Learn To Manage Water In Poultry Farms

Herbert C. Jordan
Associate Professor
Poultry Science, Penn State

Consider these factors in planning future use of water:

• Water *location* is important. If too much water is located in feed, bedding, manure, litter, or ambient air it can be harmful. Wet feed spoils, wet manure produces toxic gas, and wet litter harbors parasites or pathogens and produces obnoxious odor. Wet air, above 80 percent relative humidity, causes poor respiratory health in birds.

• Water *quality* is decreasing in some areas. Birds that are drinking water polluted with high nitrates (for instance) may appear anemic, have diarrhea, excess feather molt, and productive performance may be lowered. Laboratories can test quality of water if human or bird performance is lost.

• Water *quantity* is short in some counties so that expansion of the turkey industry (for example) has to be held back due to lack of water in south central and western Pennsylvania.

• Water *cost* is getting higher in some areas. The cost of finding, pumping, purifying, recycling, and useable storage of water is now a highly significant cost item on many farms and in egg or poultry processing firms.

• Water *removal* from manure pits, grain, litter, and other areas is becoming too expensive to invest in. Excess (percent) water in feed, food, waste, and bedding may lower the quality of the item and the water must be removed. Corn drying can be too expensive if percent water is excessive and grain quality is low after drying.

Note this - plan corn crop years ahead, and grow corn that dries in the field.

• Water *movement* is now damaging egg production operations by breaking into manure pits, washing manure off soil surface into springs, streams or wells, and eroding soil and manure into streams and bodies of water.

• *Water state* or condition or physical nature is changing in temperate climates suxh as Pennsylvania. Snow load has cost the tiny game bird industry in the U.S. millions of dollars over the last 10-20 years and, to date, insignificant research or testing for discovery has been done on handling snow load in outside pheasant pens. Ice and snow removal, surface water control, and recent heavy rains are costly to some poultry farmers. Ice storms can also be costly to buildings, pen netting, and cause accidents!

• *Water policy* varies widely from area to area. Since water cannot be created or destroyed, it pays to prepare for precipitation, then control, store, conserve, and/or manage water or water's influence on humans, soil, animals, buildings, or home. Public policy *can* address water use in most areas and give options to water users. Research on when a storm comes is less significant than how to deal with its damage when it arrives.

• On *some farms, soil erosion* gets worse. Water is becoming more polluted and there is lower quality water for animals and humans to drink. This will improve only when managers set aside resources and improve it.

• *Water possession* or *ownership* is difficult to establish on some farms because water use is common or shared by many people. A priority may have to be established on quantity and use of water.

• *Water source* is a real question on some farms where springs cannot supply enough. Wells must be drilled deeper and processing river water is no longer an alternative. Locating an adequate water source may be our greatest future challenge in the poultry processing and production industry. This may be done from aerial photos of soil to see where water/soil fractures merge.

• *Water cycles* from surface water, to water vapor, to clouds, to rain, snow or some kind of precipitating water. This cycle now has more variation giving too much precipitation in some areas and too little in other areas.

• *Water conservation* has never really worked in some poultry processing plants or farms. Much water is used or lost per bird processed and re-use of water is just starting to be state-of-the-art. It is difficult to extract some solids, microbes, ions or blood from water. Reclamation of or re-use of water must be studied to discover economical methods. Water with 4 percent dry (whey) food matter may be used as a hog feed supplement if hogs are on pasture.

• *Water as a vehicle* to heat, cool, clean, or move something is essential to understand as egg washing, poultry processing, and manure hauling are studied. *Adding water to manure may make everything worse*, except in biogas generation.

Manure at 95 percent moisture gives the operator of the spreader 19 loads of water to haul to get one load of dry matter on the soil. In turn, the soil gets compacted because *water weighs about twice as much as dry manure per cubic foot.*

• Water as a *recreational medium* is also present on poultry farms but rarely surfaces as a problem. Observe and study recreational use of water — it is becoming more useful.

To improve water quality and use, consider these factors:

• *Water costs* are found mostly in logistics of conveyance as well as energy costs used to move, heat, cool, or change the physical state of water or drill for water.

• *Wasting water* on each farm can lose or waste many thousand dollars annually per farm or processing firm.

• *Water quality* may be improved by filtration, ultraviolet light treatment, or some other process prior to its use. However, retaining the purity and freshness of spring or well water is essential through design.

• *Water removal* from manure, corn, feed, litter and bedding can **best be done by prevention** of excess water entering where it will cause damage. Keep water where it will do the most good.

• *Conserve water* and allow all employees to share this responsibility. Waste water and it reduces net pay or bonus to person wasting water.

• *Stop water leaks* from animal waterers into manure. Stopping water leaks into manure appears to be the most important daily task in poultry houses.

• Make every effort to study and record use or *misuse of water.* Plan water use and budget for a better water quality program.

• Water quantity is limited, and water quality is in doubt in many areas.

Appoint a water quality control person in your farm or firm. Start a file, keep a record of problems, solutions, lab test results, and improvements in water use. A water program that is useful today may be essential in the future.

Meeting Schedule

(Continued from Page F25)

12 Noon	Pa. Brown Swiss Association, Room C
12 Noon	Pa. Ayrshire Breeders Association, Room E
1:30 p.m.	Horse Pulling Drivers Meeting, Room C
3:00 p.m.	Pa. Farm-City Council, Room D
7:00 p.m.	Pa. Foundation Seed Cooperative, Room B

WEDNESDAY, JANUARY 13, 1993

9:00 a.m.	Pa. Nut Growers, Room E
10:00 a.m.	Pa. State Plowing Contest Committee, Room D
1:00 p.m.	Pa. Maple Syrup Producers Council, Room C
1:00 p.m.	Pa. Simmental Association, Room D
2:00 p.m.	Keystone Pony Pullers, Room E
4:00 p.m.	Pa. Livestock Association, Room D
6:00 p.m.	Reception and Dinner at 7, Pa. Co-Operative, Sheraton East Potato Growers, Harrisburg