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Effect of chitosan supplementation on productive and physiological performance in rabbits

By

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ABSTRACT

This experiment was designed to study the effects of chitosan supplementation (as natural feed additives) on some productive characteristics of growing rabbits and reproductive and physiological performance of adult New Zealand White rabbits (NZW). Sixty-four NZW rabbits at 5-weeks old (24 males and 40 females) were used in this study. Animals were individually weighed and randomly divided into four equal experimental groups (16 rabbits each, 6 males and 10 females). The 1st group was served as a control group, which was fed only on a basal diet. The other three experimental groups were fed a basal diet supplemented with three levels of chitosan: 0.2, 0.4, or 0.6 g chitosan /kg diet, respectively. All animals used in the growth experiment, which extended up to 8 weeks. After finishing the growth experiment, three males and five females from each group were kept to complete the reproductive experiment, which continued up to 3 parities. Results of this study revealed that, there were significant differences among treatment groups in most studied traits. Growing rabbits fed chitosan at level 0.2 g /kg diet had significantly increased final body weight, weight gain and improved feed conversion ratio compared with other treatments. Also, animals received chitosan at level 0.4 g had significantly higher total protein than those recorded in control and at level 0.6 groups. Likewise, the highest levels of glucose and HDL ($P \leq 0.05$) were detected in animals received chitosan at level 0.2g /kg diet compared with control and other treated groups. Bucks fed chitosan at levels 0.2, and 0.4 g/kg diet had significantly earlier time of sexual libido and higher whole and net ejaculate volume, sperm concentration and total motile sperm /ejaculate than those recorded in other groups. Also, receptivity percent, conception rate and kindling interval were significantly improved in females fed chitosan at levels 0.2 and 0.4 g/kg diet compared with other groups. Moreover, economic efficiency was increased, and relative profit was improved in all chitosan groups especially at level 0.2g/kg diet compared with control group. It could be concluded that, using chitosan at level 0.2 g/kg diet increased significantly growth performance, reproductive efficiency, and economic efficiency of NZW rabbits.

Key words: Rabbit, chitosan, growth performance, semen quality, reproductive efficiency.

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