Short Communication

Effect of Replacing Dung Slurry With Vermicompost in Azolla Production

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INTRODUCTION

Azolla besides containing around 25 per cent crude protein is also found to contain essential minerals like iron, calcium, magnesium etc and appreciable quantities of Vitamin A and Vitamin B12 (Mathur et al 2013). Azolla – a protein rich aquatic fern which needs minimal water for its propagation can serve as an effective fodder resource for livestock but the Krishi Vigyan Kendra, Hamirpur has observed its low palatability especially in buffaloes. As production technique of Azolla involves use of dung slurry, the foul smell of dung slurry, may impart its smell to Azolla thus leading to its poor palatability. Hence, it was planned to replace buffalo dung slurry with vermicompost for the production of Azolla at the farmers’ field.

MATERIAL AND METHODS

An on farm trial was conducted at three locations viz Village Anu in Blcok Hamirpur and Village Mann and KVK Farm in Block Nadaun. At all three locations, three pits of uniform dimensions (3x1x0.2 m) were dug and after covering with silipauline sheet (150 GSM), 10 Kg sieved fertile soil was added in each pit. Two kg, one day old buffalo dung dissolved in a bucket of water was added in first pit, while 1 kg vermicompost was added in the second pit. The third pit was used as control wherein neither dung slurry nor vermicompost was added. The pits were filled with water and few hours later 0.5 kg Azolla culture was inoculated in each pit. Azolla culture multiplied and occupied the entire pond surface. For three weeks, at weekly interval the entire biomass from each pit was removed, weighed and again 0.5 Kg azolla was reinoculated in each pit.

To assess the palatability of Azolla in buffaloes it was first washed with clean water and then offered by mixing with double quantity by weight of dry wheat straw. The information so generated was analysed statistically using ANOVA, Tukey-Kramer Multiple Comparisons Test.

RESULTS AND DISCUSSION

Upon weekly harvesting and subtracting the weight of Azolla inoculum from total yield, the results (Table 1) revealed that there was no appreciable difference in Azolla yield between the pits containing dung slurry (1.06 kg/sq.m/week) and vermicompost (1.17 kg/sq.m/week) but the yield was significantly better in these two pits compared to control (0.88 kg/sq.m/week). Azolla absorbs all its nutrients from water and phosphorus is the most common limiting element for its growth (Giridhar et al, 2012). Both dung slurry and vermicompost are rich in nutrients including phosphorus thus their addition resulted in rapid azolla multiplication and significantly better yield. Regarding palatability, at all the three locations it was observed that the Azolla harvested from the pond containing buffalo dung was consumed by only 2 or 3 animals out of six buffaloes to whom it was offered. On the other hand, 5 out of six buffaloes consumed Azolla harvested from both control and vermicompost containing pond. As the Azolla from pit containing dung slurry was consumed by less than 50 per cent animals to which it was offered, indicates that its acceptability was poor while the palatability was far better for Azolla from control and vermicompost containing pond as majority of the animals consumed it. Some workers have proposed to replace slurry of one to two days old...
dung with biogas slurry to reduce foul smell in Azolla but low availability of biogas units in the area make it less rational. On the other hand, vermicomposting being taken up by almost all household is readily available and thus can be easily used by famers.

CONCLUSION

It may be concluded that replacement of buffalo dung with vermicompost in Azolla production, improves Azolla’s palatability among buffaloes without any untoward impact on its yield. Poor palatability was considered one of the major impediments in wider adoption of Azolla production among dairy farmers in the region, so it is believed that by following this refinement, Azolla production can be taken up for feeding of the animals during scarcity period.

REFERENCES


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Table 1. Effect of replacing dung slurry with vermicompost on yield and palatability of Azolla.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Dung Slurry</th>
<th>Vermicompost</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean ± SE</td>
<td>Mean ± SE</td>
<td>Mean ± SE</td>
</tr>
<tr>
<td>Azolla Yield</td>
<td>1.06±0.05^a</td>
<td>1.17±0.05^a</td>
<td>0.88±0.04^b</td>
</tr>
<tr>
<td>Palatability</td>
<td>Poor</td>
<td>Good</td>
<td>Good</td>
</tr>
</tbody>
</table>

^aValues in a row bearing different superscript vary significantly.