Cottonseed meal diets improve body weight uniformity in broiler breeder pullets

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Diets – cottonseed meal

- Breeder pullet rearing diet contained 20% cottonseed meal vs. standard corn soybean meal diet (2860 kcal/kg and 15.5% crude protein).
- Cottonseed meal was processed by expander solvent extraction methods and contained 1.5% total and 0.15% free gossypol.
- Treatment diets fed from 2-18 weeks of age, and all birds fed a standard pullet rearing diet until 21 weeks of age (cottonseed meal removed 4-5 weeks before start of lay).

Diets – cottonseed meal

- Breeder pullets were weighed weekly from 2-32 weeks of age and body weight and coefficient of variation calculated.
- Egg production, fertility and hatchability was measured and reported on a weekly basis through 32 weeks of age.
- Feed allocations were increased by 6.3 to 12.5% during rearing to allow similar growth in the pullets receiving cottonseed meal diet.

Diets – cottonseed meal

- Generally, the cottonseed meal feed pullets were more uniform (coefficient of variation, 13.1 to 16.38% CV).
- Total gossypol levels in the livers of the pullets reached a high of 416 ug/g liver at 14 weeks of age (12 weeks after feeding) and declined to 8.6 ug/g liver at 32 weeks of age in the hens (13 weeks after removal).

Diets – cottonseed meal

- No differences in egg numbers through 32 weeks of age (peak egg production of 80% in CSM and 78% in SBM).
- No differences in fertility (range with natural mating of 87.1 to 98.8% from 25 to 32 weeks of age).
- No differences in hatchability (range of 56.8 to 89.6% from 25 to 32 weeks of age).
- No difference in egg weight.

EFFECTS OF DIETARY MENHADEN OIL ON FERTILITY AND SPERM QUALITY OF BROILER BREEDER MALES

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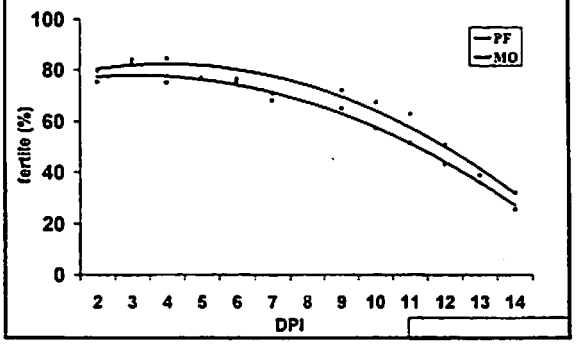
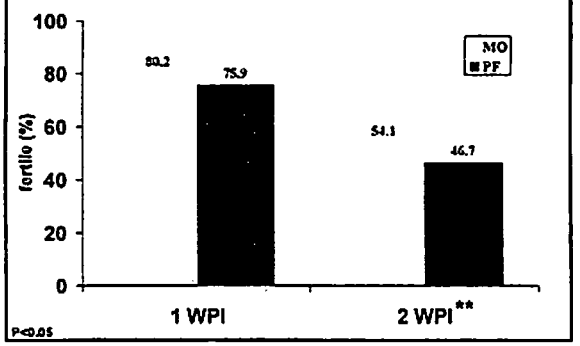
Diets – Menhaden oil replacement of poultry fat

- Broiler breeder males were fed a standard industry formulated rearing diet with one of two fat sources, 3% **poultry fat (PF)** or 3% **Menhaden oil (MO)** and continuing the fat sources at the 2% in the lay period.
- Hens were inseminated from pooled semen samples within dietary treatment at 47, 50, 53, 56, 59, 62 and 65 weeks of age.
- Low insemination dose (50 µL diluted semen, 7.5 x 10^7 sperm) so as not to mask potential sperm quality differences.

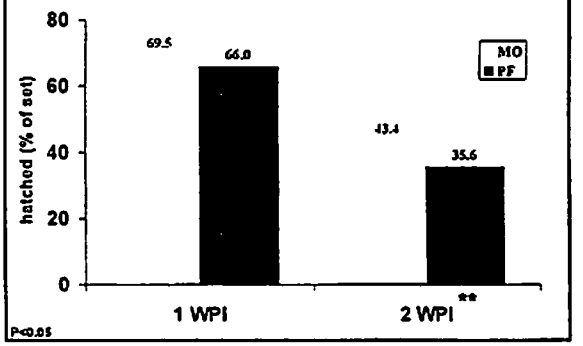
Fertility by Days Post-Insemination



Fertility by Weeks Post-Insemination



Hatchability of Total Eggs Set



Conclusions

- Dietary Menhaden oil enhanced fertility and hatchability during the second week post insemination.
- Dietary Menhaden oil for would be most effective in improving fertility in older flocks (lower mating frequency and poorer sperm storage in the hen).
- Dietary Menhaden oil for males may enhance sperm livability in the oviduct.
- Providing Menhaden oil to males may be a simple means to improving fertility.