Milking Facility Wash Water: Facts and Figures

Wash water use varies greatly among Michigan dairies. This is because farm size, facilities, management practices and other factors affect how much water is used in a farm. The Michigan dairy industry uses at least several hundred million gallons of water per year in milking facilities. This use is estimated to amount to approximately 2 to 5% of total operations costs on a farm. It is important for dairy producers to be aware of their wash water use and associated costs. Researchers are looking for ways to make that use more efficient.

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Dept. of Biosystems and Agricultural Engineering

Milking facility wash water is generated from washing the bulk tank, pipelines, and equipment, preparing cows for milking, and flushing the milk house, parlor, and holding area floors. The quantity of water used greatly depends on the specific dairy farm and the size of the herd. The Livestock Waste Facilities Handbook states typical values range from 2.9 to 9.9 gal/cow per day (1). The Northeast Dairy Practices Council has multiple estimates depending on the size of the farm. Their guidance for a farm with over 150 cows is 2 to 4 gal/cow per day (2). A more recent article by Wright and Graves, 1998, estimates the volume is 3.5 to 11 gal/cow per day (3). According to the USDA National Agricultural Statistics Service, in 2006 Michigan had a total of 2,700 dairy farms with a total of 320,800 dairy cows (4). As a result, the state dairy industry uses somewhere between about 409 million gallons to 1.28 billion gallons of water a year in the milking facility.

Use Determined by Practice
Milking facility wash water characteristics vary greatly depending on the specific practices of the dairy including the technique to remove feces and urine from the facility, cow milking preparation procedures, chemicals used as cleaners, and the method to cool the milk. In general, the biochemical
oxygen demand (BOD) is higher than domestic wastewater, total suspended solids (TSS) is about 5 times higher, and the nutrient concentrations are over twice as high. Cleaners accumulating in the wash water include sodium hypochlorite, sulfuric acid, and phosphoric acid (5).

In Michigan, the standard practice is to dispose of this wash water in liquid manure storage. The volume of wash water can occupy 25 to 50% of the liquid manure storage (1). This wash water adds little fertilizer nutrient value and if not properly land applied, increases the potential for manure runoff into surface water and/or groundwater.

Where Costs Come From
The total cost of wash water includes water supply equipment and maintenance, water treatment, if required, storage of the waste wash water, transportation of the wash water to crops, and land application. Supply costs depend on the source. Electrical costs for well pumps can be substantial, easily reaching several thousands of dollars annually. This cost is dependent on the depth of the well, pump size, the pump efficiency, pump capacity, amount of water used in the milking facility, and the unit cost of electricity. Hauling costs from the lagoon vary greatly depending on the farm and the location of the fields but typically average $0.01 to $0.03 per gallon (6, 7). Further considerations include the capital investment to handle the extra water such as a larger liquid manure storage and hauling equipment. Accounting for the economical benefits of drier manure, including flexibility in land application and the reduced chance of nutrient flow across land and through tiles is difficult. When the expenses are compared to the total cost of operation, approximately $13.32/cwt (8), milking facility wash water is estimated to be in the 2 to 5% range of the total operational costs.

Handling Regulations
In Michigan, the only standardized method of handling milking facility wastewater is to dispose of it in the liquid manure storage. Minnesota Feedlot Rules 7020 specifically clarifies requirements for treating all milking facility wash water so it can be land applied (9). Ongoing research in Minnesota has examined advanced treatment units (ATUs), common for human generated on site wastewater treatment, to treat the wash water before disposing of it by direct discharge or in a leach field. A current project, conducted by the US Department of Agriculture, Michigan Department of Environmental Quality (MDEQ), and Michigan State University Department of Biosystems and Agricultural Engineering (MSU) is examining wash water pretreatment through a microbiological contact bed containing either organic or inorganic media before allowing the water to percolate into the ground.

Conclusions
Recent publications were not found on water reuse systems at the milking facilities. The concept however, is not new, especially to flush floors. In the Livestock Waste Facilities Handbook (1), it is stated “all but toilet water may be reused as flush water for free stall alley flushing.” However, efficient treatment is desired before reuse to remove objectionable odors, solids, and pathogens. MSU is currently conducting research on the use of ATUs to treat the milking facility wash water so it can be reused within the milking facility for non-contact applications such as floor washing. Partners in this research include MDEQ, Consolidated Treatment Systems, Inc., and Sara Christopherson, Biosystems and Agricultural Engineering at the University of Minnesota.

References
Optimizing Use of Nutrients for Crops: Dairy Manure Replaces Commercial Fertilizer

As the cost of fertilizer rises land application of manure becomes an increasingly attractive alternative. While expensive itself, land application of manure can provide soil with nutrients needed for crop production. Developing effective and responsible land application methods is important, though. The guidelines in this article can be the basis for manure land application strategies that increase profits, minimize environmental risks, and ease tensions with neighbors.

Natalie Rector
Extension Nutrient Management Educator

Jon Rausch
Extension Program Director
Environmental Management
The Ohio State University

As commercial fertilizer prices continue to increase, use of livestock manure as a nutrient resource for crop production is becoming increasingly more important. Table 1 shows the expected nutrients available from dairy manure when it is injected in the spring compared with being broadcast during hot, dry conditions of summer. Under hot and dry conditions, surface applications of manure result in volatilized ammonium-nitrogen reducing the quantity of nitrogen (N) available for the following crop. Each manure type and source will have different nutrient content. The decision to replace fertilizer with manure should only be made by utilizing a representative manure sample. For this article, the sample composition and nutrient values in Table 1 would be typical of manure from the milking herd. Producers are encouraged strongly to use their own values from actual analysis in decision-making for their specific situations.

Tables 2, 3, and 4 highlight the expected commercial fertilizer costs and manure nutrient application costs for three crop rotations. The cost of each fertilization program is different based upon the out-of-pocket (direct) costs associated with the purchase of commercial fertilizer and the associated cost(s) of applying the respective nutrient. Each producer’s cost of manure and fertilizer application depends on the equipment they own and or rent. There is a wide cost range depending on the size and type of equipment and the distance that must
be traveled to land-apply the manure. Farmers are encouraged to calculate their application costs for both fertilizer and manure to make this example more relevant to their operations. Custom application rates also are variable and should be the actual costs for each specific operation.

A successful manure nutrient management program maximizes the value of manure nutrients by retaining N, giving proper credit for the phosphorus (P), and potassium (K), and minimizes purchased fertilizer and environmental risks.

Application practices that conserve ammonium-N and apply manure where P and K are needed and fully utilized by growing crops are important steps to a manure nutrient management program that minimizes the cost to producers. Typically, the most profitable strategy also minimizes environmental impacts because manure nutrients are recycled to meet the needs of a growing crop and are not lost to air or water in the environment.

**Corn-soybean Rotation**

Table 2 compares the nutrient input costs for a corn-soybean rotation when a soil test indicates a likely yield response from additional nutrient inputs over a 4-year rotation. This assumes P and K are needed and fully utilized by the growing crops. In this strategy, the N-P-K needs are met by commercial fertilizer or by manure supplemented with commercial fertilizer. The commercial fertilizer in Option 2A is expected to cost $298 over 4 years. In Option 2B, the cost of the animal manure plus fertilizer N is expected to be $205 over 4 years. A total of 160 pounds of N is needed for a 140 bushel per acre corn crop and is supplied by 6,250 gallons per acre of dairy manure injected in the spring. The remaining 60 pounds of N per acres is applied as side dress, which should be enough to justify the side dress application while taking some of the risk out of relying on a perfect manure analysis and application. At this manure application rate, excess P and K are supplied and will be banked in the soil for the next soybean crop. No additional nutrients will be needed for the following soybean crop. Under these assumptions, manure plus commercial fertilizer (Option 2B) is expected to save $93 per acre compared to commercial fertilizer alone.

<table>
<thead>
<tr>
<th>Nitrogen</th>
<th>Phosphate</th>
<th>Potash</th>
<th>Nutrient value (per lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>lb/1000 gallons</td>
<td>(P&lt;sub&gt;2&lt;/sub&gt;O&lt;sub&gt;5&lt;/sub&gt;) lb/1000 gallons</td>
<td>lb/1000 gallons</td>
<td>$0.50 for N $0.40 for P&lt;sub&gt;2&lt;/sub&gt;O&lt;sub&gt;5&lt;/sub&gt; $0.20 for K&lt;sub&gt;2&lt;/sub&gt;O</td>
</tr>
<tr>
<td>Manure Test</td>
<td>22</td>
<td>11</td>
<td>15</td>
</tr>
<tr>
<td>Expected manure nutrients (Spring injection)</td>
<td>16</td>
<td>11</td>
<td>15</td>
</tr>
<tr>
<td>Expected manure nutrients (broadcast during hot/dry conditions)</td>
<td>5</td>
<td>11</td>
<td>15</td>
</tr>
</tbody>
</table>

**Take home points** for an efficient manure nutrient recycling program

- Plan to utilize manure nutrients in the rotation ahead of high N-using crops.
- Minimize ammonium-N losses by optimizing manure timing and application method. Spring is better than fall application; late fall, after soil temperatures are less than 50°F is better than earlier in the fall; injected or immediately incorporated is better than broadcast.
- Prioritize manure to fields where soil tests indicate phosphate and potash are needed.
- Current soil samples are important to determine which fields will benefit from all manure nutrients.
- Use realistic yield potentials and manure tests to determine manure application rates.
- The more nutrients in the manure, the more cost effective to haul manure (i.e., manure with storm water and wash water will be more dilute).
- Calibrate manure spreaders to achieve the desired application rate; unknown or inaccurate rates can minimize the best nutrient management plan (Bolinger, D. and N. Rector. The Great Rate Debate. <http://www.rootzone.msu.edu>. Click on “Calibration”).
- Keep records of all manure and fertilizer applications.
- Use field trials to double check accuracy of yields and to insure that manure nutrients are sufficient for the yield potential.
- For surface applied manure, be sure runoff does not occur.
- For tile drained fields, be sure rates of application are not creating flow to the drain system. Check tile outlets prior, during, and after manure applications.
- Consider odor control measures.
with a 4 year rotation that utilized all commercial fertilizer (Option 2A).

Over the life of this rotation, the potash levels may need to be supplemented with commercial fertilizer. Phosphate (\(P_2O_5\)) levels may increase slowly, but because this field needed P, building it with manure is less expensive than building it with purchased fertilizer.

**Corn-soybean-wheat Rotation**

Table 3 compares the nutrient input costs for a 3-year corn-soybean-wheat rotation when a soil test indicates a likely yield response from additional nutrient inputs. This assumes P and K are needed and fully utilized by the growing crops. In this example, the N-P-K needs are met by commercial fertilizer (Option 3A) or manure supplemented with commercial fertilizer (Option 3B). The commercial fertilizer option over the 3-year rotation is expected to cost $243 per acre. Alternatively, the cost of applying animal manure plus the value of

<table>
<thead>
<tr>
<th>Table 2. Estimated out-of-pocket cost of fertility program for a 4-year corn-soybean rotation.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1: 140 bushels/acre corn</td>
</tr>
<tr>
<td>Fertilizer recommendations</td>
</tr>
</tbody>
</table>

Option 2A: Commercial Fertilizer (cost per acre)

| Nutrients supplied by 6,250 gallons/acre of dairy manure, spring injected | 100 lb of N via manure, 68 lbs. of \(P_2O_5\), 94 lbs of \(K_2O\) | No manure or fertilizer applied | 100 lb of N via manure, 68 lb of \(P_2O_5\), 94 lb of \(K_2O\) | No manure or fertilizer applied |
| Value of manure nutrients | $96 | $96 |
| Cost of manure application @ $0.01 per gallon | $62.50 | $62.50 | $125 |
| Additional nutrients needed after manure | 60 lb N via side-dress (@$0.50/lb) is $30 plus $10 application cost | 60 lb N via side-dress (@$0.50/lb) is $30 plus $10 application cost | | $80 |
| Cost of manure application and additional fertilizer purchased | | | | $205 |
commercial fertilizer is expected to cost $160 per acre over this same rotation. There is $83 per acre advantage of using manure compared with commercial fertilizer alone over a 3-year period.

In the above example, 10,000 gallons per acre of dairy manure are injected in the spring. This should supply all the N and excess P and K for the corn crop. Excess P and K will be banked and utilized over the next soybean and wheat crops. In this strategy, $83 per acre was saved by utilizing manure and valuing the nutrients in the total crop rotation. Over the rotation, the potash may need to be supplied with commercial fertilizer. Phosphate \( (P_2O_5) \) levels may increase steadily, but because this field needed P, building it with manure is less expensive than building it with purchased commercial fertilizer. This strategy assumes that the N from the manure is not being lost and is being applied evenly and consistently across the field.

**Alternate Corn-Soybean-Wheat**

The final strategy in Table 4 is a 3-year corn-soybean-wheat rotation, but manure is broadcast on wheat stubble the summer prior to corn and soybeans. In this strategy, dairy manure is applied at the rate of 6,250 gallons per acre (Option 4B). Only 31 lb/acre of N is expected to be available for the corn crop, a loss of nearly 70 lb/acre or $34/acre due to N volatilization. This strategy just breaks even when manure is compared with purchased fertilizer (Option 4A). Nearly 70 lb of potential N was lost into the air due to the timing and application method. All the \( P_2O_5 \) and \( K_2O \) will be available for future crops.

### Table 3. Estimated out-of-pocket cost of fertility program for a 3-year corn-soybean-wheat rotation.

<table>
<thead>
<tr>
<th></th>
<th>Year 1: 140 bushels/acre corn</th>
<th>Year 2: 40 bushels/acre soybeans</th>
<th>Year 3: 80 bushels/acre wheat</th>
<th>3-year cost of each program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fertilizer recommendations</td>
<td>160-30-60</td>
<td>0-25-75</td>
<td>100-25-70</td>
<td></td>
</tr>
<tr>
<td><strong>Option 3A: Commercial Fertilizer (cost per acre)</strong></td>
<td>$104 (plus $10 for application)</td>
<td>$25 (plus $10 for application)</td>
<td>$24 for ( P_2O_5 ) and ( K_2O ) plus $10 for application. $50 for N plus $10 for application.</td>
<td>$243</td>
</tr>
<tr>
<td>Cost of fertilizer per pound of nutrient</td>
<td>$0.50 for N</td>
<td>$0.40 for ( P_2O_5 )</td>
<td>$0.20 for ( K_2O )</td>
<td></td>
</tr>
<tr>
<td><strong>Option 3B: Manure Supplemented with Commercial Fertilizer (cost per acre)</strong></td>
<td>160 lb of N from manure, 110 lb of ( P_2O_5 ), 150 lb of ( K_2O ).</td>
<td>No manure or fertilizer applied. Draw-down ( P_2O_5 ) and ( K_2O ) reserves</td>
<td>Draw-down ( P_2O_5 ) and ( K_2O ) reserves. Broadcast commercial N</td>
<td></td>
</tr>
<tr>
<td>Value of manure nutrients</td>
<td>$154</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost of manure application @ $0.01 per gallon (acre)</td>
<td>$100</td>
<td></td>
<td></td>
<td>$100</td>
</tr>
<tr>
<td>Additional nutrients needed after manure</td>
<td>100 lb of N @ $0.50/lb plus $10 for application</td>
<td></td>
<td></td>
<td>$60</td>
</tr>
<tr>
<td>Cost of manure application and additional fertilizer purchased</td>
<td></td>
<td></td>
<td></td>
<td>$160</td>
</tr>
</tbody>
</table>
In the above strategies, only the nutrient value of commercial fertilizer and the hauling/application costs are considered. The value of utilizing manure should be discounted by the P and K values when manure is applied on fields that do not need the

### Table 4. Example of out-of-pocket cost of fertilization program for a 3-year corn-soybean-wheat rotation when manure is broadcast on wheat stubble.

<table>
<thead>
<tr>
<th>Year 1: wheat stubble</th>
<th>Year 2: 140 bushels/acre corn</th>
<th>Year 3: 40 bushels/acre soybeans</th>
<th>Three year cost of each program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fertilizer recommen-</td>
<td>160-30-60</td>
<td>0-25-75</td>
<td>$149</td>
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<td>dations</td>
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</table>

**Option 4A: Commercial Fertilizer (cost per acre)**

<table>
<thead>
<tr>
<th>Cost of fertilizer per pound of nutrient</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Three year cost of each program</th>
</tr>
</thead>
<tbody>
<tr>
<td>$0.50 for N</td>
<td></td>
<td>$104</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$0.40 for P&lt;sub&gt;2&lt;/sub&gt;O&lt;sub&gt;5&lt;/sub&gt;</td>
<td></td>
<td></td>
<td>$25</td>
<td></td>
</tr>
<tr>
<td>$0.20 for K&lt;sub&gt;2&lt;/sub&gt;O</td>
<td></td>
<td></td>
<td>$149</td>
<td></td>
</tr>
</tbody>
</table>

**Option 4B: Manure Supplemented with Commercial Fertilizer (cost per acre)**

<table>
<thead>
<tr>
<th>Nutrients supplied by 6,250 gallons/acre of dairy manure, applied broadcast during hot/dry conditions</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Three year cost of each program</th>
</tr>
</thead>
<tbody>
<tr>
<td>31 lb of N retained via manure, 68 lb of P&lt;sub&gt;2&lt;/sub&gt;O&lt;sub&gt;5&lt;/sub&gt;, 94 lb of K&lt;sub&gt;2&lt;/sub&gt;O.</td>
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<table>
<thead>
<tr>
<th>Value of manure nutrients</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Three year cost of each program</th>
</tr>
</thead>
<tbody>
<tr>
<td>$61</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Cost of manure application @ $0.01 per gallon (acre)</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Three year cost of each program</th>
</tr>
</thead>
<tbody>
<tr>
<td>$62.50</td>
<td></td>
<td></td>
<td></td>
<td>$62.50</td>
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<table>
<thead>
<tr>
<th>Additional nutrients needed after manure</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Three year cost of each program</th>
</tr>
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<tbody>
<tr>
<td>129 lb of N (@ $0.50/lb) plus $10 for application</td>
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<table>
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<tr>
<th>Cost of manure application and additional fertilizer purchased</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Three year cost of each program</th>
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<tr>
<th>No manure or fertilizer utilized this year. Using banked P&lt;sub&gt;2&lt;/sub&gt;O&lt;sub&gt;5&lt;/sub&gt; and K&lt;sub&gt;2&lt;/sub&gt;O from previous year</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Three year cost of each program</th>
</tr>
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<tbody>
<tr>
<td>$75</td>
<td></td>
<td></td>
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<table>
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<tr>
<th>Cost of manure application and additional fertilizer purchased</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Three year cost of each program</th>
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| $138                                                          |        |        |        |                               |
Taking Steps To Reduce Air Emissions From Livestock Farms

Determining how to reduce emissions is a complicated task. Universities across the United States are collaborating to develop a tool that will help producers make those determinations and become even better neighbors.

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Dept. of Animal Science

Air emissions from livestock operations come from three main sources: animal housing, manure storage and land application. In some cases, feed storage also may contribute to overall emissions, depending on the type of feed and the storage method. The relative contribution of each source is site-specific and highly dependent on the livestock species and the type of housing, manure storage and land application method. Variations exist within farm system and livestock species, too.

For example, a pull-plug swine nursery barn will have different odor and gas emissions than a deep-pit swine finishing barn because of the way the building and manure within the building are managed. The two facilities also will have very different relative contributions from the manure storage area, largely because the finishing barn may not have additional storage. Similarly, a tie-stall dairy barn with only winter manure storage facilities may have vastly different mitigation strategies from that of a free-stall dairy facility that has manure storage under the free-stall area and in a concrete tank. And, the turkey or broiler chicken grower who raises multiple flocks on the same litter has still another completely different set of considerations.

With limited resources available to devote to reducing air emissions, livestock producers are faced with the daunting task of deciding where to invest. To make a wise investment, you need to establish objectives. What do you want to control-odor or a specific gas, such as ammonia or hydrogen sulfide? Or do you want to reduce emissions of particulates (dust) or a group of gases, such as volatile organic compounds (VOCs)? Once the objective is established, you need to know how much control is necessary. In some cases, established guidelines, rules or regulations may set the benchmark. But in many cases, there are no established benchmarks-you need to make your own decision on how much emission control you want to have.

Once the emission control benchmarks are set, you need to decide which mitigation strategies to employ. To get the biggest return for your investment, assessment tools should be used to identify problem areas that should receive priority attention. If most odor concerns arise when you’re cleaning out the concrete manure storage area, for example, don’t start with a strategy that would be used in the barn. If complaints arise from neighbors nearest the fields where manure is applied, then invest in your land application method, not in a manure storage cover.

After the high priority area or areas have been identified, it is time to select a mitigation strategy. This can be a difficult and costly decision. Take care to ensure that the strategy is compatible with current management and will result in meeting the reduction targets. A tool available through Iowa State University, the Air Management Practices Assessment Tool (AMPAT), provides assistance in making this decision. AMPAT, found at <http://www.extension.iastate.edu/airquality/practices/homepage.html>, asks a series of questions designed to help narrow the options of strategies available on the basis of the current management system. The remaining options all have corresponding reduction for odor, ammonia, hydrogen sulfide or dust, and a relative cost associated with their implementation. AMPAT also provides a list of additional resources for more information about any particular strategy.

New Tool

AMPAT helps narrow mitigation strategy options, but it does not help identify priority areas for implementation. To fill this gap, the USDA Natural Resources Conservation Service recently awarded a grant to 11 universities to develop a national air quality site assessment tool that will enable livestock producers to make decisions about how best to reduce air quality concerns. Michigan State University is the lead institution. The result of the 2-year project will allow a producer to walk through his or her farm site and determine where a mitigation practice can have the greatest impact on air quality. Producers will be able to select a gas of interest or odor as their primary reduction objective and from there decide where to implement a mitigation strategy as well as estimate the benefit of any strategy considered. Following development, this multispecies tool will be available to all producers who are considering a new operation or an expansion, or who simply want to reduce emissions from their existing operations.

States involved in the project are California, Colorado, Georgia, Indiana, Iowa, Maryland, Michigan, Minnesota, Nebraska, Oregon and Texas. In many states, the Extension Service has partnered with state livestock associations to develop and field test the tool. The geographical distribution of project partners will allow for a tool to be developed that meets the needs of dairy, beef, swine, turkey, laying hen and broiler chicken growers across the country.
New Realities of Cost of Production

With the costs of fertilizer, fuel, and other essentials for dairy farming rising, it is more important than ever to know what it costs to produce milk. This article details some of the changing expenses dairy producers are experiencing and then provides valuable resources to assist dairy producers in determining their own cost of production. Knowing exactly what the costs of production are in their farms allows producers to plan ahead and maximize their likelihood of survival.

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Extension Dairy Educator
Western Michigan

Dr. Craig Thomas
Extension Dairy Educator
Eastern Michigan

Production costs for nearly all commodities are higher this year. Fertilizer, feed, fuel, pesticides, land rental rates and labor are all examples of rising input costs on farms. Petroleum prices have set new highs, inflating transportation costs for nearly all products. Domestic and international demand for grains and livestock products also has resulted in dramatic swings in planted acres and production of feed grains. Higher prices for many livestock feed commodities such as corn, soybean meal, and hay also are contributing to higher input costs on livestock farms. If you have not sharpened your pencil or cranked up your computer lately, you may be surprised at the new economic realities on the cost side of the profit formula.

Changing Costs of Production

Let’s take corn for example. The old rule of thumb was that it cost about $150 per acre in variable cash costs to grow an acre of corn. It also was assumed that fixed production costs like real estate taxes, building and machinery depreciation, insurance and interest were roughly equal to variable cash costs. So $300 of total costs per acre with a yield of 150 bushels would result in a total cost per bushel of about $2.00. But now fertilizer prices have nearly doubled versus just 6 years ago, so many farms estimate total cost of corn production at almost $400 per acre, or about $2.67/bu at 150 bu/acre yield. Minnesota reports 2006 average direct and overhead production costs at $397 per acre, compared to 5 years ago that is over a 23% ($75/acre) increase. Livestock farms save $24 per acre on fertilizer from manure and another $4.50 per acre on drying fuel likely due to high moisture corn storage, but the other production costs continue to climb. This year’s drought kept many crop yields below normal, further increasing the production cost per bushel for many Michigan grain and livestock farms.

If you purchase corn for your herd, then in 2006-07 you paid $3.00-plus per bushel or 50% more than the $2.00 per bushel prices paid in many previous years. (US season average farm price 1998-99 through 2005-06 averaged $2.04 versus a $3.03 estimate for 2006-07). Purchased corn booked for 2008 needs also is likely in the $4.00-plus range.

Production of milk also is experiencing greater costs compared with recent years. For many dairy farms, total input costs were greater than milk income in 2006 and continue to cut into profit margins during early 2007. The USDA reports an estimate of Michigan milk production costs. If one includes fixed costs in addition to cash costs, their estimate rose to $20 per hundredweight by the end of 2006 and above $20 for the first nine months in 2007. The report is provided in Table 1. You can see the updated report at <http://www.ers.usda.gov/data/> by searching for “monthly cost of production”. Dairy farmers recently have received record milk prices after suffering through terribly low milk prices in 2006. At this time (early November, 2007), 2008 Class III futures prices are still above long term averages, but are about $1.70/cwt below the 2007 average. Will farm level milk pay prices in this lower range be enough to keep farmers profitable with these new higher cost realities? That is the question all dairy producers need to ask as they begin the 2008 budgeting process.

Maybe your farm’s costs are not as high as those reported by USDA. For example, many will argue that the USDA’s opportunity costs of unpaid labor at $2/cwt is larger than they will experience on their farm. Others may think the general farm overhead at another $0.80+ cents per cwt is also too high. These charges may be overstated, but they cannot be dismissed entirely. There are real costs for unpaid labor and general overhead that many accountants or farmers do not, but should, include in cost of production estimates.

Analysis of Cost of Production in Michigan

The MSU Extension risk management project Market Plan$ collected 2006 business analysis data from 20 Michigan dairy farms. On average, these were well-managed farms with average milk sold of nearly 24,300 lbs/cow in 2006. In 2006 the average total cost to produce milk in these herds was $16.17/cwt, which was over $3.00 higher than the average pay price for milk sold ($13.06). This did not mean all these farms lost money, because the cost to produce milk was quite variable by searching for “monthly cost of production”. Dairy farmers recently have received record milk prices after suffering through terribly low milk prices in 2006. At this time (early November, 2007), 2008 Class III futures prices are still above long term averages, but are about $1.70/cwt below the 2007 average. Will farm level milk pay prices in this lower range be enough to keep farmers profitable with these new higher cost realities? That is the question all dairy producers need to ask as they begin the 2008 budgeting process.

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<th>Operating costs:</th>
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<th>Mar</th>
<th>Apr</th>
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<th>Jun</th>
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<tr>
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<td>0.82</td>
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<td>0.86</td>
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<tr>
<td><strong>Total allocated overhead</strong></td>
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<td>7.92</td>
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<td>7.95</td>
<td>8.03</td>
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<td><strong>Total costs listed</strong></td>
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<td>21.03</td>
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<td>21.10</td>
<td>21.85</td>
<td>22.15</td>
<td>22.78</td>
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</table>
Michigan dairy farm business analysis summaries and budget estimates can be obtained from the local Extension office or online at the MSU extension Dairy Team web site <http://dairyteam.msu.edu/>. Again, one should be careful estimating the cost of producing milk for your farm from these summaries because of unpaid factors including labor, management and capital that are not accounted for in the expense items. However, individual expense items can be compared to your farm expense categories. For instance, in 2005 average cost of purchased feed was $4.06 per cwt or $833 per cow for the 156 farms in the summary. For the five-year period of 2001-2005 variable and fixed cost of production for all the reported items went up 12.66%.

Finding More Information

A good place to start an online search for financial information is the MSU Extension Dairy Team web site at <http://dairyteam.msu.edu/> with its many reports and links. Online Microsoft Excel budgets for crops and dairy enterprises are available to download from MSU Extension Farm Management Educators web sites at <http://www.msu.edu/user/betz/> and <http://www.msu.edu/user/steind/>. Work sheets are available to estimate costs and compare these to your farm records to prepare for 2008 or help in developing market plans. Cost of production budgets of other upper Midwest states are available from the University of Minnesota Finpack Fin Bin summaries at <http://www.finbin.umn.edu/CropEnterpriseAnalysis/Default.aspx>.

The new economic realities of escalating input costs are challenging all agricultural producers. Thus, every producer must keep specific farm financial records where one can track the farm cost of production. These records allow a producer to plan ahead to maximize their likelihood for profit and survival. MSU Extension is dedicated to providing you with the resources you need to meet these challenges. Contact your MSU Extension district farm management or dairy educator for budgeting resources or to complete a business analysis or financial long-range projection.

Resources


Does Your Dairy Farm Have an Emergency Plan for a Foot and Mouth Disease Outbreak?

Ted Ferris
Dept. of Animal Science

Dan Grooms
Dept. of Large Animal Clinical Sciences

Nancy Frank
Peggy Roth
Michigan Dept. of Agriculture

The recent new outbreak of foot and mouth disease (FMD) in the United Kingdom (U.K.) suggests the possibility that a similar outbreak could occur in the U.S. in spite of the safeguards that are in place. In fact, FMD is endemic in Asia, Africa, Middle East, and parts of South America. So what steps do you need to take to guard against FMD and to be prepared for a potential outbreak in the U.S.? These actions should be considered part of your farm emergency management plan to reduce risks to your business. If your business was in the U.K. today, what steps would you take and how quickly could you implement them? Further, what role might you have should a FMD outbreak occur?

In the Michigan Dairy Review article “What to Expect with a Foot and Mouth Disease Outbreak.” (2), four roles for producers during a FMD outbreak were listed.

1. Surveillance and knowing who to call
2. Screening and/or stopping traffic on and off your farm
3. Being aware of official status reports and notices from authorities
4. Cooperating and working with authorities as requested

In this article, we discuss some details of 1 and 2 and encourage you to include them as part of your everyday biosecurity efforts. Read on to see why.

Biosecurity and Emergency Management

Biosecurity is part of an overall farm emergency management plan (3). Biosecurity includes disease surveillance (checking your animals), traffic control, disinfecting shoes/boots and cleaning vehicles and equipment. Other aspects of biosecurity include isolating new animals, buying animals from a reputable single source when possible, screening animals for diseases, maintaining a sound vaccination program, and establishing controls for insects, rodents, birds, and wildlife (4,5,7,8). Emergency management experts recommend developing plans that cover many types of events to reduce costs and increase benefit of your efforts. This way, your FMD strategy will be part of a plan that also includes avoiding exposure to common diseases such as IBR, BVD, and Johne’s.

1- Surveillance and know who to call

Because FMD can spread very quickly, early detection is very important to stop an outbreak. This is where you, your employees and your family play a key role along with your veterinarian. It is important that you and employees be familiar with the signs associated with FMD. It is not necessary to accurately identify FMD, but that you quickly call your veterinarian if you see suspicious signs (1,2,4). Post emergency phone numbers in your farm office for your veterinarian, the Michigan Department of Agriculture, State Police and other entities. The Be Aware Be Prepared campaign placard, which was distributed last year, is appropriate for this purpose. Periodically review the signs of FMD, and include it as part of employee training along with who to call in various emergencies. Your herd veterinarian should be your point of first contact for any suspicious health issues with your animals. If you notice signs that resemble FMD, call your veterinarian as soon as possible. Your quick action may help to reduce the impact on the entire livestock industry.

2- Screening traffic: this ounce of prevention should be a daily effort

Stringent biosecurity measures are in place for commercial poultry and swine operations. Traffic control is used to stop disease at the farm gate and it is their front line defense against a number of diseases. This involves controlling traffic by directing visitors to a designated parking area, having them sign in, screening for recent visits to other farms, and having them disinfect their boots or wear disposable boots. Dairy and other livestock operations need to move in this direction. Start by controlling traffic and directing visitors to an established visitor parking area by using signs, fencing, gates and perhaps closing some entry points to your farm. Because you stop FMD using the same methods as for many other diseases, this is an all-hazard approach. This means a routine, daily effort to minimize exposure to disease.
Screen and restrict visitors to your farm who have been in other countries and back in the U.S. for less than one week. Better yet, consider adding a sign like the one which is under development by the MDA, MSU and industry “Be Aware Be Prepared” Working Group, and ask all visitors about recent farm and animal contacts. In addition to screening visitors, boots should be disinfected upon entry and exit of your facilities or disposable boots should be provided (6). Grooms and Ross (6) list effective disinfectants for FMD virus.

Traffic Control During a FMD Outbreak

If there is a FMD outbreak, the level of traffic control needed on your farm will depend upon the situation, requirements by authorities, and your level of vigilance to protect your business. If an outbreak occurs in the U.S., the risk of FMD infecting your premises will increase. So stopping cattle movement on and off your premises, cleaning vehicles and equipment, and stopping individuals from entering your facilities without clearance and sanitation makes good business sense. This restriction could be required by USDA and MDA. Potentially, all traffic on and off farms could be ordered stopped by authorities for a period of time. Depending on the existing state of emergency, this could mean no milk trucks, feed trucks, and restrictions on personal vehicles going on and off farms.

If your farm is under quarantine or within a surveillance zone, certain requirements will apply. Strict biosecurity protocols will need to be followed for all individuals entering a premise suspected or known to have FMD and on surrounding farms in a designated area. Humans exposed to FMD need to visit other livestock facilities within 5 days or more. Understanding and following these requirements are critical to minimize the possibility of spreading FMD to additional premises. It is important that you discuss what strategies you would employ during such an emergency and discuss what to expect from authorities. Being informed ahead of time puts you in a better position to use good judgment, have the needed equipment/plan to barricade (wagons, caution tape, NO ENTRY signs) your driveway(s), and to assist in effective response and recovery efforts. These circumstances would not be easy for you, your family or employees, and knowing what to expect helps people successfully work through an outbreak of a disease like FMD.

Summary

It may be unlikely that FMD will infect your premises but if it occurs in the U.S., you will be affected because of the devastating economic impact. The reason we are writing on this topic is because FMD is devastating. Plans you need to make to be prepared also will reduce the risk of other diseases and we want you to take ACTION, if you don’t already have a plan!

You and your employees need to know the signs of FMD, and what to expect from government officials working to eradicate FMD. You need to have a plan to control and stop traffic on and off your premises during a FMD outbreak and to operate for several days to several weeks with restrictions on animals, vehicles, and possibly people on or off your farm. Most importantly, you should consider routinely screening visitors and disinfecting their boots just as commercial poultry and swine operations do. Be Aware, Be Prepared!

References


Online Resources


Michigan Veterinary Medical Association Emergency Preparedness resources are compiled at <http://www.michvma.org/index.cfm?id=222>.

The Center for Food Security and Public Health at Iowa State University: <http://www.cfsph.iastate.edu/>.

First-in-the-Nation BVDV Eradication Program Launched in U.P. 2008

Bovine viral diarrhea virus (BVDV) is a serious illness that can cause severe economic and production losses in dairy herds. Despite these threats, until recently, there has never been a regional BVDV eradication effort in the U.S. Today, a partnership between MSU, Pfizer, and dairy and beef producers aims to eliminate BVDV from Michigan’s Upper Peninsula. Participation in the UP BVDV eradication program is voluntary and has the potential to eliminate threats to cattle health and production and add value to cattle in the marketplace.

Starting in 2008, a cooperative project will begin to eradicate BVDV from beef and dairy cattle herds in the Upper Peninsula of Michigan.

Ben Bartlett  
MSU Extension  
Upper Peninsula

Dan Grooms  
Dept. of Large Animal Clinical Sciences

Steve Bolin  
Diagnostic Center for Population and Animal Health

Bovine viral diarrhea virus (BVDV) is a serious illness that can cause severe economic and production losses in dairy herds. BVDV causes a number of disease syndromes: abortions and other reproductive problems, respiratory disease, weak calf syndrome or poor calf survival, diarrhea and immunosuppression. Because of these adverse effects of BVDV, many US organizations including the National Cattlemen Beef Association and the American Association of Bovine Practitioners have highlighted the importance of BVDV and the need for comprehensive control programs. In addition, many European countries are implementing BVDV eradication programs. More specifically, dairy and beef cattle operations in the U.S., including many in Michigan, have BVDV control programs, but there has not been a national, state or even regional BVDV eradication program attempted in the USA.

Starting in 2008, a cooperative project will begin to eradicate BVDV from beef and dairy cattle herds in the Upper Peninsula of Michigan. This eradication project is being lead by MSU with personnel from the College of Veterinary Medicine, the Diagnostic Center for Population and Animal Health, the Michigan Agricultural Experiment Station and MSU Extension. Pfizer Animal Health also is involved in the project by contributing technical expertise and significant financial support. However, the most important partner in this first-in-the-nation effort will be the dairy and beef producers of Michigan’s Upper Peninsula who will ultimately determine the success of this project. While the main goal is to eradicate BVDV from UP cattle herds, the MSU team also will focus on how eradication efforts can be accomplished with active involvement of producers, be cost effective, and be a true disease eradication effort and not just disease control.

Eradicating BVDV will be built around three principles:

1. Identifying and removal of BVDV carrier animals, commonly known as “persistently infected” or “PI’s”.
2. Implementing a herd appropriate vaccination program.
3. Implementing a biosecurity program to prevent re-introduction of the virus.

There are many accurate BVDV testing options but the skin test for the virus (ear notch test) and a blood test for antibodies (exposure to the virus) will be most commonly used.

The goal of the Michigan Upper Peninsula BVDV Eradication Project is to help every UP cattle producer implement these three steps in their cattle operations. The eradication project will take several years. The plan is to focus on regions within the UP so that funds and personnel can be used efficiently in getting all cattle operations in a region involved as soon as possible. Two extremely important factors are: 1) the program is voluntary, producers must chose to participate; and, 2) producers will be very involved in the eradication effort, including the testing, vaccination, and bio-security effort.

The benefits of the eradication program will include the health benefits of having a BVDV-free herd, having neighboring cattle free of BVDV, and adding value to cattle that will be recognized in the market place. Eradication of BVDV from a region is a very significant challenge. However, a unique opportunity exists to combine the expertise from MSU, the support of Pfizer Animal Health, and the forward thinking cattle producers of the Upper Peninsula to take on the challenge of eradicating this significant disease from their cattle population.

For more information on this project, contact MSU veterinarians Ben Bartlett at bartle18@msu.edu or 906-439-5880, Dan Grooms at groomsd@cvm.msu.edu or 517-432-1494 or Steve Bolin at bolins@dcpah.msu.edu.
The Iberian Cheese Marathon

John A. Partridge
Dept. of Animal Science

Wow! Getting from Roquefort-sur-Soulzon to our next region of cheese exploration is a serious uphill climb through the Pyrenees Mountains, which stretch from the Atlantic Ocean to the Mediterranean Sea. The Iberian Peninsula (Iberia) is the southwestern anchor of Europe and is made up of Spain, Portugal, Andorra and Gibraltar. Our first stop will be in the Principality of Andorra. At a total area of 181 square miles, we won’t find a large cheese industry but a small amount of a fermented Brie-style cheese is made during summer months from local sheep and goat milk.

We are now ready to move in a relatively clockwise direction around Iberia. Our first stop for lunch includes Urgelia, a pasteurized cows’ milk cheese from the Catalan Pyrenees. Semi-soft and creamy with a robust flavor it compliments a salad quite nicely. Urgelia cheese also has excellent melting properties so is often used in baking and grilling. For dessert, Mato cheese, a fresh cheese very similar to ricotta is served with honey. At suppertime our waiter suggests we try a Fresian cheese at this stop is a blue-veined cheese made with Penicillium mold. Cabrales is made mostly from cows’ milk, however variety is introduced because goat and sheep or a mixture of any of the three may be used in the manufacture of this intriguing cheese. The two to four kilogram wheels exhibit a sticky yellow rind with an intense aroma. The flavor is predictably strong, spicy and acid but will show large variations due to natural limestone caves that typically stay at 90% relative humidity and 7 to 13°C (45 to 55°F). As you might suspect, the cheese at this stop is a blue-veined cheese made with Penicillium mold. Cañonera is a washed rind cheese from the 12th century known as the king of Portuguese cheeses has DO protection. The cheese is made from sheep milk, which is coagulated with the wild thistle (Cynara cardunculus). Serra da Estrela has a rind yet is almost spoonable in the center when it is young. At this stage the popular method of consumption involves scooping the soft center out with hearty bread. When aged in caves high in the Beira region of central Portugal the cheese becomes increasingly hard and chewy. Also like Spain, a maritime flavor can be found in Portugal repertoire of cheeses. Sao Jorge is a Cheddar-type cheese that is made from cows’ milk on the island Sao Jorge in the Azores Archipelago in the middle of the Atlantic Ocean. Portugal has many fine cheeses and one should take more time to investigate but our virtual time is short so to the north and east we head for a couple more stops in Spain.

Due north of Portugal, we re-enter Spain in the region of Galicia, home of Tetilla cheese. Tetilla is a pasteurized, cow milk cheese that is made in the shape of a flattened, pear-shaped cone with a nipple (tetilla) on the top (think Hershey Kiss.) The cheese is only aged for 1 to 2 months and has a slightly acid and salty flavor. Due to the semi-soft body and relatively mild flavor, this cheese is a favorite snack for children. Although there are many more fine cow, goat, and sheep milk cheeses to be found along the northern coast of Spain, we will make just one more stop in the region of Asturias.

Much the same as the Aveyron area of France, where Roquefort is made, the Asturias region is blessed with many natural limestone caves that typically stay at 90% relative humidity and 7 to 13°C (45 to 55°F). As you might suspect, the cheese at this stop is a blue-veined cheese made with Penicillium mold. Cabrales is made mostly from cows’ milk, however variety is introduced because goat and sheep or a mixture of any of the three may be used in the manufacture of this intriguing cheese. The two to four kilogram wheels exhibit a sticky yellow rind with an intense aroma. The flavor is predictably strong, spicy and acid but will show large variations due to the different milk used in manufacture.

Our tour of the Iberian Peninsula has come to an end, but we are not ready to stop traveling so let’s go east to Bilbao, Spain. We will sit in a café, have a meal of good local cheese, bread and maybe a little wine, and decide if we are going to take the ferry from Bilbao to Portsmouth (Cheshire and Stilton) or from Bilbao to Amsterdam (Edam and Danbo).

References

$85K Awarded to Dairy Students

Miriam Weber-Nielsen
Dept. of Animal Science

The Michigan Dairy Memorial and Scholarship Foundation celebrated its 50th anniversary in 2007. Since its inception, the Foundation has awarded over $700,000 to more than 375 students with dairy interests. The Foundation now stands as the largest scholarship program in the College of Agriculture and Natural Resources. This year, over $85,000 in scholarships were awarded by the Foundation and the Howard Cowles estate.

Glenn and Anne Lake Scholarship

The Glenn and Anne Lake Scholarship provides all tuition and fees for an academic year. The recipient is Jessica Geurink. Jessica is completing B.S. degrees in Agribusiness Management and Agricultural Communications. Raised on a dairy farm in Allendale, Michigan, she intends to work at a dairy publication or in marketing or communications for an artificial insemination organization after graduation. Jessica serves as President of the MSU Dairy Club and competed on the collegiate Dairy Cattle Judging Team.

Russel Erickson Scholarship

The Russel Erickson Scholarship of $5,000 is awarded to Pieter Serne of Lowell. While growing up, Pieter spent time riding along on his family’s milk route, and began working on a local farm during high school. Pieter completed the Ag Tech Dairy Management Program before initiating his studies in the 4-year Agribusiness Management program. At MSU, Pieter participates in the Dairy Club, National Agri-Marketing Association and FarmHouse Fraternity, and served as an officer of the Midwest region of the American Dairy Science Association Student Affiliate Division. Pieter currently is employed as an assistant herdsman on a dairy and plans to buy into partnership or ownership of a dairy in the future.

Jack & Betty Barnes International Michigan Dairy Memorial Endowed Scholarship ($1,000)

The Barnes scholarship is provided through an endowment from Jack and Betty Barnes and is given annually to a student interested in a dairy industry career who is participating in an international experience to enhance his or her education. This year’s recipient was Monica Van Klompenberg. Monica participated in a Study Abroad program to Australia and New Zealand on Food, Environment and Social Systems in 2007. Monica is completing her B.S. in Animal Science and plans to continue her education in graduate school in mammary gland biology. At MSU, she is active in Block and Bridle, as a CANR Ambassador, Student Senate and works in the Mammary Gland Biology Laboratory.

Howard Cowles Dairy Scholarships

The Howard Cowles Dairy Scholarships are given annually to students in Animal Science who have attained junior status and demonstrated a strong interest in dairy. Academic achievement and participation in extracurricular dairy activities such as the MSU Dairy Club, Dairy Challenge, Dairy Associates Program or MSU Dairy Judging are given strong consideration. The scholarships are provided by revenue from a gift from the estate of Howard E. Cowles, who was a long-time employee of Sealtest Dairy. This year’s recipients of $1,000 scholarships were Lindsey First, Jessica Fry, Kayla Stomack, Mary TenBrink and Laura Zeldenrust.

Lindsey First grew up on a fourth-generation dairy in Ionia. While in college, she has been actively involved in managing her family’s operation. She also has been actively involved in MSU Dairy Club, receiving the Outstanding Incoming Member Award. She participated in the MSU and Midwest Dairy Challenge events. Lindsey is studying Animal Science and plans to work in the area of dairy reproduction following graduation.

Jessica Fry’s participation in 4-H and experience in working with judging dairy cattle stimulated her interest in the dairy industry. Jessica hails from Blanchard and is studying Animal Science at MSU. In addition, she participates in the MSU Dairy Club, serving as secretary, and in dairy cattle judging. She plans to work in the dairy industry upon graduation.

Kayla Stomack is working on her B.S. degree in Animal Science with an emphasis in Production Medicine. During high school, Kayla volunteered at area veterinary clinics and also worked on a dairy farm managing calves for several years. At MSU, Kayla participates in the Pre-Veterinary Medicine Association and was on the Dairy Cattle Judging Team. She plans to work as a large-animal veterinarian in her home area of Minden City following graduation.

Mary TenBrink grew up on a family dairy farm in Coopersville. She completed the Ag Tech Dairy Management Program before pursuing her B.S. in Animal Science with emphasis in Agribusiness Management. Mary served as President of the MSU Dairy Club and participated on the Dairy Cattle Judging Team. After graduation, she plans to return to her home farm full time.

Laura Zeldenrust from Fremont is studying Animal Science with an emphasis in Production Medicine. Laura has worked on a dairy farm near her home and volunteered at two veterinary clinics in preparation for her future career. This year she is working at the Animal Air Quality Research Facility on south campus on dairy cattle experiments. In addition, she participated in the Midwest Dairy Challenge and is a member University & Industry
of the Pre-Veterinary Medical Association. Laura plans to use her dairy experience and her veterinary training someday to provide quality consultation to dairy farms.

**Michigan Dairy Memorial Freshman Scholarships ($1,500)**

The recipients of Michigan Dairy Memorial Freshman Scholarships in the amount of $1,500 are: Eric Carson, Hesperia, Ag Tech Dairy Management; Travis Hake, Edon, OH, Ag Tech Dairy Management; Karmen Jackson, Caro, Animal Science; Matthew Keilen, Westphalia, Ag Tech Dairy Management; Adam Lewis, Jonesville, Ag Tech Dairy Management; Elizabeth Motz, St. Johns, Animal Science.

**Michigan Dairy Memorial Ag Tech Scholarships ($2,000)**

The recipients of Michigan Dairy Memorial Ag Tech Scholarships in the amount of $2,000 are: Jake Brindley, Rose City, Ag Tech Dairy Management; Jenna Kramer, Harbor Beach, Ag Tech Dairy Management; William Huisjen, Fremont, Ag Tech Dairy Management; Rebecca Hale, Brown City, Ag Tech Dairy Management; William Shuler, Baroda, Ag Tech Dairy Management.

**Michigan Dairy Memorial Scholarships ($3,500)**

The recipients of Michigan Dairy Memorial Scholarships in the amount of $3,500 are: Matthew Costigan, Lansing, Pre-veterinary Medicine; Lindsey First, Ionia, Animal Science; Jessica Fry, Blanchard, Animal Science; Colleen Jackson, Caro, Animal Science; Ashley Messing, Bad Axe, Animal Science; Joseph Pasch, Weidman, Animal Science; Rebecca Praise-Stachnik, Cedar, Dietetics; Autumn Sieffert, Grawn, Animal Science; Kayla Stomack, Minden City, Animal Science; Mary TenBrink, Coopersville, Animal Science; Kent Thelen, Fowler, Agribusiness Management; Monica Van Klompenberg, Zeeland, Animal Science; Mark Wiley, Quincy, Agribusiness Management; Paul Windemuller, Zeeland, Agribusiness Management; Laura Zeldenrust, Fremont, Animal Science.

For information on making contributions to honor members of the dairy industry or to support student scholarships, please contact College of Agriculture and Natural Resources External Relations at 517-355-0284. To learn more about the Michigan Dairy Memorial and Scholarship Foundation, contact Dr. Miriam Weber Nielsen in the Department of Animal Science (517-432-5443; msw@msu.edu).

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**Winter Workshop: Managing Alfalfa: Getting Higher Quality, Yields & Profits**

This workshop is for farmers, consultants, suppliers, and commercial hay growers. Increasing prices for alfalfa hay, seed, fuel, land prices and fertilizers are driving up costs for hay producers. Learn about the economics of producing alfalfa today.

Join the MSU Extension Forage Team for the latest research information. These day-long workshops will have presentations on:

- Economic reality of growing alfalfa in 2008
- Effective soil sampling
- Fertilization strategies
- Getting the right start...proper stand establishment
- Choosing the right variety
- Best management practices (local producer panel)
- Managing weeds for superior alfalfa stands
- Regional hot topics

Cost for workshops is $30 for the first person and $15 each for additional persons from the same farm or agribusiness. Registration must be completed by February 1.

**Workshop Locations, Dates**

- Clarksville. Feb. 5. Clarksville Experiment Station. Contact Dennis Pennington, 269-945-1388.
The MSU Ag Tech Dairy Management Program is a 1.5 year long program designed to provide students with a basic foundation of knowledge about dairy production and management. Basic principles of dairy nutrition, reproduction, health, business and management are studied.

An important part of the program is the internship. All students must complete an internship to graduate from the program. Internships have to be a minimum of 3 months long and cannot be completed on the family farm or any farm a student has worked on for an extended period of time. Students are encouraged to live away from home during the internship, which normally occurs between the first and second year of the program. Almost all Ag Tech dairy internships happen on dairy farms, but other opportunities do exist.

Every effort is made to match each student’s goals and interests with specific internship opportunities. Over 50% of 2007 internships were outside the state of Michigan. The size of herds utilized for internships ranged from 60 cows to over 7000 cows and represented all types of dairy operations including purebred, commercial, grazing, and organic.

**Elizabeth Adams**

Where did you intern?
Simon’s Dairy in Westphalia, with Larry Simon.

What was your prior experience?
I grew up on a 150 cow dairy farm in Lake City, Michigan where we raise our own replacement heifers and grow most of our own feed. I also helped raise heifers for the Kosters in Falmouth, Michigan.

What were your responsibilities as an intern?
As an intern I helped with calvings, fresh cow checks, vaccinations, treating sick animals and raising calves. At the beginning of the internship, I didn’t have much responsibility and someone was always there to help me get my chores done. However, after a month, they began to trust me and I was permitted to work with the animals on my own.

In what ways was the farm you interned at similar and different from farms to which you’re accustomed?
The Simon’s is a 600-cow dairy that is still expanding, which seemed massive compared to my home farm. Yet, they managed to give individual cows the attention they required much like we do at home.

What did you learn from your internship?
On my internship, I learned a lot of practical things, like how to identify and treat sick animals, but the most important thing I learned was how to manage a larger number of animals. This is valuable to me because I hope to be the herdsman for my farm and the “behind scenes” management was something I didn’t have any experience with. I already knew how to do things, but interning at the Simon’s helped me understand why I was doing them.

What did you anticipate the internship being like? How did this differ from reality?
I expected the internship to be like a job, I would be given duties and I would perform them every day. Yet, when I arrived, every worker on the farm made sure that I was learning something new everyday. If I wanted to try something or if I had questions, they would take time to work with me and help me understand.

What advice would you give to future ag tech interns?
The best advice that I have for future interns is to dive right in! Use every opportunity to learn and become a better manager.

Photo courtesy Elizabeth Adams

Elizabeth Adams interned with Larry Simon at Simon’s Dairy in Westphalia.
Where did you intern?
Alexandre Family Dairy in Crescent City, California, with Blake and Stephanie Alexandre.

What was your prior experience?
Worked on small dairy all through school.

What were your responsibilities as an intern?
As I started my internship I was tested with a few simple tasks such as cleaning up around the farm and assisting the herdsman. After I proved myself, I was put in charge of helping to manage the maternity barn. This was a great experience. I got a lot of responsibility and learned people management skills. From there I did whatever I wanted to experience. I did everything from breeding cows, treating cows, to managing pastures and putting up feed. The more I proved myself the more responsibility I was given and I love it. I was involved in all company meetings and when a decision was to be made for the dairy my input was always asked and taken seriously.

In what ways was the farm you interned at similar and different from farms to which you’re accustomed?
The only thing that was similar between the farm I come from to the farm I interned at was the fact they milked cows! I came from a 72-cow tie-stall barn to a 3000-cow intensive grazing organic dairy. In California the cows were spread over 3 dairies with about 5000 acres of organic pasture. In California we had Hispanic employees with whom I became good friends and learned and appreciated their culture.

What did you learn from your internship?
I learned a lot of things on my internship with cows, like how to give an I.V. or how to trim feet but you can learn these on any dairy. It was the other things that I learned that made this internship worthwhile. I learned how to “rip the blinders off” and see the big picture of things. How not to judge but to perceive like investigating why things are done the way they are before criticizing. I also learned how to be progressive and the skills that it takes to make money in the dairy industry. I learned how to work hard and smart and still find the balance in your life of being very successful and enjoying a rich life in the dairy industry. These are valuable lessons that I doubt I would have learned anywhere else but from the Alexandre family.

What did you anticipate the internship being like? How did this differ from reality?
I envisioned my internship being me living by myself lonely, homesick, and uneventful but I could not have predicted what I was in for. As soon as I got to the farm I became part of the family. I lived, worked, and played with the family. I was involved with family events and every aspect of their lives. I guessed the employees would be quiet and not interact, but I was wrong and I became close to many of them. They taught me Spanish as I helped their English. They took me to their homes at night when the Alexandres were gone and cooked me dinners. They took me ocean fishing and clamming. They also taught me tricks and secrets to working and treating cows that will be with me the rest of my life.

What advice would you give to future ag tech interns?
People ask me what I would have done different on my internship and to this day I can still think of nothing. If I had to give advice to anyone going on an internship I would say step out of your comfort zone and rip the blinders off. See the big picture. Work and and respect your boss and they will do things for you that you could never imagine. When I first started at MSU I told my adviser that I was not going to leave Michigan and I was not going to anything larger than a 100-cow dairy. Well, he changed that and I am glad he did.
Tension between livestock producers and neighbors has grown in parts of rural Michigan, leaving community leaders looking for solutions. How can neighbors and local officials work together to ensure that livestock producers and their neighbors get a fair shake?

That’s the question that experts from across the country will address during Balancing Animal Agriculture and Communities, a one-day conference aimed at bridging the gap in understanding between animal agriculture producers, their neighbors and community leaders.

“This is not an easy topic to tackle,” Wendy Powers, chair of the conference committee, says. “That’s why we’re bringing in researchers from across the country to talk about a variety of issues that affect decision makers.”

Topics include air emissions effects on human and environmental health, aquatic ecosystem integrity, real estate value, and quality of life. In all cases, scientists will share their perspectives on the comparative effects of various systems. In addition, David Hollister, former Lansing mayor and president of the Prima Civitas Foundation, will moderate a session that explores the options and tradeoffs of various technologies and farm management systems.

Township, county and state government officials are encouraged to attend the conference as well as farmers and representatives from environmental, food and agriculture groups.

Powers says she and her 22-person planning committee, which consists of a rural sociologist, economists, animal scientists, sustainable agriculture specialists and water experts, hope to open up lines of communication between livestock farmers and their neighbors.

“This conference isn’t designed to end the debate but rather to start the conversation,” she says. “It’s a great opportunity for people with differing viewpoints to learn from experts in various disciplines as well as from one another.”

The day will wrap up with a “tell us what you think” session allowing participants to give real-time feedback about issues covered throughout the day.

You can learn more about Balancing Animal Agriculture and Communities at <http://www.animalagteam.msu.edu>. You can register on the Web site or by calling Faye Watson at (517) 353-3174.

Don’t miss these interesting speakers!

- George Vellidis, professor of biological and agricultural engineering, University of Georgia
- Glynn Tonsor, assistant professor of agricultural economics, MSU
- Jeff Sharp, associate professor of rural sociology, The Ohio State University
- Richard Hegg, national program leader, plant and animal systems, U.S. Department of Agriculture
- William Flinn, director of the Social Responsibility Initiative, The Ohio State University
- Moderators: David Hollister, president of Prima Civitas Foundation; Rep. Richard Ball, Bennington Township and District 85; Frank Fear, senior associate dean of the College of Agriculture and Natural Resources at MSU.

For a complete agenda, visit <www.animalagteam.msu.edu>.

Register early and save!

**Balancing Animal Ag and Communities**

February 29, 2008
Kellogg Hotel and Conference Center
55 South Harrison Road
Michigan State University
East Lansing, MI 48824-1022

For overnight accommodations and directions, call (800) 875-5090.

Registration fees for the conference are $115. Register before January 11 and pay only $95! To register, visit <http://www.animalagteam.msu.edu> or call Faye Watson at (517) 353-3174.

### Printing and distribution of Michigan Dairy Review is supported by a competitive grant from funds of the Michigan Animal Agriculture Initiative administered by MSU’s Animal Industry Coalition.
Opportunities and Issues in Michigan’s Dairy Industry?

Dean Ross
Extension Dairy Educator

Kathy Lee
Extension Dairy Educator

Mike McFadden
Extension Dairy Educator

Vera Bitsch
Dept. of Agricultural Economics

Ted Ferris
Dept. of Animal Science

MSU Extension Dairy Area of Expertise Team needs your input to help determine what research and educational efforts to pursue in the coming years. It has been 10 years since we surveyed producers and dairy industry professionals in Michigan. Since then, a great deal of change has taken place. We are conducting this survey to better understand what current and emerging issues and opportunities are important to you. Our efforts are being supported by industry partners including Michigan Milk Producers Association, Greenstone Farm Credit Services and Dairy Farmers of America, as well as with competitive grant funding from MSU Extension.

The Survey will be delivered to dairy producers and industry professionals including veterinarians, feed industry representatives and consultants, by the U.S. Postal Service in February 2008. Our objective is to have everyone who receives the survey complete and return it in the accompanying self-addressed envelope.

Why should you participate? We used the results of the 1997 survey to prioritize MSU Extension dairy education efforts and research projects including those funded through the Michigan Animal Agriculture Initiative at Michigan State. A new assessment of our industry is important to do, considering how the industry has changed.

Your input will help us focus limited resources on the opportunities and issues that can affect the future of Michigan dairy businesses, your community, and the sustainability of the Michigan dairy industry. Your input will help us better serve you.
Michigan Milk Market Update

Christopher Wolf
Dept. of Agricultural Economics

The final numbers are not in as of this writing but 2007 will undoubtedly set the record for all-time highest milk price. Through November, the Michigan All Milk price averaged $19.50/cwt. Compare that to the previous high of $16.24/cwt in 2004 and the 2006 average of $13.36/cwt to understand just how remarkably high the recent farm milk price has been.

The incentive to increase milk production continues. The US milk-to-feed price ratio crept above 3.0 in July 2007 and has remained there (Figure 1). The long-term average of the ratio is 2.9 and values above 3.0 are generally conducive to milk production expansion. Keep in mind that the size of the income above feed costs is quite a bit larger when milk price is $20/cwt with a milk-to-feed price ratio of 3.0 than when milk price is $15/cwt with the same ratio.

Michigan milk production grew at a healthy rate in 2007. In October, milk cow numbers reached 341,000 in Michigan producing a total of 636 million pounds of milk (Figure 2).

This is a very interesting time for the US milk markets. What is the outlook for 2008? Farm milk prices will likely be lower—but how much? That depends on a whole host of factors. In past years, the large increases in production that we recently have witnessed coupled with the very strong milk prices would certainly have us predicting a significant drop off on its way as stocks accumulated. That is not the current forecast. As of this writing (12/21/07), the Class III futures is offering a 2008 average of $16.45/cwt. With an average Michigan basis, this translates to a mailbox price in the area of $17.25 to 17.50/cwt depending on Class IV, utilization rates, and hauling costs.

The market’s attitude seems to be that we can export whatever we need to, because the exchange rate is working in favor of US exports (weak dollar) and Australia is still struggling with severe drought that has curtailed its milk production. Asia’s increased spending power has coincided to greatly increase US dairy exports in 2007.

There are other factors internal to the US that are relatively bearish on milk price: hay prices are at an all time high and...
Calendar of Events
January - April

Michigan Family Farms Conference
January 19
Lakeview High School
15060 Helmer Road South
Battle Creek

Cow Comfort Seminar and Low Stress Cattle Handling Workshop
January 24
Sparta Township Hall
Sparta
Contact: 616-846-8250

Northern Michigan Small Farm Conference
January 26
8am-5pm
Grayling High School
Grayling
Contact: 231-533-8818,
<http://www.msue.msu.edu/antrim>

Dairy Calf and Heifer Profit Seminar
January 31
Holiday Inn Lansing West Conference Center
7501 W. Saginaw Hwy.
Lansing
Contact: 517-627-3211

Alfalfa Hay Meeting
February 5
Clarksville Experiment Station
Clarksville
Contact: 369-945-1388

Great Lakes Regional Dairy Conference
February 7-9
Bavarian Inn Lodge and Conference Center
Frankenmuth
Contact: Megghan Honke at honkemeg@anr.msu.edu or 517-353-3175 x 229. <http://www.glrdc.msu.edu>

Dairy Team Survey
Arrives via mail after Feb. 8
Remember to complete and return!

Cleaning and Sanitation Workshop
February 12
Michigan State University
East Lansing
Contact: John Partridge, 517-355-7713 x 179, partridg@msu.edu>

Balancing Animal Agriculture and Communities
February 29
Kellogg Conference Center
Michigan State University
East Lansing
Contact: Faye Watson, 517-353-3174,

Pasteurization Workshop
March 4, 5
Michigan State University
East Lansing
Contact: John Partridge, 517-355-7713 x 179,
partridg@msu.edu>

Managing Alfalfa: Getting Higher Quality, Yields & Profits
A workshop for farmers, consultants, suppliers, and commercial hay growers.

See Page 17 for dates and locations

Feeding the Herd When Costs Go Sky High!
A workshop for dairy producers, contract growers, and custom feed crop producers.

See Page 11 for dates and locations
Michigan Dairy Review

Volume 13 Number 1


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