

## Organic Dairy Research and Outreach at WCROC

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The 2008 decision to transition a portion of the dairy herd at the University of Minnesota, West Central Research and Outreach Center (WCROC) to the organic production system provides an opportunity to set new directions in research, teaching and outreach at the Morris site. “Organic” is a production system that is managed to respond to site-specific conditions by integrating cultural, biological and mechanical practices that foster cycling of resources, promote ecological balance, and conserve biodiversity. To sell milk as organic, a farm must be certified and inspected annually to verify that an organic plan is rigorously followed. Basic rules are incorporated in a national organic program of the USDA with oversight provided by a certification agency. Interest in organic dairying is on the increase because of the growing organic market, premium prices for organic milk, and a preference by consumers and some farmers for a less intensive production system than has been the trend in recent decades. Organic is a production system, not a product.

The University of Minnesota will become the first land grant in the Midwest to manage an organic dairy herd that is dedicated to research and education. The other universities with organic dairies are the University of New Hampshire and Chico State University (CA). The growing organic sector in Minnesota will soon benefit from information that is tested by rigorous science.

Why adopt this program now?

- 1 Growing demand for organic/local food products has fueled a need for information to manage systems for production of milk that is identified as local or organic.
- 2 A research position for an animal scientist in sustainable and organic dairy production systems is coming available.
- 3 Over the past 13 years the WCROC dairy has focused on grazing, crossbreeding, and out-wintering with reduced inputs so the adjustment to organic will be less than transition from fully conventional.
- 4 The organic/sustainability/local food advocates in Minnesota are strong supporters for research and outreach at the U of M.
- 5 Sustainable systems resonate with University of Minnesota and College of Food, Agriculture and Natural Resource Sciences priorities.

The transition that is required for organic certification of cropping and dairy management has started. We anticipate certification of the herd in the fall of 2009 with cropland certification phasing in over three years. A conventional herd will also be maintained at the site but managed separately so the outcomes of conventional and organic methods can be compared. Research on the effects of transitioning is underway. Milk samples from individual cows are being analyzed for mastitis-causing bacteria through and following transition. As antibiotics are not used in organic systems both the incidence and severity of mastitis during transition is an important concern. Also, the cost and level of production is closely monitored. Conventional reproductive management utilizing hormonal manipulation is being contrasted with organic methods focused on heat detection by observation. The Minnesota organic project is unique to organic research herds in being the only one to transition an existing herd and to have a conventionally managed dairy herd for controlled studies.

A 2005 survey of organic dairy producers by Jim Riddle, extension organic coordinator at UM, identified perceived needs for research in organic dairy that will serve as a starting point for considering research in organic dairy farming, Participants in the four Organic Dairy 101 for Professionals workshops

offered during winter 2008 asked many questions relating to health in organic herds and the economics of organic dairy production. Nationwide research collaborators and funding sources are being sought. Minnesota scientists have visited the New Hampshire and California sites to coordinate activities. A planning grant proposal for future research and extension outreach has been submitted to USDA. Further coordination will occur whenever possible, starting with participation in the NOPA herd health conference in 2008.

Future research topics may include:

- 1 Multiple benefits benchmarking of organic and conventional systems to include biological and economic efficiency, product quality, carbon footprint, emissions, quality of life, etc.
- 2 Appropriate treatments for disease in organic herds.
- 3 Nutrient flows including field, feed, and animal
- 4 Dairy forage production and utilization
- 5 Development of best management practices for organic dairy

Extension/outreach activities will include grazing management, best management practices for organic dairy production and animal health in organic systems.

Ongoing research emphasizes on identifying appropriate genetics for modest input systems will be continued. Three genetic groups include Holsteins bred for high milk yield, Holstein x Swedish Red x Montbeliarde bred for high yield with improved fitness and Jersey x Normand x Scandinavian Red bred for milk quality, fertility and fitness. We anticipate the future dairy production will need to utilize durable cows that eat a forage based diet while producing milk that is tailored for consumer preferences. The herd will be grazed as much as possible and will be outwintered.

Dairy has been one of the fastest growing segments of the organic foods industry. According to the Organic Trade Association, sales of organic milk in 2007 were over \$1.3 billion but only accounted for 2.7 percent of the nation's total milk sales, up from 1.7 percent the previous year. Organic milk can cost considerably more than standard milk; the national price premium for organic milk averages \$1.99. However, consumer demand continues to grow at an annual rate approaching 20 percent. The United States produced 186 billion pounds of milk in 2007. Organic dairy farming will be a profitable alternative for dairy farmers that want to use less a less intensive production system that caters to a growing market niche.

# What kind of dairy farm deals effectively with issues that confront us in the future?



- Capital Investment
- Energy supply
- Food Quality and Quantity
- Manure as fertilizer
- Profitability
- Rural population and Infrastructure
- Animal Welfare
- Global warming
- Landscape Expectation of modern society
- Water quality risk

**Future is unclear, unstable**

