One Clean Program and the Quest for the Perfect Cow

Charles Benbrook, PhD

3rd Annual Western Organic Dairy Conference
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Eureka, California

www.organic-center.org

29 Competitors in Olympic Women's Figure Skating

- Major changes in the judging rules and increased emphasis on triple-triples
- Very close after the short program with five skaters within reach of gold
- Prediction that the winner would have to skate "a clean program"

Shizuka Arakawa – The One and Only Clean Program

Scientists Designing the "Perfect Cow"

February 24, 2006 -- Australian scientists announce discovery of a new method to multiply and isolate stem cells from cow embryos

200,000 stem cells produced from a single embryo

"… breakthrough in the quest to genetically engineer the perfect dairy herd…"

Cloning – The Next Big Boost in Cow Productivity?

Japan Ministry of Food and Ag on the current state of 474 somatic cell cloned dairy cattle up to the end of September 2005 –

- 72 were stillbirths
- 80 died immediately following birth
- 102 died from illness
- 104 have survived

Big Issues Facing the Organic Dairy Industry

- Growing supply to match demand, without going broke paying for new stock, replacements, and feed
- Collateral damage from the big versus small debate, and entrance of major companies to the organic industry
- Feed quality/consistency

More Big Issues Facing the Organic Dairy Industry

- Pasture and other unresolved policies
- Fallout from the Harvey lawsuit
- Getting more science behind efforts to improve efficiency, promote cow health, and understand milk quality benefits

Matching Supply to Meet Demand Growth

- About 100,000 organic dairy cows now producing, about 1%
- 20% to 25% demand growth/year, so need to add 20,000 to 25,000 producing cows/year
- Small plus large farm conversions might bring on 12,000 cows in 2006, similar to past years
- Shortages in supply will raise prices, cut demand, and build interest in imports

Mary-Howell Martens March 13, 2006 Message to Odairy List

"I really do admire and appreciate what our 'public defenders' do for us. It is very important to keep an eye on things that we farmers are too busy to be familiar with, and make sure that there isn't drift in undesirable directions."

Mary-Howell -- Words Matter

"HOWEVER, especially if they are not farmers themselves, they need to realize that their words, actions and exaggerations can be interpreted very differently outside the organic community..."

Mary–Howell's Plea to Public Interest "Defenders"

"We put our trust in our 'public defenders' and send our contributions in good faith for you to represent our interests and support our values in the political and public relations world out there. Please use our trust very carefully – you hold our livelihoods in your hands and in your words."

Organic Consumers Association
Campaigning for Health, Justice, and Sustainability

Organic Feed Quality and Cost

- Major problems with consistency and large price swings
- Reduces production on organic dairies and increases risk of health problems
- Higher feed costs in New England account for 54% of price differential received (Dalton et al., 2005)

Organic Feed Quality and Cost

- Organic hay from Saskatchewan to Upper New York State by rail – a step toward sustainability?
- Imported protein concentrates the solution to high organic soybean meal prices?
- Need to develop feed manufacturing infrastructure and promote organic processing waste utilization

March 12, 2006 Odiary

"Last week at an organic meeting there was some discussion about grazing and the PASTURE POLICY. After the meeting one of the farmers was visiting with my wife and said 'I don't KNOW what the big deal is about grazing, I graze my cows already'!!!! I thought most people understood what this was about, but I was wrong. Folks, if we can't even get the NODPA members to understand, no wonder we can't get anything done in DC."

George Wright

So What is the Pasture Policy Debate Really About?

How to avoid putting northern Wisconsin organic dairy farmers out of business, given the long winters and cold winds blowing off Lake Superior?

Advancing water conservation in the arid west?

Health of the cow? The land?

Moving dairy production East and North?

The Harvey Lawsuit

Mid-March -- The National Organic Program released a 22-page "Report to Congress" on the impacts of Harvey v. Johanns

Impacts of the Harvey Lawsuit

Harvey prevailed (in part) on three counts --

- Commercial availability of organic agricultural substances
- No synthetics allowed in processing (except when required for health and safety compliance) -- $2 billion in sales in jeopardy
- Nine month "80-20" dairy cow feed transition rule – $27 to $416 per cow/year "in play"

Harvey and Commercial Availability

The Court directed the NOP to –

- "Reaffirm the intent and meaning of Section 205.606"
- Make clear that the NOSB petition and listing procedure must be used in the event of a new "commercially unavailable" synthetic input

Harvey and Allowable Synthetics in Organic Processing

The Court sent this issue back to the district court where negotiations led to an agreement –

- USDA-NOP must do fresh rulemaking within 360 days (by June 4, 2006)
- Two year delay in effective date to allow transition
- November 2005 legislation restored pre-lawsuit status of national list, while above process unfolds

Harvey and the Nine Month "80-20" Cow Feed Provision

- Court ruled that the letter of the law conflicted with the NOP rule
- District Court's consent order requires rule-making by June 4, 2006, but allows cows already in transition under the old rules to complete the process
- Nov. 2005 legislation did not restore "80-20," but did add new transition guidance

Legislative Alternative to the "80-20" Provision

Congress allowed crops from the third year of organic management, under an approved organic system plan, to be fed to transitioning cows during the 12 months prior to milking

Tapping Science

Underinvestment in R+D is a chronic problem across all major sectors of organic farming/food production

Most private capital is needed to build businesses, and transition farmland and animals

Organic sales growth now poses a competitive threat and is beginning to trigger responses

Tapping Science for Production Efficiency

Key need to improve feed quality and capacity to source low-cost concentrates and produce high-quality, consistent TMRs

Managing critical windows for cow and calf health – need for new diagnostics, preventive therapies, and organically approved drugs and vaccines

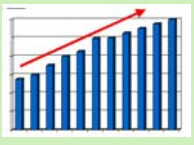
Improving efficiency of manure handling/recycling and increasing energy efficiency

Tapping Science to Grow Demand and Respond to Critics

Milk is a gateway product for new organic customers; some say milk is now as important as pesticides in produce

Big three consumer drivers are solid as a rock – No hormones, No antibiotics, No pesticides in growing feed

Comparing product and brand attributes and shortcomings is as American as apple pie



Need for Rigorous Studies on Farming System-Milk Quality Interactions

Evidence of food quality benefits of organic milk is growing, especially pasture-based production. But what share of these benefits arise from --

- More forage-based diets and lower production levels, in contrast to organic management?
- Animal husbandry and humane care, and emphasis on health promotion?

Cow Health – The Single Most Important Metric

Critical to the farmer to keep costs down and enhance milk quality and safety

Critical to consumers because they care about their own health, ***and*** about how animals are raised

Ten-times more important than time spent on pasture, production levels, farm size, and who a farmer sells his/her milk to

Cow Health on Organic Dairy Farms: Time for Some Fresh Science

The passionate views and opinions of successful dairy farmers and organic milk companies will not stand up to the kind of probing scrutiny the industry can expect – and should welcome

There is considerable variability across the organic dairy community, and also no doubt some differences in milk safety and quality across organic dairy operations and by season

Understanding these differences will help the whole community move forward

Organic Center Proposal for a Cow Health and Milk Quality Assessment

Under discussion for about a year; need to raise $

Survey should be designed to allow comparisons, to full extent possible, to NAHMS survey results

Critical parameters include production levels, feed rations, average number of lactations, reasons for culling, veterinary and drug expenditures, somatic cell counts, frequency of mastitis and lameness, and reproductive performance

Big Issues Facing the Conventional Dairy Industry

- Side effects of the technology and systems required to push production levels up, up, up
- Cow health and longevity
- Drug use and BSE
- Manure and VOC emissions
- Loss of markets to organic

Increasing Production Levels

	1995	1997	1999	2001	2004	2005
Average Production per Cow (pounds)	16,405	16,871	17,772	18,139	18,967	19,576
Percent Change		2.8%	5.3%	2.1%	4.6%	3.2%

Range = Plus/minus 5,000 pounds?

Average 2000 cost per hundredweight in NE = $18.23

Average 2000 cost in the Fruitful Rim-West = $11.58

Source: "Characteristics and Production Costs of U.S. Dairy Operations," ERS, Feb. 2004

"Selection for Increased Production and Welfare of Diary Cows: Are New Breeding Goals Needed?"

Production levels have doubled in Europe in the last 40 years…

"The increase in production has been accompanied by declining ability to reproduce, increasing incidence of health problems, and declining longevity in modern dairy cows. Genetic selection for increased milk yield increasingly is viewed as increasing profit at the expense of reducing animal welfare."

Source: Oltenacu and Algers, AMBIO, Vol.34, No. 4

"Selection for Increased Production and Welfare of Diary Cows: Are New Breeding Goals Needed?"

"The economic future of the dairy industry is related directly to public acceptance of its breeding and production practices. It is important to the dairy industry that welfare problems should be addressed before there is widespread condemnation of breeding and management practices. A new breeding goal aimed at improving fitness and tolerance of metabolic stress is necessary to prevent the decrease in the quality of life of diary cows and instead, perhaps, enhance it."

Source: Oltenacu and Algers, AMBIO, Vol.34, No. 4

Are Today's High-End Levels of Production Sustainable?

The average cull rate in the NAHMS 2002 Dairy survey is 25.5% (APHIS, June, 2003); range 15% - 50%?

Average cow in California produces 2.5 to 3 lactations

About as many cows last only two lactations as survive through three – what does this say about cow health?

Professional Concerns Over Ever-Higher Production Levels

"…the improvement in the genetic merit of dairy cows for production is being accompanied by deterioration in fertility."

"Health issues, such as metritis, ketosis, or lameness, can change in incidence from being a minor to a major problem."

Source: Tsuruta et al., J. Dairy Science, Vol. 88, 2005

Changes in Longevity and Production

1960s – average cow had 3.4 parities (pregnancies)

1980s – average cow had 2.8 parities; today?

1975 vs. 1995 production up 3,323 kilograms (7,310 pounds, or about 64%)

Average increase per cow per year since 1975 = 313 pounds

Source: Tsuruta et al., J. Dairy Science, Vol. 88, 2005

Changes in Longevity and Production

Odds of culling 1st, 2nd, 3rd lactation = 17%, 35%, 47%

Farmers milking first-lactation cull cows much longer – 226 days in 1960s-70s versus 386 days in 1990s

Increase in milk production associated with increase in days open

"Farmers refer to dairy form as an indicator of a cow's 'will' to milk."

Source: Tsuruta et al., J. Dairy Science, Vol. 88, 2005

Changes in Longevity and Production

"…today's cows may be too effective at converting their body reserves into usable energy, whereby they are at an elevated risk level of being culled throughout their entire life."

Source: Tsuruta et al., J. Dairy Science, Vol. 88, 2005

Costs of Today's High-End Levels of Production

- Lameness and foot problems
- Shortened lifespan
- Reproductive problems
- High vet and drug costs??

Do Cows Last Longer on Organic Farms?

Culls rates on high-yield conventional dairies are a huge problem for the whole industry – wait tell the public tunes in

Anecdotal evidence suggests cows on organic farms produce on average for four or more lactations, and some farms average as high as seven

- If true and backed up, such a difference will have a huge impact on the cow health debate!!

Dairy Cows and VOCs in the SJ Valley

Dairy waste contributes 36 tons VOCs/year, most of any ag source

Pesticides+fertilizers #2, at 25.7 tons

All ag is 107 tons/year, 27% of all estimated sources

Source: McVaigh, "Current Issues Related to Agriculture and Air Quality in the S.J. Valley, 2005 Plant and Soil Conference

Dealing with VOCs in the SJV

District must adopt and implement a rule by July 2006 requiring CAFO operators to mitigate VOC and ammonia emissions "to the extent feasible"

Source: McVaigh, "Current Issues Related to Agriculture and Air Quality in the S.J. Valley, 2005 Plant and Soil Conference

Managing VOCs in the SJV

"One of the main avenues to reduce unwanted losses of nutrients is through nutritional manipulation…"

"… significant emission reductions can be achieved without negatively affecting cow performance."

Source: Mitloehner, "Air Quality Issues and Policy in Animal Agriculture," 2005 Plant and Soil Conference

Moving Forward

Need to stop the damaging debate over farm size and the entrance of large corporations into the business

Lets do more science and fact-driven problem-solving, and less finger pointing, bickering, and back stabbing

Moving Forward

We will thrive if we keep focused on improving milk nutritional quality and cow health – the two real issues people really care about