilation, activity level and dry period length.

As a dairy farmer, the other function—dilution of maintenance—is intuitive, said Cady. It is a reduction in the percentage of feed, not the amount of feed, that it takes for a cow to partition additional resources towards productive functions like lactation, reproduction, growth. It is affected by factors like milk yield and components, genetics and reproductive performance.

As an example, let us assume it takes 20 lbs. of feed per day for a cow to survive. If you feed her an additional 28 lbs. to produce 8 gallons of milk (48 lbs. total feed, or 6 lbs. feed per gallon of milk), the maintenance feed per gallon of milk produced is 2.5 lbs., or 42% of feed intake. If you give her an additional 31 lbs. feed to produce 9 gallons of milk (51 lbs. total feed, or 5.67 lbs. feed per gallon of milk), the maintenance feed per gallon of milk drops to 2.2 lbs., or 39% of feed intake.

"Yes, her carbon footprint is larger because she consumes more feed," commented Cady. However, the increased production offsets, or dilutes, the fixed cost of the feed. This concept also dispels the notion that a low input system can be a high output system.

Jersey Progress

The good news is that the Jersey breed has been moving in the right direction.

Using DHIA statistics, average Jersey



Cady

production increased 13% from 2007-2017. On an energy corrected milk (ECM) basis, yield improved by 17%, meaning components have increased along with milk yield.

This means we need fewer Jersey cows today to produce the same amount of cheese as we did 10 years ago, summed Cady. We now need 68,250 fewer cows to produce 500,000 kilograms of Cheddar cheese (basis for the Capper-Cady 2009 sustainability study) than we did in 2007.

Measured by the key performance indicators, the cheese production now requires 11% less feed, 8% less land and 11% less water, emits 11% less greenhouse gases and produces 9% less manure. This converts to 233 square miles of land, 28,800 households of water, 124,600 automobiles and a sewage equivalent of that produced by Los Angeles.

New Benchmarks

A major change for the agriculture industry is an increased emphasis on methane in the contributions to global warming, noted Cady. The IPCC, the governing body that assesses climate change, recently upped methane contributions in its formula for measuring greenhouse gas emissions.

“This is a significant change. It means all benchmark studies for sustainability will need to be redone,” reported Cady. “Global warming for animals as compared to plants is going to go up and it will reignite the fire against cattle.”

Get a Plan

Cady wrapped his presentation with advice for individual dairies. The biggest challenge for an individual dairy farm is maintaining a milk market, which will soon require documentation of sustainability progress.

“I recommend you take advantage of the environmental stewardship program. Benchmark where you are today so you can show your milk cooperative what kind of progress you are making.”

Movement on this has already started and can move quickly.

An example of this is the Canadian beef industry, which predicted 40% of its beef would come from sustainable sources just three years ago. At that point, they didn't know how they were going to get there. They established a five-star program now in force, based on a sustainability inventory on the farm.

“I believe the same thing will happen for the dairy industry, sooner rather than later,” Cady noted. “You've already seen it with Dannon saying ‘no’ to GMO crops.”

Environmental Stewardship Program

NMPF members are given an option to participate in the FARM Environmental Stewardship Program. Independent shippers who want the environmental study conducted on their farms can contact NAJ Assistant Manager Drew Duncan at dduncan@usjersey.com or 614-322-4462.