

NUTRITIONAL METHODS OF MOULT INDUCEMENT

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The traditional method of food denial by which laying hens have been induced to moult is likely to become unacceptable throughout Australia. Alternatives must be found if moulting is to be induced at will. Of the options available nutritional methods are likely to be more practical.

Three methods of moult inducement were compared with an unmoulted control group fed ad libitum a conventional laying diet:-

(1) Withdrawal **programme** where food was denied for 9 days followed by a gradual return to full feed at day 22.

(2) Oats programme where after one day of feed denial crushed oats were restrictively fed (**20g/bird d**) from days 2 to 14 then ad libitum followed by a return to full feed at day 29.

(3) Rice-hulls programme where a diet containing 90% rice-hulls was fed ad libitum for 3 weeks before returning to full feed.

I The four treatments were each imposed on 28 birds of Hyline (W x NH), Steggles (78 weeks of age) and Tegel (72 weeks of age) strains. There were no significant strain x moulting regimen interactions.

The moulting regimens were effective in reducing egg production to zero or a near zero level a week after their introduction. Body weight was reduced (**P<0.01**) in all regimens compared with the Control but the almost complete rejection of the rice-hulls diet (**6.9g/bird d**) resulted in the greatest loss in body weight (35%) occurring in this treatment.

The specific gravity of eggs laid before the cessation of lay was depressed (**P<0.01**) but the provision of free-choice oyster-shell-grit in both the Withdrawal and Oats programmes on days 1 to 6 and 2 to 28 respectively was of benefit (**P<0.01**) in lessening the reduction.

The length of the period between the return to full feed and the commencement of the rapid recovery in egg production was positively related to the severity of the nutritional stress imposed as measured by body weight at the time of returning to full feed. For treatments (1), (2) and (3) the respective values were: 1.69 kg, immediate response; 1.57 kg, one week delay; 1.30 kg, two weeks delay. In the latter two treatments the recoveries in egg production were not initiated until the week following the completion of their recovery in body weight.

Following the 'recovery of egg production and the return to normal levels of food consumption, the moulting treatments laid 17% more eggs (**P<0.01**) of higher specific gravity (**P<0.01**), laid fewer uncollectable eggs and consumed 12% more feed (**P<0.01**) than the Controls. Food conversion ratio (w/w) for the moulting treatments. (2.46) was lower (**P<0.05**) than for the Control birds (2.92). The Rice-hulls regimen had higher (**P<0.05**) egg production but a similar food conversion ratio to the other moulting treatments. Moulting resulted in a significantly higher (**P<0.01**) specific gravity after the recovery of egg production.

The results suggest that for the Oats regimen; returning birds to restricted amounts of laying diet (**55g/bird d**) at day 15, then to full feeding at day 22 may provide a recovery rate and subsequent production similar to that of the traditional Withdrawal treatment.

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