Manure Management For Dairies

A Virginia Perspective

Virginia, like most of the bay states, has a large, economically important dairy industry made up of predominately small family operated farms. For this presentation we will talk about small farms having less than 150 cows and in many cases on less than 150 acres of land. This is not a strict definition but gives one the general idea that we are addressing small family farms that have a unique and difficult set of issues for which there are no easy answers.

The intent of this presentation is not to ignore or diminish large dairy operation in the bay region. Large dairies do indeed have significant liquid waste streams to address as well, but larger dairies are permitted, have nutrient mgt plans and fall under a regulatory framework with which they must comply when addressing manure management on the farm.

The question before us and has been posed by many in the regulatory arena: what do we do about the manure on small dairies.

In order to properly address the issue before us it is important to take a look at the farms we are talking about. In general, small dairy farms often times have as many or more cows than they have farming acres and quite often they rely on rented land to ensure adequate feed for their herds. In the past several years in particular, the dairy farm economy has been in a depression and in fact many farms lost money and a lot of it. Financial resources have been strained to the breaking point leaving little or no money to implement expensive BMPs to address manure issues and many are questioning their long term viability. In many cases dairy farms have multiple enterprises such as poultry to diversify income but this additional enterprise also adds an additional waste stream that must be managed with limited acreage on which to manage it. Phosphorus levels are high on many fields particularly in the areas of Virginia with high animal concentrations such as the Shenandoah Valley and many small dairy farms still do not operate by nutrient management plans because they are not required to do so. On most small dairies today, there is inadequate storage for liquid manure and it is impractical and economically detremental to ship this manure off the farm or at least any distance.

Given this scenario of limited resources, limited land, too much of a liquid waste stream and lack of good manure management plans, the 64 million dollar question is what do we do on small largely unpermitted dairy farms to address the manure management concerns?

The immediate answer for some would be to simply regulate small dairy farms. This is a simplistic approach to a very complex problem and in fact could be very counterproductive to achieving a healthier bay. That is not to say that poor stewardship should be condoned or even tolerated and in fact many farmers who are trying to be good stewards are getting fed up with the bad actors. Passing more regulation on the good farmers to get to the bad ones only puts more strain on resources of farms that are the good stewards and weakens them even more.

What are the solutions to these complex problems other than more regulation?

Two areas farmers are going to be expected to address in the future.

1} Small dairy farms will need to focus on keeping nutrients on the farm and avoiding runoff into streams and waterways. Clearly EPA, as evidenced by recent inspections in Pennsylvania, Maryland and Virginia, is concerned about farms as direct point dischargers and are working to address this concern.

Farmers can address this concern by implementing some basic manure management practices such as covering manure piles, keeping manure in production areas from running off the production areas and protecting streams with buffers. While in some cases this can take some time, planning and money, addressing runoff is pretty straightforward and should not be viewed as demanding too much.

2} The second area in which farmers are being scrutinized is how nutrients are being used on the farming fields. With the new Bay TMDL, accountability for how nutrients are being used is going to be increased and goals for Nitrogen and Phosphorus reduction to reach this TMDL will be set for the states. How states develop plans for farmers reach these goals have yet to be determined but clearly achieving these goals will be difficult, very expensive and not cut and dried. Let's examine what farmers can do and what will have to be done to help them achieve the expectations that are being thrust upon them.

ADDRESSING PHOSPHORUS

With high animal concentrations in parts of Virginia, many farming fields have high levels of phosphorus. Years of heavy application of poultry litter and other manures has gradually built up high levels of P in the soils. While allowable limits of poultry litter application have drastically decreased in recent years, the high application rates of the past are making the reduction of P in the soil a very slow and problematic process. Talk of going to a low P saturation level and away from a P site index particularly in a short period of time has a lot of farmers concerned. If it is determined P saturation is how P will be addressed, two things need to happen. The implementation of P saturation level needs to be over a period of years and it needs to be phased in at a reasonable level. To do otherwise could have disastrous effects on farmers and may be next to impossible to achieve.

How do we reduce Phosphorus levels in a common sense achievable way?

1} Encourage farmers to adopt new crop rotations and focus on those crops that can mine down P in high P fields. More research needs to be done on new varieties and new crop rotations that can mine down P levels

2}Farmers use high P fertilizers such as poultry litter to benefit from the N in those fertilizers. Asking farmers to not use poultry litter means they have to buy a more expensive Nitrogen and Potash commercial fertilizer. Some sort of cost share program needs to be examined to help farmers bridge this expense gap

3}Encourage and cost share manure separation. This helps reduce the volume of manure in storage systems and allows for the transport of solids off the farm which tend to be high in Phosphorus. The remaining liquid which is not as nutrient dense can then be used on the farm through irrigation or equipment application

4}Byproduct feeds are rich sources of Phosphorus and are widely used by dairy farmers. While they are great feeds for dairy cattle they are also high in P. To ask a farmer to quit using these feeds is an economic imposition and because it would cost more to use other feedstuffs, this is difficult to get dairymen to agree to. Continue to make farmers aware of the issue of byproduct feeds particularly if they have high P levels on the farm and look at some incentive for the ethanol plants and distillers to produce and process and more consistent product that is lower in P.

5]Pursue aggressively new technologies that can reduce P in manure going on the fields

ADDRESSING NITROGEN LOSS

Nitrogen loss is an issue as well and difficult to solve on the traditional dairy farm. Corn, soybeans, rye and other crop rotations many dairy farms employ make Nitrogen loss reductions also difficult to achieve. Many of the traditional crops dairymen use are inefficient users of N and subject to loss. In addition, inadequate storage capacity on many dairy farms creates a situation where cover crops are being manured in the winter and in effect the cover crop is no longer a true cover crop. While it does prevent erosion, the cover crop is not recovering excess nutrients left from the corn crop.

Possible solutions

1} separation as mentioned

2}riparian buffers and adaptive fencing

3}examine and suggest system changes

Moving from a liquid system to a dry pack would benefit the storage issue so manure does not need to go on cover crops in the winter and would also allow for solids transport off the farm. Seasonal or full time grazing also can reduce manure volumes in manure pits and can reduce input costs.

4}encourage more precise manure and fertilization methods such as PSNT tests, tissue leaf analysis etc.

These are just a few of the suggestions Waterstewardship has been making to farmers as we evaluate farm nutrient loads and develop continuous improvement plans to reduce these nutrient loads. Some of these suggestions are inexpensive and simple to implement in the short term while others are more difficult, more expensive and longer term. What is easier for one farmer may be more difficult or even impractical for another. So one size does not fit all and therefore a problem and shortcoming with the strict regulatory approach.

To conclude: there are a lot of questions but no easy answers to manure management. There are however some potential solutions that hold promise. What will be important is how the regulatory agencies at the state and federal level approach the uncharted water we find ourselves in. A quick knee jerk approach and a heavy regulatory hand will do more harm than good. Without question, state agencies and EPA need to be clearer on what the expectation is for farmers and be more definitive on

what constitutes a direct discharge and the consequences for a small farm who is determined to be a direct discharger.

To close with a few questions I hope will be a springboard for more discussion.

---How can farmers be Okay with EPA and how can they meet “reasonable assurance”?

---Do we continue to squeeze more from the farmers who are doing things right and make marginal progress toward the goal, or do we have expectations to get all farmers to do basic manure management and other stewardship practices with the potential to make significant progress?

---What happens when farmers have implemented all the BMPS and they are not still meeting the TMDL goal?