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Influence of Different Levels of Bee Pollen on Productive and Reproductive Performance of New Zealand White Rabbits

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SUMMARY AND CONCLUSION

The present study was carried out at private sector rabbit farm, whereas the analyses of samples and data were carried out at animal production research institute and Department of Animal and Poultry Production, Faculty of Agriculture, Alexandria University (Damanhour branch) during breeding season 2007/2008 from October to February (moderate climate) and during the hot climate period .from May to September

The effect of bee pollen supplementation on productive and reproductive performances of adult doe rabbits and their offspring growth performance during moderate and hot climate were studied on 40 NZW doe rabbits. The animals were divided into four equal groups of 10 doe each. The first group had been served as a control, while the second, third and fourth groups were treated by bee pollen orally with water suspension containing 100, 200 and 300 mg/ kg body weight/day, respectively daily for two weeks (one week before mating and second one after mating) for three consecutive mating (rabbit does were mated with non-treated adult male NZW rabbits after 11 days from .(the last kindling

Body weight, body weight gain, number of service per conception, conception rate, feed intake, litter size, milk production, blood constant, and weight from birth day till weaning and livability rate .through this period were measured

Twenty growing rabbits were taken from does treated with 100, 200 and 300 ppm of bee pollen and 80 from the unsupplemented control. The rabbits from treated does were not given bee pollen during the growing period 4-12 wk of age. The rabbits from the un-supplemented control were divided among four experimental groups given 0, 100, 200 and 300 ppm of bee pollen twice per week during 4-12 wk of age. Body weight at 4 weeks, body weight gain, feed intake, feed conversion and livability rate were recorded through the periods from 4-8, 9-12 and 4-12 weeks of age, respectively. The growing rabbits were experimented

without any treatment to study the maternal effect of the treated does with bee pollen compared to the treatment at offspring level during hot .and moderate climate

:The main results were as follows

١- Bee pollen supplementation significantly improved body weight of does and conception rate, litter size, milk yield and body weight of offspring until weaning and after weaning and improved FCR and livability of offspring after weaning, while decreased feed intake of does and their offspring after weaning. The results indicated that 200 .ppm was the most effective dose

٢- Plasma hormones such as E2, P4 and P2/P4 as well serum creatinin, glucose, total lipid, cholesterol, serum protein, albumin, globulin, AST and ALT were significantly affected by bee pollen level showing the .best effect when 200 ppm bee pollen were administrated

٣- Bee pollen supplementation at 200 ppm improved growth performance of offspring from 4 to 8 wks of age compared to administration at the offspring level, while the vice versa was observed from 9 to 12 wks of age. However, the overall effect on growth was better of doe treatments compared to offspring treatments, although the effect of offspring treatment was significantly better for livability .of offspring from 4-12 wk of age

٤- Hot climate had a significant negative impact on most of productive and reproductive traits of does and offspring before and after weaning and the effect of hot climate associated with a decrease in feed intake at .both the doe and offspring level

٥- Parity number showed a significant effect on body weight of does after week of mating, body weight of offspring at birth and at 21 d of age and milk production as well as litter size at 7 d. The results indicated that body weight of does increased with increasing parity number, while body weight of offspring at 7 and 21 d of age was higher at the 2nd and 2nd and 3rd parity respectively. This could explain partially the improvement in milk yield at 3rd parity at 7 d of age. On the other hand, litter size at 7 d of age was higher at the 1st parity .which was not expected

٦- There was significant interaction between bee pollen level and climate of on offspring body weight at birth and 14 d of age and milk yield at 28 d of age, and serum creatinin, glucose and total lipids. Also, a significant interaction between bee pollen level and hot climate was shown in growth and feed intake of offspring only during 9-12 wk of age and the higher growth was associated with feed intake to some treatments.

٧- There were several significant interaction between climate of the reproduction and parity number, between level of bee pollen and sampling time, climate of reproduction and sampling time doe treatment and climate of reproduction.

٨- A three-way interaction among bee pollen level, climate of reproduction and sampling time was observed in serum creatinin and total lipids.

Conclusions:

Bee pollen is confirmed an interesting prebioti

c in rabbits, able to improve productive and reproductive performance. From the our results, the better concentration to use been pollen is 200 ppm. In fact, at this level, both does and growing rabbits improved body weight gain and reduced feed intake. Moreover, does showed an improvement of conception rate, litter size and milk production and blood biochemical profiles due to bee pollen administration at 200 ppm. The positive effect of bee pollen is not depending from the climate even if during moderate climate, due to the high level of feed intake, the growing rate of rabbits is higher.

In conclusion, bee pollen can represent an important resource to promote performance of rabbit also under heat stress conditions.