MANURE MANAGEMENT

The way livestock owners manage animal manure can have a dramatic effect on the quality of surface and groundwater as well as the overall health of your animals. To effectively manage nutrients from manure, livestock owners should evaluate the concentration of animals on the property, the amount and timing of manure applications to crop fields, how manure is stored and the area's soils, slope, precipitation and water table. These and other factors contribute to decisions regarding effective animal waste management and the relationship to the soil, water, air quality, plant health and wildlife habitat—as well as to livestock and human health. This worksheet[1] can help you assess your operation and identify the next steps for successful animal waste management.

STEP 1: Evaluate How Manure is Handled on Your Property

Instructions: Complete the following questions if you own horses, cattle, goats, sheep or other animals. Each of the assessment areas below addresses a different aspect of animal waste management. For each question that relates to your operation, select the statement that best describes practices and conditions on your land.

*1. Do you use a **Nutrient Management Plan**[2] for balanced manure application to meet crop and pasture needs?*

❑ No ❑ Yes

Assess the needs of your operation:

❑ **LOW:** A nutrient management plan exists and the nutrient value of the manure is considered to balance the nutrient needs of the growing crop or pasture.

❑ **MODERATE:** There is no nutrient management plan **OR** nutrients are spread evenly on the available fields during the growing season but there is no accounting system to estimate the nutrients in the manure versus the nutrient needs of the crop.

❑ **HIGH:** Nutrients (manure) are not evenly distributed (i.e. Nutrients (manure) are always applied to the same plot of land regardless of need by the crop or pasture).

Manure Assessment continued →

[1] The questions in the Manure Management Assessment were adapted, with permission, from the University of Nebraska Cooperative Extension publications, EC 98-750-S, EC 98-752-S, EC 98-756-S, EC 98-758-S, EC 98-761-S, Farm*A*Syst (University of Nebraska, Lincoln, Nebraska, July 1998, 16 pages.

[2] A Nutrient Management Plan is an assessment of manure produced on a farm, how much of that manure is appropriate to apply on crops, and how to safely apply, remove or store it.

Manure Assessment *(cont.)*

*2. Do you conduct regular **Soil Tests**?*

❑ No ❑ Yes

Assess the needs of your operation:

❑ **LOW:** Soil tests are conducted every 2 to 4 years.

❑ **MODERATE:** Soil tests are conducted every 5 years.

❑ **HIGH:** Soils tests are conducted either irregularly or not at all.

3. Are you knowledgeable about the nutrient content in manure?

❑ No ❑ Yes

Assess the needs of your operation:

❑ **LOW:** Book values or manure testing is done to estimate nutrient content of the manure and the presence of pathogens and bacteria in the manure is recognized and accounted for in the manure handling system.

❑ **MODERATE:** No manure analysis or book value estimates are done to obtain the nutrient value of the manure but it is recognized that manure contains nutrients.

❑ **HIGH:** Management of manure is not based on awareness of the nutrients that could be used to fertilize plants or pathogens and bacteria that could be harmful to the environment if not managed properly.

4. Do you keep records on manure application to fields?

❑ No ❑ Yes

Assess the needs of your operation:

❑ **LOW:** Records of individual field applications for the past year are available and used in the decision making process of when and where to apply manure.

❑ **MODERATE:** Manure is being evenly distributed over the field(s) but records of manure application are not kept.

❑ **HIGH:** Manure applications are not being made and/or manure is being applied to the same spot year after year.

5. Do you keep records of the application RATE manure is applied to fields?

❑ No ❑ Yes

Assess the needs of your operation:

❑ **LOW:** A good estimate of the manure application rate based on equipment settings is available OR the manure application equipment is calibrated.

❑ **MODERATE:** Manure spreading equipment is available but application rates for manure spreading are not known or estimated.

❑ **HIGH:** Manure applications tend to kill grass or crop OR no manure application equipment is available OR manure tends to accumulate in one area (i.e. manure is never or rarely applied to the field).

Manure Assessment continued →

Manure Assessment *(cont.)*

6. Do you ensure fields are in good condition for manure application?

❑ No ❑ Yes

Assess the needs of your operation:

❑ **LOW:** Manure is applied primarily to growing crops or pasture within several weeks prior to planting.

❑ **MODERATE:** Manure is applied in late summer or fall.

❑ **HIGH:** Manure is applied to ponded or saturated soils AND/OR applied to snow-covered or frozen fields from which runoff is common.

7. Do you stack manure in fields or on bare soil?

❑ No ❑ Yes

Assess the needs of your operation:

❑ **LOW:** Manure is never stacked on a field or bare soil OR manure is stored on an impermeable surface (i.e., concrete) and protected from rainfall events.

❑ **MODERATE:** Manure is stacked outdoors during the dry season and either land applied or covered before the start of the wet season.

❑ **HIGH:** Manure is stacked year round and susceptible to leaching during rainfall events (i.e, manure is not protected with a tarp or cover during the wet season).

8. Do you stack manure in a feeding or holding area?

❑ No ❑ Yes

Assess the needs of your operation:

❑ **LOW:** There is no surface runoff OR there is a containment storage system for all surface runoff.

❑ **MODERATE:** All feed or holding area runoff is directed to a grass filter strip. All upslope surface flows during an average rainfall event are diverted.

❑ **HIGH:** There is visible runoff from the feeding area.

9. Do you maintain distance between manure and/or silage storage to nearest surface water source?

❑ No ❑ Yes

Assess the needs of your operation:

❑ **LOW:** Greater than 300 feet OR buffer greater than 20 feet wide next to surface waters.

❑ **MODERATE:** 100 to 299 feet OR buffer 10-19 feet wide next to surface waters.

❑ **HIGH:** Less than 100 feet AND no buffer next to surface water.

Manure Assessment continued →

Manure Assessment *(cont.)*

10. Do you maintain distance between manure and/or silage storage to nearest well or drinking water source?

❑ No ❑ Yes

Assess the needs of your operation:

❑ **LOW:** The well is more than 100 feet away AND upslope from manure storage.

❑ **MODERATE:** The well is more than 100 feet away AND downslope from manure storage.

❑ **HIGH:** The well is within 100 feet of manure storage.

11. Are streams utilized for livestock watering?

❑ No ❑ Yes

Assess the needs of your operation:

❑ **LOW:** Stock are excluded from streams and ditches. Stock water is provided in troughs AND no trough overflow/runoff enters a stream or ditch.

❑ **MODERATE:** Stock are excluded from streams and ditches. Stock water is provided in troughs where overflow may enter stream or ditch.

❑ **HIGH:** Livestock are allowed to drink directly from a stream or ditch.

STEP 2: Evaluate Your Answers And Determine A Course Of Action

Review your answers to the previous questions and identify areas in need of improvement. Contact your local CD, NRCS or K-State Extension Service office for more information and assistance on how to develop a proper manure management plan.

STEP 3: Complete The Manure Enhancement Worksheet On The Following Page

Use the guide below to complete each section of the Manure Enhancement Worksheet.

Unit: Indicate each section of your property relevant to manure management

Deadline: Indicate a deadline for completing your manure management goals

Goal: List your goals for each section of your property

Action: Describe methods for achieving your goals. Included a list of the resources and assistance you may need to achieve your goals

Unit: *SW field* **Deadline:** *January 2018*

Goal: *Reduce odor*

Action: *Implement a nutrient management plan*

Manure Enhancement Worksheet continued →

Unit: _____ **Deadline:** _____

Goal: _____

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Action: _____

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Unit: _____ **Deadline:** _____

Goal: _____

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Action: _____

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Unit: _____ **Deadline:** _____

Goal: _____

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Unit: _____ **Deadline:** _____

Goal: _____

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Action: _____

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Unit: _____ **Deadline:** _____

Goal: _____

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Action: _____

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TIP: 1 Preventing Water Pollution

- ✓ Establish and maintain shrubs and grasses along streams and around animal confinement areas to trap and absorb pollution-laden runoff before it reaches streams or groundwater.
- ✓ Locate manure piles, corrals and other livestock confinement areas away from wells and streams. Use water gaps or off-stream stockwater tanks to minimize livestock trampling of streambanks.
- ✓ Cover manure piles to retain nutrients. Test manure for nutrients. Apply manure to pasture when plants are actively growing and can use this natural fertilizer. To avoid polluted runoff, do not spread manure on wet soils or frozen ground.

Gather Additional Information and Assistance

Because animal wastes have the potential to contaminate streams, certain regulations may apply to your operation. In addition, some measures to address animal waste issues require engineered solutions. If you would like to take additional steps to address issues with manure management, consider working with a natural resource professional to develop a nutrient management plan. Conservation planning assistance is available from the local CD, NRCS, K-State Extension Service or the Kansas Department of Agriculture, as well as through a number of private natural resource consultants.

- ✓ *Kansas Conservation Districts*
  https://kacdnet.org/districts/
- ✓ *Natural Resources Conservation Service*
  www.ks.nrcs.usda.gov
- ✓ *Kansas State University Extension Service*
  https://www.ksre.k-state.edu//
- ✓ *Kansas Department of Agriculture*
  https://agriculture.ks.gov/

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