

## Litter Management for Confined Turkeys

There is no method to measure precisely the economic loss related to poor litter management — loss from foot and leg problems, respiratory infections, poor weights and feed conversions. However, a survey of North Carolina's turkey industry estimated losses over \$5 million annually due to increased mortality, downgrading and condemnations — all caused by foot and leg problems.

Probably no single factor carries more importance than litter management when producers plan a total management program for the production of market turkeys. All other aspects of management such as ventilation, house temperature and bird density interrelate with this litter management program. Therefore, market weight, feed efficiency and profit largely depend on the type of litter management program chosen.

Setting up a litter management program depends on costs and availability of good quality bedding materials — costs which change regularly. It's becoming increasingly difficult to secure enough good quality bedding that can help control economic loss related to poor litter management. For example, wood shavings and sawdust are used now to manufacture many wood products. This diversion of potential litter materials has decreased available supplies and consequently increased costs to the turkey producer. Currently, wood shavings cost \$35.00 per ton or one-half cents per pound of turkey marketed.

This fact sheet describes various bedding materials and how they can be used in a litter management program.

Bedding in the turkey house can be used to

- insulate the dirt floor and help conserve heat;
- provide supplemental heat through fermentation of fecal microorganisms;
- dilute fecal material;
- absorb moisture from feces and respiration processes:

- help balance the diet;
- provide a soft spongy surface for the resting turkey and thus help prevent breast blisters and buttons; and
- help satisfy dusting and scratching instincts.

Several types of bedding materials are used to support growing turkeys. These include

- softwood shavings,
- hardwood shavings,
- sawdust,
- peanut hulls,
- rice hulls and
- other materials such as shredded bark and corn stover where more desirable materials are not available.

Each type of bedding has its own management problems for the producer. Some examples include

1. **Litter Particle Size** — Regardless of type, very fine particles — such as sawdust or rice hulls — will result in "litter eating" by young poults. This effect will create nutritional deficiencies, starve-outs and increased mortality. Small particles also tend to "cake" around feeders and waterers. This caking may lead to "dirty" feet and subsequent foot and leg infections. But very large particles absorb moisture poorly and may also cause foot pad problems.

2. **Hardwood Shavings** — These shavings absorb moisture poorly, and unless they are from kiln-dried lumber, they may be contaminated with pathogens, which cause aspergillosis and high mortality in young poults. If hardwood is kiln-dried, the shavings often contain too many "fines" and may present a dust problem.

3. **Sawdust** — Here, moisture content is too high and contamination results in aspergillosis in both young and older turkeys. Litter eating is also a problem with sawdust.

4. **Rice Hulls and Other Materials** — These are undesirable because of excessive costs and bacterial-mold contamination.

5. **Litter-Moisture Content** — *High-moisture content* will create a multitude of problems in young poults, such as brooder pneumonia or aspergillosis. Also several bacterial infections or nonspecific enteritis is associated with high-moisture litter. These litter-related problems will directly affect mortality, feed consumption, bird weights and feed conversions. In addition, the "gut" problems and resulting diarrhea increase litter moisture and will lead to dirt accumulation on foot pads. This may result in foot pad dermatitis and subsequent leg problems.

With *low-moisture content*, excessively dry litter in either brooding or finishing barns will create high levels of atmospheric dust which may cause respiratory infections and increase condemnations at processing.

6. **Ventilation and Litter Management** — Frequently, turkeys finished to market during the winter do not get enough ventilation. The houses are underventilated in an effort to maintain 55° to 60°F, a temperature which improves feed efficiency. Under these conditions, however, litter often becomes too dry and atmospheric dust becomes a problem. Furthermore, dust concentration may become so great that it reduces visibility. These conditions can be seen in the early morning after sidewall curtains have been closed during the night. Under these circumstances though, feed efficiency must be allowed to suffer in order to improve air quality within the house, and the curtains must be timed to open based on the outside temperature.

To further improve the air quality in the house, an exchange must take place between the outside and inside air. When litter becomes too dry, several practices can be used to help ventilation, such as mechanical curtains, fans and foggers. Curtains may be timed to open partially for 10 to 15 minutes every 2 to 3 hours during

the night, which will "flush out" dust and noxious gases from the house. For example, when curtains are opened, humidity enters and dust leaves the house. This exchange also raises the relative humidity and consequently increases the litter moisture. Furthermore, ceiling fans and intermittent use of foggers may be used at the same time to improve litter conditions during the summer.

Litter management has few rules; instead most decisions are judgmental. These decisions must be based on litter type, particle size, direction of prevailing winds and health of the turkeys. However, there are a few general guidelines to include in a litter management program.

1. Use only softwood shavings, if available. Have litter checked for bacterial-fungal contamination before housing poults.
2. If sawdust or rice hulls must be used, cover with paper in the brooder area to prevent litter eating.
3. Treat new litter with an approved antifungal compound before placing poults on the litter.
4. Built-up litter or litter re-use requires special treatment including addition of lime and water to allow heat production to occur. Such treatment will also destroy disease-causing organisms.
5. Rototilling or turning litter—Litter with excessive moisture should not be rototilled. Instead cake should be removed and fresh litter added.
6. Prevent excessive caking around feeders and waterers as this creates foot and leg problems which impair bird performance.

As litter materials become increasingly hard to get and costly to use, good litter management can fortunately offset some related problems and create the best conditions for market turkeys.

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