

OFT – 08 (Agricultural Engineering)
(Rabi 2023-24) 2nd Year

- **Thematic area:** Water Management
- **Problem definition/Name of OFT:** More no. of irrigation and bed making resulted cost of cultivation

1.	Title of On farm Trial (OFT)	Assessment of different methods irrigation on productivity of tomato in medium land.																																										
2.	Problem diagnosed	More no. of irrigation and bed making resulted high cost of cultivation																																										
3.	Details of technologies selected for assessment/refinement (Mention either Assessed or Refined)	Drip irrigation with crop residue mulch Drip irrigation with plastic mulching																																										
4.	Source of Technology (ICAR/ AICRP/SAU/other, please specify)	RPCAU, Pusa 2022																																										
5.	Production system and thematic area	Vegetable based production system and water management																																										
6.	Performance of the Technology with performance indicators	<table><tr><th rowspan="2">Technology option</th><th rowspan="2">No. of replication</th><th colspan="2">Data related problem addresses</th><th>Yield components</th><th rowspan="2"></th></tr><tr><th>No of irrigation</th><th>Number of fruits per plant</th><th>Fruits weight per plant</th></tr><tr><td>FP : Furrow/bed irrigation</td><td rowspan="3">10</td><td>13.9</td><td>13.41</td><td>1391</td><td></td></tr><tr><td>TO₁ : Drip irrigation with crop residue mulch</td><td>12.00</td><td>15.81</td><td>1630</td><td></td></tr><tr><td>TO₂ : Drip irrigation with plastic mulching</td><td>11.40</td><td>16.23</td><td>1729</td><td></td></tr><tr><td>SEm₊</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>CD(P=0.05)</td><td></td><td></td><td></td><td></td><td></td></tr></table>	Technology option	No. of replication	Data related problem addresses		Yield components		No of irrigation	Number of fruits per plant	Fruits weight per plant	FP : Furrow/bed irrigation	10	13.9	13.41	1391		TO ₁ : Drip irrigation with crop residue mulch	12.00	15.81	1630		TO ₂ : Drip irrigation with plastic mulching	11.40	16.23	1729		SEm ₊						CD(P=0.05)										
Technology option	No. of replication	Data related problem addresses			Yield components																																							
		No of irrigation	Number of fruits per plant	Fruits weight per plant																																								
FP : Furrow/bed irrigation	10	13.9	13.41	1391																																								
TO ₁ : Drip irrigation with crop residue mulch		12.00	15.81	1630																																								
TO ₂ : Drip irrigation with plastic mulching		11.40	16.23	1729																																								
SEm ₊																																												
CD(P=0.05)																																												
7.	Final recommendation for micro level situation	On farm trial was conducted on 10 farmers' field of village Choridhi, Hesrag & Bishunpur during Rabi 2023-24 to find out the cost effective weeding method in tomato. The data collected during the trial clearly indicated that the minimum No of irrigation (11.40), maximum Number of fruits per plant (16.23) and maximum No. of fruits weight per plant (1729 gms) was found under Technology option 2 i'e Use of Drip irrigation with plastic mulching. In same Technology option (TO ₂) maximum yield (275.64 q/ha), net income (Rs. 155212) and B:C ratio (3.38) was found. Which is significantly superior over FP and TO ₁ . The percent yield enhancement 38.83 and 4.27 over FP and TO ₁																																										
8.	Constraints identified and feedback for research	Unavailability of drip and plastic mulching sheet in locality.																																										

9.	Process of farmers participation and their reaction	Participatory and interactive, Regular field visit, Field day & Farmers' reaction was satisfactory
----	--	--

B. Results with Table and good quality photographs in jpg.

Thematic area	Technology options with detailed treatments	Area (ha in crop)		Yield (q/ha)	Cost of cultivation (Rs./ha)	Gross return (Rs/ha)	Net return (Rs./ha)	BC ratio
		Proposed	Actual					
Water Management	FP : Furrow/bed irrigation	0.133	0.133	198.54	72500	158832	86332	2.19
	TO₁ : Drip irrigation with crop residue mulch	0.133	0.133	264.35	68600	211480	142880	3.08
	TO₂ : Drip irrigation with plastic mulching	0.133	0.133	275.64	65300	220512	155212	3.38
	SEm_±							
	CD(P=0.05)							



FP : Furrow/bed irrigation



TO₁ : Drip irrigation with crop residue mulch



TO₂ : Drip irrigation with plastic mulching