COMMERCIAL EGG TIP...

NUTRIENT MANAGEMENT PLANNING

A laying hen produces approximately 1 pound of fresh manure for each pound of feed consumed. In a typical high rise house, some drying occurs in the manure storage area, depending on the nature of the ventilation system. If annual manure production of a laying hen is 40 pounds (Vest, et al., 1998), a 100,000 bird house will accumulate about 2,000 tons of manure per year. Recent estimates by UGA researchers indicate that annual manure accumulations may be no more than 20 pounds per hen in tunnel ventilated high rise houses. Since layer manure is rich in plant nutrients, i.e., nitrogen, phosphorous, and potassium, it is usually spread on land as a fertilizer supplement for forages or crops. This is an excellent practice when properly managed to avoid transfer of excess nutrients to ground or surface water.

Recent regulatory initiatives at the federal and state levels will soon require the egg industry in Georgia to monitor manure disposal more closely. According to federal Environmental Protection Agency (EPA) regulations, large confined animal feeding operations (CAFO’s) are required to have a National Pollutant Discharge Elimination System (NPDES) permit. At present, only layer operations having 30,000 hens or more using a liquid manure handling system or 100,000 hens with a continuous overflow watering system (none in Georgia) fall under the NPDES permitting requirement. At the state level, the Director’s Board of the Georgia Department of Natural Resources (DNR) plans to review poultry wet manure handling systems beginning in January, 2000, to assess the need to regulate the industry in regard to manure management practices. It is probable that EPA and DNR will soon extend their attention to dry layer manure systems.

To avoid unnecessary regulatory impositions in regard to manure management, the Georgia egg industry would be well advised to adopt nutrient management planning. Nutrient management planning is not a difficult process, it merely requires attention to detail and some record keeping. The process can be broken down into the following steps.

Sampling for Manure Nutrient Content. It is necessary to know the levels of important nutrients in

PUTTING KNOWLEDGE TO WORK

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layer manure to properly distribute suitable manure tonnage to land. At present, nutrient management plans are nitrogen based, meaning that the calculation of how much manure should be applied to a given piece of land is based on crop requirements for nitrogen. A standard book value for manure nutrient content should not be used for this calculation because there is too much farm to farm variation in the layer manure nutrient content due to differences in feeding and farm management. Manure nutrient analysis services are available at the University of Georgia or qualified private laboratories. Proper manure sampling procedures must be followed or the nutrient analysis may not be meaningful. The University of Georgia analysis fee is about $30.00 for dry manure samples and $45.00 for wet (lagoon) samples. A manure sampling sequence timed suitably for a given farm's clean out (pump out) schedule will provide a baseline for nutrient budget calculations.

Soil Testing. If the manure is to be applied to land on the farm property, soil tests should be done to determine existing levels of plant nutrients in the soil. The amount of manure that should be applied is determined by the difference between crop nutrient requirements and soil nutrients already available. Proper soil sampling procedures must be followed to get a good soil nutrient analysis. Soil nutrient analyses can be carried out at the University of Georgia at no cost to the farmer.

Nutrient Budgeting. Knowing the nutrient content of the manure and the soil, it is possible to calculate how much manure should be applied to the land. A relatively simple calculation can be done taking only nitrogen into account. Many producers, however, may want to take advantage of the total fertilizer value (N, P, K) of their manure. In either case, nutrient budget worksheets are available which can be filled out to determine manure application rate for a given tract of land.

Manure Utilization Recording. The final step in the nutrient management planning process is to record actual disposition of the layer manure produced on the farm. This involves determination of the amount of manure removed on the dates of house clean out (lagoon pump out), the amount spread on farm land, the amount stored, and the amount removed from the farm or used for other purposes. Each farm field upon which manure is applied needs a separate manure application record. This recording process is important because over time it will document responsible farm nutrient management procedures.

In addition to nutrient budgeting, good farm nutrient management will involve proper mortality disposal (check with the Georgia Department of Agriculture for approved methods), covered manure storage sites to prevent nutrient leaching, and suitable spreading and soil cultivation procedures to prevent run off. For assistance in regard to manure or soil sampling for nutrient analysis and for nutrient budgeting, please contact your County Extension Agent.

Reference:

A. Bruce Webster
Extension Poultry Scientist
Extension County Coordinator/Agent

**Consult with your poultry company representative before making management changes.**

“Your local County Extension Agent is a source of more information on this subject.”