

Short Communication

Fodder Yield Potential of Pearl Millet Cultivars Under Irrigated Conditions

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ABSTRACT

Fodder yield and quality of different pearl millet (*Pennisetum americanum* L.) cultivars viz; W. Raj, RCBK-948, BS-2000, Ghahi, 18 BY and MB-87 were compared under field conditions. Significant differences were observed for number of leaves per tiller and stem thickness while differences for plant height, number of tillers per meter row, leaf area and green fodder yield were not significant. Plant height ranged from 139.89 (check variety MB-87) to 207.33 cm (BS-2000). Number of tillers per meter row ranged from 22.56 (18 BY) to 28 (RCBK-948). The maximum (56.66 t ha and minimum (45.18 t ha) green fodder yield was obtained from W. Raj and MB-87, respectively.

Key Words: *Pennisetum americanum* L.; Varieties; yield; Plant characters; Pakistan

INTRODUCTION

Pearl millet is an important fodder crop of Pakistan. It can produce high yields even under moisture stress conditions. It has the ability to grow successfully both under rainfed and irrigated conditions. Cultivars vary greatly in their growth habits and yield (Rao *et al.*, 1986; Sharma *et al.*, 1987; Chot *et al.*, 1988; Byrejewda, 1990; Akmal *et al.*, 1992; Naeem *et al.*, 1991, 1993). There is a dire need to develop high green fodder yielding pearl millet varieties to increase fodder production in Pakistan.

The present study was, therefore, carried out to study the fodder yield potential of pearl millet cultivars under irrigated conditions of Faisalabad, Pakistan.

MATERIALS AND METHODS

Six varieties of pearl millet viz; W. Raj, RCBK-948, BS-2000, Ghahi, 18 BY including a check MB-87 were planted at Fodder Research Sub Station, Ayub Agricultural Research Institute, Faisalabad. The design of the trial was randomized complete block with three replications having a plot size of 1.5 x 6 m. Crop was sown at seed rate of 15 kg ha⁻¹. Fertilizers were applied at the rate of 60-60-00 NPK kg ha⁻¹. In total, three irrigations were applied during the entire period of crop growth. The trial was planted on 03.04.2002 and harvested on 06.06.2002 at the time of completion of 50% flowering. At this time 10 plants were selected at random in each plot and observations were recorded on them for plant height (cm), number of leaves per tiller, leaf area (cm and stem thickness (cm) For the data on number of tillers per meter row, random samples of one meter length were marked in each row of the plot and tillers were

counted. Green fodder yield was recorded by weighing all the harvested plants in each plot (kg plot⁻¹) and then it was converted in to t ha⁻¹.

RESULTS AND DISCUSSION

Data (Table I) show that the varieties differed significantly for number of leaves per tiller and stem thickness while differences for plant height, number of tillers per meter row, leaf area and green fodder yield were non-significant. Plant height ranged from 139.89 (check variety MB-87) to 207.33 cm (BS-2000). The variety Gahi (205.22 cm) ranked second in plant height followed by W. Raj (197.78 cm). Choi *et al.* (1988), Naeem *et al.* (1991, 1993, 1994), Akmal *et al.* (1992) and Mohammad *et al.* (1994) also observed same kind of variation for plant height in different pearl millet varieties. Number of leaves per tiller varied from 10 (check variety MB-87) to 12.34 (BS-2000). Gahi (12.11) ranked second in number of leaves per tiller followed by RCBK-948 (11.7) and W. Raj (11.67). Mohammad *et al.* (1994) and Naeem *et al.* (2002) also made similar findings in different variety tests. The variety RCBK-948 produced the highest number of tillers per meter row (28) followed by Gahi (27.11), W. Raj (25.67) and check variety MB-87 (25). 18BY (22.56) produced the lowest number of tillers per meter row. Mohammad *et al.* (1994) and Naeem *et al.* (2002) also reported similar results in various varietal trials. Leaf area ranged from 190.87 (check variety MB-87) to 239.92 cm (Gahi). BS-2000 (238.56 cm) ranked second in leaf area followed by RCBK-948 (233.12 cm). Mohammad *et al.* (1994) reported that the varieties having more leaf area produced more fodder yield and Naeem *et al.* (2002) observed wider variation for leaf

Table I. Mean plant height, number of leaves per tiller, number of tillers per meter row, leaf area, stem thickness and green fodder yield of different varieties of pearl millet at the stage of 50 % flowering

Variety	Plant height (cm)	Number of leaves per tiller	No. of tillers per meter row	Leaf area (cm ²)	Stem thickness (cm)	Green fodder yield (t _{ha} ⁻¹)
W.Raj	197.78	11.67b	25.67	226.26	1.16b	56.66
RCBK-948	179.55	11.78h	28.00	233.12	1.20ab	56.29
BS-2000	207.33	12.34 a	24.78	238.56	1.27 ab	55.92
Gahi	205.22	12.11 ab	27.11	239.92	1.32 a	52.96
18BY	195.00	10.44c	22.56	220.19	1.00c	49.63
MB-87 (check)	139.89	10.00 c	25.00	190.87	1.00 c	45.18
LSD (5%)	NS	0.58	NS	NS	0.13	NS
CV(%)	17.00	3.43	21.44	10.81	7.29	11.96

Means followed by the same letters do not differ significantly at 5 % level of probability. NS: non-significant.

area while conducting different variety tests of pearl millet. Stem thickness varied from 1.00 (check variety MB-87 and 18 BY) to 1.32cm (Gahi). BS-2000 (1.27 cm) ranked second in stem thickness followed by RCBK-948 (1.20 cm). Naeem *et al.* (2002) also observed considerable variation for stem thickness in their studies on different varieties of pearl millet. The variety W. Raj (56.66 t ha⁻¹) ranked top in green fodder yield followed by RCBK-948 (56.29 t ha⁻¹), BS-2000 (55.92 t ha⁻¹) and Gahi (52.96 t ha⁻¹). These varieties were also superior in plant characters such as plant height, number of leaves per tiller, number of tillers per meter row, leaf area and stem thickness. Check variety MB-87 (48.18 t ha⁻¹) produced the lowest fodder yield. Mohammad *et al.* (1994) also found that high green fodder yield potential of pearl millet varieties was due to the favourable influence of plant characters. Previous researchers Byregowda (1990), Naeem *et al.* (1991, 1993, 1994, 2002), Akmal *et al.* (1992) also reported considerable variation for green fodder yield while conducting different varietal tests of pearl millet.

Although the differences for most of the plant characteristics were non-significant still the varieties W. Raj, RCBK-948, BS-2000 and Gahi produced better green fodder yields than the check variety MB-87. Hence these varieties may be considered for general cultivation.

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