Poultry Science and Technology Guide

Stockpiling Poultry Litter as Part of a Nutrient Plan

Poultry litter from broiler, turkey, broiler breeder, and turkey breeder houses is commonly land applied as crop fertilizer. Often when a poultry house is being cleaned out, it is not possible to immediately apply the litter to cropland. For example, established row crops may be growing or the fields may be too wet, so it is not possible to take litter directly from the house to the fields. New waste utilization regulations now dictate that litter must be applied at agronomic rates. These include correct timing when the crop is growing or at the recommended time before crop planting. Situations like these dictate storing or stockpiling of litter. While storing is not as economical and efficient as direct application from the poultry houses, it can be a useful tool in managing litter properly. If stockpiling is done correctly, excessive nutrient loss can be avoided, nuisance problems such as odor and flies can be prevented, and the dry condition of the litter can be maintained for easy handling and spreading.

Increased opportunities have become available to sell poultry litter as a feed supplement for beef cattle and for sale to businesses that further process the litter into compost and other value added products. North Carolina Cooperative Extension Service publication *Deep Stacking Litter as a Feed for Beef Cattle,* AG-515-2, provides information on storing litter for beef cattle feeding.

Methods of Deep Stacking Litter

Procedures for storing litter are important because storage techniques often make the difference between litter that is of good quality and easy to handle and spread, as compared to litter that is wet, difficult to spread, and of questionable nutrient value. Two options for stockpiling litter described in this publication will produce a quality product, avoid nuisance problems, and protect the environment.

Permanent Structure with Roof.

The ideal storage facility for stockpiling litter is a structure with a permanent roof. Protecting the material from rain eliminates excessive moisture, which leads to loss of nutrients. Litter is also more easily handled when it is kept out of the weather.

A litter storage facility with a clear-span roof supported by outside walls or perimeter posts allows unobstructed loading and unloading. In structures with ceiling heights of 12 feet or greater, the side walls are needed to protect against blowing rain. High ceilings also make loading and unload easier. Building types recommended for litter storage are shown in Figure 1.

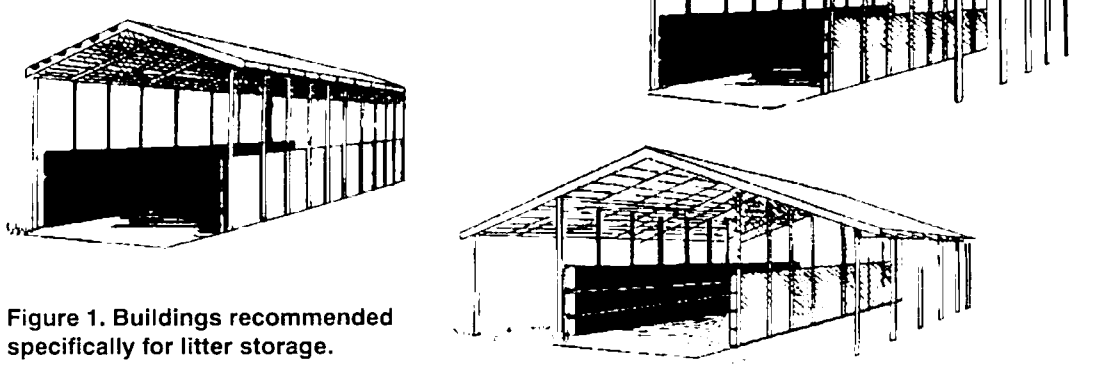

Figure 1. Buildings recommended specifically for litter storage.

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Existing roofed buildings or sheds also work well but usually have tractor-maneuvering limitations due to support posts and other obstructions. In wooden structures, particularly those without clear spans, stockpiled litter may cause spontaneous combustion, especially if it comes in contact with wood. Risk of spontaneous combustion can be minimized by monitoring litter temperature and avoiding stacking anything above 5 feet high in the areas where the litter is in contact with wood. If building a new structure or modifying an existing structure for litter storage, consider the use of concrete block walls.

The siting of a fixed-roof facility is important since it is permanent. Considerations for location include easy access and terrain that enables minimal grading. Avoid placing the facility near wet areas or drainage ditches, streams, rivers, ponds, and lakes.

For stockpiling, stack litter 6 to 8 feet high at the peak of the stack. Caution should be taken not to stack litter higher than 8 feet, again to minimize the possibility of spontaneous combustion. Excessively wet litter should not be stacked against dry litter, and it should be less than 6 feet at the top of the stack.

Covered Temporary Stockpile.

Litter can be stockpiled in a temporary windrow or bunker arrangement with reasonable success. The advantage of such temporary storage is the low investment cost compared to permanent-roofed facilities. The disadvantage of windrow or bunker storage is the inability to protect the material from rainwater unless it is covered with plastic or similar cover.

Certain storage procedures can help protect the litter from excess moisture due to inclement weather and provide a surface that is usually accessible. Choose a site carefully. It should be a high, well-drained location. Avoid wet areas, runoff or drainage areas, and other areas where running or standing water occurs. An impermeable base, such as clay, is preferred because it prevents nutrient infiltration. The site should be located at least 100 feet from any perennial waterway or drinking water source. A grass-covered buffer area around the temporary storage area will help prevent runoff from the stack from reaching nearby waterways.

Construct the windrow by dumping litter in a narrow pile. Add additional layers of litter, continuing the process until the stockpile is deep (6 to 8 feet) and well-rounded with sloping sides. Once the windrow is constructed, apply heavy (6 mil) plastic sheeting carefully to prevent tearing. (Expect 6 mil plastic to last about 6 months.) Anchor the edges to avoid wind damage by laying the edge of the sheeting over a trench about 12-inches deep encircling the pile and backfilling the soil over the sheeting. Lay used tires over the plastic to further avoid wind damage to the plastic. A properly constructed and covered windrow is shown in Figure 2.

Bunkers designed for storing silage on livestock farms (Figures 3,4, and 5) can also be used to stockpile the litter. A bunker allows deep stacking and retains litter on the sides, which reduces the area needed for storage. A cover of plastic or reinforced fabric should be anchored over the litter stored in bunkers to avoid rain damage.

Summary

Proper storage of litter is necessary to protect both the environment and the nutrient quality of the litter. Keeping the litter dry, whether by proper storage building design or by proper windrow stacking, is critical to properly storing litter until it can be effectively used.

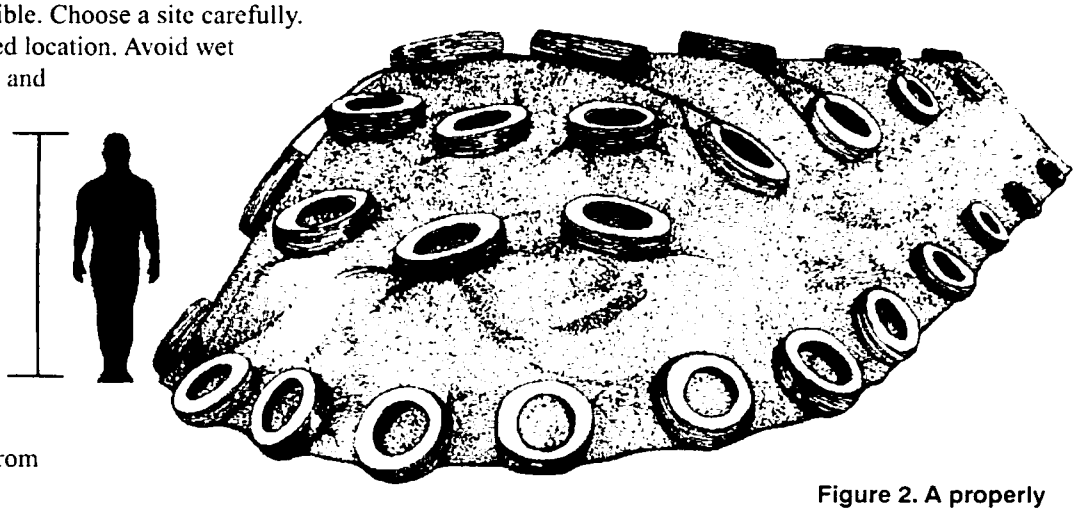

Figure 2. A properly constructed covered windrow of litter.

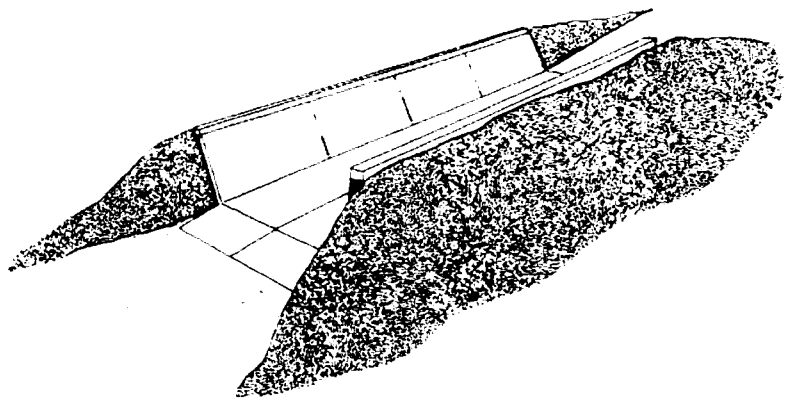

Figure 3. Bunker silos can be used for litter storage.

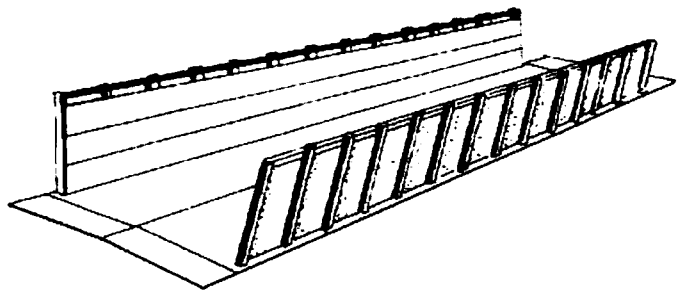

Figure 4. Wood design of above ground bunker.

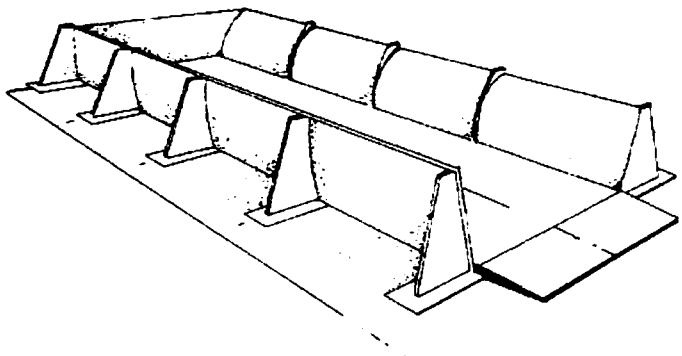

Figure 5. Pre-form concrete sides, similar to highway median barriers, help in containing and covering litter.

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