

Achievements on Technologies Assessed and Refined: 2018-2019

OFT-1

1.	Title of On farm Trial	Effect of split doses of nitrogenous fertilizer on the grain yield of Aman paddy during Kharif season.
2.	Problem diagnose	Low yield of Paddy
3.	Details of technologies selected for assessment/refinement	Farmers practice: Farm Yard Manure 5 ton/ ha, NPK50:25:25 kg/ha basal and top dressing Technology Option-I: Compound fertilizer NPK50:25:25 kg/ha as basal and urea application at 16 and 32 DAT Technology Option-II: Compound fertilizer NPK50:25:25 kg/ha as basal and 16days and urea application at 16 and 32 and 48 days DAT
4.	Source of Technology	SAU
5.	Production system and thematic area	Rain fed small production system and Nutrient management
6.	Performance of the Technology with performance indicators	Technology option –II showed best result in relation to the yield, Plant height, , net return and B: C ratio.
7.	Final recommendation for micro level situation	It is may be recommended that the Technology option –II may be accepted for yield increment and income(Yield-46.6q/ha and Net income-26220.00)
8.	Constraints identified and feedback for research	It is may be recommended that the Technology option –II may be accepted for yield increment and income
9.	Process of farmers participation and their reaction	Collaborative, Farmers are happy with the performance of recommended practice

Thematic Area: Nutrient management

Problem definition: Low yield of Paddy due to scarcity of nutrient and slow release of nutrient uptake.

Technology assessed: Effect of split doses of nitrogenous fertilizer on the grain yield of Aman paddy during Kharif season.

Table-2 Performance of growth substances to enhance the yield of Aman paddy during Kharif season.

Technology option	No. of trials	Yield component			Disease/ insect pest/weeds incidence (%)	Yield (q/ha)	Cost of cultivation (Rs./ha)	Gross return (Rs/ha)	Net return (Rs./ha)	BC ratio
		Av Plant height	No of Tillers	Wt of seed/1000no						
Farmers practice: Farm Yard Manure 5 ton/ ha, NPK50:25:25 kg/habasal and top dressing	10	104	16	36	-	37.5	24300.00	45500.00	21200.00	1.87
Technology Option-I: Spraying of Humus@ 1.5ml/lit, at 15,30,45,DAT	10	106	18	38	-	40.4	26700.00	48600.00	21900	1.82
Technology Option-II:: Spraying of 3.5% Alfa NAA(sodium Salt)@ 5 ml/lit, 42 DAT	10	112	22	42		46.6	29300.00	55920.00	26200.00	1.90

Result: Technology option-II showed better yield (46.6q/ha), Av. height, No of tillers and wt. of seed per plant was increased Net return (Rs.26200.00/ha) and BC ratio (1.90.) was also higher than other treatments.

OFT-2

1.	Title of On farm Trial	Effect of different doses of Boron on the grain yield of Wheat during Rabi season.
2.	Problem diagnose	Low yield of Wheat
3.	Details of technologies selected for assessment/refinement	Farmers practice: Farm Yard Manure 5 ton/ ha Technology Option-I: Spraying of Borax @ 2gm/lit, at 21 and 42 DAS Technology Option-II: Spraying of Borax @ 3gm/lit, at 21 and 42 DAS
4.	Source of Technology	SAU
5.	Production system and thematic area	Irrigated small production system and Nutrient management
6.	Performance of the Technology with performance indicators	Technology option –II showed best result in relation to the yield, Plant height, net return and B: C ratio.
7.	Final recommendation for micro level situation	It is may be recommended that the Technology option –II may be accepted for yield increment and income (Yield-46.6q/ha and Net income-26220.00)
8.	Constraints identified and feedback for research	It is may be recommended that the Technology option –II may be accepted for yield increment and income
9.	Process of farmers participation and their reaction	Collaborative, Farmers are happy with the performance of recommended practice

Thematic Area: Nutrient management

Problem definition: Low yield of Wheat due to scarcity of nutrient.

Technology assessed **Effect of different doses of Boron on the grain yield of Wheat during Rabi season.**

Table-2 Performance of BORON to enhance the yield of WHEAT during Rabi season.

Technology option	No. of trials	Yield component			Disease/ insect pest/weeds incidence (%)	Yield (q/ha)	Cost of cultivation (Rs./ha)	Gross return (Rs/ha)	Net return (Rs./ha)	BC ratio
		Av Plant height	No of Tillers	Wt of seed/1000no						
Farmers practice: Farm Yard Manure 5 ton/ ha, NPK50:25:25 kg/habasal and top dressing	10	91	07	50	-	21.3	23400.00	44200.00	20000.00	1.88
Technology Option-I: Spraying of Humus@ 1.5ml/lit, at 15,30,45,DAT	10	95	09	52	-	23.4	25700.00	49300.00	23600	1.91
Technology Option-II:: Spraying of 3.5% Alfa NAA(sodium Salt)@ 5 ml/lit, 42 DAT	10	97	12	56		26.1	27300.00	53800.00	26500.00	1.97

Result: Technology option-II showed better yield (26.1q/ha), Av. height, No of tillers and wt. of seed per plant was increased Net return (Rs.26500.00/ha) and BC ratio (1.90.) was also higher than other treatments.

OFT-3

1.	Title of On farm Trial	Assessment of performance of precision farming systems for African Marigold (<i>Tagetes erecta</i> L.) during summer-rainy season
2.	Problem diagnosed	Indiscriminate use of fertilizers/Conventional methods of farming system resulting lower yield.
3.	Details of technologies selected for assessment/refinement (Mention either Assessed or Refined)	<p>Farmers Practice (FP): N:P:K: 3.6:15.6:7.8 kg/bigha</p> <p>Technology option-I (TO-I): Fertigation of 75% of RDF(N:P:K- 12:12:10 kg/bigha) in three split doses (50% basal and remaining 50% at 30 & 45 DAT)</p> <p>Technology option-II (TO-II): Fertigation of 75% of RDF(N:P:K- 12:12:10 kg/bigha) in five split doses (50% basal and remaining 50% at 15, 30, 45 & 60 DAT) along with foliar application of Humic acid (0.2%) and ZnSO₄ (0.2%) at 30 & 45 DAT</p>
4.	Source of Technology (ICAR/ AICRP/SAU/other, please specify)	T.N.A.U
5.	Production system and thematic area	Application of only macro-nutrients. Nutrient management
6.	Performance of the Technology with performance indicators	Performance is satisfactory so far.
7.	Final recommendation for micro level situation	Yet to come
8.	Constraints identified and feedback for research	No constraints so far.
9.	Process of farmers participation and their reaction	Farmers participated in collaborative mode.

Thematic area: Nutrient management

Problem definition: Indiscriminate use of fertilizers/Conventional methods of farming system resulting lower yield.

Technology assessed:

Farmers Practice (FP): N:P:K: 3.6:15.6:7.8 kg/bigha

Technology option-I (TO-I): Fertigation of 75% of RDF(N:P:K- 12:12:10 kg/bigha) in three split doses (50% basal and remaining 50% at 30 & 45 DAT)

Technology option-II (TO-II): Fertigation of 75% of RDF(N:P:K- 12:12:10 kg/bigha) in five split doses (50% basal and remaining 50% at 15, 30, 45 & 60 DAT) along with foliar application of Humic acid (0.2%) and ZnSO₄ (0.2%) at 30 & 45 DAT

Table:

Technology option	No. of trials	Yield component		Yield (q/ha)	Cost of cultivation (Rs./ha)	Gross return (Rs/ha)	Net return (Rs./ha)	BC ratio
		Plant Height (60 DAT,cm)	No. of flower/plant					
Farmers' Practice: Application of fertilizer During land preparation @ 48 kg P ₂ O ₅ / ha; during plantation @ 27 kg N/ha and 69 kg P ₂ O ₅ / ha and at 30 days after planting @ 58.5 kg K ₂ O/ ha	7	57	81	335.5	77300.00	165550.00	88250.00	2.14
Technology Option -1: Fertigation of 75% of RDF in three split doses (50% basal and remaining 50% at 30 & 45 DAT)		65	102	418.5	86500.00	213540.00	127040.00	2.46
Technology Option -2: Fertigation of 75% of RDF in five split doses (50% basal and remaining 50% at 15, 30, 45 & 60 DAT) along with foliar application of ZnSO ₄ (0.25%) at 30 &45 DAT		70	121	517.5	95540.00	261600.00	166060.00	2.73

Results:

Among all the technologies **Tech. Option-2** proves to be best so far with 2.73 B:C ratio.

OFT-4

1.	Title of On farm Trial	Effect of Un-puddled Transplanting on Growth and Yield of Paddy Cultivation in Medium Low Land of Jhargram , district
2.	Problem diagnosed	Loss of natural resources, higher input cost of cultivation
3.	Details of technologies selected for assessment/refinement (Mention either Assessed or Refined)	Unpuddled transplanting by Self Propelled 4 Row Rice Transplanter for assesment
4.	Source of Technology (ICAR/ AICRP/SAU/other, please specify)	Mahindra &Mahindra Ltd. Farm Equipment sector, Applitract Department, SAS Nagar, Mohali (Punjab)140307
5.	Production system and thematic area	Rainfed rice based small production System , Medium land and Conservation tillage technology
6.	Performance of the Technology with performance indicators	Tillage treatments showed significant effect on fuel consumption in land preparation. Farmers' practice had the highest labour requirement and unpuddled paddy transplanting had the lowest labour requirement for land preparation. Minimum tillage saved 46% labour compared to farmers practice in land preparation. The land preparation cost under minimum tillage decreased up to 49% compared to conventional puddling. Tillage treatments had no significant effect on transplanting cost in puddled and unpuddled conditions. The BCR was 1.65 in case of unpuddled tillage option.
7.	Final recommendation for micro level situation	Tillage intensity can be reduced to establish transplanted rice without sacrificing yield.
8.	Constraints identified and feedback for research	Under red and laterite area mid land situation having sandy loam soil would be traced out /assessed for mechanical transplanting. In hither to infestation of weed be controlled off chemically
9.	Process of farmers participation and their reaction	Collaborative mode of farmers' participation. The machine was found to be farmer friendly and feasible in terms of time, money and labour requirement as compared to manual method transplanting of paddy. The machine be made available on custom and hiring basis to the farmers

Thematic area: Conservation Tillage Technology

Problem definition:

Transplanting in unpuddled by self propelled paddy transplanters will reduce the cost of cultivation and protect soil profile for following crops.

Technology assessed:

- **Farmers practice:-**Conventional- tillage puddling and manual transplanting and weeding
- **Technology Option –I:**Puddling by rotavator and transplanting by paddy transplanter and weeding chemical or mechanical
- **Technology Option-II:** Unpuddled wet land transplanting weeding by chemical or mechanical

Table:-1 Technical Specifications of 4 row self propelled walking behind paddy transplanter

S.No.	Particulars	Machine Specification
1.	Make and Model	MP461
2.	Name	Mahindra Rice trans planter
3.	Type	Walking Behind
4.	Overall Dimension,mm	
A.	Weight,Kg.	175 (dry),180(working)
B.	Length,mm	2300
C.	Width ,mm	1680
D.	Height, mm	905(working),790(storing)
5.	Fuel capacity of tank, litres	3.5
6.	Power	3.8 kw
7.	Diver	1
8.	Transplanting speed,mps	0.4-0.84
9.	Travelling speed,kmph	6.41
10.	No. Of rows	4
11.	Type of nursery	Mat containing artificial culture soil withframe seeding nursery
12.	Row Spacing,cm	30
13.	Hill Spacing,cm	16.18.21
14.	No. Of sapling per hill	3-5
15.	Width of Mat Nursery,cm	28
16.	Length of mat nursery,cm	58
17.	Depth of mat nursery,cm	2.5
18.	Field capacity,sq.metre per hour	1760
19.	Price ,Rs.	275000
20.	Variety of paddy &Date of transplanting	MTU7021 &23.8.2018
21.	Date of harvesting	07.12.2018

Table:-2 Assessment of Fuel Consumption, Labour Requirement and Cost against land preparation ,transplanting and Weeding

Treatment	Fuel Consumption Litres/ha	Labour requirement, md/ha			Cost Rs./ha		
		Land preparation	Transplanting	Weeding	Land preparation	Transplanting	Weeding
Farmers practice	37	63	47	30	9448	7086	4429
Technology Option –I	45	63	2	18	9448	4920	2500
Technology Option –II	20	22	3	20	4762	5500	3000

Table: 3 Assessment of yield and yield attributes economic productivity B: C Ratio

Technology option	No. of trials	Yield component			Disease/ insect pest incidence (%)	Yield (q/ha)	Cost of cultivation (Rs./ha)	Gross return (Rs/ha)	Net return (Rs./ha)	BC ratio
		No. of effective tillers/hill	No. of spikelet per panicle	Test wt. (100 grain wt.)						
Farmers practice	10	18.5	13	13.60	5	47.2	47297	59047.62	1110	1.25
Technology Option –I	10	20.4	15	14.0	3	48.4	40054	60523.81	20469.81	1.51
Technology Option –II	10	17.5	14	13.52	3	46.6	35330	58309.52	22979.52	1.65

Results: Minimum tillage reduced fuel and labour requirement in land preparation due to limited number of tillage operations. Tillage intensity can be reduced to establish transplanted rice without sacrificing yield.

OFT-5

1.	Title of on farm trial	Balanced fertilizer application on the yield of Rice production in <i>kharif</i> season (Micro nutrient application)
2.	Problem diagnosis	Low yield of Paddy
3.	Details of technologies selected for assessment/refreshment	Farmers practice: NPK, Cow dung T ₁ : foliar application of borax (@ 2 g per lit.) T ₂ : foliar application of zinc EDTA 12% (@ 0.75g per lit.) and T ₃ : foliar application of borax (@ 2 g per lit.) + zinc EDTA 12% (@ 0.75g per lit.) Two different field location were selected Field location 1: Red and lateritic soil Field location 2: Alluvial soil (embankment of river Kansabati)
4.	Source of technology	Research paper
5.	Production system and thematic area	Nutrient management
6.	Performance of the technology with performance indicator	T ₃ perform best in respect of yield and B:C
7.	Final recommendation for micro level situation	T ₃ may be recommended for better rice yield in Jhargram district.
8.	Constraints identified and feedback for research	Time of nutrient application is crucial for better performance of nutrients.
9.	Process of farmers participation and their reaction	Reaction was good.

Thematic area: Nutrient management

Problems definition: Micronutrient deficiency in paddy cultivation.

Technology assessed: Application of boron and zinc to augment the yield of Paddy in Jhargram district.

Table 2: Impact of different technologies on yield and economic return of Aman paddy during *Kharif* season.

Technology option	Location 1					Location 2			
	Rice yield q/ha	Expenditure	Net income	B:C		Rice yield q/ha	Expenditure	Net income	B:C
Farmers practices	39.7	36000.0	21103.3	1.59		37.3	34375.0	19345.0	1.56
T1	42.7	37500.0	23856.7	1.64		40.2	35575.0	22351.7	1.63
T2	43.8	37400.0	25496.7	1.68		41.2	35720.0	23606.7	1.66
T3	46.1	37600.0	28520.0	1.76		44.1	36200.0	27190.0	1.75

Result: Application of boron and zinc can give higher yield and better economic return in paddy cultivation in both lateritic soil as well as alluvial soil in Jhargram district.

OFT-6

1.	Title of On farm Trial	Assessment of different Methods of Fish Culture in Small Seasonal Pond
2.	Problem diagnosed	Poor growth and yield of fish in seasonal pond due to improper species combination
3.	Details of technologies selected for assessment/refinement (Mention either Assessed or Refined)	Farmers Practice = Stocking of IMC & silver Carp @ 10000 per ha.+ irregular feeding with oil cake Technology Option I = Stocking of Mono sex Tilapia @ 10000 per ha.+ regular feeding with fish Feed Technology Option II = Stocking of IMC & silver Carp @ 2500 per ha.+ Mono sex Tilapia @ 2500 per ha + regular feeding with fish Feed @3% of stock
4.	Source of Technology (ICAR/ AICRP/SAU/other, please specify)	CIFE
5.	Production system and thematic area	Improper Species Combination., New species introduction
6.	Performance of the Technology with performance indicators	T2 showed best result in respect to average weight gain of fish, yield per ha, net return and B:C
7.	Final recommendation for micro level situation	It ma be reccomended that poly culture of mono sex Tilapia with carp in seasonal pond for achiving faster growth, better yield and income.
8.	Constraints identified and feedback for research	Lack of availability of quality fry or fingerlings of monosex Tilapia.
9.	Process of farmers participation and their reaction	Farmers participated in collaborative mode and they are satisfied.

Thematic area: New species introduction

Problem definition: Poor growth and yield of fish in seasonal pond.

Technology assessed:

Farmers Practice = Stocking of IMC & silver Carp @ 10000 per ha.+ irregular feeding with oil cake

Technology Option I = Stocking of Mono sex Tilapia @ 10000 per ha.+ regular feeding with fish Feed

Technology Option II = Stocking of IMC & silver Carp @ 2500 per ha.+ Mono sex Tilapia @ 2500 per ha + regular feeding with fish Feed @3% of stock

Table: 1

Technology option	No. of trials	Yield component			Cost of cultivation (Rs./ha)	Gross return (Rs/ha)	Net return (Rs./ha)	BC ratio
		Av. Body wt. of carp (Kgs.)	Av. Wt. of Tilapia (Kgs.)	Yield/Kgs. (in 5 months)				
Farmers Practice- Stocking of IMC & silver Carp @ 10000 per ha.+ irregular feeding with oil cake	10	0.15	0.0	1585	47000.00	134725.00	87725.00	2.87
Technology Option I = Stocking of Mono sex Tilapia @ 10000 per ha.+ regular feeding with fish Feed	10	0.0	0.18	1815	52000.00	180000.00	128000.00	3.46
Technology Option II = Stocking of IMC & silver Carp @ 2500 per ha.+ Mono sex Tilapia @ 2500 per ha + regular feeding with fish Feed @3% of stock	10	0.27	0.17	2230	54000.00	222000.00	168000.00	4.11

Results: With respect to total yield /production, technology option-II yielded (40% increment) superior result.

OFT-7

1.	Title of On farm Trial	Assessment of Growth & Production of fishes in pond, stocked with Stunted Yearlings
2.	Problem diagnosed	Poor growth and yield of fish in seasonal pond due to improper species combination
3.	Details of technologies selected for assessment/refinement (Mention either Assessed or Refined)	Farmers Practice = Stocking with Advanced Fry of IMC & Silver Carp @ 10000 per ha. & irregular feeding with fish feed. Technology Option I = Stocking with Fingerlings of IMC & Silver Carp @ 7500 per ha.& regular feeding with fish feed. Technology Option II = Stocking with Stunted Yearlings of IMC & Silver Carp @ 7500 per ha.& regular feeding with fish feed.
4.	Source of Technology (ICAR/ AICRP/SAU/other, please specify)	Research paper
5.	Production system and thematic area	Improper growth in seasonal pond, Nursery pond management
6.	Performance of the Technology with performance indicators	T2 showed best result in respect to average weight gain of fish, yield per ha, net return and B:C
7.	Final recommendation for micro level situation	It may be recommended that fish cultivation in cemented structure achieved faster growth, better yield and income.
8.	Constraints identified and feedback for research	Lack of availability of quality fry or fingerlings of monosex Tilapia.
9.	Process of farmers participation and their reaction	Farmers participated in collaborative mode and they are satisfied.

Thematic area: New species introduction

Problem definition: Poor growth and yield of fish in seasonal pond.

Technology assessed:

Farmers Practice = Stocking with Advanced Fry of IMC & Silver Carp @ 10000 per ha. & irregular feeding with fish feed.
Technology Option I = Stocking with Fingerlings of IMC & Silver Carp @ 7500 per ha.& regular feeding with fish feed.
Technology Option II = Stocking with Stunted Yearlings of IMC & Silver Carp @ 7500 per ha.& regular feeding with fish feed.

Table: 1

Technology option	No. of trials	Data related to problem address			Disease/ insect pest incidence (%)	Yield (q/ha)	Cost of cultivation (Rs./ha)	Gross return (Rs/ha)	Net return (Rs./ha)	BC ratio
		Initial Av length of fry(cm)	Av.length of fry Fry in 1 month (cm)	% of Fish Mortality						
Farmers Practice = Stocking with Advanced Fry of IMC & Silver Carp @ 10000 per ha. & irregular feeding with fish feed	6	1.2	2.2	52	27	1.9	10308/-	23750/-	13442/-	2.30:1
Technology Option I = Stocking with Fingerlings of IMC & Silver Carp @ 7500 per ha.& regular feeding with fish feed.	6	1.2	2.8	43	22	3,4	20700/-	44200/-	23500/-	2.14:1
Technology Option II = Stocking with Stunted Yearlings of IMC & Silver Carp @ 7500 per ha.& regular feeding with fish feed.	6	1.2	4.4	29	13	4.8	21700/-	62400/-	40700/-	2.88:1
SEM±			0.2357	2.419	-	0.3009				
CD at 5%			0.53	5.39	-	0.67				

Results: Technology option II shows better performance in respect to survival of Fry,(71%) , increase in length (4.4 cm) & yield(4.8 qt/ha)