

Integrated Crop Management in Finger millet for Improved Productivity under Rainfed Condition in Dharmapuri District

M.Sangeetha and P.S.Shanmugam

Krishi Vigyan Kendra, Papparapatty, Dharmapuri – 636 809

Background

Finger millet (*Eleusine coracana* L. Gaertn) is one of the important millets grown extensively in Dharmapuri District. It is highly nutritious and even superior to rice and wheat, in respect of crude fibre and minerals like calcium and phosphorus. It is a hardy crop, has good adaption to wide range of environment.

Finger millet is being cultivated in an area of about 28,500 hectares in Dharmapuri District. About 60 per cent of the area under Finger millet is being cultivated under rainfed condition during kharif season. Under rainfed condition, due to the uncertainty in rainfall occurrence of moisture stress at various crop growth stages leads to reduction in yield and in crop loss to some extent. Apart from moisture stress, lack of knowledge on the availability of drought tolerant varieties, prevalence of nutrient deficiency, pest and disease incidence also affect the finger millet productivity.

KVKs intervention

Methods

To overcome the problems faced by the farmers and to create awareness among the farmers, frontline demonstration was taken up to demonstrate the potential of the drought tolerant, short duration variety with the improved package of practices in comparison with farmers practice in the farmers' holdings of Dharmapuri district during 2015-16. Demonstration was conducted in 10 locations spread over in Pennagaram, Palacode, Karimangalam, Nallampalli, Morappur and Pappireddipatty blocks of Dharmapuri District. In the demonstration, the improved practices including cultivation of finger millet variety ML 365, integrated nutrient management, integrated pest and disease management practices were demonstrated along with the farmers practice.

Technological interventions

Improved practice

- Cultivation of new variety ML 365

- Time of sowing : First week of August
- Spacing 30 x 10 cm
- Seed treatment with biofertilizers viz., *Azospirillum* and *Phospho bacteria* each @ 25g/kg
- Seed treatment with *Pseudomonas fluorescens* @ 10g/kg
- Integrated nutrient management :
 - Basal application of FYM @ 12.5t/ha
 - Recommended dose of NPK @ 40:20:20 kg/ha
 - Soil application of TNAU millet micronutrient mixture @ 7.5 kg/ha
- IDM practices for blast disease

Farmers practice

- Cultivation of variety GPU 28
- Time of sowing : First week of August
- Seed treatment practice : not followed
- Nutrient management : Basal application of 20:20:20 complex fertilizer @ 125 kg/ha
- IPDM practices : not followed

Features of Finger millet variety ML 365

Finger millet variety ML 365 was released from University of Agricultural Sciences, Bengaluru during 2008. The variety was developed by crossing IE1012 and Indaf-5. It has 100-105 days duration. It is a high yielding variety, tolerant to drought and blast disease. It is suitable for both irrigated and rainfed situation. It is suitable for sowing during kharif and late kharif season. It can give grain yield of 2.5 tonnes/ha under rainfed condition.

Impact in terms of production and productivity

Demonstration of drought tolerant finger millet variety ML 365 with integrated crop management practices has produced higher number of tillers per plant (4.56) and farmers practice produced lower number of tillers per plant (2.41).

Cultivation of drought tolerant finger millet variety ML 365 with integrated crop management practices recorded higher average grain yield of 21 q/ha (Figure 1). The farmers practice recorded lower average grain yield of 17.3 q/ha. Adoption of improved practices increased the yield of fingermillet to the tune of 21.7 per cent compared to the farmers

practice under rainfed condition. Besides, the incidence of blast disease was not reported in the demonstrated variety.

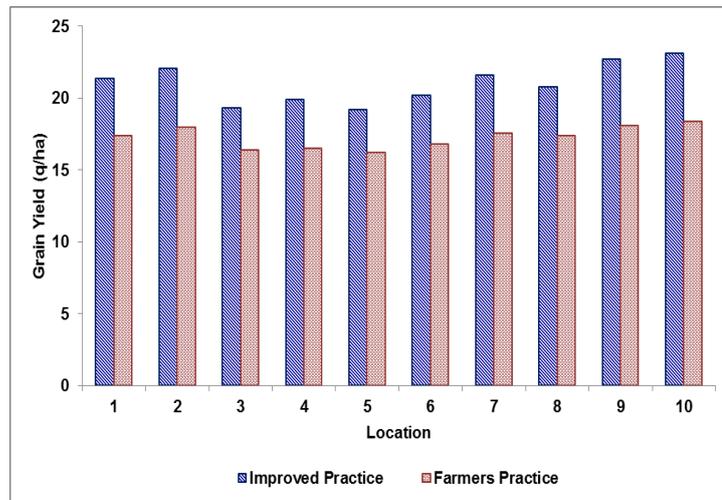


Figure 1. Grain yield of Finger millet (q/ha) under improved practice and farmers practice

Socio economic status

Farmers earned the net income of about Rs.14244/ha through the cultivation of ML 365 variety with integrated crop management practices and Rs.10018/ha with farmers practice. Hence, farmers realized the higher benefit cost ratio (1.58) through the cultivation of ML 365 variety with integrated crop management practices compared to farmers practice (1.46). It might be due to the higher grain yield recorded in demonstration compared to farmers practice.

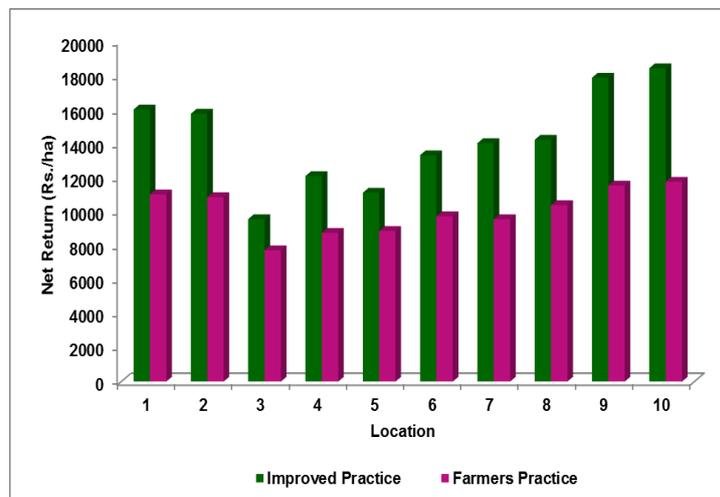


Figure 2. Net return (Rs./ha) under improved practice and farmers practice

Technology spread

- Through the conduct of frontline demonstrations in 15 locations by the Krishi Vigyan Kendra, farmers were impressed with the performance of Finger millet variety ML 365 in terms of short duration, higher number of tillers per plant, length and size of the ear head, tolerance to blast disease and yield under rainfed condition. Hence, the variety has been popularized through the fellow farmers.
- Characteristics and performance of the variety has been communicated to the extension officials in the monthly zonal workshop meetings.
- Features and suitability of the variety with integrated crop management practices has been popularized among the farmers through conduct of meetings and trainings.
- Technology upscaling through seed production and distribution to the farmers by Krishi Vigyan Kendra along with Agricultural Department.
- Finger millet variety with integrated crop management practices has been demonstrated to farmers (100 numbers) under the Tamil Nadu Innovation Initiative (TANII) and State Balanced Growth Fund (SBGF) funded project on Promotion of millets for enhanced productivity and nutritional security.

Conclusion

Demonstration of finger millet variety ML 365 with integrated crop management practices increased the yield and income of the farmers under rainfed condition. In addition, the introduced variety has satisfied the farmers preferences such as high tiller production, early maturity and tolerance to grain shattering or dusting. Hence, the farmers were convinced with the performance of the variety with regard to its yield potential and tolerance to biotic and abiotic stresses. The technological interventions are being adopted by 28 per cent of the finger millet growers.

Finger millet variety ML 365 at farmers holdings of Dharmapuri district

