

FATTY LIVER AND KIDNEY SYNDROME IN BIOTIN SUPPLEMENTED  
BROILER CHICKS

P. STEELE\*, G. DONCON\* AND J. EDGAR\*

A low biotin status at hatching and a marginal deficiency of dietary biotin have been associated with Fatty Liver and Kidney Syndrome (FLKS) in broiler chicks (Payne *et al* 1974). The therapeutic effect of biotin supplementation in outbreaks of FLKS has been shown; mortalities decreased and growth was maximised when the biotin concentration in the diet was increased to 150 µg/kg (Payne *et al* 1974; Whitehead *et al* 1976). In Western Australia FLKS mortalities occur in up to 3 per cent of birds in individual broiler flocks despite the practice of biotin supplementation of both the breeding stock ration (250 µg/kg) and the broiler starter ration (200 µg/kg).

In this study, biotin was assayed in the livers of histologically confirmed FLKS-affected and clinically normal birds fed a standard biotin supplemented ration in a commercial flock and in a research station experimental flock. Biotin was assayed in liver and feed samples by the radiochemical method of Hood (1979).

Pearson and Hemsley (1976) recorded relatively low levels of biotin in livers from clinically affected FLKS chicks when compared to levels in normal chicks fed a diet containing 106 µg biotin/kg. In our study, the mean biotin level assayed in the liver of FLKS - affected chicks ( $360.7 \pm 133.9$  ng/g wet wt, n = 20) was significantly lower than the mean liver level for normal chicks ( $1743.0 \pm 123.4$  ng/g wet wt, n = 20) fed the same ration containing 250 µg biotin/kg. The results suggest that FLKS is an individual bird problem of biotin uptake from the ration and/or biotin turnover. An experiment is in progress to examine the efficacy of biotin supplementation through the water for the prevention and treatment of FLKS.

HOOD, R.L. (1979). Methods of Enzymology 62: 279.

PAYNE, C.G., GILCHRIST, P. PEARSON, J.A. and HEMSLEY, L.A. (1974). Br. Poult. Sci. 15: 489.

PEARSON, J.A. and HEMSLEY, L.A. (1976). Br. vet. J. 132: 86.

WHITEHEAD, C.C., BLAIR, R., BANNISTER, D.W., EVANS, A.J., and MORLEY JONES R. (1976). Res. vet. Sci. 20: 180.

---

\* Animal Health Laboratory, Dept of Agriculture, Sth Perth, WA 6151.