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DO BROILERS NEED 23 HOURS OF LIGHT PER DAY FOR OPTIMUM PERFORMANCE?

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It is a well-known fact that light is important in affecting different biological processes in the body. In many instances, these effects are hormonal and are the result of increased activity of the pituitary gland, located at the base of the

brain. The length of the daily light period is important in stimulating the reproductive cycles of chickens; however, in growing broilers, the amount of light needed is only that amount necessary to enable the bird to move around and to see to eat and drink. In meat-type birds, there is always an attempt to reduce activity to improve efficiency. In the poultry industry, the most commonly used light regime for broilers is 23 hours of light and 1 hour of darkness per day.

In our laboratory, we have conducted several studies using different photoperiodic regimes to find a lighting schedule that results in optimum performance. The regimes used were 23 hour light/1 hour dark (23 L/1 D); 12 hour

light/12 hour dark (12 L/12 D); 2 hour light/2 hour dark (2 L/2 D); and 1 hour light/3 hour dark (1 L/3 D).

One-day old broiler chicks were used. Birds were weighed weekly and feed consumption was calculated. Percentage mortality was also recorded. (Immune parameters were measured every two weeks to assess differences in immune status and will be presented in a future article.)

At all ages measured, body weights of birds receiving 12 L/12 D were less than those of the other three groups. Body weights in the 23 L/1 D group were slightly higher than in either 2 L/2 D or 1 L/3 D groups. This difference was especially apparent at six and seven weeks of age. The birds in the 1 L/3 D group consumed less feed and had slightly better feed efficiency than the other three groups. Percentage of mortality was less in the 1 L/3 D group than in the 23 L/1 D group (2 percent vs. 3 percent).

It could be concluded from our results as well as results from other researchers that raising broiler chicks on intermittent lighting programs (1 L/3 D) could be more advantageous when compared to continuous or 23 L/1 D systems for the following four reasons:

1. With feed constituting the major cost of production, saving

feed through reduction in consumption and consequently an improvement in conversion would be important.

2. An improvement in livability.
3. Reduction in the incidence of leg abnormalities.

4. Reduction in the cost of electricity, since the light will be on only six hours versus a possible 23 or 24 hours per day.

*Research Associates from Egypt on USAID Research Grant

Poultry Litter Becomes Friendly Fertilizer

WASHINGTON, D.C. — Alum, an item found in household medicine cabinets, could be put to a new use — as a prescription for turning the litter in poultry houses into fertilizer that's kind to the environment.

As an astringent, alum is the main ingredient of styptic pencils used to stop bleeding, such as from shaving nicks. U.S. Department of Agriculture scientist Philip A. Moore Jr. has put alum to work in commercial poultry houses to cut the loss of nitrogen in chicken litter.

Fresh poultry litter is loaded with nitrogen, phosphorus and other essential plant nutrients, making it a seemingly ideal "natural" fertilizer, Moore said.

But nitrogen in the litter tends to vaporize into ammonia while still in the poultry house. When that happens, the litter's ratio of nitrogen to phosphorus is thrown off balance, leaving a heavy load of phosphorus.

Litter is applied to land as fertilizer based on its nitrogen content, said Moore. Spreading enough litter to provide sufficient nitrogen can result in serious phosphorus overloads that can wash off farm fields — bad news for nearby waterways. Phosphorus accelerates the growth of algae in streams and rivers.

Adding alum to the litter while it's still on the poultry house floor changes that. Moore said research showed that alum ties up the phosphorus into a form that won't dissolve in water and doesn't move in soil.

Moore and co-researchers found in other tests at an ARS poultry laboratory in Fayetteville, Ark., that adding alum to poultry litter at the rate of 200 grams per kilogram of litter reduced nitrogen evaporation by 99 percent.

"Chicken litter is one of the best fertilizers in the world, as long as it's used wisely," Moore said.

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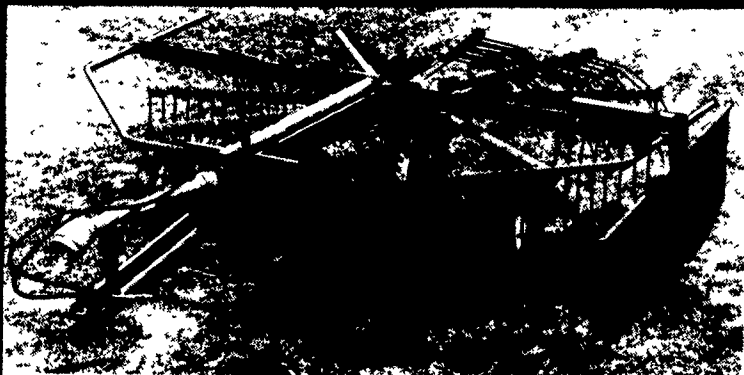
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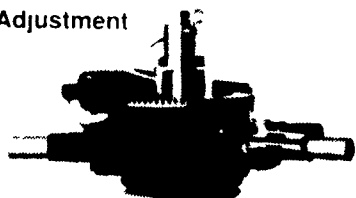
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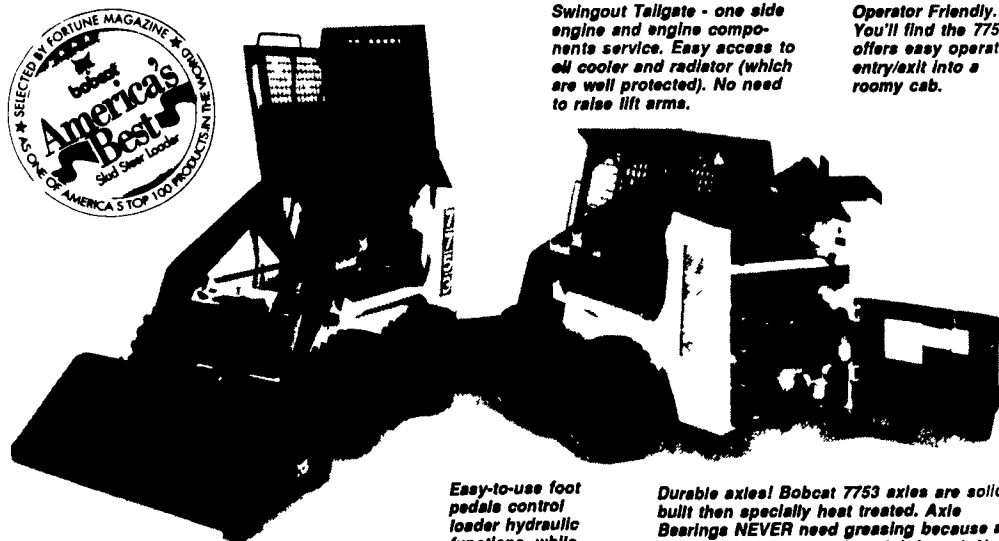
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