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**Poultry Pointers**



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**NUTRIENT MANAGEMENT: POULTRY MANURE UTILIZATION**

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Clean water has been the motivating force behind efforts in Pennsylvania to locate all sources of potential pollution. Industrial sources of pollution, termed "point source" pollution, have been largely located and regulated. "Non-point source" pollution coming from less discrete sources has been more difficult to identify and regulate.

Agriculture has been included in the nonpoint source category as a potential contributor and is recog-

nized as such by the Chesapeake Bay Pollution Program. Livestock and poultry manure, if improperly spread on the land, has the potential to contaminate surface and groundwaters.

However, with proper utilization, these by-products of poultry production can provide valuable plant nutrients to Pennsylvania crops and reduce the use of commercial fertilizers.

Now that the state of Pennsylvania has nutrient management legislation, poultry producers will be required to file a nutrient management plan if they have more than 2,000 pounds of poultry live-weight per acre of land. The options for manure utilization are many, but the more practical applications are either as a fertilizer, feed, or fuel.

An old concept with a new application is the use of livestock and poultry wastes as a fuel source. Nomadic people of the world, including the early Mongolians and native North Americans, used dried animal dung from the steppes and prairies to fuel their heating and cooking fires.

Today, these concepts are still alive. Air-dried broiler litter has been explored as a modern fuel source for brooding broiler chicks. Studies have shown chicken manure to have a fuel value (4,400 BTUs/pound) about one third the value of coal (12,800 BTUs/pound) and about two thirds the value of cord wood (6,700 BTUs/pound). In the United Kingdom, a new energy plant designed to burn poultry waste is generating 12.5 megawatts of electricity, enough to meet the needs of 12,500 households.

Other research efforts have shown that animal wastes can be held in tanks where air has been excluded (anaerobic) and digesting bacteria produce a biogas rich in methane. The methane is then burned to drive a steam engine to produce electricity.

Because poultry wastes are rich sources of nutrients for plants, they also have significant feed nutrients for cattle. In fact, a great number of cattle are fed broiler litter as a background roughage feed similar

to straw or corn stalks. The microorganisms in a cow's stomach or rumen can utilize the nitrogen and fiber in broiler litter to make proteins and fatty acids that cattle can utilize for growth. The litter is also a rich source of calcium and phosphorus for bones and other metabolic processes.

The feeding value of dried litter is listed in cattle feeding tables to contain 64 percent total digestible nutrients (TDN), 26 percent crude protein (CP), and 18 percent crude fiber (CF). Dried poultry manure contains 54 percent TDN, and 28 and 13 percent CP and CF, respec-

tively. This method of recycling poultry wastes is not utilized to its fullest extent.

The primary value of poultry manure is a source of plant nutrients for growing crops. Preliminary results of a recent study re-evaluating the nutrients found in a ton of poultry manure suggest it is a good source of nitrogen, phosphorus, potassium, and many micro-elements which may be deficient in certain soils. Laying hen manure, on average, contains about 63.6 percent moisture coming out of a deep pit cage layer

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**Cooperators Selected**

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management and operation of the dairy herd. The farm's 62 registered Holsteins are presently milking an average of 23,584 pounds of milk, 863 pounds of fat and 734 pounds of protein. Corn, oats, alfalfa and other crops are planted in the farm's 300 acres.

The Speers have one son, 17-month-old Tyler. They have been extensively involved in 4-H and FFA activities and Richard is vice president of the Blairs Mills Lions Club. Both are active members of the Upper Tuscarora Presbyterian Church.

Judges for the Maryland-Virginia Young Cooperator contest were Mary Ann Johnson-Bohn, breed consultant, truck farmer and 4-H leader, Carol McComb, a dairy farmer, 4-H leader and educator, and Joe Scott, retired high school principal and vo-ag instructor.

Speaker for the Pennmarva Young Cooperator luncheon was retired Lancaster County Extension Agent Jay Irwin. Irwin was selected to be part of a small group of extension teams that, from June through December, 1991, served on an agriculture-education mission to Poland.

Irwin related his experiences in

assisting Polish farmers and agriculture communities to begin establishing cooperatives, as the country evolves from years of communist rule to a more democratic type of government and capitalistic-oriented economy.

He noted that the average size farm at the time of their team's visits was eight acres, often in numerous and scattered parcels. Average monthly income was \$150, of which half was spent for food. Dairy herds usually consisted of 2 or 3 cows, with cows milked out in the fields where they were tethered. Milk, unrefrigerated, was set out along the roads in cans to be picked up by horse and wagon for hauling to a central location. Milk was not a commonly-consumed beverage and Irwin remarked on the many, many children he and his wife observed suffering with broken bones.

Young cooperator couples will represent their cooperatives at state and national educational and industry events, including the National Milk Producers Federation annual meeting, National Institute of Cooperative Education and Pennsylvania Cooperative Council's Young Couples Conference.

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