

Sustainable Agriculture

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Researchers tackle tough questions on manure odors

Manure odors create problems for people close to livestock facilities and for the livestock industry. That's the easy part—no one disagrees.

Then the questions get hard, says Larry Jacobson, agricultural engineer with the University of Minnesota's Extension Service. Jacobson says little is known about how to measure and control odors, how they affect human health, the connection between gases and odors, how to predict gas emissions and how gases move and disperse in the atmosphere.

Another tough question: How much odor should a community or individual have to tolerate? "This is the primary question that must be answered before any good odor policy can be developed," Jacobson says. Everyone might agree that if one person smells a livestock facility one day out of the year that facility should not be declared a nuisance. But several hundred people smelling a livestock facility nearly every day would be a nuisance.

"The reality at most sites lies somewhere in the middle," says Jacobson. A definition of nuisance must take into account the odor intensity and frequency—how bad and how often.

There's also little information available on the impact of odor on human health. Jacobson says most studies try to document the impact of a particular gas on human health, rather than how a particular gas affects the nasal sensors. A recent North Carolina study indicates that odors may alter a person's mood. But it's unclear from the study if the mood altering is psychological or physiological response to odor. "Some people may feel angry and frustrated due to the smell of the gases rather than being physically affected by the gases," Jacobson says. But the argument may still be made that in either case the person's mood was altered, making odors a valid health concern.

Measuring odors is a challenge. The human nose is the only "instrument" that measures odors, Jacobson says. He and co-workers in the university's Department of Biosystems and Agricultural Engineering are using panels of people to determine the minimum dilution rate at which the odor can be detected. The process is called olfactometry.

The olfactometer dilutes an odorous air sample with clean air; then panelists sniff the sample. The process begins with such small amounts of odorous air that none of the panelists can smell it. Concentrations are gradually increased until panelists detect a slight difference between samples. The "odor value" is then reported as a dilution ratio of the volume of clean air to odorous air and is called an odor unit (ou.).

Get an update on other UM manure management research

The University of Minnesota is involved in 25 other manure research projects. In addition to odor control, they include manure storage, treatment, land application and economics. Short descriptions of each

project have been compiled by David Schmidt, an agricultural engineer who works with manure management systems. Contact him at the Department of Biosystems and Agricultural Engineering, University of Minnesota, St. Paul, MN 55108, (612) 625-4262. Email dschmidt@extension.umn.edu

you can also check the manure home page.

Economic growth needed for a sustainable world

A "people first" view of sustainability assumes the ultimate purpose of natural resources and the economic system is first, the well-being of people. And that calls for world-wide, sustainable economic development, according to an article by G. Edward Schuh and Sandra O. Archibald, dean and associate dean, respectively, of the University of Minnesota's Hubert H. Humphrey Institute of Public Affairs.

A controversial issue in the discussion of sustainable development is the allegation that economic growth and development cause environmental damage. These arguments often assume anti-growth postures, implying that environmental damage could be reduced if we would only forego economic development.

"There is little evidence for such a position," they say. First, environmental problems are more serious in countries with low per capita income. Second, the "taste" for a cleaner environment is associated with higher per capita incomes. And third, economic growth provides the means for environmental and sustainability issues to be addressed. So with a growing world population, "the only alternative seems to be to promote economic development in sustainable ways, not to forego economic growth."

The interrelation between poverty and sustainable economic growth is important, they add. "In the case of agriculture, it is often the poor who scramble onto marginal lands and in the process create environmental damage. And the poor are often subject to capital rationing and cannot use economically efficient production practices."

Their paper was published by the Center for International Food and Agricultural Policy, University of Minnesota, 1994 Buford Ave., 332 COB, St. Paul, MN 55108-6040, phone (612) 625-8713, fax (612) 625-6245.

New study: more Wisconsin dairy farmers using pasture, skipping the silo

The use of pastures on Wisconsin dairy farms has increased dramatically in recent years. Based on a series of extensive statewide surveys, UW-Madison researchers estimate that almost half of the dairy farms in Wisconsin now use pastures to some degree. And the number of farms using management-intensive rotational grazing (MIRG) practices, a system in which milking cows get most of their forage requirements from pastures during the grazing season, has doubled in recent years.

According to Douglas Jackson-Smith, researcher at UW-Madison's College of Agricultural and Life Sciences, between 1992 and 1994, MIRG operations doubled to nearly 4,000 farms. That's roughly 14 percent of all dairy farms, and their numbers continue to grow.

MIRG farms appear to be economically competitive with other dairy farm types, according to Jackson-Smith. MIRG farms typically have lower levels of milk production than confinement farms. However, MIRG farmers report lower input costs, lower and more flexible labor needs, and improved herd health than more traditional confinement dairy farms. Since graziers generally have lower investments in machinery and buildings, the average financial returns to investments are actually higher among graziers than non-graziers.

Total farm income on MIRG farms is lower than on confinement farms because MIRG dairy herds tend to be smaller. However, total household income of MIRG farms was comparable to that of conventional farms. The lower farm income on MIRG farms was often compensated for by higher off-farm income, according to Jackson-Smith.

Compared with confinement farmers, MIRG operators say they are more likely to expand their milking herds. This could reflect greater optimism on the part of graziers. It also reflects the fact that MIRG farms are smaller than conventional operations. Younger farmers on smaller farms are particularly likely to expand, Jackson-Smith notes.

The study concludes that while MIRG farms could increasingly shape the performance of Wisconsin's dairy sector and a related industry, grazing's current impact on milk production is small. However, if MIRG continues to spread, its impact will become more significant.

For example, some say that unless MIRG farms increase in size or productivity, the further spread of MIRG could limit future growth in the supply of milk for Wisconsin's cheese factories and other dairy processing plants. On the other hand, grazing could allow producers to enter or stay in business who would otherwise not have been milking cows, making MIRG a cornerstone of the future Wisconsin dairy sector. MIRG farms have different input and information requirements than confinement farms. This will affect demand for the services of dairy cooperatives, input suppliers and university extension staff.

Copies of the full 64-page report (Grazing in Dairyland: The Use and Performance of MIRG on Wisconsin Dairy Farms), or a 6-page summary of the findings, are available upon request. Contact Nancy Carlisle: phone: (608) 265-2908, fax: (608) 265-3020, Email carlisle@ssc.wisc.edu or U.S. mail: 1450 Linden Drive, Room 146, UW-Madison, Madison, WI 53706.

Muriel French, Dick Levins are new MISA board members

The Minnesota Institute for Sustainable Agriculture (MISA) is pleased to welcome two new members to the board of directors. Muriel French was nominated to the board by the Sustainers' Coalition. Muriel and her husband Dan have farmed on their own since 1979 on her family's farm near Mantorville, Minnesota. She is active in farm organization work and is currently on the American Dairy Association Board for her county. She enjoys the educational efforts associated with grazing and the transition to grazing as a farming style. She and Dan have two sons.

Muriel enjoys horticulture around the home and in the gardens, naming these as important connections to the earth.

Dick Levins is a professor and extension agricultural economist in the Department of Applied Economics at the University of Minnesota. He is author of a new publication entitled "Monitoring Sustainable Agriculture with Conventional Financial Data" and a co-author of the "Women Who Farm: Wider Attention to a Growing Subgroup" study. Dick is currently based at the Rosemount Experiment Station, examining farm management issues at the station.

Muriel and Dick are taking the slots on the board held by Mary Doerr and Roger Moon. Both have contributed greatly to MISA and to sustainable agriculture in Minnesota. If you'd like more information about MISA or the Board of Directors call (612) 625-8235 or (800) 909-6472.

MISA to continue another five years

The Minnesota Institute for Sustainable Agriculture (MISA) is continuing for another five years, based on a recently completed review.

The review panel was chaired by Jerry DeWitt, Iowa State University Extension Service and ISU entomology professor. Other panel members include Senator Tracy Beckman, third term legislator from Briceville, MN; Marilyn DeLong, associate director, University of Minnesota's College of Agricultural, Food and Environmental Sciences; Mary Hanks, supervisor of the Minnesota Department of Agriculture's Energy and Sustainable Agriculture program; Marvin Johnson, farmer and mayor of Independence; Minn.; Margaret Smith, farmer and Iowa State University extension educator; Conrad J. Weiser, dean emeritus of the College of Agricultural Sciences, Oregon State University.

The review team's report said, "MISA represents a working model of where no one entity or organization holds control, but where power and opportunity are shared, and where good ideas and persuasion are the negotiable currency for the common good. This spirit of the model should be maintained; it is working." The review team made 18 recommendations. One included increasing partnerships with "more conventional sectors of Minnesota agriculture such as the Farmers' Union, Minnesota Extension Service and others."

MFA has new address

The new address for Minnesota Food Association is 1916 South 2nd Ave., Minneapolis, MN 55403, (612) 872-3298, fax (612) 870-0729. Jan O' Donnell is the executive director at Email odon014@tc.umn.edu

Coming events...

March 2-April 2, Women in Agriculture Photo Exhibit, Northfield Art Guild, 304 Division St. S., Northfield. Sponsored by Women in Agriculture and the Minnesota Institute for Sustainable Agriculture (MISA). Contact Diane Milan (507) 645-8282.

March 4-5, Strengthening the Experiential Learning Process in Sustainable Agriculture, Sheraton Minneapolis Metrodome, Minneapolis. Hosted by the Department of Agronomy & Plant Genetics and Minnesota Institute for Sustainable Agriculture, University of Minnesota. Contact Juanita Reed-Boniface (612) 753-4636, agrifolks@aol.com or Darrell Cox (612) 625-2738, cox015@tc.umn.edu

March 5-6, 21st Century Agriculture—Creating a Sustainable Future, Ramkota Inn, Aberdeen, S.D. Contact Tim Hanson at (701) 857-7679, fax (701) 857-7676.

March 7-8, Eighth Annual Upper Midwest Organic Farming Conference, Sinsinawa Mound Center, Sinsinawa, WI. Contact the Upper Midwest Organic Farming conference line at (715) 772-6819.

March 18, Agri-Tourism Workshop, Edgewood Restaurant, Cannon Falls. Sessions include getting started, developing agri-tourism in your community and a panel of agri-business tourism owners. Contact Toni Smith, Wabasha County Extension Office, 1-(800) 385-3103.

March 18, Second Annual Flame Cultivation Round Table Dialogue, 9:30 a.m. to 3 p.m. at St. Mary Catholic Church meeting room, 1303 W. Broadway, Winona, MN. Contact Dwight Ault (507) 437-3085 or Tom Wegner (612) 374-8437.

March 19-21, International Conference on Agricultural Production and Nutrition, Holiday Inn Boston-Brookline, Brookline, Massachusetts. Organized by Tufts University School of Nutrition Science and Policy and the Henry A. Wallace Institute for Alternative Agriculture. Contact William Lockeretz (617) 627-3223, wlockeretz@infonet.tufts.edu

March 22, Restoring our Urban Waters, at First Universalist Society, 900 Mt. Curve Ave., Minneapolis. Contact Judith Lake of Citizens for a Better Environment, (612) 824-8637, ext. 222, cbelake@igc.apc.org

March 26, Sustainable Farming and Sustainable Communities, 9 a.m. to 3:30 p.m. at the Ramada Inn, Owatonna. Contact Tim Arlt (507) 444-7689, tarlt@extension.umn.edu

About this newsletter...

For the past year we've been funded by the Minnesota Extension Service and the Minnesota Institute for Sustainable Agriculture (MISA) with support from the Minnesota Department of Agriculture.

We're always looking for story ideas. Send them to the editor: Jack Sperbeck, 405 Coffey Hall, University of Minnesota, St. Paul, MN 55108, (612) 625-1794. E-mail: jsperbeck@extension.umn.edu. Other editorial board members: Helene Murray (612) 625-0220, murra@021.tc.umn.edu; Tom Wegner (612) 374-8400, twegner@extension.umn.edu; and Bill Wilcke (612) 625-8205, wwilcke@extension.umn.edu

Our mission statement: To help bring people together to influence the future of agriculture and rural communities to achieve socially, environmentally and economically sustainable farms and communities.