PURDUE UNIVERSITY PURDUE EXTENSION

Linking Feed Management to Whole Farm Nutrient Management – FNMP$

Swine Section

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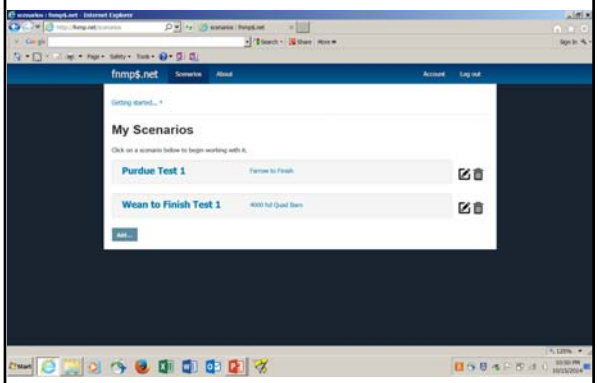
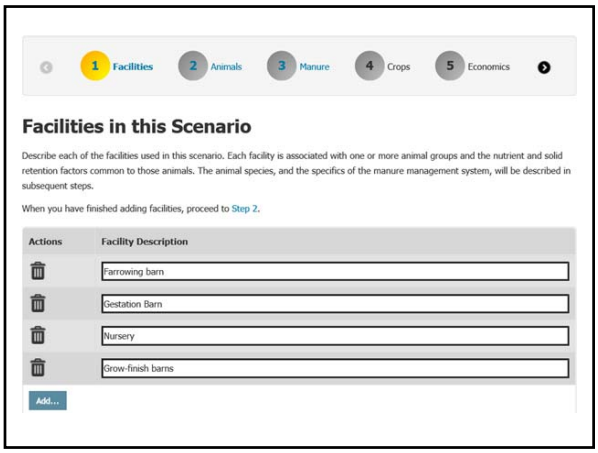
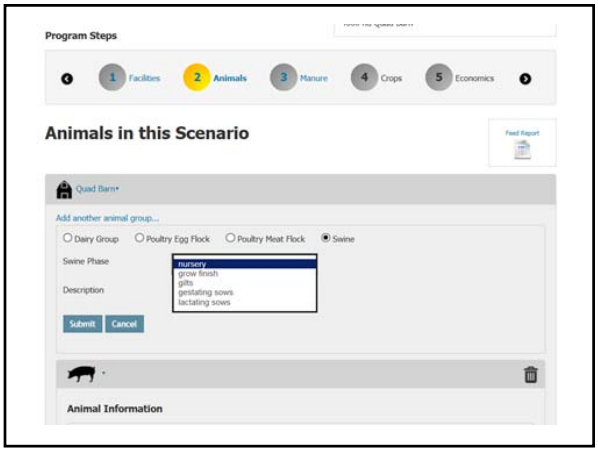
Swine Options

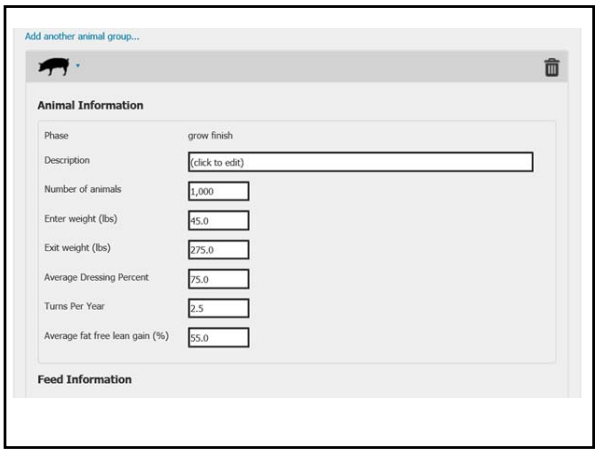
- Nursery
- Grow-Finish
- Gestation
- Lactation
- Gilt Isolation
- Wean-to-Finish

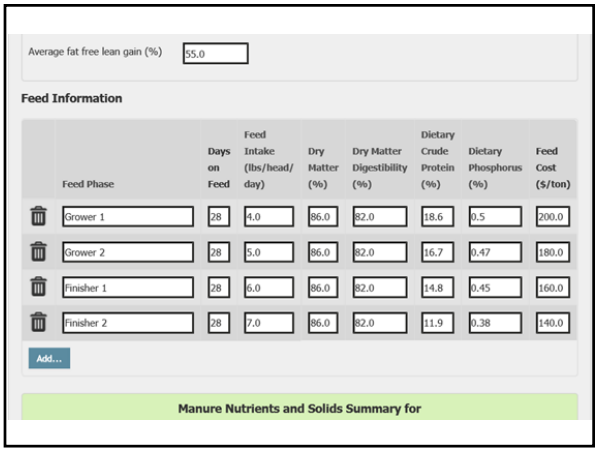


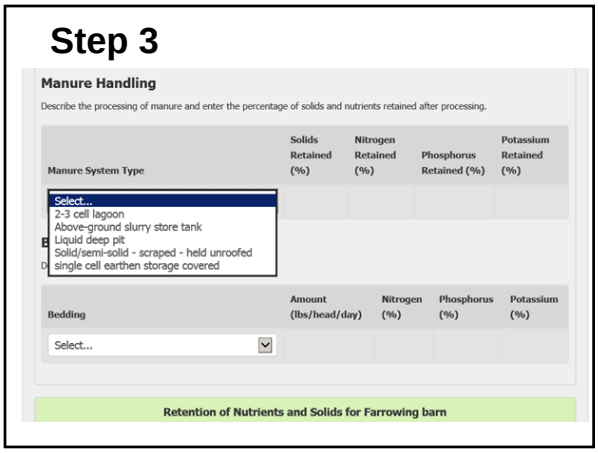

1 Facilities
2 Animals
3 Manure
4 Crops
5 Economics
Facilities in this Scenario
Describe each of the facilities used in this scenario. Each facility is associated with one or more animal groups and the nutrient and solid retention factors common to those animals. The animal species, and the specifics of the manure management system, will be described in subsequent steps.
When you have finished adding facilities, proceed to Step 2.
Actions
Facility Description
Farrowing barn
Gestation Barn
Nursery
Grow-finish barns
Add...


Program Steps
1 Facilities
2 Animals
3 Manure
4 Crops
5 Economics
Animals in this Scenario
Quad Barn
Add another animal group...
Dairy Group
Poultry Egg Flock
Poultry Meat Flock
Swine
Swine Phase
Description
nursery
grow-finish
gilts
gestating sows
lactating sows
Submit
Cancel
Animal Information


Farrowing barn
Gestation Barn
Add another animal group...
Nursery
Add another animal group...
Grow-finish barns
Add another animal group...


Add another animal group...
Animal Information
Phase
grow finish
Description
(click to edit)
Number of animals
1,000
Enter weight (lbs)
45.0
Exit weight (lbs)
275.0
Average Dressing Percent
75.0
Turns Per Year
2.5
Average fat free lean gain (%)
55.0
Feed Information


Average fat free lean gain (%)
55.0
Feed Information
Feed Phase
Days on Feed
Feed Intake (lbs/head/day)
Dry Matter (%)
Dry Matter Digestibility (%)
Dietary Crude Protein (%)
Dietary Phosphorus (%)
Feed Cost ($/ton)
Grower 1 28 4.0 86.0 82.0 18.6 0.5 200.0
Grower 2 28 5.0 86.0 82.0 16.7 0.47 180.0
Finisher 1 28 6.0 86.0 82.0 14.8 0.45 160.0
Finisher 2 28 7.0 86.0 82.0 11.9 0.38 140.0
Add...
Manure Nutrients and Solids Summary for


Step 3
Manure Handling
Describe the processing of manure and enter the percentage of solids and nutrients retained after processing.
Manure System Type
Solids Retained (%)
Nitrogen Retained (%)
Phosphorus Retained (%)
Potassium Retained (%)
Select...
2-3 cell lagoon
Above-ground slurry store tank
Liquid deep pit
Solid/semi-solid - scraped - held unroofed
single cell earthen storage covered
Bedding
Amount (lbs/head/day)
Nitrogen (%)
Phosphorus (%)
Potassium (%)
Select...
Retention of Nutrients and Solids for Farrowing barn

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Impacts on Nutrient Excretion and Land needs for Swine

- Dietary formulation
  - N, P, K, DM
- Performance
- Storage Structure
- Crop system

Effect of Phase Feeding on Finishing Pig N Excretion

1 Phase	100%
2 Phases	90.5
3 Phases	85.2
3 Phases + AA	53.4

Increased Energy Density in Swine Grow-Finish Diets

- Improved feed efficiency by 5-15%
  - Reducing feed needs by up to 100 lb/pig (15%)
  - Each 0.1 improvement reduces feed needs by 21 lb/pig and reducing DM, N, and P excretion
- Reduced days to market by 5-10 days
  - Reducing Manure excretion by 4-9%

Feed Processing Effects on Digestibility and Feed Efficiency in Nursery Pigs

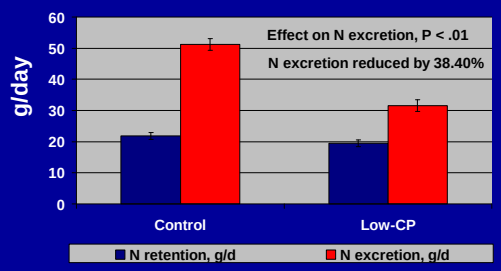
Digestibility

Particle Size	DM	CP	Energy	F:G
<700	86.1	82.9	85.8	1.74
700-1,000	84.9	80.5	84.4	1.84
>1,000	83.7	79.1	82.6	1.92

Effect of DDGS on Nutrient Excretion in Pigs

DDGS	0%	10%	20%	30%	% Chg
Grower, g/d					
N Intake	21.2	25.9	24.0	28.5	
N Excr	9.9	10.5	10.9	18.7	189%
P Intake	5.4	5.0	5.6	4.9	
P Excr.	2.5	2.0	2.2	2.4	--
Finisher, g/d					
N Intake	35.4	44.1	42.6	46.3	
N Excr.	18.1	21.0	24.5	31.8	176%
P Intake	9.0	8.6	10.0	8.0	
P Excr.	4.5	3.3	4.1	3.8	--

High Synthetic AA use - Effect on N Retention and N Excretion



Paylean Use in Swine

- Increased ADG (10%) and lean gain (35%)
- Feed increased CP level
- Days to market decreased by 4
- Decreased Manure production 5.1 gal/pig (4.5% over whole GF period)
- Decreased N excretion by 158 g/pig (9%)
- Decrease in P excretion by 35 g/pig (5%)
- Ammonia emission was reduced by 21%
- A low CP + AA + Paylean diet reduced N excretion by 36%

DeCamp, et al 2000; Hankins, et al, 2000

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Questions?