

On Farm Trial (OFT) of pearl millet green fodder at Tonk district

GITAM SINGH AND S.K. SHARMA

KVK, Banasthali Vidyapith, Tonk, Rajasthan – 304022

Abstract

The study was conducted at KVK, Banasthali Vidyapith, Tonk, Rajasthan, as On Farm Trial (OFT). 3 villages (Bioli, Govindpura and Hani Khurd) were chosen from Tonk district to find better results. Trial was conducted on traditional and high yielded varieties. The estimates show that the average food grain production has increased from 109.20 lakh tonnes in 1991-2000 to 130.75 lakh tonnes in 2001-2010 and average oilseed production from 29.96 lakh tonnes in 1991-2000 to 41.88 lakh tonnes in 2009-2010. The increased production accounts for a benefit of about Rs. 2155 crores in food grain and Rs. 1788 crores in oilseeds in which this station has the major contribution in terms of varietal and technology development. Hence, adoption of the improved technologies is helping the state in uplifting the economic status of the farmers. Yields of summer pearl millet are much higher since it is grown under irrigation and its grain quality is also superior. Various efforts should be made for promotion of improved technologies at village level for promotion of improved technologies at village level in kharif and rabi seasons and all the efforts made in this endeavour are positively contributing for improving socio-economic status of farmers in Rajasthan.

Key words: On Farm Trial, Pearl millet, Green fodder, Tonk district

Introduction

Pearl millet was recognized as a main source of energy for livestock and is fed at critical times, such as during lactation, illness, and for weight gain. Farmers felt that grass is more useful to fill the animals' stomachs and would therefore come before crop stover as a feed. Farmers preferred Deda over Kona because it has more biomass. The area under both sorghum and pearl millet has declined, while maize and wheat has increased (Pray and Nagarajan 2009). Pearl millet is a key part of local livelihoods and culture in the study areas. In the perception of farmers, millet has many different functions. The introduced millet varieties scored higher than the local landraces for all of these attributes (Roden et. al. 2007).

Pearl millet is more tolerant to high temperatures than any other cereal. The best temperature for the germination of pearl millet seed is from 23 to 32°C. The optimum rainfall requirement of pearl millet ranges between 500-800 mm and it can also be successfully grown in areas that receive less than 500 mm of annual rainfall. The ability of the crop to grow in dry environments is due to a number of physiological and morphological characteristics, (i) rapid and deep root penetration (root depths of 3.6 m have been recorded); (ii) fast growth and development; and (iii) high tillering capacity. It is valued for both its grain and stover. Its stover is an important component of livestock ration during the dry period of the year. In view of pearl millet's importance in the kharif season in terms of area and production, and the scope for expanding its area in summer due to significant higher yields, this paper looks

at area and production trends of pearl millet in India and northwestern India (Reddy, et al., 2013).

Bajra is one of the important kharif cereals grown extensively in arid and semi-arid regions of the state. The area under the crop sometimes exceeds 50 lac ha during the monsoon season. The hybrid RHB 154 has been developed for low rainfall (below 400 mm) areas of the Country (A1 Zone). Unique sick-plot sites for cereal cyst nematode, dry root rot and termite are available at this station for development of resistant varieties and technologies for maximization of crop production and productivity under problematic areas of the State. The State of Rajasthan has 10 agro-climatic zones as per the concept of National Agricultural Research Project of Indian Council of Agricultural Research. About 28 per cent land area of the zone has problematic soils due to salinity and sodicity. On an average the zone receives 500-600 mm rainfall, mainly during rainy season the above agronomic practices are profitable both in summer and kharif crop. However, in case of summer pearl millet, higher fertilizer doses (NPK 90:40:0), two weedings instead of one at 25 DAS and 40 DAS and five to six irrigations recorded higher profitability (AICPMIP 2011).

Methodology

The geographical area of the zone is approximately 2.97 million hectare, which represents 8.67% of the total area of Rajasthan. It is situated at 390 meter above mean sea level on latitude 26.50°N and longitude 75.47°E. Since its inception in 1943 it

Table 1: Pearl millet analysis at farmers field

| S. No. | Name of the village | Seed rate (kg./ha) | Verities | Production (Q/ha) | Net return | B.C. Ratio | Results of Assessment |
|--------|---------------------|--------------------|----------|-------------------|------------|------------|-----------------------|
| 1 | Bidoli | 14 | RAJ 171 | 242 | 14600 | 2.16 | 5.10% |
| 2 | Govindpura | 12 | AVKB 19 | 272 | 25800 | 2.57 | 5.37% |
| 3 | Handi khurd | 14 | RAJ 171 | 255 | 18000 | 2.44 | 6.25% |

has come a long way, overcoming an era of national food deficits to that of self-sufficiency with a surplus food-grains reserve. The study was conducted at KVK, Banasthali Vidyapith, Tonk, Rajasthan, as On Farm Trial (OFT). 3 villages (Bioli, Govindpura and Handi Khurd) were chosen from Tonk district to find better results. Trial was conducted on traditional and high yielded varieties. Environmental parameters were same at the experimental place but conspicuous changes were understood.

Results and Discussion

On-farm trials have shown that adoption of production and protection technologies along with the high yielding varieties give 25-30 per cent increase in production as compared to the farmer's practice. The estimates show that the average food grain production has increased from 109.20 lakh tonnes in 1991-2000 to 130.75 lakh tonnes in 2001-2010 and average oilseed production from 29.96 lakh tonnes in 1991-2000 to 41.88 lakh tonnes in 2009-2010. The increased production accounts for a benefit of about Rs. 2155 crores in food grain and Rs. 1788 crores in oilseeds in which this station has the major contribution in terms of varietal and technology development. Hence, adoption of the improved technologies is helping the state in uplifting the economic status of the farmers. The in exhaustive research efforts in pulses have earned an award for the state being first in pulse production in the country.

Newly developed high yielding and disease resistant varieties of different crops and the improved technologies generated by the scientists of RARI Durgapura, Jaipur are demonstrated through FLD's at Farmers Fields every year to aware the farmers for enhancement of productivity.

Our findings are fully corroborated with Roden et. al. (2007) reported that the market demand and yield of fodder for livestock, and ease of threshing, are the winning attributes of sorghum. This information is important in developing traits that farmers demand; and is applicable to both pearl millet and sorghum breeding.

Our results are agreed with Hand Book of Agriculture, (2013) who reported the fodder production of Pearl millet 20–35 toones/ha. When grain moisture is around 20%, pearl millet is harvested as the grains are prone to spoilage during storage. It is very important to bring down moisture to 12% or less for safe storage.

Improved storage structures, viz. metal bins made out of GI sheets, are suitable for safe storage of grains. The stover is a valuable feed for cattle.



Photo at farmers field

Our results are similar with Toderich, et al. (2012) who observed the pearl millet cultivars received from the ICBA and ICRISAT under Kyzylkum desert conditions produced between 38.0 and 96.4 t/ha⁻¹ of green biomass, of which the cultivars Raj 171 (90.0 t/ha⁻¹), IP 19586 (91.6 t/ha⁻¹), and IP 22269 (96.7 T/ha⁻¹) performed best.

References

- AICPMIP. 2011. Annual Report (2011). Jodhpur, India: All India Coordinated Pearl Millet Improvement Project.
- Hand Book of Agriculture, (2013). Forage Crops and Grasses, pg. 40
- Pray Carl E and Nagarajan L. (2009). Pearl millet and sorghum improvement in India. Discussion paper No. 919. Washington DC: International Food Policy Research Institute.
- Reddy, A., Rao, P.; Yadav, O.P.; Singh, I.P.; Ardesna, N.J., Kundu, K.K., Gupta, S.K.; Rajan Sharma, Sawargaonkar G, Dharm Pal Malik, Shyam Moses D and Sammi Reddy K. (2013). Prospects for kharif (Rainy Season) and Summer Pearl Millet in Western India. Working Paper Series no. 36. Patancheru 502 324, Andhra Pradesh, India: International Crops Research Institute for the Semi-Arid Tropics. 24 pp.
- Roden, P.; Abraha, N.; Debessai, M.; Ghebreselassie, M.; Beraki, H. and Kohler, T. (2007). Farmers' appraisal of pearl millet varieties in Eritrea, SLM Eritrea Report 8, pg, 2-53
- Toderich, K.; Khalikulov, Z.; Popova, V.; Boboev, F.; Azizov, K.; Rafiev, B. and Akinshina, N. (2012). Sorghum and pearl millet for crop diversification, improved crop livestock productivity and farmers livelihood in central Asia, pg.4