

# Effect of 'Ceres Tonic' (*Plantago lanceolata*) on lipid Oxidation in Chicken Meat

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## INTRODUCTION

'Ceres Tonic' (*Plantago lanceolata*) is a perennial grazing herb and has been widely used in New Zealand as mixed pastures for the lambs. In this study, we assessed the growth performance and meat lipid stability of Hinai-Jidori chicken to examine the utilization of Ceres Tonic as feedstuff on chicken meat production and quality.

## MATERIAL AND METHODS

Twenty-one Hinai-Jidori chicks, 4-wk-old, were divided into control, Ceres Tonic (CT), and Grasslands Lancelot (GL) groups. The control chickens were fed only the mixed feed lacking plantain until 23-wk-old. The CT and GL group chickens were fed with the mixed feed (same as the control) on all the days and had complete access to Ceres Tonic or Grasslands Lancelot herbage in the paddock for 106 days from 8-wk-old to 23-wk-old.

After the thigh muscles were minced, meat samples were vacuum-packed with aluminum bag and frozen at -30°C. The sample was thawed and cooked in boiling water for 10 min. After cooling the sample, the TBARS value (Kikugawa et al., 1992) was measured immediately (defined as day 0), and the rest of cooked samples were stored under aerobic condition at 4° C for 3days and the TBARS values were measured (defined as day 3).

Comparisons among the treatment means were assessed by performing Fisher's PLSD test at a significant level of  $P < 0.05$ .

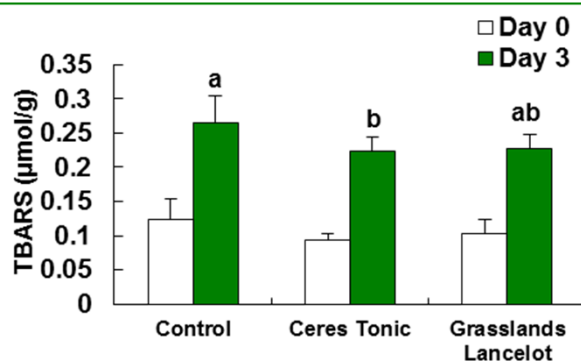
## CONCLUSION

We conclude that Ceres Tonic is a useful forage herb for producing the high-quality chicken meat.

## RESULTS

There were no significant differences in the body weight between the groups throughout the experiment period.

The TBARS at day 3 for values of the CT group was significantly ( $P < 0.05$ ) lower than that of control group. This result suggests that the Ceres Tonic has the high protection of meat against lipid oxidation, leading the shelf-life prolongation of chicken meats compared to those that were not grazing the plantain.



Bars with different letters above them (a, b) showed a significant difference ( $P < 0.05$ ).

Figure 1. The effects of plantain on TBARS values.