PennState
College of Agricultural Sciences

Virginia Ishler
Extension Dairy Specialist

NAQSAT – DAIRY EXAMPLE

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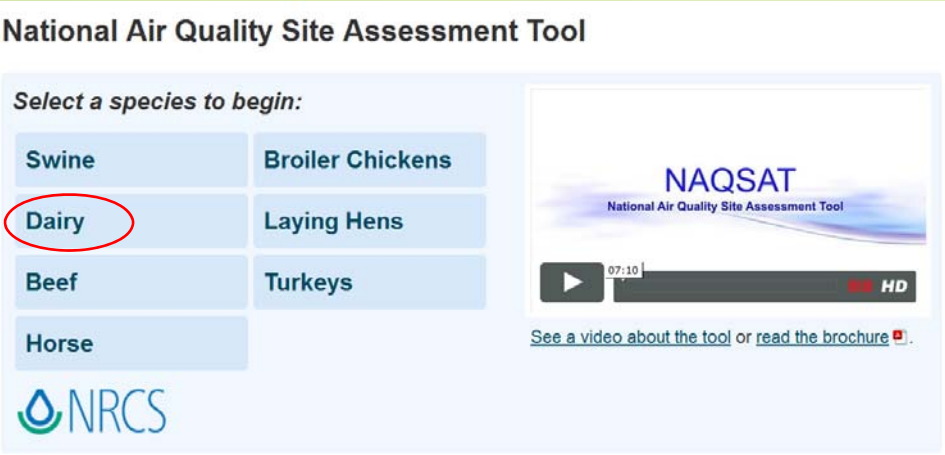
http://naqsat.tamu.edu/



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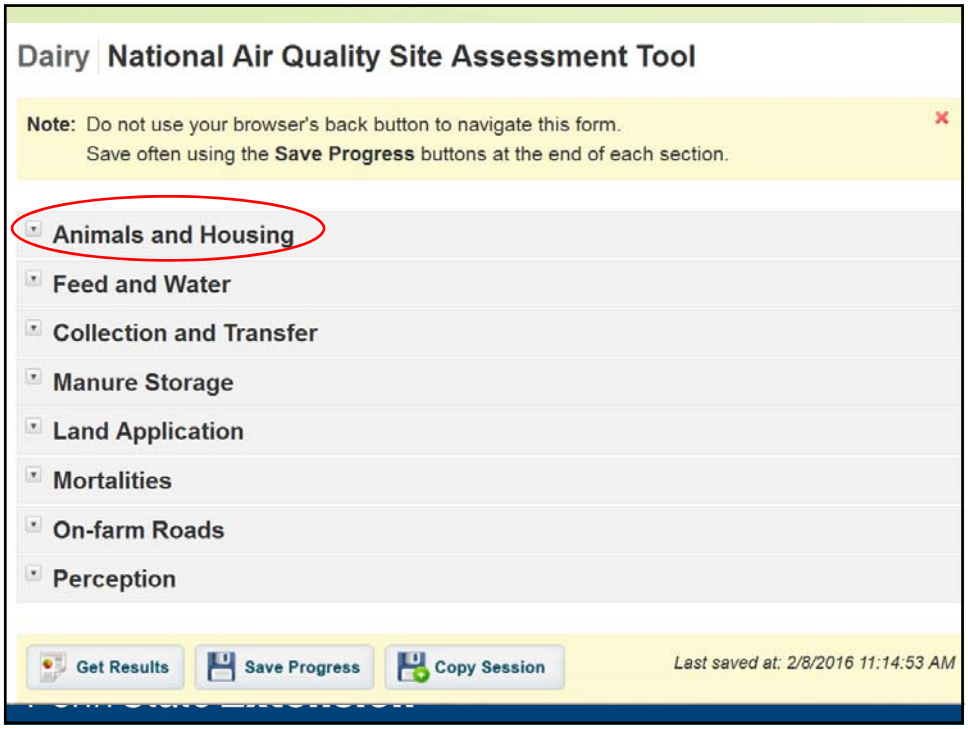
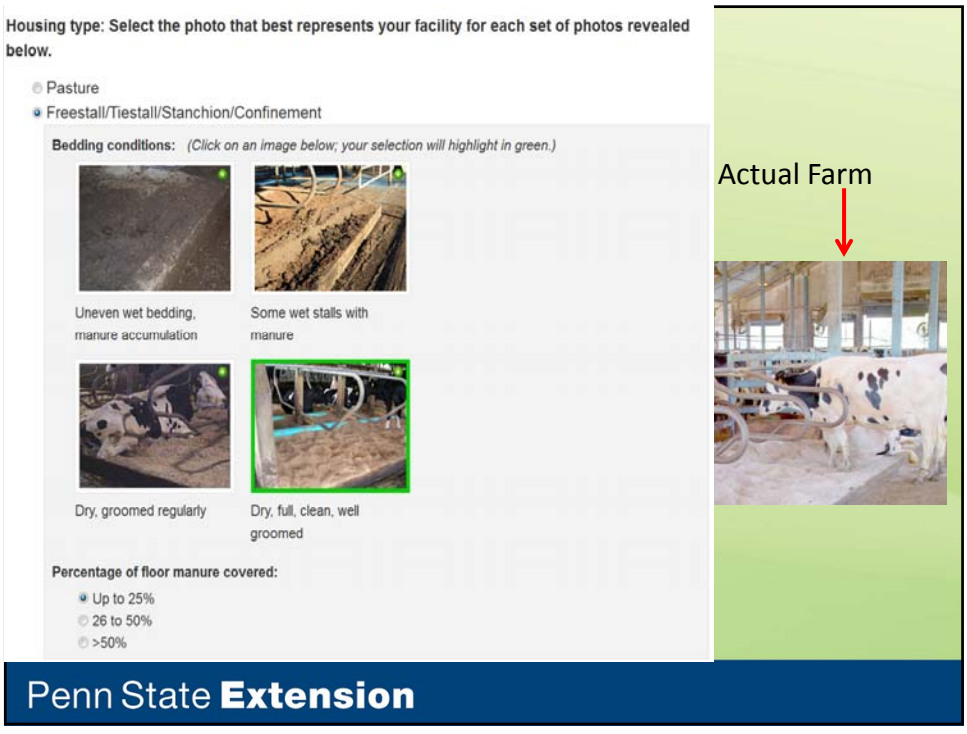

Dairy National Air Quality Site Assessment Tool
Note: Do not use your browser's back button to navigate this form.
Save often using the Save Progress buttons at the end of each section.
Animals and Housing
Feed and Water
Collection and Transfer
Manure Storage
Land Application
Mortalities
On-farm Roads
Perception
Get Results
Save Progress
Copy Session
Last saved at: 2/8/2016 11:14:53 AM


Housing type: Select the photo that best represents your facility for each set of photos revealed below.
Pasture
Freestall/Tiestall/Stanchion/Confinement
Bedding conditions: (Click on an image below; your selection will highlight in green.)
Uneven wet bedding, manure accumulation
Some wet stalls with manure
Dry, groomed regularly
Dry, full, clean, well groomed
Percentage of floor manure covered:
Up to 25%
26 to 50%
>50%
Actual Farm
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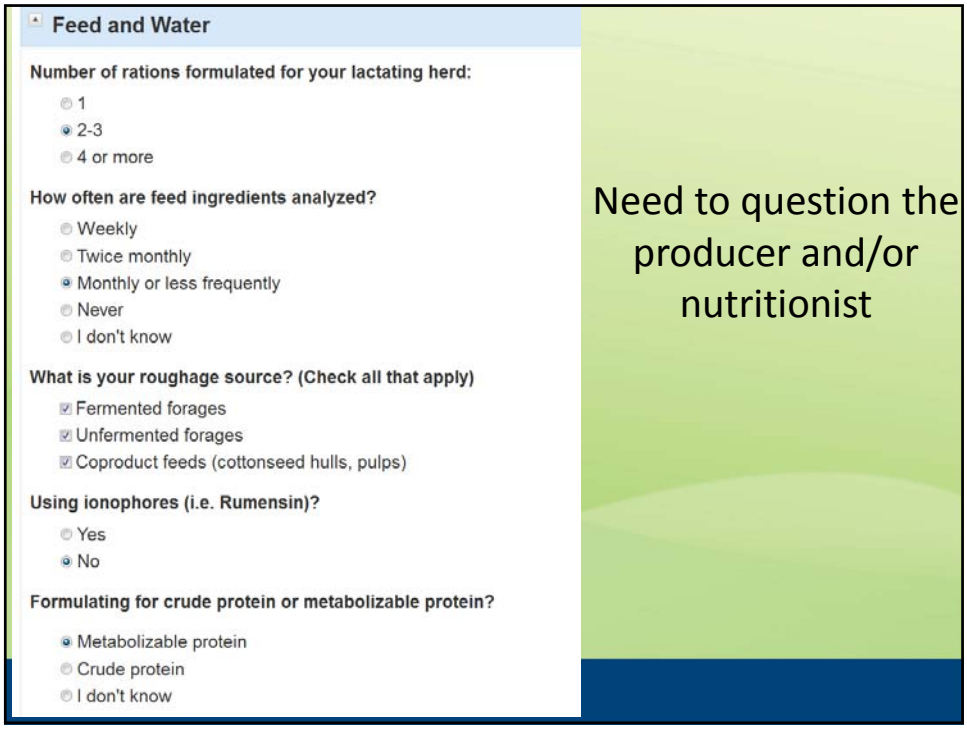

Feed and Water, cont.

What percent of distillers grains are fed (including dry and wet sources as a % of diet on dry basis)?

- 0
- 1-10%
- 10-20%
- 20-40%
- > 40%

Do you notice a sulfur odor (rotten eggs) in your water?

- Yes
- No

What is your diet fat content on a dry matter basis?

- < 5%
- 5-8%
- > 8%
- I don't know

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Feed and water, cont.

What ration inputs are processed onsite, not including crop harvest? (Check all that apply)

- ☑ Roughage
  - **Are you doing anything to try to control dust when processing?**
    - ○ Yes
    - ◉ No
- ☑ Grain grinding/processing
  - **Are you doing anything to try to control dust when processing?**
    - ○ Yes
    - ◉ No
- ☑ Other products (i.e. Total Mixed Ration)
  - **Are you doing anything to try to control dust when processing?**
    - ○ Yes
    - ◉ No

How are fermented and wet feeds (hays, grains, co-products) stored onsite? (Check all that apply)

- ☑ Upright silo
- ☐ Uncovered bunker/piles
- ☑ Covered bunker/piles
- ☑ Commodity barn
- ☑ Bags/wraps
- ☐ No fermented feeds onsite

Feed and water, cont.

How is water supplied to your animals in the freestall/tiestall/stanchion/confinement facility?

- ○ Cups, bowls, or bells
- ◉ Stock tank or circulating tank
- ○ Overflow waterers (seasonal and run continuously)

How often are all waterers checked then repaired for leaks?

- ○ Daily
- ◉ At least weekly
- ○ Weekly or less frequently

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Collection and Transfer

Which best describes your manure handling system? (Check all that apply)

- ☐ Flush
- ☑ Scrape/vacuum

How often do you scrape or vacuum?

- ○ Less than once daily
- ○ Once daily
- ◉ 2 to 3 times daily
- ○ More than 3 times daily

Which photo best represents the typical floor conditions half way between cleanings? *(Click on an image below; your selection will highlight in green.)*

complete manure coverage, deep manure, cows splash when walking

majority manure coverage, minimal splashing

some manure accumulation

minimal manure coverage

Actual Farm

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Collection and transfer, cont.

Do you transfer the majority of manure from housing to storage using an open or closed channel?

- ○ Open conduit or channel
- ○ Closed conduit or pipe or channel
- ◉ Does not apply

Is the majority of liquid manure typically loaded into the storage above or below the surface?

- ◉ Above
- ○ Below

What method is used to transfer the majority of manure from storage to the field?

- ○ Pipe, closed channel, hose or drag hose
- ○ Open channel
- ◉ Tank-type spreader or tanker

If a truck or spreader is used to transport manure to fields, is the manure transferred to the land application equiment in a closed transfer system?

- ○ Yes
- ○ No
- ◉ Not applicable

- ○ Open spreader or truck
- ○ Does not apply

Is the manure spilled at the loading station/area?

- ◉ Yes

Is it tracked offsite?

- ○ Yes
- ◉ No

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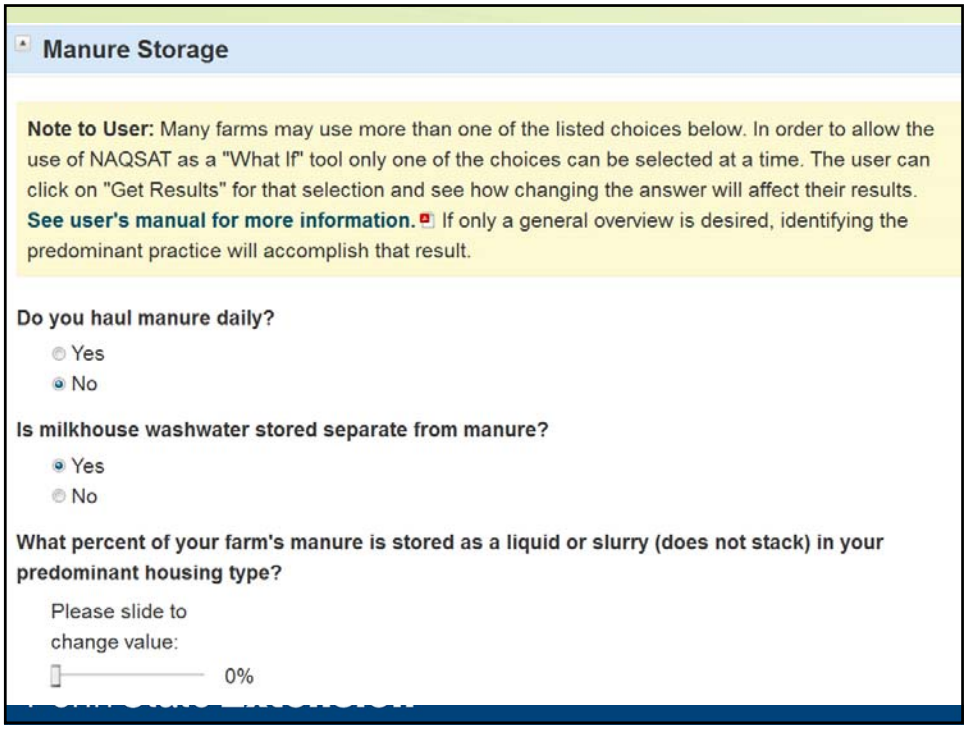


Manure Storage

Note to User: Many farms may use more than one of the listed choices below. In order to allow the use of NAQSAT as a "What If" tool only one of the choices can be selected at a time. The user can click on "Get Results" for that selection and see how changing the answer will affect their results. **See user's manual for more information.** If only a general overview is desired, identifying the predominant practice will accomplish that result.

Do you haul manure daily?

- ○ Yes
- ◉ No

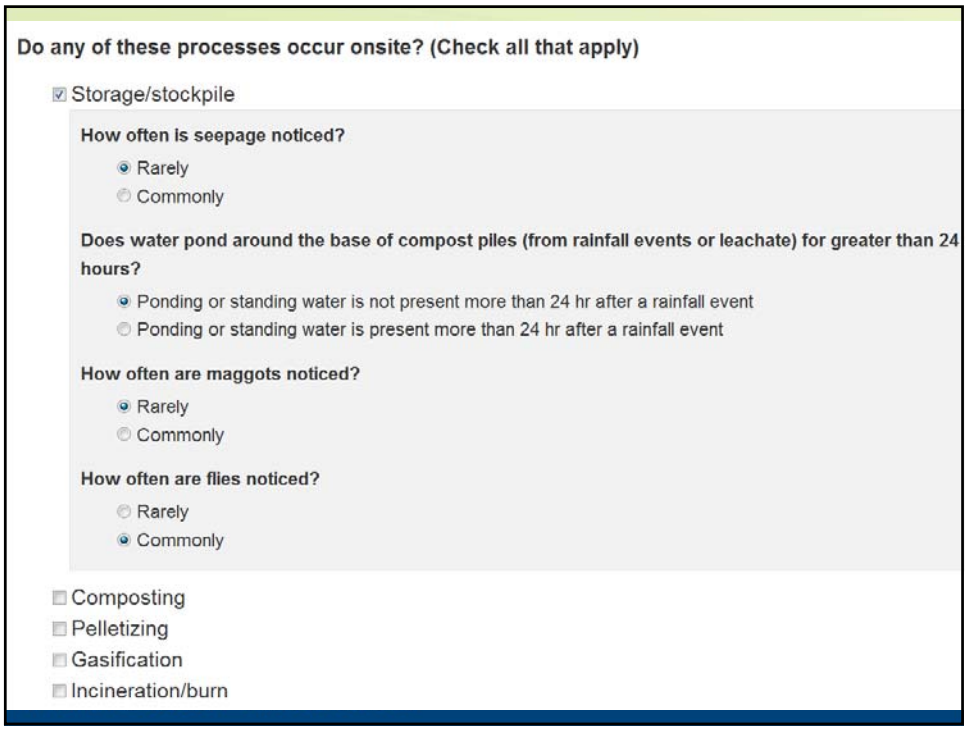
Is milkhouse washwater stored separate from manure?

- ◉ Yes
- ○ No

What percent of your farm's manure is stored as a liquid or slurry (does not stack) in your predominant housing type?

Please slide to change value:

0%



Do any of these processes occur onsite? (Check all that apply)

- ☑ Storage/stockpile

  How often is seepage noticed?

  - ◉ Rarely
  - ○ Commonly

  Does water pond around the base of compost piles (from rainfall events or leachate) for greater than 24 hours?

  - ◉ Ponding or standing water is not present more than 24 hr after a rainfall event
  - ○ Ponding or standing water is present more than 24 hr after a rainfall event

  How often are maggots noticed?

  - ◉ Rarely
  - ○ Commonly

  How often are flies noticed?

  - ○ Rarely
  - ◉ Commonly

- ☐ Composting
- ☐ Pelletizing
- ☐ Gasification
- ☐ Incineration/burn

Land Application

Where does manure go?

- ☐ Moved offsite (sold or given away) directly from the housing
- ☐ Composted or stockpiled, then sold or given away
- ☐ Year-round pasture-based
- ☑ Land applied

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Land apply, cont.

☑ Solid

How long are solids piled, or staged, on the field prior to application?

- ○ < 3 days
- ◉ >= 3 days

Are solids covered?

- ○ Yes
- ◉ No

Is there ponded leachate?

- ○ Yes
- ◉ No

○ Directly land applied; not piled or staged

Are the majority of your solids composted prior to land application?

- ○ Yes
- ◉ No

When are solids incorporated?

- ○ At time of application
- ◉ < 24 hours after application
- ○ 24 hours to 3 days following application
- ○ More than 3 days after application or not incorporated

☑ Liquid

Do you typically... (Select the predominant practice)

- ○ inject?
- ◉ incorporate within 24 hours?
- ○ incorporate 24 hours or greater following application?
- ○ irrigate?
- ○ Surface applied and not incorporated

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Mortalities

Other than during freezing weather, how long before carcasses are picked up or put into the disposal system?

- (•) Within 24 hours of death
- ( ) Within a week of death
- ( ) Less frequently

How is mortality handled? (Check all that apply)

- [x] Managed offsite (such as rendered or landfilled, or offsite composting)
- [ ] Buried onsite
- [ ] Composted onsite

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On-farm Roads

Are unpaved roads used for any of the following activities? (check all that apply)

- [ ] Routine service traffic (feed delivery, milk truck, renderer)
- [x] Less frequent service traffic (manure handling)
- [ ] General transportation (veterinarians, maintenance, nutritionists, managers, employees, farm tours)
- [ ] Does not apply

Unpaved roads are surfaced with: (Check all that apply)

- [ ] Caliche/limestone
- [ ] Unimproved dirt road
- [ ] Washed gravel
- [x] Gravel

Which is the predominant road-surface treatment used?

- ( ) Petroleum products, resins, emulsions as per manufacturer recommendations
- ( ) Salts or hygroscopic materials (e. g., magnesium chloride)
- ( ) Fresh water
- ( ) Holding pond wastewater
- (•) None

Are speed limits strictly enforced, or is speed controlled by passive means (e. g., speed bumps)?

- (•) Speed limits are not present or are not enforced by management
- ( ) Speed limits are enforced by management
- ( ) Speed is controlled by speed bumps or other passive means

On-farm roads, cont.

Do you restrict public access to private roads?

- (•) Yes
- ( ) No

Are most roads lined with windbreaks or shelterbelts?

- (•) No
- ( ) Some or all roads are lined with vegetation

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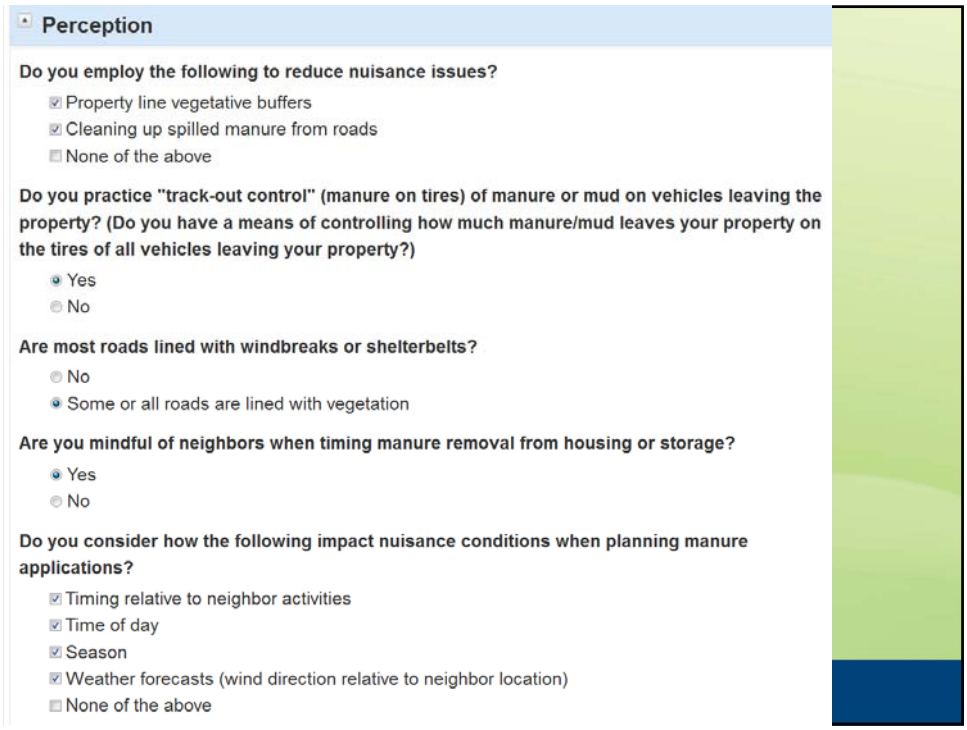


Perception

Do you employ the following to reduce nuisance issues?

- [x] Property line vegetative buffers
- [x] Cleaning up spilled manure from roads
- [ ] None of the above

Do you practice "track-out control" (manure on tires) of manure or mud on vehicles leaving the property? (Do you have a means of controlling how much manure/mud leaves your property on the tires of all vehicles leaving your property?)

- (•) Yes
- ( ) No

Are most roads lined with windbreaks or shelterbelts?

- ( ) No
- (•) Some or all roads are lined with vegetation

Are you mindful of neighbors when timing manure removal from housing or storage?

- (•) Yes
- ( ) No

Do you consider how the following impact nuisance conditions when planning manure applications?

- [x] Timing relative to neighbor activities
- [x] Time of day
- [x] Season
- [x] Weather forecasts (wind direction relative to neighbor location)
- [ ] None of the above

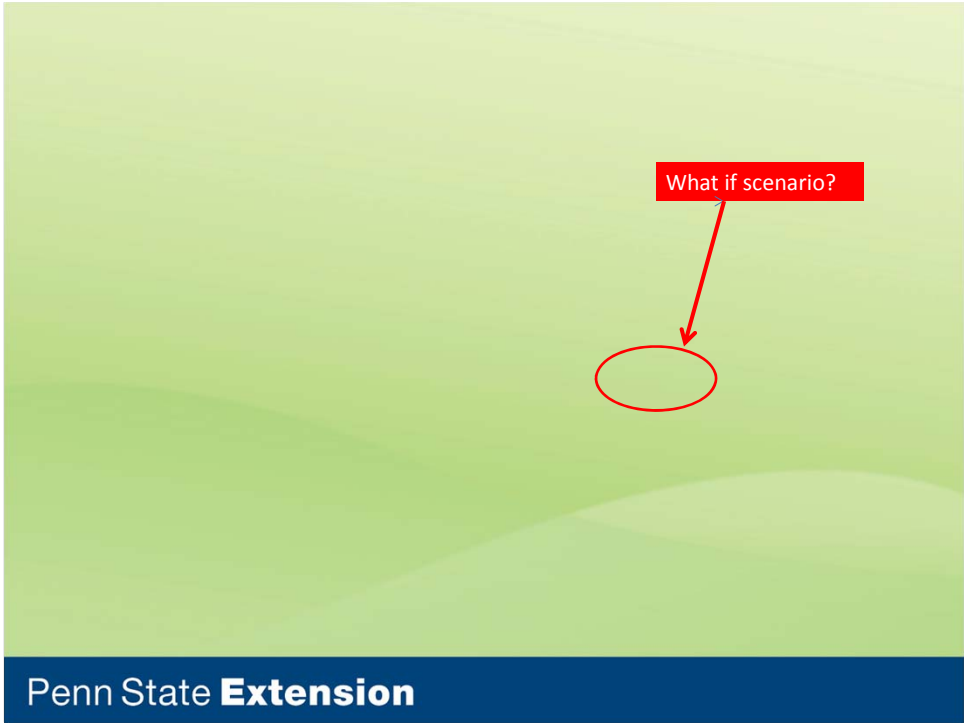
Effectiveness Results:

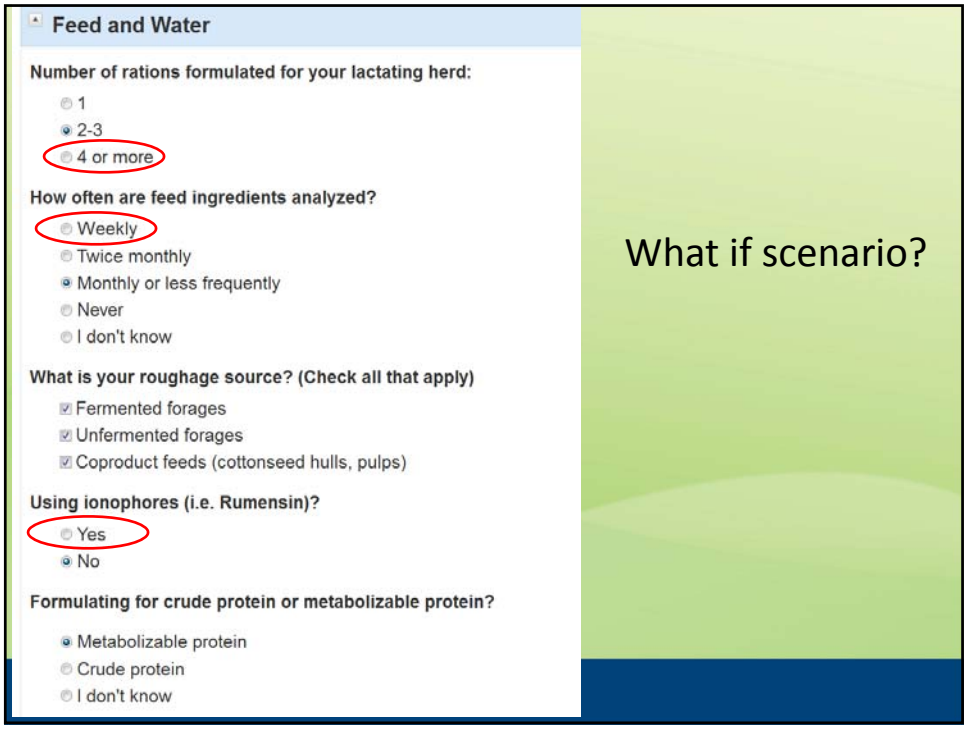
(Close / Go Back)

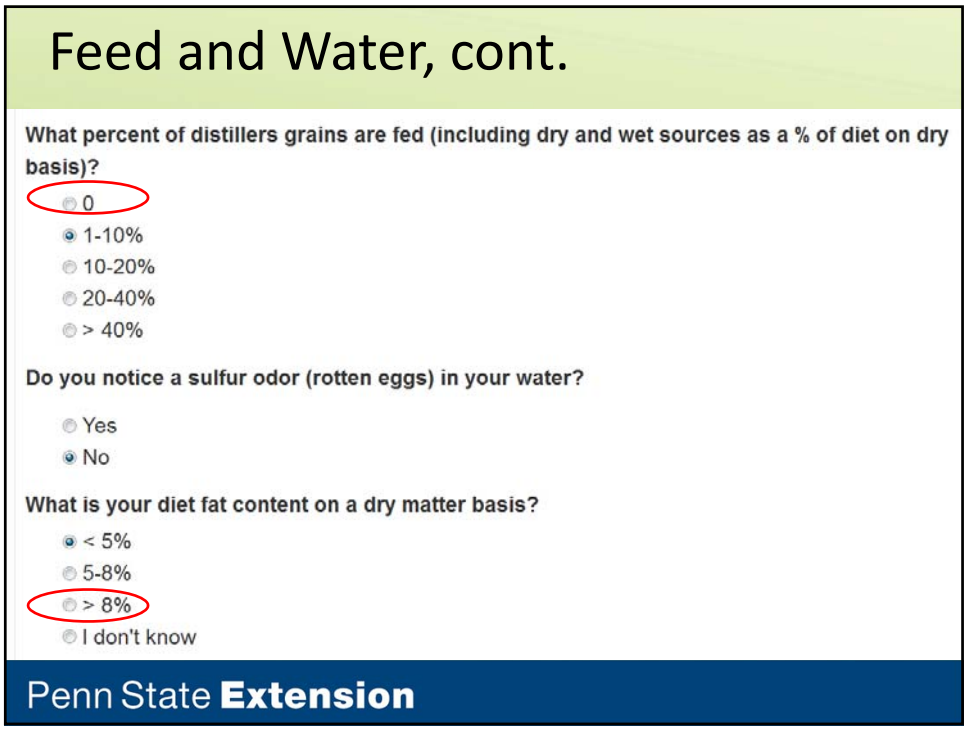
Width of white box identifies room for improvement to reduce emissions within each constituent of concern.
More white area signifies greater opportunities to make changes and reduce air emissions.
Click the box to view practice standards applicable to your scores.

Click on a management category to quickly modify your answers.

Management Category	Odor	Particulate Matter (Dust)	Ammonia (NH_3)	Hydrogen sulfide (H_2S)	Methane (CH_4)	Volatile organic compounds (VOCs)	Nitrous Oxide (N_2O)
Animals and Housing							N/A
Feed and Water							N/A
Collection and Transfer							N/A
Manure Storage							
Land Application							N/A
Mortalities		N/A					N/A
On-farm Roads	*N/A*						
Perception			N/A	N/A	N/A	N/A	N/A




Feed and Water
Number of rations formulated for your lactating herd:
1
2-3
4 or more
How often are feed ingredients analyzed?
Weekly
Twice monthly
Monthly or less frequently
Never
I don't know
What is your roughage source? (Check all that apply)
Fermented forages
Unfermented forages
Coproduct feeds (cottonseed hulls, pulps)
Using ionophores (i.e. Rumensin)?
Yes
No
Formulating for crude protein or metabolizable protein?
Metabolizable protein
Crude protein
I don't know
What if scenario?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No changes

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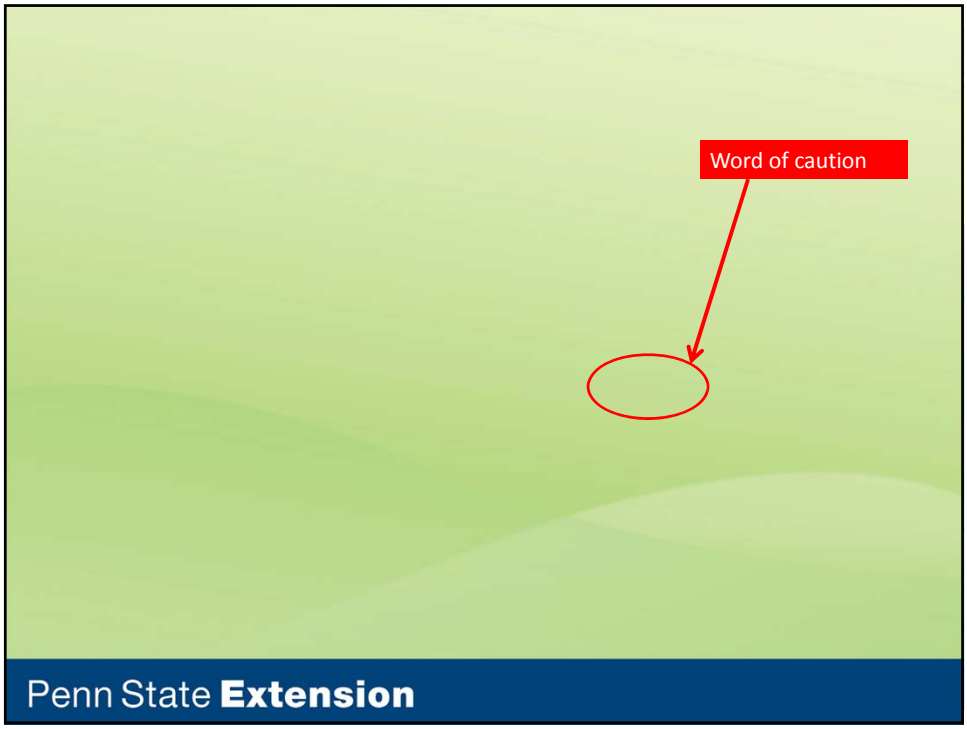

Questions?

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