

Poultry Production FAQs for Home and Landowners

1. How do poultry houses or poultry litter applications affect my private well water quality?

As with most human activities and the potential for water contamination, poor siting and mismanagement may result in litter affecting well water quality. The first step toward protecting well water quality is having correctly cased wells and plumbing systems. A next step would be providing a buffer zone around the well to exclude potential sources of contamination. State regulations set a minimum 100-foot buffer zone around a well head being used as a public water supply well. While not a requirement for private wells, it is worth considering. A nutrient management plan written by a state-certified planner will provide recommendations for minimizing well water contamination from poultry litter applied as fertilizer.

2. What impact might poultry houses have on stream water quality in my area?

While the effect is generally small, it does depend on a number of factors at play, which unfortunately means that there is no simple answer to this question. For instance:

a. **PROXIMITY.** The closer the houses are to a stream, the greater the risk that nutrients, nitrogen (N) and phosphorus (P) may reach a stream in runoff, especially via stormwater runoff from around the houses.

b. **LANDSCAPE.** The landscape setting and properties around poultry houses can affect this too. Those with well-maintained grass and gradual slopes will have a lower risk than houses surrounded by bare, steep slopes.

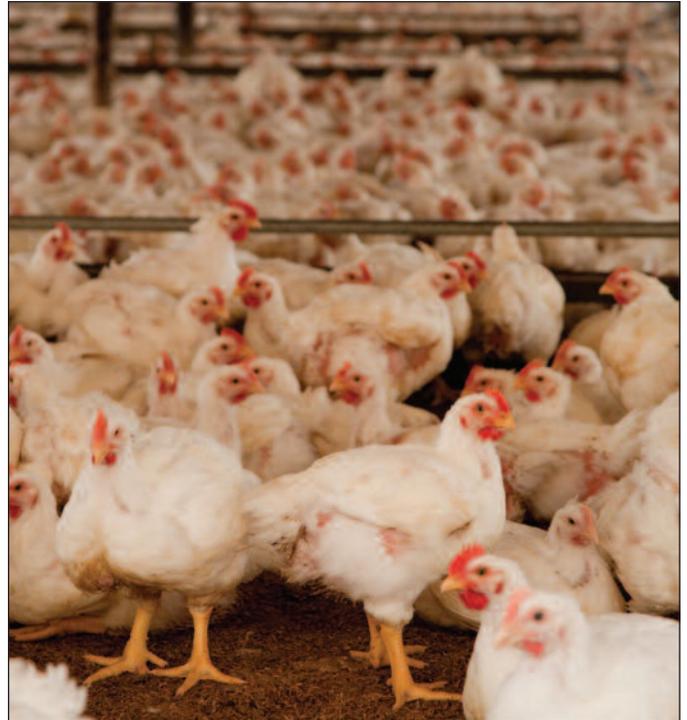
c. **VEGETATION.** Well-established grass between the ventilation fans and runoff drainage ways, as well as within these drainage ways, will further minimize risk. Vegetation reduces erosion, traps particulate matter and makes use of nutrients that may come from the houses. Mowing and removing clippings periodically helps minimize the potential for nutrient buildup.

d. **MAINTENANCE.** Minimizing and cleaning up litter spilled around the houses during cleanout should also minimize particulate and nutrient runoff.

3. What impact might poultry litter applications to nearby fields have on stream water quality in my area?

The effect is minimal but dependent on a number of litter management and field landscape properties, such as:

a. The rate, timing and method of litter application is a critical factor determining whether litter applied to



fields is likely to affect nearby streams. If phosphorus application routinely exceeds crop phosphorus needs – which often happens when litter is applied to meet the nitrogen needs of a crop – then phosphorus will eventually build up to levels greater than what’s needed for optimum crop growth. However, if the farmer wants/needs to continue applying litter for nitrogen, then the potential for phosphorus runoff increases. For the most part, nitrogen loss happens through volatilization – as a gas – during handling, spreading or leaching through soil to ground waters. If extra nitrogen remains in the soil profile after a period of main root growth and plant uptake, then that nitrate is potentially available to leach from the soil to ground water. It is important to remember that if crop nitrogen and phosphorus needs are not met with litter, then traditional inorganic fertilizer will likely be applied.

b. When applying litter, check the forecast to avoid heavy rainfalls within the week after application to reduce the risk of nutrient runoff. Applying litter when heavy rainfall is forecast will be more likely to result in a larger proportion of the litter being washed off the field than if rainfall were a more distant prospect.

c. Injecting or incorporating litter into the soil, while not cost-feasible on permanent pastures, will reduce the risk of phosphorus runoff. Runoff water interacts mainly with the top couple of inches of soil to transport

phosphorus. Injecting or incorporating litter into the soil profile gets the litter nutrients to the growing plant roots and it also lessens the concentration at the surface that could be removed by runoff.

d. Farmers need to determine the nitrogen and phosphorus content of litter prior to applying it or selling it to a neighbor. This is very important if the fertilizer is being sold as a fertilizer substitute as the buyer should need to know the nutrition value to establish an appropriate application rate, as well as a cost for purchasing the litter.

e. The loss of nitrogen and phosphorus is also dependent on field properties such as runoff and erosion potential. Heavier clay soils, which tend to have greater potential for runoff due to lower infiltration rates, risk greater loss of nutrients in runoff, while sandier soils risk loss via leaching. Steeply sloping fields are more vulnerable to nutrient runoff than less sloping fields.

f. Vegetative cover on a field either as permanent pasture, reduced tillage, or cover crops will reduce runoff and erosion potential and thus, the potential for nitrogen and phosphorus to be transported from a field to a stream.

g. Not all fields are created equal, and those fields nearer a stream and those with frequent flooding will have a greater potential or risk of contributing nutrients to a stream.

h. All these factors are covered and addressed in nutrient management plans where the Arkansas Phosphorus Index for either pastures or row crop settings is used to minimize the risk of phosphorous runoff to streams. (See fact sheet “Arkansas Phosphorus Index” at <http://bit.ly/1JBkx8r>)

NOTE: If litter is cleaned out from houses between each flock, its nutrient value as a nitrogen and phosphorus fertilizer replacement or supplement will be appreciably lower than in Northwest Arkansas, where there are generally at least six to eight flocks (18 months) between house litter cleanouts. The chemical analysis of litter will be essential to establish appropriate fertilizer application guidelines.

4. Are there any county, state, or federal regulations regarding the proximity of poultry house construction and operation to private residences?

Neither the federal Environmental Protection Agency’s National Pollutant Discharge Elimination System regulations for Concentrated Animal Feeding Operations nor any known Arkansas state or county regulations specify minimum distances between poultry houses with dry

manure systems – those that don’t use water to collect and move manure – and the nearest neighbor. The Arkansas Department of Environmental Quality regulation for liquid manure systems does specify a 500-foot minimum for farmers with less than 130,000 birds and 1,320 feet, or a quarter mile, for larger farms. The same regulation specifies that manure should not be applied within 50 feet of property lines or 500 feet of occupied dwellings without the neighbor’s written consent. While the ADEQ regulation does not apply to farms that apply dry poultry litter, these numbers have been used in the past as general suggestions.

5. Are there any county, state, or federal regulations regarding odors associated with poultry production on private residences?

There are no known federal, Arkansas, or county regulations pertaining to odors associated with poultry farms that produce dry litter. The ADEQ regulation for liquid manure systems does state “This regulation provides management, operational and maintenance procedures necessary to prevent point source pollution and minimize nonpoint source pollution to the waters of the state and control to the degree practicable the generation of offensive odors.” It also states that “in order to minimize odor, the Arkansas Pollution Control and Ecology Commission’s policy is to encourage those with permits to adopt a good neighbor policy and consider the use of chemical or biological additives or other best management practices in the operation of liquid animal waste management systems.” While the regulation does not apply to dry poultry litter applications, these concepts, especially the good neighbor and best management practices, are valid suggestions.

6. How will the introduction of poultry houses affect the fly populations in my area, in regards to both a human nuisance and as a detriment to livestock?

The fly population will likely increase with the introduction of poultry houses, especially around stacked litter or litter/dead bird compost, if this occurs in the open or outside of an enclosed facility. Whether such an increase is noticeable will be influenced by litter management, the distance between the litter and human or animal populations, and existing background fly levels.

7. Will having neighboring poultry houses affect my property values if I decide to sell in the future?

For information on this issue contact a local realty specialist.