

Check List for Evaluating Environmental Impact of Concentrated Animal Feeding Operations (CAFOs)

Leslie Cooperband and Bill Bland
Department of Soil Science
University of Wisconsin-Madison

Considerations for minimizing loss of nutrients (nitrogen and phosphorus) from the farm

THE MINIMUM

1. Farm buildings (barns, milking parlor, manure storage structures) are sited at appropriate distances from surface waters (streams, lakes, rivers) and with sufficient depth to bedrock or ground waters.
2. Plans to collect and contain runoff and leachate from livestock buildings, feedlots, animal exercise areas, feed storage structures (e.g., bunker silos), exposed manure storage areas.
3. Has developed nutrient budgets for both nitrogen and phosphorus showing imports, exports and on-farm storage (what goes on to fields from manure).
4. Has a nutrient management plan based on nitrogen (N) **OR** phosphorus (P) needs of crops. If applying manure on fields testing high in P, has plan to apply manure based on P needs of the crops in the rotation.
5. Understands how to spread manure accurately on crop fields to maximize fertility value of manure.
6. If doesn't own sufficient land for spreading manure based on crop nutrient needs, has secured long term leases with other farms for land spreading their manure.

"GOLD STAR" EFFORTS

7. Has considered modifying animal diets to reduce both nitrogen and phosphorus contents of the manure (e.g., enzyme "phytase" for poultry and swine; reducing mineral P supplements for dairy cattle).
8. Has plan for manure storage and handling systems that increase recovery of nutrients (particularly N) and provides greater flexibility for spreading manure on crop fields.
9. Has a plan for processing manure into "value-added products" (e.g., composting, methane generation for energy, pelletizing manure into "organic" fertilizers).

Considerations for minimizing pathogen contamination of surface and ground waters

THE MINIMUM

1. Has biosecurity plan
 - a. Uses clean water sources for livestock
 - b. Avoids manure transportation among livestock farms
 - c. Immediately disposes of dead animals (either removed from farm or on-farm carcass composting).
 - d. Will purchase replacement livestock from farms with “feed healthy” history.
2. Has designed buildings and animal handling system to minimize pathogen levels in young stock
 - a. Vaccination program in place
 - b. Housing is clean, dry, well ventilated with appropriate animal densities.
3. Has a plan for control of vectors (rodents, flies).
4. Has plan to restrict movement of contaminated feces into water courses
 - a. Prevents runoff from barns, feed and exercise lots
 - b. Separates calf manure from adult cow manure.

“GOLD STAR” EFFORTS

5. Has plan for on-farm treatment of used water to kill pathogens.
6. Has designed manure composting system to kill pathogens.

Considerations for minimizing odors and air-borne contaminants

THE MINIMUM

1. Has sited barns and manure handling/storage structures to minimize transport of odor producing compounds toward residential areas.
2. Uses organic bedding to help absorb odors associated with manure
3. Covers manure storage lagoons.
4. Has plan to land spread manure at times of day when wind is least likely to transport odors.
5. Plans to incorporate manure into crop fields within 24 hrs of application.
6. Has plan for good hygiene of barns, feedlots to minimize production of anaerobic gases.
7. If close to residential area, does not plan to apply manure to fields using an irrigation gun system.
8. Has a plan to keep dust production (and bio-aerosols) to minimum.

“GOLD STAR” EFFORTS

9. Has designed building siting with minimum setbacks (plans to use “Offset” Model from Minnesota to determine setbacks for 98% annoyance free odor emissions).
10. Plans to build biofilters to trap odors and air-borne contaminants.