

THE EFFECT OF PROBIOTIC BIOPLUS ON DIGESTIBILITY AND REPRODUCTIVE PERFORMANCE OF GOATS KEPT IN 32 °C THERMAL CHAMBERS

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ABSTRACT

Based on a previous study, average daily gain of cattle given Bioplus, was kept high although the animals were under environmental stress (Nucleus-Plasm Scheme in Lampung). In this study, goats were kept in 32 °C rooms. Eighteen mature goats (2 Ettawah crossbred males and 16 female bean goats, weighing average 16.3 kg) were randomly divided into 2 groups and kept in 32 °C thermal chambers. Each goat in either of the group was administered 100 g Bioplus that was given in the beginning of the study. They were kept for a 10 months experimental period. The diet consisted of approximately 70% *Pennisetum purpureum* and 30% *Leucaena leucocephala*. Water was available at all time. Bioplus increased dry matter digestibility (from 43 to 53%, $P < .05$) but the digestible dry matter intake was similar (18 vs. 20 g/kg LW). During the trial, 6 and 8 kids were obtained from the control and Bioplus groups, respectively. Average kid birth weight was 1.4 kg (sd 0.3 kg) and 1.7 kg (sd 0.4 kg) for the respective groups. Kid mortality was lower in Bioplus group (25 vs. 50%) indicating that milk production was higher in Bioplus group. However, incidence of abortions happened in Bioplus group only and this might be due to mismanagement (putting male among some pregnant goats). The study supports the previous suggestion that Bioplus could improve animal performance when they are subjected to warm thermal environment.

Key words: Bioplus, Goat, Heat stress

INTRODUCTION

Selecting rumen fluid containing microbes synergising with target microorganisms has been proposed by Winugroho *et al.* (1993). From the application in commercial feedlotter, it showed that Bioplus can be considered as one of the stimulating agent to increase average daily gain from 0.7 kg to 1.0 kg per day (Santoso *et al.*, 1995), to reduce calving interval of Bali cows in Lombok from 15 months down to 13 months (Winugroho *et al.*, 1995). Furthermore, Santoso *et al.* (1995) reported that addition of Bioplus was to maintain liveweight of Ongole crossbred during environmental stress. This will be very useful since areas producing cattle are located in wet tropic region in the country. Under laboratory condition, Bioplus was given to goats, which were kept in 32 °C rooms.

MATERIAL AND METHOD

Eighteen mature goats (2 Ettawah crossbred males and 16 female bean goats, weighing average 16.3 kg) were kept in 32 °C thermal chambers and randomly divided into 2 groups of 9. Each goat in either of the group was administered 100 g Bioplus that was given (per os) in the beginning of the study. They were kept for a 10 months experimental period. The diet consisted of approximately 70% *Pennisetum purpureum* and 30% *Leucaena leucocephala*. Water was available at all time. Kidding rate and birth weight were recorded. Feed intake and digestibility were estimated at the end of the study.

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RESULT AND DISCUSSION

Introducing Bioplus into goat rumen system increased dry matter digestibility from 43 to 53% ($P < .05$). This might be due to improved digestion rate in the rumen. However, the improvement of digestible intake was not statistically different (20 vs. 18 g/kg LW). Six and 8 kids were obtained from the control and Bioplus groups, respectively. Average kid birth weight was 1.4 kg (sd 0.3 kg) and 1.7 kg (sd 0.4 kg) for the respective groups. Kid mortality was lower in Bioplus group (25 vs. 50%) indicating that milk production was higher. However, incidence of abortus happened in Bioplus group only and this might be due to mismanagement (putting male in pregnant goats). Currently, cow management manual approved by the Directorate General for Livestock Services (DGLS) has included Bioplus in order to optimize calving interval (Anonymus, 1997).

CONCLUSION

The study supports the previous suggestion that Bioplus could improve animal

performance when they are subjected to heat stress.

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