A SHORT COMMUNICATION: DEMONSTRATION OF PAKCHONG 1 GRASS IN IRRIGATED AREAS OF PRAKASAM DISTRICT, ANDHRA PRADESH

Dr.G.S.Haritha¹, Dr.G.M.V. Prasada Rao² and R. Kasi Viswanath³

¹Subject Matter Specialist (Veterinary), Krishi Vigyan Kendra, Darsi, Prakasam District
²Programme Co-ordinator, Krishi Vigyan Kendra, Darsi, Prakasam District
³Farm Manager, Krishi Vigyan Kendra, Darsi, Prakasam District

ABSTRACT

The aim of the study is to solve the problem of insufficient roughages and to encourage small and marginal farmers to grow fodder grass in their own farm. Feed and fodder availability and accessibility are basic priorities for livestock. Fodder scarcity is the major constraint for rearing livestock in Prakasam District resulting in poor growth, low reproductive and productive performance. Considering these aspects, Pakchong-1 (Pennisetum purpureum x Pennisetum glaucum) was introduced in irrigated areas of Prakasam District in twenty acres in two years. The fodder growth and yield was compared with the local farmers fodder variety (colloquial name - madhavaram grass) and Co-4. The yield per acre in Pakchong-1 is significantly high when compared to local fodder variety and Co-4, due to height of the plant, increased circumference of stem and width of the leaf. The area of Pakchong-1 was horizontally spread to sixteen acres in and around Prakasam District.

INTRODUCTION

Livestock is one of the important components in rural agrarian system or integrated farming system in India. Fodder scarcity is a major limiting factor for livestock rearing which is resulting in low productivity, poor growth and reproduction of animals. So, accessibility to a permanent forage base is a physiological priority for livestock and an economic priority for farmers. In consideration of the above aspects, the Napier hybrid cultivar Pakchong-1 (Pennisetum purpureum x P. glaucum) was introduced in Prakasam District. Pakchong-1 is reported to grow over 3 m tall in less than 2 months, gives high yields and can be harvested after 45 days with a CP concentration of 16–18% (Ahmed et al, 2017), but production performances of forage crops are highly correlated with area, location and seasons. Thus, there is a need to verify if Pakchong-1 can out compete the existing cultivars in terms of forage yield and growth characteristics, under Prakasam district irrigated conditions. Therefore, the present study was carried out to evaluate the forage growth and yield of Pakchong-1 in native conditions compared to local farmers fodder variety (madhavaram grass) and Co-4.

MATERIALS AND METHODS

Demonstrations to compare the growth and yield of Pakchong-1 with local grass and Co-4 were conducted in randomly selected fields in different villages in an area of 20 acres in two years. The soil type is red soil and cultivated in irrigated conditions. Pakchong-1 slips with 2 healthy nodes per cutting were planted with (1 x 1) m spacing. Weeding was done regularly after each cutting. Urea was recommended at the rate of 30 kg per acre after every cutting. First cutting was done on day 79 from the date of planting followed by 6 cuttings after every 45 days. At harvesting time, different parameters like plant height, circumference of the plant stem, width of the leaf and yield were recorded. SPSS-20.0 statistical software program with 2-factor ANOVA was used to compare the mean differences of Pakchong-1, Co-4 and farmers local variety.

RESULTS AND DISCUSSION

The significant changes were noted in the height of the plant and in the yield of Pakchong-1. The growth and yield parameters per cutting for three cuttings of Pakchong-1, Co-4 and local farmers’ variety were shown in Table 1. The height of the plant of Pakchong-1 showed significant increase (p<0.05) compared to Co-4 followed by local farmers’ variety.
The tallest tiller on each plant was used to measure height. The significantly taller plants and its vigorous growth highlight its adaptation in the red irrigated soils of Prakasam district of Andhra Pradesh. Kesang Wangchuk et al., reported higher and faster growth rate as it produced larger tillers after each cutting. He also stated that plant height was positively correlated with leaf number and basal circumference of the plant. Nathu Ram Sarker et al., also reported that the highest stems were yielded from Pakchong-1. The circumference of the stem and the width of the leaf blade in Pakchong-1 were significantly greater than Co-4. Further, in Co-4 and local farmers’ varieties, the circumference of the stem and width of the leaf blade doesn’t vary significantly. There is a significant increase (p<0.05) in yield in Pakchong-1, whereas non-significant increase is observed in Co-4 in comparison with local farmer’s variety. It is reported that Pakchong-1 produces 200 tonnes per acre per year, but no scientific data is available on the same. Further, there is a lacuna in data pertaining to morphological characteristics of Pakchong-1 in Andhra Pradesh and India.

Table 1 Growth parameters of the fodder varieties

<table>
<thead>
<tr>
<th>Treatments</th>
<th>Height of the plant (cm) on day 79</th>
<th>Circumference of the stem (mm)</th>
<th>Width of the leaf blade (cm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pakchong-1</td>
<td>267.92 ± 2.06</td>
<td>6.03 ± 1.12</td>
<td>1.40 ± 1.97</td>
</tr>
<tr>
<td>Co-4</td>
<td>193.44 ± 1.81</td>
<td>3.21 ± 0.19</td>
<td>0.89 ± 0.78</td>
</tr>
<tr>
<td>Local farmers’ variety</td>
<td>156.07 ± 1.48</td>
<td>3.01 ± 0.12</td>
<td>0.73 ± 0.01</td>
</tr>
</tbody>
</table>

*Means with different superscripts in columns are significantly different (p<0.05)

Table 2 Yield parameters of the fodder varieties

<table>
<thead>
<tr>
<th>Treatments</th>
<th>Day 79</th>
<th>Day 125</th>
<th>Day 170</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pakchong-1</td>
<td>12.43 ± 2.33</td>
<td>12.73 ± 1.21</td>
<td>13.01 ± 1.73</td>
</tr>
<tr>
<td>Co-4</td>
<td>8.55 ± 1.01</td>
<td>7.91 ± 0.12</td>
<td>8.76 ± 0.17</td>
</tr>
<tr>
<td>Local farmers’ variety</td>
<td>6.79 ± 1.33</td>
<td>7.12 ± 0.07</td>
<td>7.29 ± 0.09</td>
</tr>
</tbody>
</table>

*Means with different superscripts in columns are significantly different (p<0.05)

Further, in this study, the livestock farmers having enough pasture were suggested to forward the fodder slips to other farmers on free of cost. An area of sixteen acres was spread horizontally in the district. However, more research oriented studies need to be carried out for further spread of the fodder crop.

References


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