threat to commercial turkey operations by acting as a natural reservoir for these diseases and parasites.

EXPOSURE OF CHICKEN EGGS TO AN ELECTROMAGNETIC FIELD PRIOR TO INCUBATION

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White Leghorn eggs were exposed to electromagnetic (EMG) fields prior to incubation. The eggs were individually rolled through a magnetic coil (patent number: 3,910,233) with an exposure time of 3 sec per egg. Hatchability percentages and body weights of chicks from control and treated eggs were determined at 20.5 and 21.5 days of incubation.

The treated eggs of Trial 1 were exposed to a 90 gauss EMG field produced by a direct current. The 4 treated groups of Trial 2 consisted of the following: 1) direct current-125 gauss, 2) direct current-160 gauss, 3) alternating current-125 gauss, and 4) alternating current-160 gauss.

It was concluded that the levels of EMG energy utilized in these trials had no effect on hatchability percentages, body weight means, or hatching time. These results were in contrast to the United States patent (3,910,233) description issued October 7, 1975, which claims that comparable levels of EMG energy caused a 5 to 8% increase in hatchability percentages when compared with untreated controls.

CREATINE PHOSPHOKINASE AS AN ASSAY FOR GREEN MUSCLE DISEASE IN TURKEYS

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Green muscle disease is found primarily in older turkeys as a degenerative myopathy of the deep pectoral muscle (*M. supracoracoideous*). Live bird diagnosis based upon identification of a depression in the breast surface is unreliable due to the extreme variation of muscle tissue loss. On evidence from other species, it was hypothesized that the onset of the muscle degeneration may produce a transient increase in the blood level of the enzyme creatine phosphokinase (CPK) through its release from the degenerating muscle cells.

Blood sampling of a flock of small white turkeys started when the birds were 16 weeks of age and continued to 79 weeks. Each individual was sampled 18 to 20 times with weekly samplings between 45 and 62 weeks of age. Necropsy showed negative results for all males but 11 positives among the 70 females.

The ln transformed CPK plasma levels were adjusted for time of bleeding and the 70 females were ranked on the basis of the magnitude of the deviation of the bird's maximum CPK level from its mean. The seven highest ranking birds were positives; the remaining positives ranked 11th, 12th, 17th, and 29th. The maximum deviations in the affected birds occurred between 20 and 60 weeks of age (nine birds with maxima between 47 and 60 weeks). These results indicate that the determination of plasma CPK levels from serial blood sampling could be a method for identifying birds afffected with green muscle disease.

EFFECT OF DIETARY SAND ON FEED CONVERSION OF BROILERS AND LAYING HENS

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Two experiments were conducted with layers and broilers to evaluate builders sand as a feed additive.

In Experiment 1, 304 Single Comb White Leghorn pullets were fed a typical layer diet supplemented with either 0, 5, 10, or 15% builders sand for twelve 28-day laying periods. Egg production on a hen day basis was 80.76, 81.64, 80.83, and 81.14%, respectively. When the amount of sand in the diet was removed from calculations, the corresponding feed conversions were 2.64, 2.56, 2.55, and 2.49 kg feed/kg egg.

In the second experiment, 540 day-old broiler chicks were fed 18 diets with 0 or 6% sand, containing either 20, 23, or 26% protein each, with 2900, 3050 or 3200 kcal ME/kg. Increasing the protein level from 20 to 26% had no effect on body weight or feed conversion. However, increasing the caloric content from 2900 to 3200 kcal produced a significant improvement in feed efficiency without influencing body weight. In general, the addition of sand to the diet improved caloric efficiency without influencing three-week body weights.

The addition of up to 15% builders sand to the diet of laying hens resulted in an improvement in feed efficiency; adding 6% sand to broiler diets also improved feed efficiency.

OXIDATION OF [U-^{14}C] PALMITIC ACID BY COCK SPERMATOZOA

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When washed cock spermatozoa were incubated with [U-^{14}C] palmitic acid at 37C for 2 hr under aerobic conditions, radioactivity was recovered as carbon dioxide indicating the fatty acid was oxidized. Little if any radioactivity was recovered as carbon dioxide when spermatozoa were killed by boiling, indicating the necessity for live and intact spermatozoa for the successful incorporation and oxidation of palmitic acid.

To determine whether the oxidation of palmitic acid could serve as a source of energy for cock spermatozoa, ATP concentrations of spermatozoa were compared immediately following ejaculation and after 1, 2, and 3 hr incubation (37C) with and without the addition of palmitic acid. At 1, 2, and 3 hr of incubation, spermatozoa with palmitic acid as a substrate produced significantly ($P<.03$) more ATP (2.62, 2.24, and 1.26 ug ATP/10^9 cells, respectively) than did spermatozoa without palmitic acid (1.62, 1.11, 0.79 ug ATP/10^9 cells, respectively). These findings indicate that palmitic acid, one of the most abundant long-chain saturated fatty acids in cock spermatozoa, can be utilized as a