

**RELATION OF HIGH ENVIRONMENTAL TEMPERATURE, STARVATION AND CORYZA
TO SEVERAL BLOOD CONSTITUENT LEVELS OF NEW HAMPSHIRE CHICKENS.**

Robert L. Squibb, Miguel A. Guzmán and Nevin S. Squires Instituto Agropecuario Nacional and Instituto de Nutrición de Centro América y Panamá, Guatemala, C. A.

The effects of high environmental temperature, starvation and coryza on the levels of several blood serum constituents of New Hampshire chickens were observed. Temperatures of 99° F over a 7 day period decreased feed intake and increased water consumption of 6 week cockerels without producing significant changes from control serum values of protein (3.37 gm.%), ascorbic acid (2.23 mg.%), riboflavin (1.13 µg.%), vitamin A (41 µg.%) and total carotenoids (332 µg.%). Ten control 8 month old cockerels had serum levels of 4.73 gm.% total protein, 1.11 µg.% riboflavin, 2.02 mg.% ascorbic acid, 32 µg.% vitamin A, and 367 µg.% carotenoids. Twenty similar birds were supplied water ad libitum but totally deprived of food without any of the constituents measured approaching "critical" levels, although six birds died from starvation. Serum values after 10 days of starvation were; total proteins, 4.30 gm.%; ascorbic acid, 1.35 mg.%; riboflavin, 2.19 µg.%; vitamin A, 31 µg.%; and carotenoids, 249 µg.%. The increase in riboflavin and decreases in ascorbic acid and carotenoids were statistically significant. Adult hens naturally infected with coryza showed significantly lower serum vitamin A (10 controls 35 µg.%, 10 infected 9 µg.%) and ascorbic acid levels (2.09 mg.%, 1.53 mg.%) without alteration of serum proteins (4.58 gm.%, 4.67 gm.%) or carotenoids (279 µg.%, 203 µg.%). Since infected birds had adequate serum levels of carotenoids, interference with carotenoid conversion to vitamin A may have occurred. Higher, serum riboflavin levels (controls 1.92 µg.%, infected 0.93 µg.%) were observed in birds with coryza. The effects of coryza on blood serum constituents were substantiated by additional observations on 22 control and 22 infected birds of both sexes and varying ages.
