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Poultry Patter

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ITEMS OF INTEREST TO MINNESOTA'S EGG INDUSTRY

Egg Outlook

December egg output was down 6 percent. Production has been below year-earlier levels since last April; flock reductions have more than offset higher productivity of the laying flock. Output may remain below 1972 levels through most of 1973. The laying flock was down 7 percent as 1973 began and the rate of lay was about equal to 1972. The flock size will approach year-earlier levels as 1973 progresses.

There will be about the same number of pullets entering the laying flock during the first half of 1973 as in the first half of 1972. Thus, any increase in flock size through mid-1973 will come from reduced culling of old flocks and increases in force molting of flocks. The rate of lay this year may average about the same as in 1972, which recorded a sharp rise. The impact from Marek's vaccine use has largely occurred and an older flock will tend to offset the normal long-term upward trend.

Egg prices increased sharply in late 1972, declined in early 1973, but still have remained well above 1972 levels. Production costs increased sharply. Markets will continue strong in coming weeks as demand picks up for Easter and supply is well below 1972. Prices may decline as usual in the spring before strengthening again during the summer and fall. Prices in 1973 will average well above the low levels of 1971 and 1972 as a result of the smaller egg supplies and relatively high prices of other high-protein foods. Available egg supplies per person in 1973 may be at a record low.

This outlook summary was prepared by the Economic Research Service, U.S. Department of Agriculture. Greater detail on the egg situation and outlook appear in Poultry and Egg Situation, PES 275, released February 20, 1973.

M. L. Hamre

Recent Mycotoxin Research

Mycotoxins are products produced by the growth of fungi (molds). Due to the wet fall harvest conditions, fungus-invaded corn has presented itself as a potentially serious problem to poultry producers. Much corn in the corn belt and eastward was invaded by the Fusarium roseum fungus causing damage in the field and storage and possible feeding problems due to the presence of mycotoxins.

During the past 3 years, researchers in the Departments of Animal Science and Plant Pathology at the University of Minnesota have been studying the effects of feeding corn invaded by several Fusarium fungus species and their specific mycotoxin products on chicks, laying hens, and turkey poults.

Under proper conditions of temperature, moisture, and humidity, certain strains of Fusarium roseum will produce large

quantities of an estrogenic mycotoxin called F-2. When fed to swine and dairy cattle, corn invaded by F. roseum has been associated with infertility and abortion. With turkey poults, corn invaded by F. roseum fed at 10 percent of the diet caused a swelling of the vent; at 40 percent of the diet, weight gain was depressed and a severe prolapse of the cloaca occurred.

Fortunately both young chicks and adult chickens appear to be less sensitive to this particular mycotoxin. Feeding 10 percent F. roseum-invaded corn or 200 to 800 parts per million (p.p.m.) of the mycotoxin F-2 had no effect on chick growth. In laying hen experiments, F-2 fed as the purified mycotoxin at 500 p.p.m. or diets containing corn invaded by F. roseum caused no reduction in layer performance or reproduction.

A different strain of Fusarium roseum fungus as well as a strain of Fusarium tricinctum were tested. Feeding as little as 2.5 to 5 percent of this fungus-invaded corn caused a marked reduction in feed intake, reduced egg production, and eventually resulted in a severe mouth lesion, due to irritation of the tissues of the mouth and tongue.

Corn harvested in fall 1972 and invaded by F. roseum has been reported to contain a "feed-refusal factor" to which swine are particularly sensitive. We have tested two such samples with both chicks and laying hens and have not observed any reduced feed consumption.

Although the strains of Fusarium fungi used in these experimental studies were originally obtained from farm grains implicated in fungus and mycotoxin problems, not all fungi or even all Fusarium fungi produce mycotoxins. Neither do the potentially dangerous strains produce large quantities of mycotoxins unless conditions are suitable. Because of this, it is very difficult to determine the safety of moldy corn as feed for poultry and other livestock.

Fungus-invaded corn after it is shelled may not appear severely damaged or show evidence of actively growing fungi. But mycotoxin compounds may still be present. In addition, these mycotoxins may be present in concentrations which do not cause a severe reaction but may result in only slightly reduced growth or egg production.

Severely molded corn should be avoided and grains should be dried to proper moisture levels prior to storage and then held in tight bins. Suspect grains may be tested at considerable expense in the laboratory for certain mycotoxins. Usually, feeding a small sample to a limited number of animals may serve as a better test of its safety. Research is continuing on methods of detection of mycotoxins as well as on the effects of various mycotoxins on poultry and livestock in an effort to provide answers to this potential problem.

G. M. Speers



Egg Industry Meetings

Date	Location	Place
March 6	Sleepy Eye	Orchid Inn
March 8	Willmar	Freda's Bord

Program

Adjusting to the Current Feed Situation. George M. Speers, associate professor, Department of Animal Science, University of Minnesota.

Reducing Losses in Egg Handling. Melvin L. Hamre, extension poultry specialist, University of Minnesota.

These meetings are scheduled from 7 to 9 p.m. at the above locations. Come and meet with others in the egg business for a dutch treat dinner scheduled for 6 p.m. at the meeting place. Even though the egg market has strengthened, higher costs of feed and other production inputs make the production of a maximum number of salable eggs, at least cost from each flock, the prime concern of the producer. Join us in the discussions at these March meetings.

Calculating Protein Intake

One measure of adequate laying hen nutrition is daily protein intake. If hens are eating more feed than normal, protein levels can be reduced with a saving in feed cost. When hens eat less than anticipated amounts of feed, the protein level may have to be increased to maintain the necessary average daily intake per hen. If we know the percent of protein in the feed and the amount of feed consumed per day the gram equivalent table can be used to calculate daily protein intake.

When hens eat 19 pounds of feed per 100 hens per day, the average hen consumes 86.2 grams of feed per day. If the ration contains 18 percent protein, multiply the intake in grams by the percent protein ($86.2 \times .18 = 15.5$): protein intake would be 15.5 grams per hen per day.

Today's laying hens use diets of from 15 to 18 percent protein most economically. As protein levels become more marginal, the amino acid balance becomes more important and feed consumption and layer performance must be watched more closely.

Gram Equivalent Table

Pounds feed per 100 hens/day		Grams feed per hen/day
18.0	=	81.7
18.5	=	83.9
19.0	=	86.2
19.5	=	88.4
20.0	=	90.7
20.5	=	93.0
21.0	=	95.3
21.5	=	97.5
22.0	=	99.8
22.5	=	102.1
23.0	=	104.3
23.5	=	106.6
24.0	=	108.9
24.5	=	111.1
25.0	=	113.4

Some suggested minimum daily requirements of protein for various ages of laying hens follow:

Pullets in production, but not yet having reached their peak (22-36 weeks)—17 grams.

Pullets beyond peak production, but still gaining appreciable body weight (36-52 weeks)—16 grams.

Adult hens (52 weeks or more)—15 grams.

When faced with higher prices of almost all ingredients used in poultry feeding, each percent of protein that can be reduced is money in the producer's pocket from the standpoint of reducing per ton feed cost and feed cost per dozen eggs produced.

M. L. Hamre

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