ZIBELINE INTERNATIONAL

Acta Scientifica Malaysia (ASM)

DOI: http://doi.org/10.26480/asm.01.2020.09.10





ISSN: 2521-5051 (Print) ISSN: 2521-506X (Online) CODEN: ASMCCQ

RESEARCH ARTICLE

PERFORMANCE OF PROSO MILLET IN CHARLAND AREA

Jubaidur Rahman*a, Mukaddasul Islam Riadb, AA Begumc, MR Alid, R R Sahae

- ^a Scientific Officer, Agronomy Division, Bangladesh Agricultural Research Institute, Jamalpur-2000, Bangladesh
- ^b Scientific Officer, Plant Genetic Resources Centre, Bangladesh Agricultural Research Institute, Jamalpur-2000, Bangladesh
- ^c Senior Scientific Officer, Agronomy Division, Bangladesh Agricultural Research Institute, Gazipur-1701, Bangladesh
- d Principle Scientific Officer, Agronomy Division, Bangladesh Agricultural Research Institute, Jamalpur-2000, Bangladesh
- ${\it e^c} Chief Scientific \ Officer, A gronomy \ Division, Bangladesh \ A gricultural \ Research \ Institute, \ Gazipur-1701, \ Bangladesh \ A gricultural \ Research \ Institute, \ Gazipur-1701, \ Bangladesh \ A gricultural \ Research \ Institute, \ Gazipur-1701, \ Bangladesh \ A gricultural \ Research \ Institute, \ Gazipur-1701, \ Bangladesh \ A gricultural \ Research \ Institute, \ Gazipur-1701, \ Bangladesh \ A gricultural \ Research \ Institute, \ Gazipur-1701, \ Bangladesh \ A gricultural \ Research \ Institute, \ Gazipur-1701, \ Bangladesh \ A gricultural \ Research \ Institute, \ Gazipur-1701, \ Bangladesh \ A gricultural \ Research \ Institute, \ Gazipur-1701, \ Bangladesh \ A gricultural \ Research \ Institute, \ Gazipur-1701, \ Bangladesh \ A gricultural \ Research \ Institute, \ Gazipur-1701, \ Bangladesh \ A gricultural \ Research \ A gricultural \$
- *Corresponding Author Email: jubaidurjp@gmail.com

This is an open access article distributed under the Creative Commons Attribution License CC BY 4.0, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited

ARTICLE DETAILS

Article History:

Received 01 December 2019 Accepted 06 January 2020 Available online 07 February 2020

ABSTRACT

The experiment was conducted at the charland area of Jamalpur during rabi 2018 to know the yield performance and popularize proso millet in charland areas. Treatments included in the experiment were: BARI Cheena-1, Local-1 and Local-2. Yield level of different proso millet varieties/cultivar were similar except BARI Cheena-1. All the proso millet varieties/cultivar might be cultivate in char land because of low price, availability of its seeds, less risk and water requirement, easily grown without modern technology.

KEYWORDS

Proso millet, Performance, charland area.

1. Introduction

Millets are small-seeded annual cereals grown for food, feed, forage, and fuel (Kothari et al., 2005). Commonly cultivated millet species include millet (Panicum miliaceum L.), pearl millet (Pennisetum glaucum L.R. Br.), finger millet (Eleusine coracana), kodo millet (Paspalum setaceum), foxtail millet (Setaria italica L. Beauv.), little millet (Panicum sumatrense), and barnyard millet (Echinochloa utilis). Proso millet is rich in protein, minerals, vitamins and micronutrients such as iron, zinc, copper and manganese and its nutritive parameters are comparable or better than common cereals (Kalinova and Moudry, 2006). Under drought and poor soil conditions, proso millet gives a yield which surpasses the yield of all other crops and has the potential to produce food where other grain crops would fail (Magness et al., 1971; Jiaju, 1986). Millet crops are grown on marginal lands and under low-input agricultural conditionssituations in which major cereal crops often produce low yields (Amadou et al., 2013). The area under Cheena & Kaon production in Bangladesh is about 2920 acres with a production of 1229 m tons (BBS, 2016). Jamalpur district which most Cheena & Kaon production area of Bangladesh 394 acres area produced 124 MT (BBS, 2016). In Bangladesh, there are about 0.82 million hectares of char land (Ahmed et al., 1987). "Charland" is the Bengali term, its English meaning is "Riverine Island" for mid-channel island that emerges periodically from riverbed as a consequence of accretion (Elahi, 1991). In Bangladesh the $\it char$ lands can be divided into five sub areas which has highly potential for groundnut production (The Jamuna, the Ganges, The Padma, The upper Meghna and the lower Meghna River) where Tista and old Brahmaputra also constitute some char land areas (Islam et al., 2012). BARI has already developed Cheena varieties, but the farmers of charland area mostly sown local cultivar. Now a day's farmers' of Bangladesh is very much fascinated to grow high yielding variety along with resistance early maturity characters. As a part of this programme was conducted to know the yield performance of Cheena variety/cultivar in charland areas.

2. METHODS AND MATERIALS

The district lies between 24°34′ and 25°26′ north latitudes and between 89°40' and 90°12' east longitudes and it is situated at elevation 23 meters above sea level (Pal, 2012). The annual average temperature of this district varies from maximum 36.63°C to minimum 9.4°C. Annual average rainfall is 933.7 mm (Regional Research Report, 2018-19). The experimental site was of medium high land belonging to the agro-ecological zone Old Brahmaputra Floodplain under Agro-Ecological Zone 9 (UNDP - FAO, 1988). The experiment was conducted at the charland area of Jamalpur during rabi 2018 to find out the yield performance and popularize proso millet in charland areas. Design of the experiment was RCB with 3 replications. Each treatment was sown in unit plot having 3m × 3m with the spacing of 30 cm × Continuous sowing. Spacing between two plots and replications were 1m and 1m respectively. BARI Cheena-1, Local-1 and Local-2 were used as variety/cultivar in the experiment. Fertilizers were applied at the rate of 40-14-30-6-0.7 kg ha⁻¹ NPKSZn as urea, triple super phosphate (TSP), muriate of potash (MOP), gypsum, Boron; ½ N and all other fertilizers as basal (FRG, 2012). Rest N will be applied at 30-35 DAS. Seeds were sown on November 19, 2018 in rows. Weeding was done at 25-30 days after emergence of the crop. Crops were harvest on March 18, 2019. Grain yield was calculated from the whole plot. Yield contributing characters were taken from 05 randomly selected plants from the middle rows of each plot. Data were analyzed with the help of a computer package program STAR and means were separated following LSD test at 5% level of significance.

3. RESULTS AND DISCUSSION

Plant height were recorded at harvest are furnished in table 1. Significantly highest (76.60 cm) was registered under Local-2 while BARI Cheena-1 was lowest (61.43 cm) at harvest. The data regarding effective tiller per hill are furnished in table 1, different treatments did not exhibit their significant influence. An appraisal of data table 1 indicated that

Quick Response Code Access this article online



Website: www.actascientificamalaysia.com

DOI:

10.26480/asm.01.2020.09.10

uneffective tiller per hill did not showed significant appearance. The data regarding panicle length are furnished in table 1, calculated data in table 1 revealed that different treatments did not exhibit their significant influence. A perusal of data revealed that different treatments did not showed their significant influence on number of effective grain per panicle. Highest number of effective grain per panicle (354) was recorded under BARI Cheena-1 while Local-1 was lowest (313). The data regarding

1000 seed weight were recorded at harvest are arranged in table 1. Highest (2.6 gm) were recorded under BARI Cheena-1 and it was found statistically at par with Local-1 and Local-2. An appraisal of data table 1 indicated that different treatments exerted their significant consequence on yield. Highest yield (2.4 t/ha) was registered under treatment BARI Cheena-1 and it was found statistically at par with Local-1 and Local-2.

Table 1: Yield and yield component of proso millet as influenced by variety/cultivar							
Treatment	Plant	No.of effective tiller/	No.of uneffective	Panicle length	No.of effective	1000 seed	Yield
	height(cm)	hill	tiller/ hill	(cm)	grain/panicle	wt.(gm)	(t/ha)
BARI Cheena-1	61.43	11.33	1.10	22.67	354	2.6	2.40
Local-1	69.60	9.67	0.79	18.92	313	2.3	2.16
Local-2	76.60	8.90	1.18	22.47	352	2.4	2.26
LSD _{0.05}	4.43	-	-	-	-	-	-
CV (%)	2.82	12.8	36	18	4.77	4.49	5.31

4. CONCLUSION

The results revealed that yield of different proso millet varieties/cultivar were similar except BARI Cheena-1. All the proso millet varieties/cultivar might be cultivate in char land because of low price, availability of its seeds, less risk and water requirement, easily grown without modern technology.

REFERENCES

- Ahmed, M.M., Alam, N., Kar, N.K., Maniruzzaman, A.F.M., Abedin, Z., Jasimuddin, G., 1987. Crop production in saline and charlands-existing situation and potentials. Advances in Agronomic Research in Bangladesh. 2, 1-27.
- Amadou, I., Gounga, M.E., Le, G.W., 2013. Millets: nutritional composition, some health benefits and processing-A review. *Emirates J. Food Agric.*, 25, 501–508.
- Bangladesh Bureau of Statistics (BBS)., 2016. Yearbook of Agricultural Statistics.
- Elahi, K.M., 1991. Impacts of riverbank erosion and flood in Bangladesh: An introduction. Riverbank Erosion Impact Study.
- FRG., 2012. Fertilizer Recommendation Guide, Bangladesh Agricultural Research Council (BARC), Farmgate, Dhaka 1215.
- Islam, M.S., Hasan, T., Chowdhury, M.S.I.R., Rahaman, M.H., Tusher, T.R., 2012. Coping Techniques of Local People to Flood and River Erosion in Char Areas of Bangladesh. J. Environ. Sci. & Natural Resources, 5(2), 251

- 261. Jahangirnagar University, Dhaka, p.11-67.
- Jiaju C., 1986. Importance and genetic resources of small millets with emphasis on foxtail millet (Setaria italica) in China. In 'Small millets in global agriculture'. (Eds A Seetharam, KW Riley, G Harinarayana)
- Kalinova, J., Moudry, J., 2006. Content and quality of protein in proso millet (Panicum miliaceum L.) varieties. Plant Foods for Human Nutrition, 61, 43–47. doi:10.1007/s11130-006-0013-9
- Kothari, S.L., Kumar, S., Vishnoi, R.K., Kothari, A., Watanabe, K.N., 2005. Applications of biotechnology for improvement of millet crops: review of progress and future prospects. *Plant Biotechnol*, 22, 81–88. 10.5511/plantbiotechnology.22.81
- Magness, J.R., Markle, G.M., Compton, C.C., 1971. Food and feed crops of the United States. Interregional Research Project IR-4, Interregional Research Bulletin 1 (Bulletin 828, New Jersey Agricultural Experimental Station), Rutgers University, New Brunswick, NJ. pp. 93–100. (Oxford & IBH Publishing Co Pty Ltd: New Delhi)
- Pal, S., 2012. Jamalpur District. In Sirajul Islam and Ahmed A. Jamal. Banglapedia: National Encyclopedia of Bangladesh (Second ed.). Asiatic Society of Bangladesh.
- Regional Research Report., 2018-19. Regional Agricultural Research Station, BARI, Jamalpur-2000.
- UNDP FAO., 1988. Land resources appraisal of Bangladesh for agricultural development. Report to Agro-ecological regions of Bangladesh. UNDP- FAO, BGD/81/035 Technical Report 2. 570 pp.

