The Pharma Innovation Journal 2023; SP-12(10): 504-506

www.ThePharmaJournal.com

The Pharma Innovation

ISSN (E): 2277-7695
ISSN (P): 2349-8242
NAAS Rating: 5.23
TPI 2023; SP-12(10): 504-506

www.thepharmajournal.com
Received: 09-08-2023
Accepted: 11-09-2023

R Arunkumar
Associate Professor and Head, Coconut Research Station, Veppankulam, Tamil Nadu, India

S Krishnakumar
Assistant Professor, Krishi Vigyan Kendra, Virudhunagar, Tamil Nadu, India

Chelvi Ramessh
Programme Coordinator, Krishi Vigyan Kendra, Virudhunagar, Tamil Nadu, India

P Usharani
Associate Professor, Krishi Vigyan Kendra, Virudhunagar, Tamil Nadu, India

P Arul Arasu
Associate Professor, Agricultural College and Research Institute, Madurai, Tamil Nadu, India

Corresponding Author:
S Krishnakumar
Assistant Professor, Krishi Vigyan Kendra, Virudhunagar, Tamil Nadu, India

Assessment of chilli hybrids for higher yield

R Arunkumar, S Krishnakumar, Chelvi Ramessh, P Usharani and P Arul Arasu

Abstract
Assessment of chilli hybrids (each one acre) at Melavalavu village (DFI) of Kottampatti block was selected. The soil is black alluvial soil. The plants are grown in irrigated conditions and planted at a spacing of 75 x 60 cm, The initial soil fertility status was 230: 12: 285 kg NPK/ha. The treatments *viz*., T_1-Farmers hybrid (VNR 277 F1), T_2-TNAU chilli Hybrid CO 1 and T_3-Arka Harita were taken for this assessment trial. The height of the plant varied between 0.90 m (T_2) to 1.25 m (T_1). T_1 only recorded higher than the mean value of 1.05m. Similarly T_1 recorded higher spread of the plant (95 cm) followed by T_2 (85 cm) and T_3 82 (cm). T_1 (Rs. 8.00/ kg) recorded the lowest value while T_3 (Rs. 12/kg) recorded the highest marketable price per kg of green chilli. The net returns per hectare was higher in T_2 (Rs. 2, 67,850/ha), followed by T_3 (Rs. 2,62,900/ha) and lower in T_1 (Rs. 1,62,000). The percent increase of T_2 over the T_1 was 20.24%. The benefit cost ratio was higher in T_2 and T_3 *i.e* 3.74 and 3.67 respectively.

Keywords: VNR 277 F1, TNAU chilli hybrid CO 1, yield, economics

Introduction
Chilli is the prominent dryland crop of Madurai, Dindigul, Ramnad, Virudhunagar, Trichy districts of Southern Tamil Nadu. In Madurai, it is chiefly grown in blocks *viz.*, Sedapatti, Kottampatti, Alanganallur and Usilampatti. It is grown in both alluvial soil and red lomy soil of Madurai district. Chilli is grown throughout the year and peak season is from August to February. It is grown for both green and red chilli (both samba and gundu types). The peak flowering period starts from September and extends till November. The average price of Chilli varies between Rs. 20 to 40. The major problem faced by the farmers *viz.*, the cost of the seed, less pungency which fetch low price in the market and incidence of powdery mildew and Leaf Curl Virus (LCV). Hence, hybrids with high pungency, dark green, tolerant to LCV with higher yield will boost the chilli cultivation in Madurai district.

Materials and Methods
The Melavalavu village (DFI) of Kottampatti block was selected for this trial. The soil is black alluvial soil. The plants are grown in irrigated conditions and planted at a spacing of 75 x 60 cm, The initial soil fertility status was 230: 12: 285 kg NPK/ha. The total rainfall received in this area from July 2018 to February 2019 was 230 mm in 28 days. Sowing was taken up during August 2019 followed by transplanting during September 2019. It started flowering from November and the produce was harvested during first fortnight of December 2019 to Janurary 2020. The fertilizers *viz*., 10 kg Urea, 512 kg SSP & 50 kg MOP were applied in three split doses except SSP during basal, flower initiation and pod initiation. The treatments *viz*., T_1-Farmers hybrid (VNR 277 F1), T_2-TNAU chilli Hybrid CO 1 and T_3-Arka Harita were taken for the assessment trial.

Results and Discussion
Growth and Yield Attributes
The height of the plant varied between 0.90 m (T_2) to 1.25 m (T_1). T_1 only recorded higher than the mean value of 1.05 m. Similarly T_1 recorded higher spread of the plant (95 cm) followed by T_2 (85 cm) and T_3 82 (cm). This clearly indicates that, the number of plants is higher in T_2 & T_3 as compared to T_1. The mean spread was 87.33 cm. This will comparable with the scientists viz., Janaki, *et al*. 2015 [1], Nivedha *et al*. 2019 [2] and Dhumal *et al*. 2020 [3]. The days to 50% flowering varied from 39 (T_1) to 48 days (T_3), which is an indicator of earliness in yield. The length of the pod and the diameter was higher in T_1 (11.00 cm and 1.1.2 cm respectively) and hence the individual pod weight (6.12g). Both COCH1 and Arka Harita

(5.40 and 5.45g respectively) were lower in individual pod weight as compared to the private hybrid (Table 1). The LCV and PM incidence was higher in T_1 as compared to T_2 and T_3 which probably decreased the yield and higher cost of production. With regard to yield per plant, T_2 recorded higher yield (24.35t/ha) as compared to T_1 (20.25t/ha) and T_3 (23.90t/ha) as mentioned in Fig.1. The colour value was lower in T_1 (light green) as compared to T_2 and T_3 (dark green). This will comparable with Karak *et al.* 2015 [4], Yatagiri *et al.* 2017 [5], Rohini and Lakshmanan, 2017 [6] and Nivedha *et al.* 2019 [7].

Cost Economics

The market value differed between the varieties assessed. T_1 (Rs. 8.00/ kg) recorded the lowest value while T_3 (Rs. 12/kg) recorded the highest marketable price per kg of green chilli. The net returns per hectare was higher in T_2 (Rs. 2, 67,850/ha), followed by T_3 (Rs. 2,62,900/ha) and lower in T_1 (Rs. 1,62,000). The percent increase of T_2 over the T_1 was 20.24%. The benefit cost ratio was higher in T_2 and T_3 *i.e* 3.74 and 3.67 respectively (Table 2).

Table 1: Effect of hybrids on growth and yield attributes

Treatments	Plant height (m)	Spread of plant (cm)	Days to 50% flowering (DAT)	Individual pod weight (g)	Pod length (cm)	Pod diameter (cm)	LCV (%)	PM (%)	Colour of pod
T_1	1.25	95.0	39.0	6.12	11.0	1.12	25	35	Light green
T_2	0.90	85.0	43.0	5.40	9.20	0.92	10	25	Dark green
T_3	1.00	82.0	48.0	5.45	9.60	1.00	10	20	Dark green
Mean	1.05	87.3	43.3	85.33	9.93	1.01	11.6	26.6	

Table 2: Effect of hybrids on growth and yield attributes

Technology Option	No. of trials	Season of harvest	Yield (t/ha)	Net Returns* (Rs./ha)	BCR
T_1-Farmers hybrid (VNR 277 F1)	5	December	20.25	1,62,000	2.6
T_2-TNAU chilli Hybrid CO 1		December	24.35	2,67,850	3.74
T_3-Arka Harita		December	23.90	2,62,900	3.67

*Price per Kg: VNR G-166 Rs.8 Per Kg; CO1-11/kg; A.Harita: Rs.12 per Kg

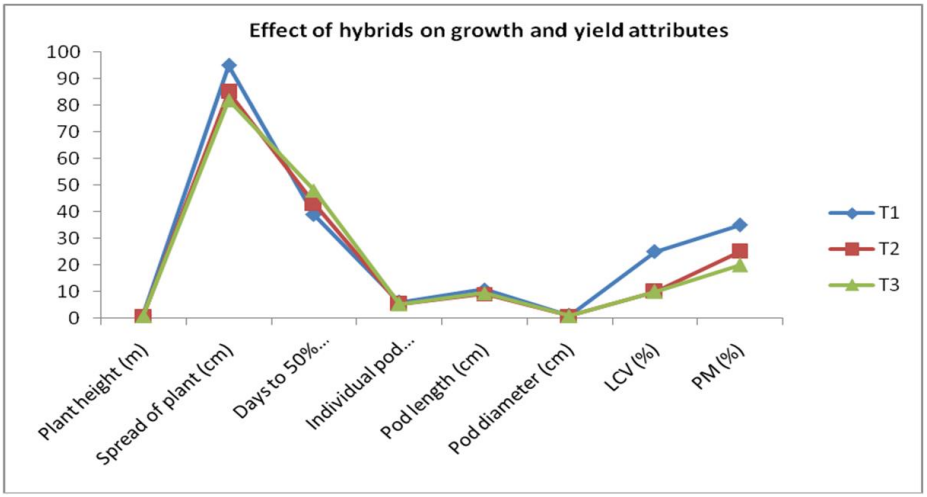

Fig 1: Effect of hybrids on growth and yield attributes

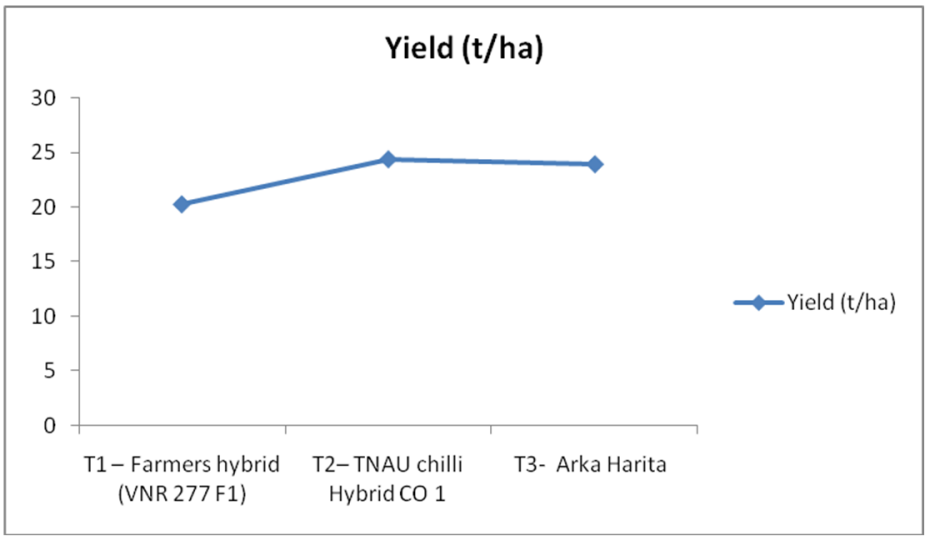

Fig 2: Effect of hybrids on yield of bhendi

Conclusion

The cost of hybrid seeds (COCH1 and *A. harita*) was much lower as compared to the private hybrid. The percent germination was also higher which lowered the initial cost of production. The main constraint is to produce the seedlings *via.*, portrays. This increase the initial cost of production upto 20% as compared to regular nursery. However, this was compensated by 99.99% establishment through transplanting. The higher yield might be due to higher number of plants survived till harvest. Almost 85% of the plants survived till last harvest in COCH1 and *A. harita*. COCH1 and *A. harita* can be recommended to Madurai condition with black alluvial soil and irrigated condition.

References

1. Janaki M, Naram Naidu N, Venkata Ramana C, Paratpara Rao M. Assessment of genetic variability, heritability and genetic advance for quantitative traits in chilli (*Capsicum annuum* L.). Int. Quarterly J Life Sci. 2015;10(2):729-733.
2. Nivedha P, Rajasree V, Arumugam T, Karthikeyan M. and Thiruvengadam V. Evaluation of parents and hybrids of chilli (*Capsicum annuum* L.) for yield and resistance to chilli leaf curl disease. Journal of Pharmacognosy and Phytochemistry. 2019;8(3):4763-4766.
3. Dhumal VT, Pharle NR, Kapse VD, Naik HP, Vaidya KP, Meshram NA. Evaluation of F1 progenies of chilli (*Capsicum annuum* L.) under Konkan agro climatic condition. The Pharma Innovation Journal. 2020;9(1):180-182.
4. Karak PK, Pariari A, Karak C. Varietal evaluation of chilli in the saline belt of West Bengal. J Crop and Weed. 2015;11:86-89.
5. Yatagiri N, Sanap PB, Telugu RK. Growth, flowering behaviour and physical fruit parameters of chilli (*Capsicum annuum* L.) genotypes in Coastal Maharashtra. International Journal of Current Microbiology and Applied Sciences. 2017;6(7):2230-2237.
6. Rohini N, Lakshmanan V. Evaluation studies of hot pepper hybrids (*Capsicum annuum* L.) for yield and quality characters. Electronic Journal of Plant Breeding. 2017;8(2):643-651.
7. Nivedha P, Rajasree V, Arumugam T, Karthikeyan M, Thiruvengadam V. Evaluation of parents and hybrids of chilli (*Capsicum annuum* L.) for yield and resistance to chilli leaf curl disease. Journal of Pharmacognosy and Phytochemistry. 2019;8(3):4763-4766.