The Analysis of The Existence Antiparasitic Treatment on Parasitiasis Calves Breeding in Central Java

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ABSTRACT

The parasitic disease problems in animals are often unconscious, because its chronic diseases and low level of mortality but causes considerable economic losses, so that economic value of the action of disease treatment is very necessary. The objectives of this study was to determine the economic value of the parasitic disease treatment action at the level of the small holder farms. Average Daily Gain (ADG) data obtained from calves infested parasitic, one group of calve with treatment and one group without treatment for five weeks. The data of existence antiparasitic treatmet on parasitiasis calves was analysed using T-test and continued with Partial Budget Analysis for the data with significant different. Result showed that calves ADG with antiparasitic treatment improved (P=x.xx) by administering health management with anthelmintic and anticocci in 1st to 4th weeks. Result of the Partial Budget Analysis indicated that the increase in calves with improved management health produce additional income of 1.817.000 IDR/head.

Key Words: Antiparasitic, Calves, Parasitiasis, Partial budget analysis

INTRODUCTION

Parasitiasis is highly prevalent animal disease in Indonesia that caused by gastrointestinal parasit, especially in Centra Java as a one of breeding center accounted for significant economic losses across the various livestock species. In Magelang, one of the regency of Centra Java in Indonesia, the infection is common in all the important livestock species as a cattle particularly in calves as a product of breeding center. The reasons for persistence of this infection is due to the prevailing weather conditions, such as high rainfall and humidity, which is highly congenial for development of these parasitic infection and possess major risk to animal health management resulted in substantial economic loss. However, usually the risk as well as economic loss owing to this infection in remains unobservable due to lack of knowledge and poor awareness level (Hepworth and Hutchens, 2006). Moreover, adequate systematic study available in the state and the country level to estimate the possible production risk and economic loss due to this infection in livestock are also unavailable. A study in England (Tisdell et al., 1999) showed that the annual production calves estimated 3.2 million during the period and consequently is predicted the loss whole caused gastrointestinal parasites infection about 45 million Pounds Sterling/year.

Centra Java province has been identified as one of the potential areas for breeding center in Indonesia. Management of animal health is a major challenge, and it is important to examine the risk involved and their possible economic implication thereof. Therefore, the present study endeavors to assess the financial implication due to the parasitic infection and the existence of antiparasitic treatment particularly in calves. Diseases which occur in most or all livestock herds in a country or zone and cause some economic impact each year (e.g. parasitism, Johne's disease, mastitis) are the simplest to deal with, requiring a partial budgeting approach at herd level (Morris, 1999).
This study covers the estimation of economic losses due to this infection in calves and the economic value of the parasitic disease treatment action at the level of the small holder farms. The results are likely to be immensely helpful to the researchers, policy makers, and livestock farmers to take appropriate decision on strategic management for gastrointestinal parasites infection in cattle.

MATERIALS AND METHODS

Sources of data
Present study is based on the primary data, collected from Podosoko Village, Sawangan District, Magelang Regency, Centra Java Province, Indonesia. Eighth calves with similar age, sex, body weight, and breed that naturally infested gastrointestinal parasite were selected based on qualitative examination and divided into two groups, consisting of four calves each. Group I was a control without anthelmintic treatment and group II received anthelmintic treatment (Albendazole and Sulfa drugs). Average of Daily Gain (ADG) were determined in calves once a week, for a four week period. The seventy farmers were selected as respondents to answer the questionnaire, chosen randomly from the Podosoko village, Sawangan Subdistrict, Magelang Regency.

Analytical framework
Partial Budget Analysis and measurement of financial income were used to analyse data from the questionnaires and calves ADG data during treatment. Partial Budget Analysis was used to observe whether health improvement of calves due to anthelmintic and anticocci treatments add farmer revenues. Data obtained from the study were subjected to t-test analyses. Partial Budget Analysis was used for the significant results.

RESULTS

Effect of antiparasitic treatment on ADG
Efficacy of the antiparasitic treatment on calves ADG was determined every week. Weekly measurements (Figure 1) showed that calves ADG of the Group II (0.89 kg/day) was higher (P<0.000), when compared to that of Group I (0.24 kg/day). The increase in the body weight might show that antiparasitic drug were effective in eradicating gastrointestinal parasites.

![Figure 1. Calves ADG with and without antiparasitic treatment](image-url)
Partial Budgeting Analysis
Based on Partial Budget Analysis, improvement in health management add revenue 1.817,000 IDR per week.

Table 1. The value of the additional revenue based on analysis budget partial

<table>
<thead>
<tr>
<th>Description: giving the anthelmintik and anticocci on calves</th>
<th>Value</th>
<th>2. Reduced Cost</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased On The Calve Selling Price</td>
<td>1.872.00</td>
<td>-</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>1.872.00</td>
<td>Total</td>
<td>0</td>
</tr>
<tr>
<td>The Total Of Revenue Increasing (Additional Revenue+Reduced Cost)</td>
<td>1.872.000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

B. Additional Cost

<table>
<thead>
<tr>
<th>Description: giving the anthelmintik and anticocci on calves</th>
<th>Value</th>
<th>2. Reduced Reveneu</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Veteriner Service Fee</td>
<td>30.000</td>
<td>-</td>
<td>0</td>
</tr>
<tr>
<td>Antiparasitic Drug Fee</td>
<td>25.000</td>
<td>Total</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>55.000</td>
<td>Total</td>
<td>0</td>
</tr>
<tr>
<td>The Total Of Reduced Reveneu (Additional Revenue+Reduced Cost)</td>
<td>55.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C. Additional Reveneu (A-B)</td>
<td>1.817.000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

DISCUSSION

The curve bellow showed that Group II with improved management of health tend to rise while the curve on Group I without treatment (control) tend to not have elevated flat. This result according to studied Wafiatiningsih and Bariroh (2012) have shown that administering on infected nematode calves, influential real to rising weights gain calves. This proves that anthelmintic and anticocci work effective to kill gastrointestinal parasites, so weight gain of calves increased significantly. Bumgarner et al. (1986) found a mean weight gain advantage of 18.7 kg for calves in treated herds, and the important significant difference (P less than 0.01) was shown in body weights of calves, with the calves in treatment group 2 having a higher mean weight gain of 22.5 kg in adjusted 205-day weaning weights, and a higher mean daily gain of 0.11 kg. The weight gain/weaning weight advantage realized when nematode parasites are controlled throughout the grazing season provided a major economic advantage for the producer. The strategic administration of an anthelmintic may improve weaning weights in calves.

This study presents the partial budget analysis (PBA) framework for the economic analysis of calves interventions. This study demonstrated the benefits of the strategic administration of an antiparasitic in a calf herd in the smallholder farm in Centra Java. Based on the results of partial budget analysis, obtained increased revenue that comes from the increased selling price amounting to 1.817,000 IDR/head calves. This is due to the presence of the application of improved health management, namely the granting of anthelmintic and anticocci that cause an increase in average daily gain added. This result similarly with Ehui and Rey studied show that net returns per ewe of treatment exceeded the net return of the control, and than the increase in cost of treatment while the increase in net return giving a marginal rate of return on the increased expenditure of 19%.

CONCLUSION

Result showed that calves ADG with antiparasitic treatment improved (P=x.xx) by administering health management with anthelmintic and anticocci in 1st to 4th weeks. Result of the Partial Budget Analysis indicated that the increase in calves with improved management health produce additional income of 1.817,000 IDR/head.
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