Ten Ideas for Improving Resource Management on Your Outdoor Hog Operation

After answering the "Ten Questions," you have thought through the basic conservation issues on your hog operation. If you chose either answer "a" or "b," you have a relatively good management approach that will minimize potential negative impacts on natural resources and help maintain the sustainability of your operation. If you chose answers "c" through "g," you may want to consider implementing alternative management practices that will help minimize soil and water quality impacts. The following discussion offers information and strategies to help you improve conservation practices. s

Drinking Water Management

1 Which of the following best describes the way you water your hogs? The location of drinking water for hogs can have a significant impact on soil and water resource protection. If animals use water facilities at a location for an extended period of time, they can destroy vegetation, compact the soil or create wallows in unwanted places (see Fig A1). Consider using portable watering tanks, having multiple drinking water locations and/or frequently moving the watering site. You can also add a "screen" or perforated pad beneath the water tank or nipple to minimize wallow development underneath.

Fig. A1. Permanent watering site

Fig. A2. Portable watering tank

Fig. A3. Portable watering tank

Ground Cover Management

2 How would you describe the vegetation in your pens or paddocks? Maintaining vegetative ground cover is the most practical way to control soil erosion, increase water infiltration, and manage water and nutrient runoff from any hog pasture or pen. Consider options such as management of stocking rates (animals/acre), movement of feeders and drinking water sites and renovation of paddocks to help maintain ground cover. Reducing the amount of time hogs stay on a particular site can help maintain vegetation. Having large "buffer" areas can also increase the overall farm ground cover. Buffer areas should be established around all hog fields to help prevent erosion and nutrients from reaching waterways.

Figures B1-2. Hogs on ground cover

Wallow Management

3

How would describe the way you manage wallows for your hogs? While wallows are important for animal welfare, they usually are surrounded by bare soil which is subjected to severe erosion and heavy nutrient loading. Consider, when practical, encouraging wallow development high on the landscape or where they can be surrounded with thick buffer vegetation. By keeping wallows out of natural drainage courses you can minimize the possibility of nutrient and soil loss during heavy rains. You can encourage locations of wallows by using shade, drips or mist at a specific location or you may provide shade or shelter with appropriate bedding to minimize the need for wallows. This practice is particularly important for the feeder to finish phase of production.

Figure C1-3. Examples of wallows

Rotation of Hogs on the Farm

4

How many groups of "feeder to finishers" will you raise in the same pen or pasture before letting the pen or pasture have a break from hogs? The number of groups of hogs that are kept on a particular pasture or pen has a significant impact on the vegetative cover, the nutrient loading and the potential movement of those nutrients off-site through runoff or erosion. Each additional group of hogs in a pen or pasture further increases the nutrient loading on the site. Consider providing some time for vegetation to re-grow in pastures and pens, or consider growing a completely new crop, which takes up the nutrients and can help protect the soil and water resources.

Fig. D1. Sudan grass planted following hogs

5

When you move hogs out of a pen or pasture, how long do you keep them off the site before you put a new group of hogs on it? The length of the "rest period" for a pasture or pen depends on the number of hogs that have been on the land, how long they were on it, the condition of the land and the condition of the vegetation on the land. Crops or hay have to be removed from the land in order for the excess nutrients to be removed; otherwise, they are just recycled back onto the pasture. Consider keeping hogs off the land long enough for the vegetation to fully recover or long enough to grow a crop that can be harvested and thus remove nutrients.

Fig. E1. Field area after hogs

Fig. E2. Field area recovering

Fig. E3 Field area with re-growth

Field Renovation

6

After you remove hogs from a field what do you do to that field? After hogs are removed from a pasture or pen, excess nutrients can best be removed by growing crops that are harvested and used and/or moved off site. Growing dense forage crops or even "weeds" will prevent erosion and runoff, but nutrient removal is best when a crop (of hay, row crops or vegetables) is grown and then removed from the site. Consider first smoothing the land to help redistribute some nutrients and make crop management easier. Planting a crop or hay for harvest can remove nutrients and provide an economic use for the land. If you plant a forage crop, graze animals on the forage for a limited amount of time so that the grazing animals do not re-deposit the nutrients through their manure.

Fig F1. Field preparation prior to planting

Fig. F2 Renovated field ready for planting

Nutrient Management

7

How often do you take soil test samples in hog pastures or pens? Soil testing is the best tool to help managers determine soil fertility status and long term nutrient loading on land, particularly the build-up of phosphorous. Since hogs pass more than 85% of the nutrients they consume, it is important to monitor how the distribution and amounts deposited on the land can be utilized by subsequent crops/forages. See Figure 7 to understand the significant amount of plant available N, P, and K remaining in the field after one year of raising hogs. Consider doing soil tests regularly (e.g., every other year), as a way to help figure out when to take hogs off of your land and to determine which cropping system to use to remove excess nutrients. Soil tests will also help you decide what nutrients you may need to apply when you plant a cash or cover crop.

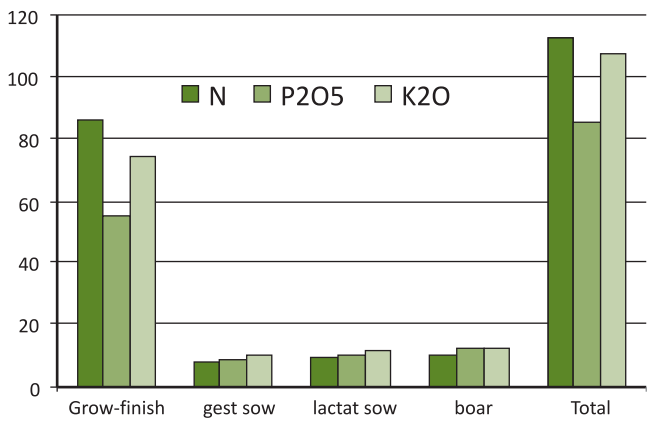

Chart 1. This chart illustrates that over the course of one year, a farrow to finish operation involving a boar and one sow weaning 20 pigs can yield 112lbs of Nitrogen, 85lbs of Phosphorous and 107 lbs of Potassium.

Buffer Considerations

8

How do you use buffers between your hog pens or pastures and drainage channels or streams? Buffers are often used to filter runoff from areas adjacent to streams and drainage channels. Nutrients and sediment can be effectively trapped and filtered if the vegetation remains healthy, thick and is managed to remove nutrients and unwanted vegetation. Consider planting buffers of perennial grasses, like tall fescue, bermudagrass or bahiagrass, which are excellent in buffers because they produce a tight-knit sod that minimizes channel flow. A forest buffer is also excellent for filtering runoff from sites. Note that wide buffers tend to trap more sediment and dissolved nutrients than narrow ones. Well managed buffers can have a positive influence on the overall ground cover on a farm.

Fig. G1-2. Lack of buffers on hog farms contributes to soil erosion and runoff

Trees and Woodlots

9

How do you manage trees or woodlots within hog pens or pastures? Healthy trees can help take up nutrients and provide shelter for hogs, but very careful management is required if tree survival is the goal. Unhealthy or poor growing trees will not be effective in redistributing nutrients left by the hogs nor will they be effective in buffering runoff or sediment. Consider moving animals from a wooded area before they permanently damage some or all of the trees; this will retain their value for providing shade and holding soil. It is possible to plant shade tolerant forage crops in wooded areas, but nutrient removal will be limited unless you can "flash" graze the growth with cattle or goats.

Fig. H1-2 Evidence of tree damage by hogs

Stocking Rate on the Farm

10

How do you decide how many hogs to raise in a particular pasture or pen? The stocking rate or "carrying capacity" of the farm has a significant influence on your ability to protect plant, soil and water resources. Hog behavior and the resulting impact on natural resources varies based on many things but a major factor is the production phase (farrowing, feeding, finishing or gestating) and the length of time hogs spend on a particular land area. The role of crop production in nutrient management following hogs is important to understand (See Figure 7). Crop production (and removal) is an important way to control the nutrient loading of a site and thereby minimize the potential for runoff of sediment-laden materials into water courses. Consider taking the approach that hogs can serve as one segment of the "animal-crop rotation" system in which hogs provide nutrients for subsequent vegetative crops.

Fig. I1. High hog stocking density

Fig. I2—Low hog stocking density

Additional Resources

Best management practices (BMPs) are recommended by local soil and water conservation districts, the U.S. Department of Agriculture's Natural Resources Conservation Service (USDA—NRCS), and the North Carolina Cooperative Extension Service to optimize farm sustainability and protect natural resources. These agencies provide information and technical support to farm owners who want to implement Best Management Practices (BMPs) such as prescribed grazing, alternate water systems, heavy use area protection, and nutrient management.

CEFS
CENTER for ENVIRONMENTAL FARMING SYSTEMS

Prepared by Center for Environmental Farming Systems' staff and consultants with funding provided by the USDA's Natural Resource Conservation Service, Conservation Innovation Grant Program.

March 2010