



## Use of the Swine Opportunity Checklist in Feed Management Plan Development

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### Disclaimer

This fact sheet reflects the best available information on the topic as of the publication date.

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Additional information can be found at <http://www.puyallup.wsu.edu/dairy/nutrient-management/publications.asp>. This project is affiliated with the Livestock & Poultry Environmental Learning Center

<http://www.extension.org/animal+manure+management>



**USDA** United States  
Department of  
Agriculture

**NRCS**  
Natural  
Resources  
Conservation  
Service

### Introduction

This fact sheet has been developed to support the implementation of the Natural Resources Conservation Service (NRCS) Feed Management 592 Practice Standard. The Feed Management 592 Practice Standard was adopted by NRCS in 2003 as another tool to assist with addressing resource concerns on livestock and poultry operations. Feed management can assist with reducing the import of nutrients to the farm and reduce the excretion of nutrients in manure.

The NRCS has adopted a practice standard called Feed Management (592) and is defined as “managing the quantity of available nutrients fed to livestock and poultry for their intended purpose”. The national version of the practice standard can be found in a companion fact sheet entitled “An Introduction to Natural Resources Feed Management Practice Standard 592”. Please check in your own state for a state-specific version of the standard.

The national Feed Management Education team has developed a systematic 5-step development and implementation process for the Feed Management Practice Standard. A complete description of the 5-steps can be found in a companion fact sheet entitled “Five Steps to the Development and Implementation of a Feed Management Plan”.

The second step of this process focuses on identifying the conditions where the practice applies and making an initial assessment of the opportunity for the full development of a Feed Management Plan (FMP). Key participants at step 2 would be the producer, the nutrient management planner, and NRCS staff.

The conditions where the practice applies as noted in the NRCS 592 standard include:

- 1) Whole farm imbalance
- 2) Soil nutrient build-up
- 3) Land base not large enough, or
- 4) Seeking to enhance nutrient efficiencies.

A variety of state-specific tools and tests could be used to determine that conditions 1- 4 might exist.

After defining the condition(s) for use of the 592 standard, an opportunity checklist (see pages 4-6) is then used to make an initial assessment of developing a complete feed management plan.

The Opportunity Checklist is designed to determine the relative opportunity for feed management to impact Whole Farm Nutrient Management. The Opportunity Checklist is the first step in making a decision on whether to complete a FMP.

The checklist is meant to be used as an initial, quick, *on-farm* assessment tool. If the decision is made to complete a FMP, numerous additional feed management practices will be assessed in more detail with the use of the Feed Management Plan Checklist.

The items shown in the Opportunity Checklist are the management practices which have the greatest opportunity for feed management to impact Whole Farm Nutrient Management. The 'Benefit to the Environment' column provides the possible impact the practice could have on whole farm nutrient management.

If one or more of the Opportunity Checklist items are noted in the category of "moderate or lots of opportunity for improvement", then the next evaluation step should be completed: Economic Evaluation (manure transport vs feed management change) or Swine FMP Checklist.

The Opportunity Checklist is organized to first identify the resource concerns. These concerns are generally identified by a nutrient management planner. The resource concerns to consider are:

- Soil Condition – Animal Manure and other organics (nitrogen and phosphorus nutrient levels from applied animal manure and other organics restrict desired use of the land).
- Ground Water Quality - Excessive Nutrients and Organics in Groundwater (pollution from natural or human induced nutrients such as N, P, and S - including animal and other wastes - degrades groundwater quality).
- Surface Water Quality - Excessive Nutrients and Organics in Surface Water (pollution from natural or human induced nutrients such as N, P, and S - including animal and other wastes - degrades surface water quality).

If one or more of these conditions exist on an operation, then a FMP should be considered by completing the Opportunity Checklist.



## **Swine Opportunity Checklist: Identify resource concerns and/ or conditions where practice applies and assess the Opportunities**

Feeding management is one of six components of a Comprehensive Nutrient Management Plan (CNMP) as defined by the Natural Resource Conservation Service. Feeding management as part of a CNMP should be viewed as a “consideration” and not a “requirement” as some practices will not be economical on some swine operations.

### Resource concerns and the conditions where practice applies

Field specific resource concerns that may be impacted by feed management (but not limited to) are soil and water quality. For example, nutrients may build-up in the soil or leach into ground water due to manure application. Feed management practices with or without several other practices may reduce the volume and/or nutrient content of manure. If one or both of these resource concerns exist on an operation, then a Feed Management Plan (FMP) should be considered by completing the Opportunity Checklist.

Conditions where a FMP practice applies are whole farm imbalance, soil build-up of nutrients, land base not large enough, or operation seeking to enhance nutrient efficiencies. Feed management practices with or without several other practices may reduce the volume and/or nutrient content of manure and may be an effective approach to minimizing the import of nutrients to the farm. If one or more of these conditions exist on an operation, then a FMP should be considered by completing the Opportunity Checklist.

### Opportunity Checklist

The Opportunity Checklist is designed to determine the relative opportunity for feed management to impact Whole Farm Nutrient Management. The Opportunity Checklist is the first step in making a decision on whether to complete a FMP. The checklist is meant to be used as an initial, quick, *on-farm* assessment tool. If the decision is made to complete a FMP, numerous additional feed management practices will be assessed in more detail.

The items shown in the Opportunity Checklist are the management practices which have the greatest opportunity for feed management to impact Whole Farm Nutrient Management. The ‘Benefit to the Environment’ column provides the possible impact the practice could have on whole farm nutrient management. If one or more of the Opportunity Checklist items are noted in the category of "moderate or lots of opportunity for improvement", then the next evaluation step should be completed: Economic Evaluation (manure transport vs feed management change) or FMP Checklist.



## Swine Feed Management Opportunity Checklist: Addressing Resource Concerns

### Identify resource concerns and/or where conditions apply to implement feed management practices:

#### Resource Concern

- Soil Condition:** *Animal Manures and Other Organics*  
*Nutrient levels and imbalances from applied animal manure, wastewater, and other organics restrict optimal productivity of the land or exceed the soil capacity to retain nutrients.*
- Water Quality:** *Excessive Nutrients and Organics in Surface and Groundwater*  
*Pollution from natural or human induced nutrients such as N, P, and organics (from animal and other sources) degrades surface and groundwater quality.*

#### Conditions Where Practice Applies

- Whole farm imbalance:** Confined pork operations with a whole farm nutrient imbalance, with more nutrients imported to the farm than are exported and/or utilized by cropping programs.
- Soil nutrient build-up:** Confined pork operations that have a significant build up of nutrients in the soil due to land application of manure.
- Land base not large enough:** Confined pork operations that apply manure to their land but do not have a land base large enough to allow nutrients to be applied at rates recommended by soil test and utilized by crops in the crop rotation.
- Pork operations seeking to enhance nutrient efficiencies**

## Pork Opportunity Checklist:

<b>Issue</b>	<b>Little opportunity for improvement</b>	<b>Some opportunity for improvement</b>	<b>Moderate opportunity for improvement</b>	<b>Lots of opportunity for improvement</b>	<b>Benefit to the environment</b>
How many phases is the grow-finish ration split into?	8 or more	4 to 5	2 to 3	1	N, NH <sub>3</sub> , P
Are pigs fed separately based on sex?	Yes		No		N, NH <sub>3</sub> , P
Are proper feed processing methods used to maximize nutrient availability?	Good feed manufacturing practices and processing systems are being followed	–	–	Inappropriate processing of feed sources (e.g., under grinding of feedstuffs or excessive high temperatures if pelleting)	N, NH <sub>3</sub> , P
Are quality control procedures used in feed manufacturing?	Scales regularly checked and calibrated. Feedstuffs regularly checked for amino acids and total P	Scales regularly checked and calibrated. Feedstuffs regularly checked for crude protein	Scales and calibrations of the system checked infrequently	No, scales and feed ingredients are not checked	N, NH <sub>3</sub> , P
Are ingredients or diets analyzed for nutrient composition?	Yes, once a month or more especially with new feed sources	Quarterly	Yearly	Not analyzed	N, NH <sub>3</sub> , P
Are ingredients screened for ant-nutritional factors?	Only feedstuffs low in ANF are used	When possible, feedstuffs low in ANF are used	No consideration given to ANF content	Feedstuffs high in ANF are used	N, NH <sub>3</sub>

<b>Issue</b>	<b>Little opportunity for improvement</b>	<b>Some opportunity for improvement</b>	<b>Moderate opportunity for improvement</b>	<b>Lots of opportunity for improvement</b>	<b>Benefit to the environment</b>
Are pigs being fed close (5%) to available P requirements?	Yes			No	P
Is phytase with reduced supplemental P levels in the diet used?	Yes, nutritional values are adjusted with a reduction of supplemental P	Yes, but nutritional values are not adjusted accordingly	Sometimes	No	P
Are pigs being fed close (5%) to amino acid (N) requirements?	Yes			No	N, NH <sub>3</sub>
Are synthetic amino acids utilized?	The first 3 or 4 limiting amino acids are utilized as synthetics (lysine, threonine, methionine, tryptophan)	Only two synthetic amino acids used	Only the first limiting amino acid utilized (lysine)	Synthetic amino acids not utilized	N, NH <sub>3</sub>
Are diets being formulated utilizing digestible amino acids?	For all amino acids	For lysine, threonine and methionine only	For lysine only	No	N, NH <sub>3</sub>
Are other proven enzymes/production enhancers used to increase nutrient efficiency? (ex. Paylean, Zn, acids, amylase, protease)	Yes, several		Yes, some	No	N, NH <sub>3</sub> , P
How often are feeder adjustments checked?	Daily	Weekly	Every two weeks or more	Never	N, NH <sub>3</sub> , P and reduced manure generation
How often is the water system checked?	Daily	Weekly	Every two weeks or more	Never	N, NH <sub>3</sub> , P and reduced manure generation
Does the watering system minimize water wastage?	Wet/dry feeders used with supplemental cup drinkers	Cups waterers or bowl drinkers	Swinging nipples used	Standard nipples are used	N, NH <sub>3</sub> , P and reduced manure generation

\*NH<sub>3</sub>: Ammonia, N: Nitrogen, P: phosphorus

\*\* ANF: anti-nutritional factor – a number of factors naturally in feeds that have negative effects on digestive and metabolic processes in the animal.

## Project Information

Detailed information about training and certification in Feed Management can be obtained from Joe Harrison, Project Leader, [jhharrison@wsu.edu](mailto:jhharrison@wsu.edu), or Becca White, Project Manager, [rawhite@wsu.edu](mailto:rawhite@wsu.edu).

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