

The Problem of 'Lame' Chickens and Turkeys

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POULTRY—perhaps because of the fact that evolution resulted in the transformation of their forelimbs into wings, with a resultant greater strain on their remaining two legs—seem much like people in being bothered by “bad feet.” Frequently the cause lies in a sort of “no man’s land” between nutrition and management, but the fact remains that a host of disorders of the feet and legs of chickens and turkeys continues to plague the veterinarian, the nutritionist and the poultryman.

The most serious problems of this nature may be classified under five rather broad headings: (1) hock deformities; (2) foot troubles; (3) bone problems; (4) special muscular problems; (5) neural problems. It is the purpose of this paper to discuss some of the nutritional and environmental factors, with no attempt at a discussion of the diseases involved.

HOCK DEFORMITIES

Perosis occurs in several easily recog-

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nized forms and is caused by a multiplicity of factors. True perosis, or slipped tendon, is a condition wherein the main tendon on the back of the hock joint slips from its condyle and draws the shank outward, permanently crippling the bird. Another type of perosis—atypical perosis—may appear as “spraddled legs” in very young chicks or poults or as bowed legs in older turkeys. In this condition, the tendon does not slip from its condyle, but the hocks and leg bones show various degrees of deformity. Unfortunately, in poults, quite often some of the largest and apparently strongest poults develop enlarged hocks or perosis when nearly of market weight. The loss of such poults represents a very serious loss to the turkey grower.

Both types of perosis may occur because of faulty management or because of a genetic susceptibility. It is well-known that forcing the chicks or poults to roost on hard, slick surfaces and on wire floors will increase the incidence of hock ailments. Rapid growing strains are more susceptible and the incidence is usually greater in males than in females.

From the nutritional standpoint, in chicks, perosis is usually caused by manganese deficiency or an imbalance of phosphorus and calcium. Either too little or too much phosphorus and calcium can cause true perosis. Normally, for chicks, the manganese level should be above 30 mg. per pound of diet, calcium, 1-1.3 percent, and phosphorus, 0.6-0.75 percent. Furthermore, of the phosphorus, a minimum of 0.45 percent should be inorganic or highly available phosphorus.

For poults, the causes of perosis and enlarged hocks are much more complicated and less well understood. In addition to manganese deficiency and phosphorus and calcium imbalance, the following nutritional deficiencies have been reported to be implicated: choline; niacin; vitamin E; B₁₂; an unidentified factor in dried brewer's yeast. It would appear desirable to insure that poult diets contain (per pound) a minimum of 40-50 mg. of manganese, 750 ICU of D, 10 IU of E, 30-40 mg. of niacin, 1000 mg. choline, and 6 micrograms of vitamin B₁₂. The starter diet should also contain a minimum of 1 percent of yeast product such as dried brewer's yeast.

Calcium and phosphorus should be supplied in a 2:1 ratio, with 2 percent calcium and 1 percent phosphorus being considered about optimum. Of the 1 percent phosphorus, at least one-half should be readily available or inorganic phosphorus, such as supplied by steamed bone meal, dicalcium phosphate or defluorinated rock phosphate.

FOOT TROUBLES

Of the various deformities of the feet of poultry, curled toe paralysis in chicks is the most dramatic. In true curled toe paralysis, as caused by a riboflavin deficiency, the chick is first seen to be inclined to sit on its hocks a great deal even when eating, if possible to do so. The toes curl inward until the bird seems to almost have clenched his toes into a "fist."

This type of toe deformity seldom occurs with modern-day rations because of

the high fortification with B-vitamins commonly practiced today. Furthermore, even when one attempts to produce this syndrome by deliberately feeding diets very low in riboflavin only about 5 percent of the chicks develop curled toe paralysis. Therefore, of the field cases, where a high incidence of "crooked toes" is reported, probably very few are caused by riboflavin deficiency. Most of the cases of "crooked toes" in young birds are caused by faulty management, although some strains of chicks and poults will show a higher incidence than others under the same management. Cold floors, hard-packed litter, slick paper placed on the litter, slow hatching and wire floors all contribute to the development of a high incidence of crooked toes. Crowding also has been reported to increase this trouble.

Unfortunately, the more rapid growing strains seem most susceptible. The prevention must depend, therefore, for the most part on proper care and management rather than on selection.

Chicks and poults sometimes develop a dermatitis of the feet and legs so severe that fissures and bleeding may occur on and between the toes. The consequent aggravation caused by other birds picking at the sore spots, particularly when birds are confined to crowded quarters, may be a source of real trouble. Such cases of dermatitis usually respond to treatment if a highly-fortified feed is provided. Several of the B-vitamins may be implicated—in chicks, pantothenic acid and biotin deficiencies are usually the cause, while in poults a riboflavin deficiency may also be a contributing factor.

Another ailment observed occasionally in chickens is articular gout. Though primarily an ailment of mature birds, it is sometimes observed in young chicks, especially those fed high-protein diets. The disorder is characterized by internal deposits of urates in the toes and feet, causing abnormal swelling so that the bird gets around only with great difficulty. The condition can usually be alleviated by reduction of the protein level of the feed and forced exercise.

BONE PROBLEMS

Rickets is so well known that it should need no discussion in a paper of this sort. Vitamin D deficiency rarely occurs with modern fortified rations. The possibility does exist, however, that the vitamin D used may mistakenly be D₂ which is practically useless for chicks and poults, and therefore one should not rule out rickets.

A new problem, encountered fairly commonly with caged layers, is called—because of lack of a more descriptive name—“cage fatigue.” This trouble is easily confused with rickets, but there are several specifically distinguishing differences: (a) egg shells are normal; (b) bones, although easily crushed, are normal in ash content; (c) blood calcium levels are not depressed.

In many cases of cage fatigue, birds will recover spontaneously if removed from the cage and placed on the floor with feed and water readily available. There is no known nutritional cause; increasing levels of many of the vitamins and of calcium, phosphorus and trace minerals having been tried with no benefit. It seems most likely that the condition is caused by the stress of close confinement on an unnatural floor.

Occasionally, the osteopetrotic form of lymphomatosis affects the bones of a bird to the extent that the shanks may be double their natural size. Sometimes also known as “marblebone,” the disease is characterized by bones in which the walls are much harder than normal and the marrow space is greatly reduced. The structure of the bony tissue is spongy in appearance but not in consistency.

SPECIAL MUSCULAR PROBLEMS

“Penquin stance” is a condition in laying hens where the hen walks in an upright fashion, with head held abnormally high and abdomen drooping almost to the floor. A muscular weakness brought about by vitamin D deficiency is usually the cause. Heavy laying hens are the first afflicted and when fed high levels of D₃ will quickly recover. The trouble will

ordinarily be preceded by the laying of soft-shelled eggs. It should be noted, however, that heavy “internal layers” also show this same posture.

Ruptured tendons is a costly trouble occurring increasingly in broiler flocks. It is characterized by lameness and seeming “laziness” on the part of chickens 8 to 10 weeks of age. In some cases, the main tendon of the leg may actually rupture, but in most afflicted flocks a severe tendonitis is more common. In any event, birds are reluctant to move, eat sparingly and may therefore lose weight. In broilers, the consequent discoloration of the legs caused by rupture of small blood vessels results in a severe down-grading at the processing plant.

Flocks of extremely rapid growing broilers have shown an incidence as high as 40-50 percent of this tendonitis, and it is thought to be due to a combination of stress factors, particularly extreme weight at an early age and crowded conditions. Since rapid growth seems to aggravate this condition, as well as hock and foot troubles, it is a mistake to attempt to push replacement pullets for the fastest possible weight gains.

NEURAL PROBLEMS

Several rather common diseases of poultry are characterized by nervous symptoms, but in addition, some of the commonly used feed additives may produce very similar symptoms. The best advice one can give on this point is that poultrymen observe carefully the manufacturer's directions in regard to the use of any medicated feed and that further medication—either in the feed, in the water, or direct—be undertaken only after a careful evaluation of the whole situation, preferably by a veterinarian.

All too often, the poultryman, observing a “slump” in feed consumption of his flock, will begin using an appetizer either in the drinking water or on the feed. Sometimes, this added appetite-stimulating material may contain a drug already in the feed and thus the drug level is increased beyond the toxicity tolerance limits.

End.