RESEARCH NOW

Chromium-Methionine Complex Reduces the Negative Effects of Feed Restriction in Japanese Quail

Introduction:

Previous research has indicated positive performance responses from supplementing chromium-methionine complex to Japanese quail. This experiment was to determine the effect of chromium (Cr) supplementation and feed restriction on reproductive performance of Japanese quail.

Trial Design & Duration:

- 320 Japanese quail breeders (240 female, 80 male)
- 13 wks of age
- Randomly assigned and placed in 40 cages
- 6 wk trial period (2 wk adjustment, 4 wk data collection)

Treatments:

0 ppb Cr	100 ppb Cr
• FR 0%	• FR 0%
• FR 10%	• FR 10%
• FR 20%	• FR 20%
• FR 30%	• FR 30%

Conclusion:

While Cr supplementation had no effect on egg production (P=0.25), Cr from chromium-methionine helped maintain reproductive performance of Japanese quail breeders in terms of negating the effects of feed restriction (up to FR 20%).

Results:

- Feed Restriction (FR) generally reduced fertility, egg production and hatching eggs.
- Cr tended to alleviate the negative effects of FR, as evidence by the following:
  - Cr tended to increase hatching eggs (P=0.09)
  - FR 20% + Cr had similar hatching eggs as FR 0%
  - FR 20% + Cr had similar fertility as FR 0%

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ABSTRACT

1395 Interaction of Chromium Methionine Supplementation and Feed Restriction on Reproductive Performance of Japanese Quail. G. Contreras*, R. Soto, A. Montoya, and R. Barajas, *FMVZ-Universidad Autonoma de Sinaloa (Mexico)*.

This study was to determine the effect of chromium methionine supplementation and feed restriction on reproductive performance of Japanese quail. Three hundred twenty Japanese quail breeders (240 females and 80 males: 13 weeks old) were used in a randomized design experiment with 2 x 4 factorial arrangement to test two chromium (from chromium-methionine:Cr) feed supplementary levels (0 and 100 ppb of Cr) and four feed restriction (FR) levels (0, 10, 20, and 30%). Quails in groups of eight (6 females and 2 males) were randomized designated to be placed in 40 wire cages (50 x 60 cm), with automated drinker and fed with a 22% CP and 2.9 ME Mcal/kg diet. Five cages (8 quails) were randomly designated to each of eight treatment resultant of factorial arrangement. After two weeks of starting the trial, eggs were collected across four weeks, select for hatching, placed in hatching machine and incubated. Egg production was diminished ($P<0.01$) with FR of 30%. Cr had no effect ($P=0.25$). Hatching egg was decreased ($P<0.01$) by FR-20 and FR-30, Cr tended ($P=0.09$) to improve it, and an interaction Cr x FR was observed ($P<0.01$), FR-20% with Cr-100 shown similar values than control (70 vs 66%). Fertility was reduced by FR ($P<0.01$) at any level, interaction FR x Cr ($P<0.01$) was observed. FR-20% supplemented with 100 ppb of Cr exhibit similar fertility to the 0% of FR treatment (55 vs 50%). It is concluded that diet supplementation with 100 ppb of chromium from methionine helps to maintain the reproductive performance of Japanese quail breeders under up to 20% feed restriction program.

Key Words: Japanese quail, Chromium, Feed restriction

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