

Pennsylvania's Nutrient Management Program Newsletter

November 2008

<http://panutrientmgmt.cas.psu.edu>

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Nutrient Balance Sheet Standard Format 2.0 Spreadsheet Release

The Nutrient Balance Sheet Version 2.0 (NBS 2.0) spreadsheet has been released and is available on the PA nutrient management web site under "Planning Tools and Resources"

(<http://panutrientmgmt.cas.psu.edu/>). Several features of the NBS 2.0 spreadsheet will help facilitate NBS development, including:

- NBS development for 15 crop groups
- Completes NBS calculations
- NBS Summary and NBS Notes development
- P Index spreadsheet is included

- NBS report generation with consecutive page numbers

Excel 2002, Excel 2003 or Excel 2007 are recommended for most effectively working with the NBS 2.0 spreadsheet. Excel 2000, Excel 97 or Excel 95 may run the NBS 2.0 spreadsheet calculations, but due to differences in these earlier Excel versions many of the spreadsheet features, including macros, may not work properly. This is not a result of the NBS 2.0 spreadsheet development, but instead results from differences in how Microsoft developed and the features included in these earlier Excel versions.

Before starting NBS development using the NBS 2.0 spreadsheet, the macros must be enabled.

Macros can be Enabled or Disabled, under the "Tools" section of the menu bar at the top of the Excel window. Specific instructions are included in "NBS Instructions" in the NBS 2.0 spreadsheet. If the spreadsheet macros are not enabled, many spreadsheet features will not function and it will not be possible to develop an NBS using the spreadsheet.

The NBS 2.0 spreadsheet facilitates NBS development; however, it does not provide management recommendations. Management decisions continue to be made by the Nutrient Management Specialists, Manure Brokers and farmers. Therefore, training for NBS development will continue to be part of the Nutrient Management Plan Writing Workshop and Manure Hauler/Broker training workshops. The technical references for NBS development continue to be the PA Nutrient Management Act 38 Technical Manual and the Nutrient Balance Worksheet User Guide. These references are available on the PA Nutrient Management web site under "Planning Tools and Resources" (<http://panutrientmgmt.cas.psu.edu/>).

How To Contact Us

For more information on the Pennsylvania Nutrient Management Program contact:

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Address Changes

In order to receive this newsletter, we must have a current email address. Please send all email and other address changes to Michael Aucoin (contact information above).

Newsletter Contributions

Comments, contribution of articles, or suggestions of topics or issues to be addressed in the newsletter are welcome at any time.
Jerry Martin, Editor

Training workshops specific to NBS development using the NBS 2.0 spreadsheet will be offered. A basic understanding of NBS development is a prerequisite for these workshops as the principle concepts and calculations of NBS development will not be covered in detail.

To most effectively address the training needs of Commercial, Public and Individual Nutrient Management Specialists, NBS 2.0 spreadsheet workshops can be scheduled and held at office locations. Group workshops for multiple Conservation Districts, multiple USDA-NRCS locations or as appropriate multiple commercial or individual nutrient management specialists are encouraged. Group workshops will allow for trainings to be provided in a timely manner. To schedule a workshop, contact Jennifer Weld (contact information provided below).

To address the training needs of those certified as Commercial Manure Broker 2, several NBS 2.0 spreadsheet workshops will be offered in the coming

months. Specific dates and registration information will be provided in the upcoming Act 49 newsletter.

For assistance with questions, comments or concerns about using the NBS 2.0 spreadsheet or workshop scheduling, please contact Jennifer Weld.

Jennifer Weld
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267-455-8023 (Cell Phone)
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Jennifer Weld
Project Associate
Penn State Crop & Soil Sciences

Nutrient Management Plan Standard Format 2.0 Spreadsheet Update

The Nutrient Management Plan Standard Format Version 2.0 (NMP 2.0) spreadsheet is in the development process. When complete, the NMP 2.0 spreadsheet will be distributed for review to a small number of nutrient management specialists developing and reviewing plans as well as manure brokers. Currently, review distribution is targeted for the end of November. All review comments will be addressed and when complete the final NMP 2.0 spreadsheet will be made available on the PA nutrient management web site (<http://panutrientmgmt.cas.psu.edu/>).

In preparation for the NMP 2.0 spreadsheet release, NMP 2.0 workshops can be scheduled. These workshops review the new standard plan format as well as the features of the NMP 2.0 spreadsheet. During the NMP 2.0 spreadsheet development phase these workshops may be most appropriate for those reviewing NMPs. Group workshops including multiple Conservation Districts or USDA-NRCS locations are encouraged.

Contact Jennifer Weld with comments or questions about the NMP 2.0 spreadsheet or to inquire about scheduling an NMP 2.0 spreadsheet workshop.

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Jennifer Weld
Project Associate
Penn State Crop & Soil Sciences

New Agronomy Factsheet on Manure Spreader Calibration

A new factsheet Agronomy Facts #68: Manure Spreader Calibration has been produced and is now available from Penn State Cooperative Extension. This factsheet is available in print form or can be downloaded from the Pennsylvania Nutrient Management Website at:
<http://panutrientmgmt.cas.psu.edu/pdf/Facts68.pdf> .

The factsheet outlines spreader calibration methods for both liquid and solid manure types. Included are simple worksheets that guide you through the calibration procedure which is a critical part of developing and implementing a nutrient management plan. Remember that a planned manure rate is no good unless it can actually be spread.

Doug Beegle
Soil Fertility Specialist
Penn State Extension
&
Jerry Martin
Penn State Cooperative Extension
Nutrient Management Education Program

Showing Setback Areas On Farm Maps

Nutrient management plan (NMP) maps need to show all applicable manure setbacks or restriction areas on the farm including the landscape features associated with the each setback, such as wells, streams, and sinkholes. Landscape features on adjoining properties that do not require a setback should not be included on the farm map. An example is a neighbor's well which is beyond 100' from fields on the operation does not need to be included on the nutrient management plan maps.

Doug Goodlander
Director of Nutrient Management Program
State Conservation Commission

New Soil Test Recommendations for Small Grain Silage

Recommendations for Small Grain Silage have been added to the Penn State soil test. These include recommendations for Small Grain Silage (1051), Small Grain Silage/Corn Grain Double Crop (1046) and Small Grain Silage/Corn Silage Double Crop

(1047). These crop codes are not currently on the soil test information sheet but they are in the recommendation system and can be used by entering any of these crop codes when a soil sample is submitted. These new crop codes will be added to the information sheet the next time they are reprinted.

One important note on the recommendations for the small grain silage double crops is that they are based on the corn yield and that is the yield that must be entered on the soil test information sheet. The lab uses an estimated small grain silage yield based on the corn yield to make the recommendation. The recommendation tables for these crop codes, along with all other crops are available on the Penn State Agricultural Analytical Services Lab web site at <http://www.aasl.psu.edu/Agro%20HdBk.html>. From a manure N point of view, the double crop recommendations should not change the current approach used in determining manure application rates. However, from a manure P and K point of view, the new recommendations will account for the additional P and K removed by the small grain silage crop. This will affect the P and K balance after manure application and could have a significant impact if the P Index Rating is "High" and thus restricts P application to crop P removal. If separate manure applications are used for the small grain silage and the following corn crop, additional N carryover adjustments must be made. Below are examples of the calculations using the new approaches to address double-cropped small grains and corn.

Examples

For each of the following examples, yields of 130 bu/A for the corn and 6 ton/A for the small grain silage are used. Soil test results of 30 ppm P and 100 ppm K, which is in the optimum soil test range, were used. Therefore, the recommendations equal crop removal. The manure is dairy liquid using Agronomy Guide manure analysis. To keep it simple, no residual manure or fertilizer is included and the balanced rate is used as the planned rate. In real situations these would be accounted for as appropriate.

Doug Beegle
Soil Fertility Specialist
Penn State Extension

Current approach using corn grain recommendations for fall or winter manure application for the small grain *and* the corn. NOTE: This approach will give a correct N based manure rate, but the P and K balance will not include the cover crop removal of these nutrients and thus is not correct.

	N	P ₂ O ₅	K ₂ O	
Recommendation	130	50	40	lb/A
Manure Analysis	28	13	25	lb/1000gal
Available N	Fall/winter w/ Cover for Silage = $28 \times 0.20 = 5.6$ lb/1000 gal			
N Balanced Manure Rate	$130 \div 5.6 = 23,214$ gal/A			
Nutrients applied at balanced rate	130	302	580	lb/A
Final Nutrient Balance	0	(252)	(540)	lb/A

Using *New Small Grain Silage Double Crop Corn Grain (AASL crop code 1046)* recommendation for fall or winter application for the small grain *and* the corn.

	N	P ₂ O ₅	K ₂ O	
Recommendation	130	80	140	lb/A
Manure Analysis	28	13	25	lb/1000gal
Available N	Fall-winter w/Cover for Silage = $28 \times 0.20 = 5.6$ lb/1000 gal			
N Balanced Manure Rate	$130 \div 5.6 = 23,214$ gal/A			
Nutrients Applied at Balanced Rate	130	302	580	lb/A
Final Nutrient Balance	0	(222)	(440)	lb/A

Using separate Small Grain Silage (AASL crop code 1051) and Corn Grain (AASL crop code 1042) recommendations where manure will be applied in the fall/winter for the small grain silage and in the spring for the corn.

In this case separate calculations are made for the fall/winter application for small grain silage and the separate spring application for corn after the small grain silage is removed.

IMPORTANT ADDITIONAL CONSIDERATION: Since both applications are in the same crop year there is a carryover of N from the manure applied to the small grain that will be available to the following corn crop in the same year. For this calculation we use the N availability factor in Agronomy Guide Table 1.2-14 for Fall/Winter manure applied to a cover crop harvested for silage which is 0.20. This is taken times the amount of total N applied to the cover crop and the result is subtracted from the net N requirement. This additional calculation is highlighted in the corn calculations in the table below.

Calculating a manure rate for the small grain silage in the fall/winter				
	N	P₂O₅	K₂O	
Recommendation (Small Grain Silage)	90	40	160	lb/A
Manure Analysis	28	13	25	lb/1000gal
Available N	Fall-winter Spring Use by small grains = $28 \times 0.40 = 11.2$ lb/1000 gal			
N Balanced Manure Rate	$90 \div 11.2 = 8036$ gal/A			
Nutrients Applied at Balanced Rate	90	104	201	lb/A
Nutrient Balance After Application to Small Grain Silage	0	(64)	(41)	lb/A

Calculating a rate for the corn in the spring				
	N	P₂O₅	K₂O	
Recommendation (Corn Grain)	130	50	40	lb/A
Carryover from Manure Applied for Cover Crop	$8,036 \text{ gal/A} \times 28 \text{ lb/1000 gal} \times 0.20 = 45 \text{ lb N/A}$			
Net Crop Need After Accounting for Carryover	85	50	40	lb/A
Manure Analysis	28	13	25	lb/1000gal
Available N	Spring Incorporated within 5-7 days = $28 \times 0.30 = 8.4$ lb/1000 gal			
N Balanced Manure Rate	$85 \div 8.4 = 10,119$ gal/A			
Nutrients Applied at Balanced Rate	85	132	253	lb/A
Nutrient Balance After Application to Corn	0	(82)	(213)	lb/A
Final nutrient balance after both applications (sum of both applications)				
Final Nutrient Balance for Crop Year	0	(146)	(254)	lb/A

NMP Standard Plan Format: Addressing Manure Management and Stormwater Control

In the Standard Plan Format, farm and field-specific information is required in the Manure Management and Stormwater Control appendices. It has come to our attention that planners are providing the same general information, sometimes word-for-word, in both appendices. First of all, the required information in each appendix, current appendices 8 and 9, needs to be farm specific information, not general information. Note: The use of canned or boilerplate language is generally not acceptable throughout the entire nutrient management plan. Second, each appendix requires different specific information, as noted in the discussion below.

Manure Management

Appendix 8: Manure Management relates to the farm-specific evaluation of waste storage facilities, manure handling areas, feed storage areas, barnyards and other animal concentration areas (ACAs). If this type of evaluation is not your greatest planning strength, please request qualified local assistance from the conservation district or NRCS Field Office in that county. Please note that this evaluation considers the potential for adverse impact on surface water and groundwater, namely, perennial and intermittent streams, lakes, ponds and wells, springs, existing open sinkholes and exposed bedrock. The required plan information in Appendix 8 includes: 1) Date of Site Evaluation, 2) Statement Documenting Areas Evaluated During Site Evaluation, 3) Identification of Inadequate Manure Management Practices and Conditions, and 4) BMPs to Address Manure Management Problem Areas.

The “Date of Site Evaluation” by the planner should be self-explanatory. As we have advised many times, a concurrent evaluation by the planner and reviewer is highly recommended.

Language in the next section of the appendix, “Statement Documenting Areas Evaluated During Site Evaluation”, should indicate the specific areas of the operation that were evaluated, such as: “A. Concrete exercise lot associated with the free stall barn. B. Bare dry cow exercise lot. C. Existing manure storage, located in front of the free-stall barn.”

Next, “Identification of Inadequate Manure Management Practices and Conditions” should also be site-specific, such as: “A. Concrete exercise lot – no problems identified. B. Bare dry cow lot – runoff from lot outlets directly into the adjacent stream; no roof runoff controls in place. C. Manure storage – no problems identified.”

In the last section of Appendix 8, “BMPs to Address Manure Management Problem Areas” must be identified, such as: “Bare dry cow lot – a concrete lot will be constructed, roof gutters, downspouts and outlets will be installed and all contaminated runoff will be treated by a filter area.

Remember, if you have listed required BMPs in Appendix 8, they must also be carried forward to the list of required BMPs in the NMP Summary.

Stormwater Control

Appendix 9: Stormwater Control relates to the farm-specific and field-specific evaluation of cropland and pasture stormwater management practices. This evaluation requires the planner and reviewer to identify Critical Runoff Problem Areas (CRPAs) on cropland and pasture. A CRPA is a non-vegetated ditch or gully that can transport nutrients, specifically manure nutrients and/or sediment-attached nutrients, directly to a perennial or intermittent stream, lake or pond. The required plan information is very similar to current Appendix 8 and includes: 1) Date of Site Evaluation, 2) Statement Documenting Areas Evaluated During Site Evaluation, 3) Identification of Critical Runoff Problem Areas, and 4) BMPs to Address Critical Runoff Problem Areas.

The “Date of Site Evaluation” by the planner should be self-explanatory. Again, a concurrent evaluation by the planner and reviewer is highly recommended.

Language in the next section of the appendix, “Statement Documenting Areas Evaluated During Site Evaluation”, should indicate that specific areas of the operation were evaluated, such as: “Fields 1, 3, 4 and 7 adjacent to the stream corridor of Little Muddy Run were evaluated.”

Next, “Identification of Critical Runoff Problem Areas” should also be field-specific, such as: “A gully in the southwest corner of field 3 has the potential to discharge nutrients and sediment directly into Little Muddy Run.” If no CRPAs were

identified, a statement is still required, such as: “No CRPAs were identified.”

In the last section of Appendix 9, “BMPs to Address Critical Runoff Problem Areas” must be identified, such as: “A grassed waterway will be installed to address the gully in the southwest corner of field 3.” If no CRPAs were identified, simply enter “Not applicable” or “N/A.”

Again, if you have listed required BMPs in Appendix 9, they must also be carried forward to the list of required BMPs in the NMP Summary.

In closing, farm and field-specific information related to Manure Management and Stormwater Control practices are an integral and important part of nutrient management planning. If the nutrient management plan is to address all potential areas of water quality impairment, planner and reviewer attention to this detailed evaluation is critical.

Bill Clouser
Nutrient Management Program Supervisor
State Conservation Commission

Manure Stacking Standards

A new supplement to the Nutrient Management Act Technical Manual, addressing manure stacking criteria has been developed by the Act 38 program. These criteria need to be adhered to by Act 38 farms and their importers. These standards were developed through the work of the Act 38 interagency group. Various draft versions were distributed during this process and should be discarded and be replaced by this official version.

Please do not just copy the language in this document directly into nutrient management plans. If a plan is to use field stacking of manure, identify which of these criteria are necessary to write out in the plan and only include that information in the plan. Identification on the map of where field stacking is allowable for the operation will address a number of the criteria in the document, without having to write that information out in the plan.

Doug Goodlander
Director of Nutrient Management Program
State Conservation Commission

New Status Review Form Released

After considerable time and effort by a number of individuals involved with the PA Nutrient Management Program, an updated version of the status review form is now available for use. The form has been expanded from one page to two and is a much more comprehensive tool that should prove more meaningful to the farmer and the conservation district specialist performing the reviews.

The new form should also be more useful for monitoring program compliance. The expanded question list should clearly identify items that an operator needs to improve upon to remain in compliance. One item that arose during the development of this form was the need for an operator’s signature verifying that they were present at the site visit. Note that the signature does not signify guilt or agreement with all report findings.

Please begin using the new status review form effective immediately. You can access the form on the Nutrient Management Website (<http://panutrientmgmt.cas.psu.edu/>) in the “Planning Tools & Resources” section under “Other Planning Resources.”

Jamie Ulrich
Nutrient Management Program Coordinator – Northwest
State Conservation Commission

Informative Manure Website

The Livestock and Poultry Environmental Learning Center is a significant source of information on environmental issues related to livestock and poultry. The “Animal Manure Management” section (<http://www.extension.org/animal+manure+management>) was recently updated to better present this information. It well worth taking some time and exploring what is available there.

The Livestock and Poultry Environmental Learning Center also coordinates monthly webcasts on timely topics related to nutrient and manure management. These webcasts are easy to access and very well conducted. Check out upcoming webcasts at: http://www.extension.org/pages/Upcoming_Webcasts.

Jerry Martin
Penn State Cooperative Extension
Nutrient Management Education Program

Odor Management Program Ready to Begin

The State Conservation Commission anticipates the Facility Odor Management regulations under Act 38 of 2005 will be published as 'final' in the Pa Bulletin in early December 2008. The regulations will become effective 90 days after publication which means the program will go into effect sometime in early March 2009. Under the Facility Odor Management regulations, certain agricultural operations will be required to develop and implement an odor management plan (OMP). Only CAOs or CAFOs with new animal housing or manure storage facility construction, or construction related to expanded portions of existing facilities will be regulated. In both cases, this only applies to construction started after the effective date of the regulations. Just as the Nutrient Management Program accepts voluntary participation from non-regulated animal agricultural operations, the Odor Management Program will also accept non-regulated animal agricultural operations as participating Volunteer Agricultural Operations (VAOs). An OMP will address the potential for impacts from the offsite migration of odors from these planned operations.

The development of an OMP will include the use of an Odor Site Index (OSI). The OSI was approved by the State Conservation Commission as the preferred evaluation methodology used for the assessment of potential impacts of off-site migration of odors and determining the types of odor management best management practices that may be included in an OMP. The OSI evaluation methodology is a similar approach to that of the P-Index in the Nutrient Management Program. The Commission will review OMPs to assure a plan complies with planning criteria established in the Facility Odor Management regulations and will take action on the plans submitted for review. County conservation districts will not be delegated review and approval authority of OMPs for the fore-seeable future. Questions concerning the Odor Management Program may be directed to Karl Dymond, Odor Management Program Coordinator, State Conservation Commission: (570) 836-2181 ext. 3030; kdymond@state.pa.us. Also, planning resources will be available on the Commission's website in the Odor Management Program section.

Similar to the Nutrient Management Act program, OMPs must be developed by a certified odor management specialist. Persons currently holding a valid 'Commercial' Nutrient Management Specialist certification issued by PA Department of Agriculture cannot develop an OMP without first becoming certified under the separate Odor Management Certification Program. Persons interested in developing an OMP must obtain a 'Commercial' Odor Management Specialist certificate through the Odor Management Specialist Certification Program administered by PDA. The certification program will be conducted similar to the Nutrient Management Specialist Certification Program including the successful completion of training and examination requirements, demonstration of odor management planning abilities through plan requirements and maintenance of continuing education credits. Farmers may also become certified to develop an OMP for their operation. However, a certification program for farmers is currently not available.

Since the Commission will be reviewing and taking action on all submitted OMPs, certification training programs will only be offered to private sector consultants for "commercial" certification in order to write OMPs under the program. Commercial Nutrient Management Specialists were sent a notification from the PDA regarding upcoming Odor Management Specialist Certification training opportunities. The certification training programs are only intended for private sector consultants interested in becoming certified to develop OMPs. Certification training for conservation districts staff will be developed if and when the Commission delegates authority for plan review and approval to county conservation districts. If you are a 'commercial nutrient management specialist and did not receive the notification, please contact Michael Aucoin at 717-772-5218 or maucoin@state.pa.us.

Johan Berger
Section Chief
PDA Nutrient & Odor Management Programs