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Impact of cluster front line demonstration on productivity of pigeon pea crop in Aurangabad district of Maharashtra

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Abstract

The study was carried out during *Kharif* season of 2020, 2021 and 2022 in Aurangabad district of Maharashtra state. The Cluster front line demonstrations of Pigeon pea crop were conducted at 100 farmers' fields, in area of 40 ha. The objective to demonstrate the latest technology of pigeon pea production potential and economic benefit with new short duration & drought resistant suitable variety (BDN-711). The INM & IPDM Practices, Integrated Crop Management technologies were implemented. The results revealed that the improved technologies recorded average yield of 26.2 q/ha over check plot yield of 22.15 ha which is more than 18.28% increase in in kharif 2020. Whereas, Cost of cultivation for demo plot was Rs. 29,750/ha and for check plot it was also Rs. 29,750/ha. In contest to that demo plot gained Rs. 1,38,500/ha net return over Rs. 1,14,225/ha for check plot. So it was found that demo plot has 21.25% more yield than check plot during Kharif 2020. In Kharif 2021 demo plot containing BDN-711 variety gained average yield of 4.9 q/ha over 3.6 q/ha yield of check plot which is more than 36.11% increase in yield over check plot Cost of cultivation for demo plot was Rs. 15,119/ha and for check plot it was Rs. 12,415/ha. For this season demo plot gained Rs. 14,281/ha net return over Rs. 8,150/ha for check plot. So it was found that demo plot has 75.23% more yield than check plot during Kharif 2021. While in Kharif 2022 demo plot gained average yield of 9.9 q/ha over 5.6q/ha average yield for check plots which was 76.79% more increase in yield over check plot during this season. Whereas, Cost of cultivation for demo plot was Rs. 26480/ha and for check plot it was also Rs. 25,200/ha. It was found that demo plot gained Rs. 20,940/ha over Rs. 7,280/ha for check plot and demo plot have 288.0% more net return than the check plot. Average of three years net return was Rs. 1,63,094/ha over Rs. 1,54,551/ha over check which to increase farmers yield during 2020, 2021 & 2022 years in Aurangabad district which helps to horizontal spread for increase in area under pigeon pea crop & net income of farmers in district.

Keywords: Cluster front line demonstration, pigeon pea, BDN-711, yield

Introduction

Pigeon Pea is one of the major agronomical crops in the Aurangabad district. In Aurangabad district area under Pigeon Pea was 462.57 ha. 2021-22. Identifying drought tolerant Variety for Marathwada region of Maharashtra appears to be the major challenge to increase the productivity. Tolerant crop variety with consistently higher yields under deficit rainfall is of paramount importance. Rainfed crops are more vulnerable to climate change because of the limited options for coping with variability of rainfall and temperature. In addition there are another natural vagarious were identified like dry spell ranging from 10-15 days occurred in every year, decreased in rainy days, increased intensity of rainfall, erratic behaviour of rainfall. Pigeon pea (*Cajanus cajan* (L.) Millsp.) is an important rainfed legume crop for millions of smallholder farmers in India and in many other countries of the tropical and subtropical regions of the world. In India, it is cultivated in about 3.6 M ha and contributes about 20% to the total pulses production of the country. However, its average productivity has remained strikingly low at about 760 kg/ha. To work out a suitable strategy to improve the productivity of pigeon pea, it is imperative to assess the potential yield in the region of interest and gap between the potential and actual yield obtained by the average farmers. This analysis in turn also helps to know the major factors associated with these yield gaps for a given location or a region.

Technology demonstration is the main component and was conducted in a systematic manner in farmer's field to worth of new practices/ technology. It was found that farmers were using traditional varieties which are frequently affected by terminal drought. Keeping in view the constraint, Krishi Vigyan Kendra, Aurangabad-1 conducted demonstration on pigeon pea BDN-711 with crop management practices.

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Objectives

The objective to demonstrate the latest technology of pigeon pea production potential and economic benefit with new short duration & drought resistant suitable variety (BDN-711).

Methodology

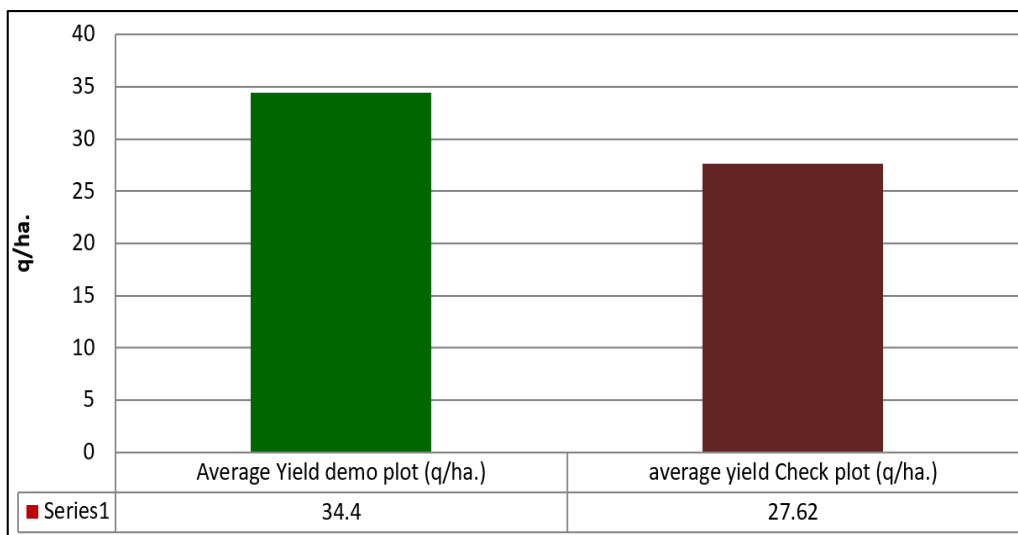
The study was carried out during Kharif season of 2020, 2021 and 2022 in Aurangabad district of Maharashtra state. In general soil of the area under study was medium to heavy, low to medium fertility status. The component demonstration of technology in pigeon pea was comprised i.e. improved variety BDN-711, short duration, escaping terminal drought, and wilt resistant. The Cluster front line demonstrations of Pigeon pea crop were conducted at 100 farmers' fields, in area of 40 ha. In the demonstration, one control plot was also kept where farmers practices was carried out. The INM & IPDM Practices, Integrated Crop Management technologies were implemented.

Results and Discussion

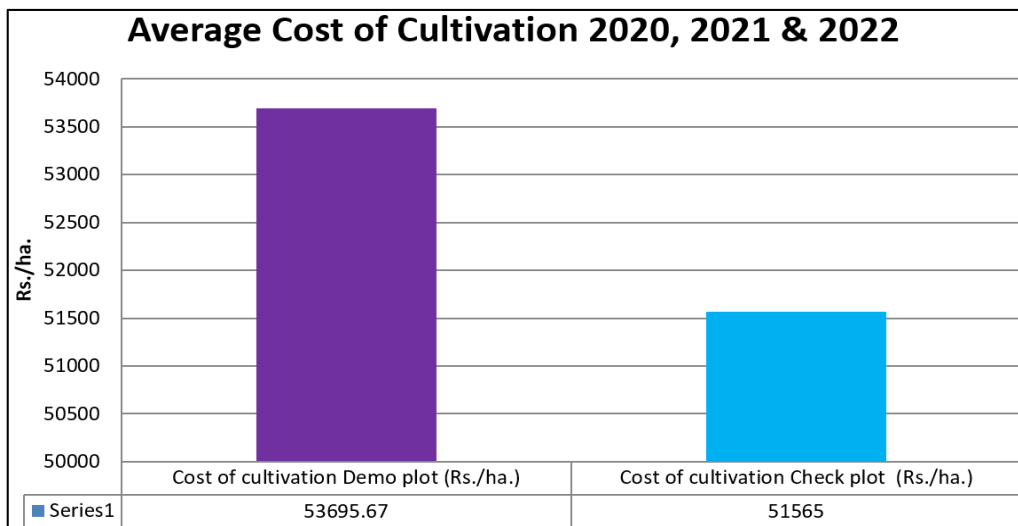
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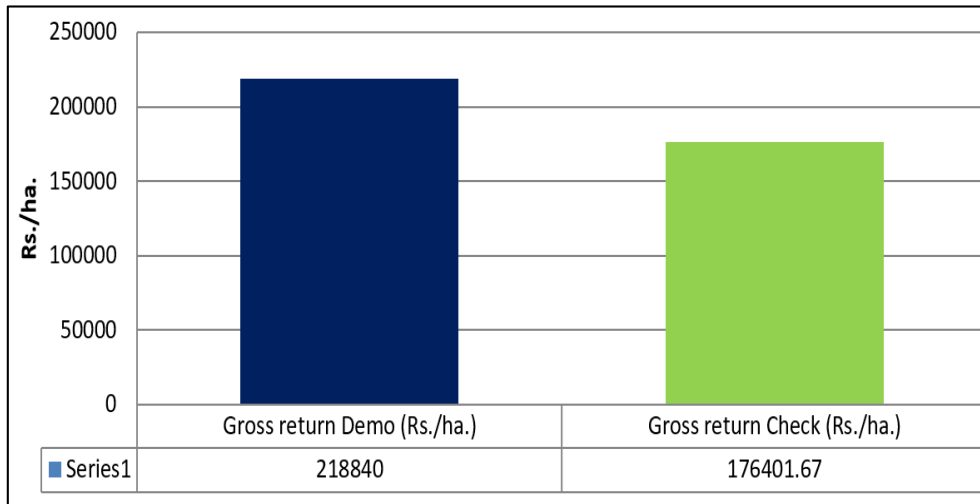
Graphs, Photographs



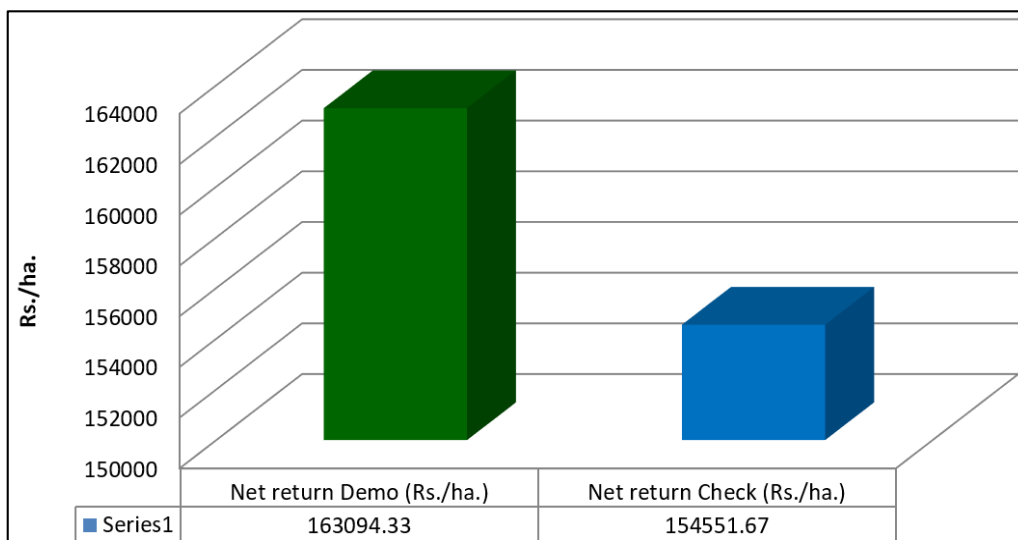
Average Yeild 2020, 2021 & 2022



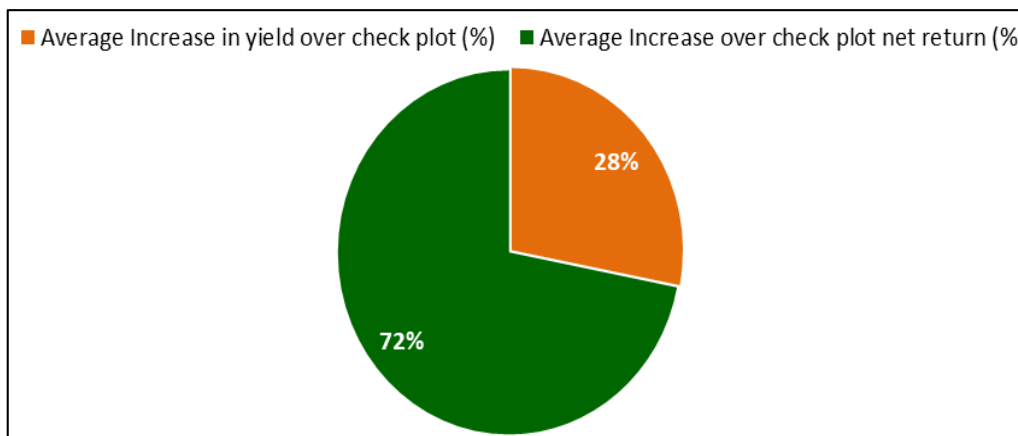
Average Cost of Cultivation 2020, 2021 & 2022



Average Gross Return 2020, 2021 & 2022



Average Net Return 2020, 2021 & 2022



Average increase over check plot

Conclusion

The component demonstration of technology in pigeon pea was comprised i.e. improved variety BDN-711, short duration, escaping terminal drought, and wilt resistant. The Cluster front line demonstrations of Pigeon pea crop were conducted at 100 farmers’ fields, in area of 40 ha. In the demonstration, one control plot was also kept where farmers practices was carried out. Average of three years net return was Rs. 1,63,094/ha over Rs. 1,54,551/ha over check which to

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