

EFFECTS OF *Bacillus subtilis* PROBIOTIC STRAIN ON GROWTH
PERFORMANCE, VILLI HEIGHT AND IMMUNE RESPONSE
AGAINST INFECTIOUS BURSAL DISEASE (IBD) OF
BROILER CHICKENS

THESIS

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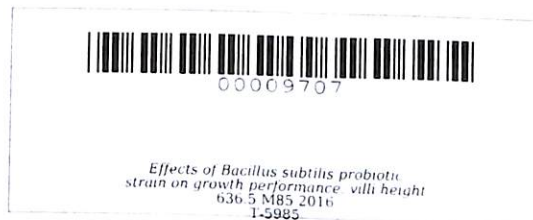
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**EFFECTS OF *Bacillus subtilis* PROBIOTIC STRAIN ON GROWTH
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BROILER CHICKENS**

Undergraduate Thesis
Submitted to the Faculty of the
College of Veterinary Medicine and Biomedical Sciences
Cavite State University
Indang, Cavite

In partial fulfillment
of the requirements for the degree of
Doctor of Veterinary Medicine



RHODA MAY RACASA MOSASO
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ABSTRACT

MOSASO, RHODA MAY R. Effects of *Bacillus subtilis* Probiotic Strain on Growth Performance, Villi Height, and Immune Response Against Infectious Bursal Disease (IBD) of Broiler Chickens. Undergraduate Thesis. Doctor of Veterinary Medicine. Cavite State University, Indang, Cavite. April 2016. Adviser: Dr. Emmanuel R. Mago.

The study was conducted in a commercial farm in Morong, Rizal from May 2015 to April 2016 to determine the effects of *Bacillus subtilis* probiotic strain on production parameters such as average daily gain (ADG), feed conversion ratio (FCR), as well as its effects on villi length of jejunum and ileum and serological response to Infectious Bursal Disease (IBD) vaccination. A total of 4000 day-old chicks were randomly assigned and divided into 2 groups: the Control group which was subjected to the normal protocol of trial farm and Treatment which was supplemented with test material. The probiotic is not less than 10^{10} cfu/ 2 grams of powder mixed with 200 ml diluent and mixed with 200 liters of water with the final concentration of 10^6 and was given on day 10-11, day 13-15, day 21-22 and day 29-30. Each treatment was replicated twice with 1000 chicks per replicate.

Although not statistically significant at $p < 0.05$, the Treatment group showed better performance as reflected in the average body weight (1664 g), ADG (46.30g) and FCR (1.68) compared to Control with an average body weight of 1597.5 g, 45.08 g ADG and 1.76 FCR. However, the body weight gain on 3rd and last week was statistically different between the two groups. The average villi height of Treatment in both jejunum and ileum was numerically longer compared to Control but also not

statistically significant. Similar observation was noted in the immune response against IBD, wherein only two birds produced titer from the Treatment group.

Based on the data gathered, the *Bacillus subtilis* probiotic strain had a significant effect on body weight gain but no significant effects on ADG, FCR, villi height and immune response against IBD. It is recommended that further studies be conducted to evaluate the effects of *Bacillus subtilis* employing its administration at an early stage of rearing period with extended duration. In addition, administration with increasing dosages can also be considered.

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BROILER CHICKENS**

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An undergraduate thesis manuscript submitted to the faculty of College of Veterinary Medicine and Biomedical Sciences, Cavite State University, Indang, Cavite, in partial fulfillment of the requirements for the degree of Doctor of Veterinary Medicine with Contribution No. 10. Prepared under the supervision of Dr. Emmanuel R. Mago.

INTRODUCTION

The poultry industry has become an important economic activity in many countries and has developed in several areas such as nutrition, genetics and management to maximizing the efficiency of growth performance and meat yield. In the Philippines, it has been a significant contributor to the country's agriculture sector and as of January 1, 2014, the Bureau of Agricultural Statistics (BAS) reported that the total chicken population was 167.67 million birds or 0.77 percent higher than previous year's headcount of 166.39 million birds. The inventory of broilers and improved native breeding grew by 4.03 percent and 1.19 percent, respectively.

Poultry are nowadays raised under intensive production systems in densely populated colonies or flocks to achieve high levels of economic efficiency. During this