**Table 1. Impact of frontline demonstrations on yields and returns in Pigeonpea**

| Technology Demonstrated | Number of FLDs | Area (ha) | Average Yield (q/ha) | | | | Net Returns | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | FLD | FP | Increase over FP | Percent Increase | FLD | FP | Increase over FP | Percent increase |
| Hybrids evaluation: | 60 | 24 | 13.65 | 11.37 | 2.28 | 20.05 | 32041.9 | 23274.50 | 8767.40 | 37.67 |
| ICPH 2740 | | | | | | | | | | |
| ICPH 2671 | | | | | | | | | | |
| Varietal evaluation: | 60 | 24 | 13.15 | 9.40 | 3.75 | 39.89 | 31285 | 17138.00 | 14147.00 | 82.55 |
| LRG 41 | | | | | | | | | | |
| PRG 158 | | | | | | | | | | |
| Integrated crop management | 70 | 40 | 14.75 | 12.38 | 2.37 | 19.14 | 40070.8 | 31113.30 | 8957.50 | 28.79 |
| Total | 190 | 84 | 13.85 | 11.05 | 2.8 | 25.34 | 34465.9 | 23841.93 | 10623.97 | 44.56 |

FLD: Frontline demonstration FP: Farmers practice

**Table 2. Yield gaps in Pigeonpea**

| Technology Demonstrated | Yield Gaps (q $ha^{-1}$) | | | Index of Yield Gaps (%) | | |
|---|---|---|---|---|---|---|
| | Technology Gap | Extension Gap | Total Yield Gap | Technology Index | Index of Realized Potential Yield | Index of Realized Potential Farm Yield |
| Hybrids evaluation: | 1.03 | 2.28 | 3.31 | 22.55 | 77.45 | 83.30 |
| ICPH 2740 | | | | | | |
| ICPH 2671 | | | | | | |
| Varietal evaluation: | 2.62 | 3.75 | 6.37 | 40.39 | 59.61 | 71.48 |
| LRG 41 | | | | | | |
| PRG 158 | | | | | | |
| Integrated crop management | 1.02 | 2.37 | 3.39 | 21.5 | 78.5 | 83.93 |
| Average | 1.75 | 2.8 | 4.55 | 29.17 | 70.83 | 79.78 |

Potential farm yield is taken as the yield obtained at research station.

## RESULTS AND DISCUSSION

### Performance of pigeonpea technologies under frontline demonstrations

The results from table 1 revealed that improved technology registered overall 25.34 per cent increase in yield over the farmers practice during the study period. The highest yield of pigeonpea under demonstration was 14.75 qt/ha realized in integrated crop management followed by hybrids evaluation with 13.65 qt/ ha over farmers yield of 12.38 qt/ha and 11.37 qt/ ha respectively, but the percentage increase over farmers practice was highest in varietal evaluation with 39.89 per cent followed by hybrids evaluation with 20.05 per cent. This may be due to better adoptability of high yielding varieties compared to other two technologies. Integrated crop management increased the yields of pigeonpea from 12.38 qt /ha to 14.75 qt/ha with an increase of 19.14 per cent. This indicated that use of improved technology contributed 19.14 per cent higher production than the farmers practice and the yield of pigeonpea could be increased by accelerating the adoption of improved technologies in Kurnool district of Andhra Pradesh. Similar findings were reported by Singh *et al*. (2014), Teggelli *et al*. (2015), Utpal Barua and Tripathi (2015) and Patil *et al*. (2018).

The results revealed that the net returns from demonstrations ranged from Rs. 31,285 to Rs. 40,071 per ha, while the net returns from farmers practice ranged from Rs. 17,138 to Rs. 31,113 per ha. It means the net returns from demonstrations were higher than farmer's practices. Increase in net returns were highest in varietal evaluation (82.55 %) followed by hybrids evaluation (37.67 %). It was evident from the yield levels recorded in demonstrations that the improved technologies can boost the yields significantly. These results confirm those of Singh (2005) and Malathi *et al*. (2016) obtained from FLD trials conducted on various pulse crops and similar results of increased yields and returns in the demonstrations of improved technologies over farmers practices were also reported by Poonia and Pithia (2011) in the frontline demonstrations conducted in Gujarat.

### Yield Gaps

The extension gap ranged from 2.28 qt/ ha to 3.75 qt/ ha and is the highest in the evaluation of high yielding varieties of pigeonpea. Lowest technology index of 21.50 per cent and highest index of realized potential farm yield of 83.93 per cent were recorded in pigeonpea due to the intervention of the integrated technologies through frontline demonstrations which shows the feasibility of this technology at the farmers fields. On an average, extension gap was observed to be 2.8 q $ha^{-1}$ whereas technology index was 29.17 per cent. However, the wide gap in technology index and the higher value of extension gap than the technology gap emphasizes the need to educate the farmers for adoption of improved technologies among the farmers through frontline demonstrations which will certainly change such gap and production of pigeonpea could be increased to a large extent. These results are similar with the results of Dudhade *et al*. (2009) and Raj *et al*. (2013).

## CONCLUSION

The results indicated that the transfer of improved technology through frontline demonstrations increased the yields and the net returns from improved variety or cultivation practice over the farmer's practice. The yield gaps can be reduced by conducting frontline demonstrations of proven technologies at farmers fields and educating the farmers towards more use of latest technology, through effective training, demonstrations, filed visits and monitoring by the krishi vigyan kendra scientists which will boost pigeonpea production in the district and income of the farmers ultimately bring more prosperity to the farming community.

## LITERATURE CITED

**Dudhade D D, Deshmukh G P, Harer P N and Patil J V 2009** Impact Of Frontline Demonstration of Chickpea in Maharashtra. *Legume Research*, 32 (3): 206-208.

**http://www.fao.org/faostat/en/data**. Food and Agriculture Organization of the United Nations.

**https://www.nfsm.gov.in**. National Food Security Mission, Ministry of Agriculture and Farmers Welfare, Government of India.

**Malathi B, Rajender Reddy G, Gabhane A T and Umale S M 2016** Economic Impact of Frontline Demonstrations of Chickpea in Buldana District of Maharashtra. *International Journal of Agricultural and Statistical Sciences*, 12 (1): 85-88.

**Patil S S, Mahale, M M and Chavan S S 2018** Impact of Frontline Demonstrations (FLDs) on Oilseed Crops in South Konkan Coastal Zone of Maharashtra. *Current Agriculture Research Journal*, 6 (3).

**Poonia TC and Pithia MS 2011** Impact of front line demonstrations of Chickpea in Gujarat. *Legume Research*, 34 (4): 304- 307.

**Raj A D, Yadav V and Rathod J H 2013** Impact of Front Line Demonstrations (FLD) on the Yield of Pulses. *International Journal of Scientific and Research Publications*, 3 (9): 1-4.