OFT – 05 (Soil Science)
(Kharif 2024-25)

- **Thematic area:** Integrated Nutrient Management
- **Problem definition/Name of OFT:** Excessive use of chemical fertilizers and spiraling price of urea leads to increase in cost of cultivation
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1.	**Title of On farm Trial (OFT)**	**Improvement of Nitrogen use efficiency in rice**
2.	**Problem diagnosed**	Excessive use of chemical fertilizers and spiraling price of urea leads to increase in cost of cultivation
3.	**Details of technologies selected for assessment/refinement**	**FP :** NPK :: 64:46:15kg/ha. (Urea 100kg, DAP 100kg and MOP) **TO_1:** 50% of RDN & 100% PK + Nano urea @ 4 ml/Lt. water (Single spray of pre flowering stage) **TO_2 :** 50% of RDN & 100% PK + 2 sprays of Nano urea at (25 to 30 days) and (60-65 days) 4 ml/Lt. water
4.	**Source of Technology (ICAR/ AICRP/SAU/other, please specify)**	BAU Sabour / BAU Ranchi.
5.	**Production system and thematic area**	Rice based production system & INM
6.	**Performance of the Technology with performance indicators**	**Table- Improvement of Nitrogen use efficiency in rice**

Technology option	No of replication	Yield component				Grain Yield (q/ha)	Straw Yield (q/ha)	Cost of cultivation (Rs.ha)	Gross income	Net Return (Rs/ha)	B:C
		No of effective tillers/m^2	Test weight (in gram)	Panicle length (in cm).	No. of Grain/panicle						
FP : RDF (100:40:20)kg/ha.	10	315.47	21.09	16.62	163.03	31.94	46.73	34500	70356.48	35856.48	2.04
TO_1: 50% of RDN & 100% PK + Nano urea @ 4 ml/Lt. water (Single spray of pre flowering stage)		321.83	22.44	18.06	174.13	34.31	50.42	35500	75573.92	40073.92	2.13
TO_2 : 50% of RDN & 100% PK + 2 sprays of Nano urea at (25 to 30 days) and (60-65 days) 4 ml/Lt. water.		332.07	23.60	18.86	181.57	37.10	55.23	36500	81734.97	45234.97	2.24
SE(m)		**1.24**	**0.13**	**0.16**	**1.33**	**0.35**	**0.53**				
C.D.		**3.71**	**0.40**	**0.48**	**3.99**	**1.06**	**1.57**				

7.	**Final recommendation for micro level situation**	The experiment was conducted on 10 farmers field in village Luto Bartoli of Gumla block during kharif season 2024-25. The variety used was Sahbhagi. The data collected during the trial clearly indicated that the maximum grain yield (36.28 q/ha), net return (Rs. 34978/ha) and B:C ratio (2.24) was found under Technology option 2 i'e 50% of RDN & 100% PK + 2 sprays of Nano urea at (25 to 30 days) and (60-65 days) 4 ml/Lt.

		water. The percent yield enhancement was 13.87 and 5.96 over FP and TO_1. The variety used was Sahbhagi dhan.
8.	**Constraints identified and feedback for research**	Nano urea is not available everywhere in Gumla district. Problems were faced in motivating people to use it. And farmers are not trusting nano urea as much as they trust granular urea.
9.	**Process of farmers participation and their reaction**	1.Participatory and interactive 2.On field training 3.Regular field visit and feedback 4.By seeing the result in term of plant establishment minimum weed infestation and yield farmers' showed happiness and encouragement

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

Thematic area	**Technology options with detailed treatments**	**Area (ha in crop & Fodder)/ Nos (in livestock)**		**Yield (q/ha)**	**Cost of cultivation (Rs./ha)**	**Gross return (Rs/ha)**	**Net return (Rs./ha)**	**BC ratio**
		Proposed	**Actual**					
Integrated Nutrient Management	FP : RDF (100:40:20)kg/ha.	0.4	0.4	31.94	34500	70356.48	35856.48	2.04
	TO1: 50% of RDN & 100% PK + Nano urea @ 4 ml/Lt. water (Single spray of pre flowering stage)	0.4	0.4	34.31	35500	75573.92	40073.92	2.13
	TO2 : 50% of RDN & 100% PK + 2 sprays of Nano urea at (25 to 30 days) and (60-65 days) 4 ml/Lt. water.	0.4	0.4	37.10	36500	81734.97	45234.97	2.24

Balance Sheet

Soil Sampling time		**pH**	**OC%**	**Available in kg/ha**		
				N	**P_2O_5**	**K_2O**
Before transplanting		6.05	0.56	284.45	16.35	237.85
After transplanting	**FP**	5.99	0.58	294.62	17.05	235.54
	TO_1	6.13	0. 60	309.83	19.65	241.75
	TO_2	6.15	0.61	314.57	20..05	243.64

Activities Photos