

# Poultry Litter Sampling and Testing

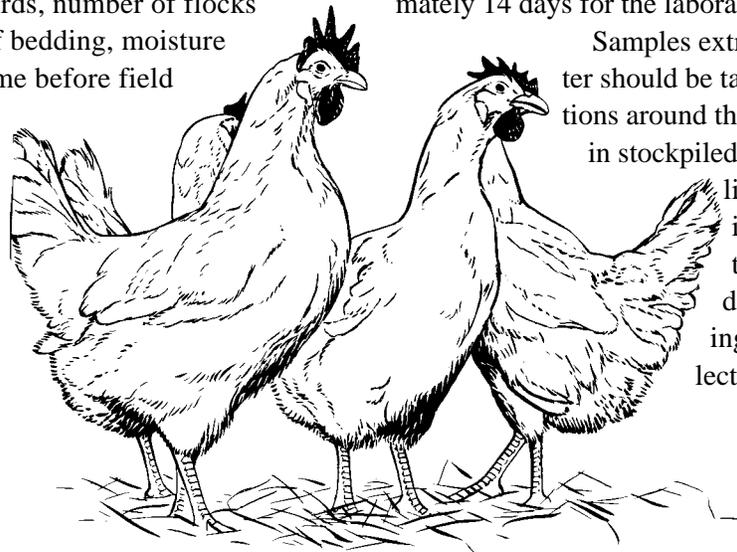
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**P**oultry litter can be a valuable resource when properly applied as a fertilizer to pasture, hay, small grains and row crops. To effectively use poultry litter as a fertilizer, nutrient content of the litter must be determined. This is easily done by laboratory analysis. However, laboratory results are no better than the sample collected for analysis.

Many Tennessee poultry farmers are required to develop a nutrient management plan for their farming operation. In completing the plan, poultry litter sampling and testing are necessary to determine the amount of nitrogen, phosphorous and potassium in the litter.

Because of environmental issues and potential variability in nutrient content involving animal wastes, **ALL** poultry farmers should have a nutrient analysis completed for their poultry litter. Also, people who operate a business that cleans out chicken houses and sells the litter should obtain a litter analysis before selling the litter.

The nutrient content of poultry litter will vary depending upon type of birds, number of flocks raised on the litter, type of bedding, moisture content and stockpiling time before field application. Poultry litter should be tested for nitrogen, phosphorous, potassium and moisture content. In addition, strong consideration should be given to testing for copper and zinc.



## Collecting and Submitting Samples

Collecting representative litter samples is essential for reliable nutrient analysis, because litter nutrient value varies greatly within the poultry house. To obtain a representative sample, collect subsamples from 10-12 locations throughout the house (see diagram). Samples taken around waterers and feeders should be in proportion to the space they occupy in the house. At each location, collect approximately one pint of litter by sampling an area down to the soil, but be careful not to include the soil. Place each subsample in a clean plastic bucket and mix thoroughly. Then put at least one quart of the mixture into a plastic bag that can be sealed tightly. Be sure to leave some room in the bag in case gas is produced and the bag expands. If the litter will be going directly to application sites as a fertilizer, try to collect the litter samples as close to clean-out times as possible. It should take approximately 14 days for the laboratory results to be returned.

Samples extracted from stockpiled litter should be taken from at least 10 locations around the stockpile. Heat generated in stockpiled litter can change the litter's chemical characteristics. Since the temperature will peak in 10-20 days after initial stockpiling, samples should be collected after the temperature

drops and as close to spreading time as possible. If 10 samples are collected, only two should be collected within 12 inches of the surface. The remaining samples should be taken from a depth of 18-30 inches into the pile. The subsamples should be mixed and submitted as suggested for litter from poultry houses.

Caked litter being removed after each growout needs to be sampled for nutrient content. The caked litter should be sampled after it is removed from the poultry house. Subsamples should be mixed and submitted as suggested previously.

If possible, send the sample to the laboratory the same day it is prepared. If the sample must be held overnight, refrigerate the sample. The litter samples should be sent to the laboratory early in the week (Monday or Tuesday) to avoid weekend delays. Each county Agricultural Extension Service office has a list of laboratories that will conduct a poultry litter nutrient analysis.

## Interpreting the Litter Analysis Report

The litter analysis report will indicate nitrogen, phosphorous and potassium content on a percent dry weight basis, percent "as is" basis and pounds per ton "as is" basis. To calculate litter application rates for various crops, use the figures for pounds per ton "as is" basis.

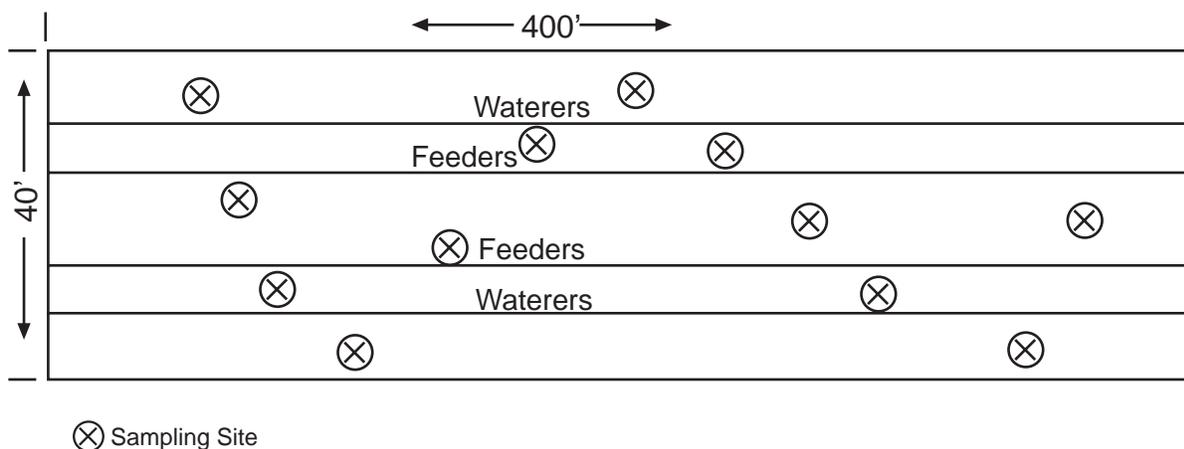
## Summary

Since cleaning and litter disposal may be needed only once a year for poultry houses, the time and expense for having a sample tested is minimal. The savings in fertilizer costs will more than compensate for the litter analysis cost. In addition, the reduced risk of over-fertilization and potential water contamination should make litter sampling and testing worthwhile.

### Related Agricultural Extension Service Publications:

- PB 1421 Poultry Manure — Proper Handling and Application to Protect Our Water Resources
- PB 1445 Dead Poultry Composting
- PB 1476 Storage Facilities for Broiler Litter
- PB 1510 Manure Application Management
- PB 1644 Guidelines for Developing and Implementing a Poultry Nutrient Management Plan
- PB 1645 Best Management Practices for Phosphorous in the Environment
- SP 414 Calibrating Spreaders for the Application of Poultry Manure

### Sampling Location In A Poultry House



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