Technical Bulletin No: 1/2021

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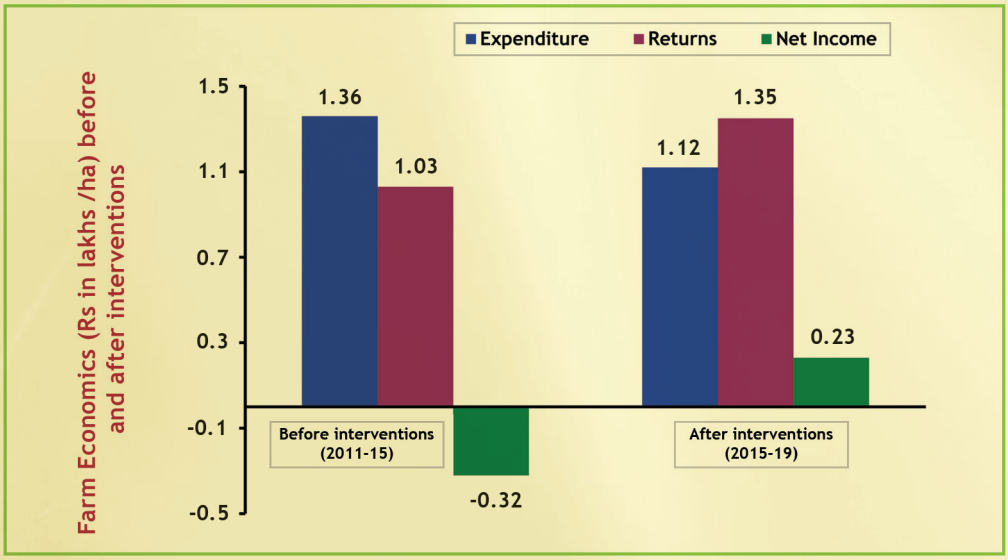

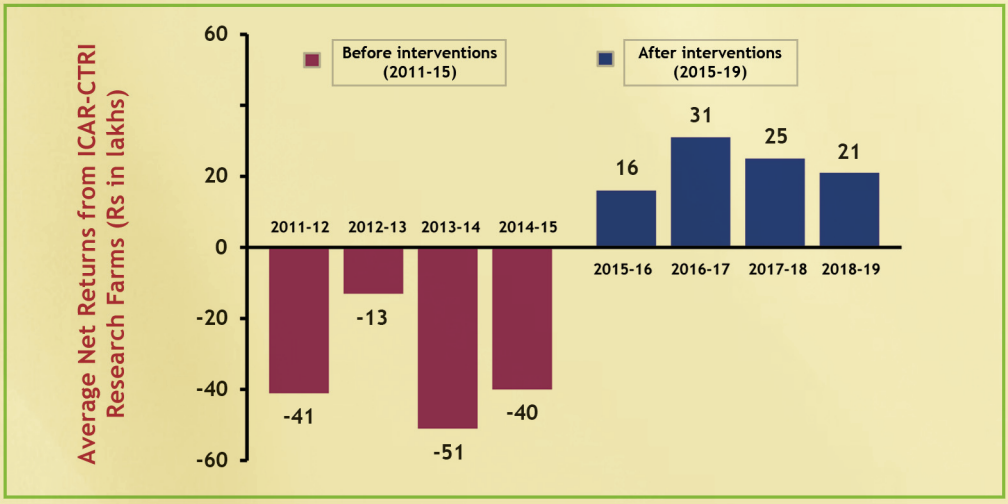

भाकृअनुप - केन्द्रीय तम्बाकू अनुसंधान संस्थान
ICAR - CENTRAL TOBACCO RESEARCH INSTITUTE
(An ISO 9001: 2015 Certified Institute)
RAJAHMUNDRY - 533 105, ANDHRA PRADESH, INDIA
ICAR-CTRI

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Impact of Farm Management Interventions on Income from Research Farms: A Case of ICAR - CTRI

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November, 2021

PREFACE



The Government of India has accorded high priority to enhancing farmers' income across the country and identified different sources of growth in farm income. Among them, improvement in crop productivity, enhancing resource use efficiency and reducing the cost of production are utmost important. The ICAR Institutes and agricultural universities throughout the country have large pool of land resources. They incur huge operational expenditure in the management of research farms. Generally, there is a mismatch between the expenditure incurred on one hand and revenue generated on the other, with the expenditure far exceeding the returns. At the national level, there has been a conscious effort since 2015 to double the farmers' income by 2022 as has been desired by the Honourable Prime Minister. In tune with this initiative, it was desired at the council level to initiate necessary action to demonstrate the possibility of increasing income/returns from ICAR research farms. In response to this desire, the ICAR-CTRI has introduced a set of management interventions in the year 2015-16 to rationalize the farm operations and enhance returns from research farms. The main objective of these interventions was to bridge the gap between the expenditure incurred and the income accrued and explore possibility of increasing net farm income from institute farms.

The major chunk of land in agricultural research farms across the country is used for general cultivation of the mandate crops or other crops while only a small portion of the area is earmarked for conducting field experiments. Hence, the farm management interventions are crucial for economic viability of the agricultural research farms in the country. Accordingly, a set of farm management interventions was framed, implemented successfully and evaluated systematically in true spirit so that the returns can be reversed from loss to gain. In this backdrop, a technical bulletin titled "**Impact of Farm Management Interventions on Income from Research Farms: A Case of ICAR-CTRI"** is brought out to present a clear picture about the relative economic viability of research farms during the period before (2011-12 to 2014-15) and the period after (2015-16 to 2018-19) interventions. The publication embodies the gist of farm management interventions recommended for resource use efficiency, reducing the cost of production and income enhancement of research farms.

I compliment the authors for their sincere efforts in bringing out this publication embodying all relevant information about the management interventions of research farms of ICAR-CTRI and impact created by such interventions.Thanks to all the Heads of the Research Stations and OICs of the farms for their sincere efforts in implementing interventions and submitting the information in the standard and uniform format. It is hoped that this technical bulletin would certainly enable other agricultural R&D institutions, universities, researchers, policy makers and all its readers to emulate similar innovative farm management interventions and create greater impact on the research farms located across the country.

Date: November, 2021

(D. DAMODAR REDDY)
DIRECTOR, ICAR-CTRI

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I. Management of Agricultural Research Farms

Agricultural research in India is capital-intensive with a high degree of uncertainty in realizing the desired results. The investments in research & development in agriculture assumes a special significance in India given the fact that millions of population depend on this sector for their livelihood. In the present National Agricultural Research System in India, the ICAR institutes have abundant fertile agricultural land bank endowed with adequate water resources. There are 113 ICAR institutes including ATARIs throughout the length and breadth of the country. The total land resource available with the ICAR institutes is 21,723 ha (Land Resources of ICAR, 2018). Out of this, 13,440 ha (62%) is held by three Subject Matter Divisions of ICAR *viz.,* Crop Science, Natural Resource Management and Horticultural Science. While the agriculture R&D institutions in India spend huge amount of funds in managing their research farms, the revenue generated from such farms is often not commensurate with the expenditure incurred.

With regard to financial management of research farms, there has always been a mismatch between the expenditure incurred and revenue generated. By and large, in most of the agricultural research farms in the country, the expenditure incurred far exceeds revenue accrued, and thereby resulting in negative net returns. Most noteworthy feature is that major chunk of land in agricultural research farms of ICAR institutes and state agricultural universities is used for general cultivation of the mandate crops and only a small portion of land is utilized for carrying out field experiments. In this context, ensuring economic viability of agricultural research farms calls for redesigning the farm management interventions with the objective to increase farm income and make the research farms sustainable in the long-run. Hence, it is necessary to initiate action to demonstrate the prospects for increasing income from the research farms of agricultural research institutes in the country.

II. Emerging Need for Augmenting Farmer's Income

The tale of Indian agriculture has been changing in the recent years. Our Hon'ble Prime Minister Shri Narendra Modi's economic policy is presently focused on 'Indian farmer' at its core. In the past, the country's economic policies revolved around agriculture production rather than the farmer as a base. In tune with the changing priorities of the nation, more emphasis was laid on focusing the income enhancement and welfare of the farmers in the country. The nation is constantly making untiring efforts on augmenting farmers income and identifying different sources of growth for enhancing farmers income to achieve the target of 'Doubling Farmers' Income' (DFI) by 2022-23. At the national level, the committee constituted to recommend strategies for doubling of farmers' income, has identified following seven sources of income growth.

1. Improvement in crop productivity
2. Improvement in livestock productivity
3. Resource use efficiency or saving in cost of production
4. Increase in cropping intensity
5. Diversification towards high value crops
6. Improvement in terms of trade for farmers or real prices received by farmers
7. Shift from farm to non-farm occupations

In tune with this initiative, it was desired at the council level to initiate necessary action to demonstrate the possibility of increasing income/returns from ICAR research farms and serves as a catalyst for implementing income enhancement measures at farmers' fields. In this direction, the ICAR-CTRI has meticulously framed and successfully implemented a set of management interventions in its research farms and systematically evaluated in true spirit so that the returns can be reversed from loss to gain. The resource use efficiency or the saving in the cost of cultivation was identified as one of the important sources of growth in farm income (National Committee on Doubling of Farmers' Income by 2022-23). The variable costs *viz*. cost of human labour, machine labour, seed, manures, fertilizers, plant protection chemicals, etc. are directly linked to farm output. It is the variable cost, which decides the planning and budgeting at farm level which is useful to keep watch on the raising expenditure in commercial farming from farmers' point of view as well. Moreover, indiscriminate use of farm inputs not only escalates the cost of cultivation but also amounts to significant decline in net revenue at farm level. It is important to identify different approaches/interventions for cost cutting and income enhancement. The ICAR-CTRI identified a set of farm management interventions with an objective to reduce costs incurred on one hand and augment the income on the other.

III. ICAR-Central Tobacco Research Institute (CTRI)

The ICAR-Central Tobacco Research Institute, an ISO 9001:2015 certified institutions, was established in 1947 to conduct research on different aspects of tobacco and disseminate high yielding varieties and agro-technologies to the farmers and other tobacco stakeholders. The institute has been instrumental in shaping the national tobacco research in all its dimensions and has made immense contribution to the development of tobacco sector in India. Over the years, the institute has been striving hard through intensive research efforts to enhance crop productivity and quality of different types of tobacco grown in the country. The continuous R&D efforts have resulted in productivity-led

growth, quality improvement on one hand and steady growth in prices of tobacco on the other hand.

Tobacco, the mandate crop of ICAR-CTRI, is acclaimed for its potential to fetch higher income to the farmers. It is proved that this crop has a profound effect on economic prosperity of the tobacco farmers across the nation. Paradoxically, the returns from ICAR-CTRI farms growing tobacco were consistantly negative over the years prior to 2015.

Research Farms of ICAR-CTRI

In order to address research needs of different types of tobacco (FCV and Non-FCV) grown in different agroecological regions, the ICAR-CTRI had established six research stations in four states located at Andhra Pradesh, Karnataka, Tamil Nadu and West Bengal. A research farm is established in Katheru village at the institute headquarters to conduct field experiments on tobacco. Apart from growing tobacco for experimental purpose, other suitable crops *viz*., pulses, maize and millets are also grown in the farms. The details of regional distribution of research farms and the net area cultivated in each farm are presented below (Table 1).

Table 1: Regional distribution of ICAR-CTRI research farms

Research Farms (Year of establishment)	Tobacco Type	Net cultivated area (ha)	Irrigated/ Rainfed
Guntur (1936)	FCV, *Natu*, HDBRG	15.5	Rainfed (conserved soil moisture)
Kandukur (1977)	FCV	19.65	Rainfed
Jeelugumilli (1987)	FCV, Irrigated *Natu*	12.80	Irrigated
BSR-Farm, Katheru (1947)	FCV	27.87	Rainfed (conserved soil moisture)
Hunsur (1957)	FCV	7.14	Rainfed
Vedasandur (1948)	Non-FCV (Chewing, Cheroot and Cigar filler)	8.10	Irrigated
Dinhata (1952)	Non-FCV (Chewing, *Hookah*, Cigar-wrapper)	9.97	Rainfed (evenly distributed rainfall)
Total Net Cultivated Area		**101**	

In India, due to its rich agro-ecological diversity and climatic conditions which is ideally suitable for growing different tobacco types. The major tobacco producing states are Andhra Pradesh, Karnataka, Gujarat, Bihar, Uttar Pradesh, West Bengal and Tamil Nadu. Tobacco growing, processing, marketing and exports make a significant contribution to the national employment in India. Hence, tobacco has a profound influence on the rural economy in general and economic wellbeing of farming communities in particular across the growing regions of India.

IV. New Farm Management Interventions

ICAR-Central Tobacco Research Institute redesigned a set of farm management interventions to implement in its research farms located at different regions of the country. These interventions were taken up with an intention to shift focus from production-centric to income-centric, in tune with the Government of India's strategy on doubling of farmers' income. In order to overcome the mismatch between the expenditure incurred in farm management and the returns accrued and to ensure positive net income from the farms, the institute has introduced farm management interventions that are categorized into (a) cost-cutting measures and (b) income enhancement measures (Table 2). A standard proforma was meticulously designed and each of the seven research farms provided the necessary information regarding costs and returns as per the proforma for impact assessment.

Table 2: Farm Management Interventions

Cost Cutting Measures	Income Enhancing Measures
• Need based and rational use of inputs	• Timely decisions and farm operations
• Engineering interventions	• Crop intensification
• Efficient utilization of existing man power	• Focus on productivity enhancement
• Rationalization of outsourced activities including rates	• Minimization of post-harvest losses
• Avoiding unproductive expenditure	• Timely disposal of produce to attain fair prices

This study was carried out based on the data obtained in the standard and uniform format during the period from 2011-12 to 2018-19 for the research farms of ICAR-CTRI from the respective Heads of Research Stations and OICs. Further, the constant review and monitoring of farm matrix was carried out annually at the institute level. An economic analysis of research farms were made during the period before (2011-15) and after (2015-19) implementing the farm management interventions. An attempt was also made to findout the relative contribution of cost cutting measures and productive/value enhancement measures to increase net income from the farms.

V. Costs and Returns from Research Farms

The costs are the expenses incurred on inputs required for production of crops, livestock etc. Farm inputs required are labour, seed, manures, fertilizers, pesticides, fuel, etc. Rational use of these inputs plays a crucial role and decides the extent of farm returns either in research farms or in farmer's fields. The data pertinent to different cost components taken into consideration from the ICAR-CTRI research farms are furnished below.

- **Operational expenditure**: The expenditure items considered on different farm operations are

  a) Expenditure related to minimum wages

  b) Expenditure related to work contracts (wages for outsourced labour)

  c) Expenditure related to purchased inputs (seeds, fertilisers, pesticides and weedicides, curing fuel, country twine and barn material)

  d) Expenditure related to fuel (POL charges)

- **Cost of cultivation**: Refers to the total expenses incurred in the cultivation of crops

- **Gross returns**: Refers to the sum of all receipts from the sale of farm produce

- **Net returns**: Gross returns - Total cost of cultivation

The pooled farm matrix of all the research farms is presented in the Table 3, while the farm matrix of individual research farms for the above-mentioned period are appended as Annexures I-A to I-G. The gist of costs and returns of ICAR-CTRI research farms for the four years before (2011-15) and four years after (2015-19) management interventions was compared and presented in the Table 4.

Table 3: Pooled Farm Matrix of ICAR-CTRI Research Farms from 2011-12 to 2018-19

Particulars	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Area (ha)	116.13	115.17	109.32	114.08	105.69	100.48	98.33	99.7
A. Man power availability & minimum wages (Rs.)								
A1 Minimum wages (Labour No.)	157	151	137	114	95	88	81	66
A2 Minimum wages (Rs.)	2996416	3018834	2965368	3072179	2859160	3167113	4116477	3339680
Total cost for A (=A2) (Rs.)	2996416	3018834	2965368	3072179	2859160	3167113	4116477	3339680
B. Expenditure in agricultural operations (Rs.)								
B1 Labour (Rs.) (contract basis)	6452922	6485449	8113698	6987861	4339085	4422672	5284134	4765515
B2 Material inputs (Fertilizers, seed, pesticides & weedicides, curing fuel, country twine, barn material, etc.) (Rs.)	4666973	4764803	5041144	4094380	2477232	2564080	2287144	2543347
Total cost for B (B1+B2) (Rs.)	11119895	11250252	13154842	11082241	6816317	6986752	7571278	7308862
C. POL charges (Rs.)	741123	648141	836733	779227	581322	752120	763371	782231
D. Cost of cultivation								
D1 Total cost of cultivation i.e. A+B+C	14857434	14917227	16956943	14933647	10256799	10905985	12451126	11430773
D2 Cost of cultivation in Rs./ha (=D1/area in ha)	127937	129523	155112	130905	97046	108538	126625	114651
E. Farm returns								
E1 Gross returns from farming (Rs.)	10708267	13585085	11836190	10897814	11903389	14028969	14933224	13529080
E2 Returns in Rs. /ha (=E1/area in ha)	92209	117956	108271	95527	112625	139619	151868	135697
F. Net returns								
F1 Total net returns in Rs. (E1-D1)	-4149167	-1332142	-5120753	-4035833	1646590	3122984	2482098	2098307
F2. Net returns in Rs./ha (F1/area in ha)	**(-)35728**	**(-)11567**	**(-)46841**	**(-)35378**	**15579**	**31081**	**25243**	**21046**

Table 4: Gist of costs and returns of ICAR-CTRI research farms during the period before (2011-15) and after (2015-19) interventions

Particulars	Before interventions				After interventions			
	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Total Cost of Cultivation (Rs.)	14857434	14917227	16956943	14933647	10256799	10905985	12451126	11430773
Cost of cultivation / ha (Rs.)	127937	129523	155112	130905	97046	108538	126625	114651
Gross returns (Rs.)	10708267	13585085	11836190	10897814	11903389	14028969	14933224	13529080
Gross Returns (Rs./ha)	92209	117956	108271	95527	112625	139619	151868	135697
Net returns (Rs./ha)	-35728	-11567	-46841	-35378	15579	31081	25243	21046

VI. Economic Impact of Farm Management Interventions

a) Expenditure related to minimum wages

- The average annual expenditure incurred on minimum wages has increased by Rs. 3,57,408 during the period of 2015-19 compared to the amount spent on minimum wages during 2011-15. This increase was expectedly due to upward revision of minimum wages during 2015-19.

b) Expenditure related to work contracts

- The average annual expenditure incurred on labour (outsourced) has sharply declined by Rs. 23,07,131 per year during the period (2015-19) of implementing management interventions in comparison to that period prior to implementing management interventions (2011-15).

- The average labour (outsourced) cost/ha declined by 25% (Rs.15,127/ha *i.e.* from an average Rs. 61,667/ha during 2011-15 to Rs. 46,540/ha during 2015-19).

c) Expenditure related to purchased inputs (fertilizers, pesticides, fuel wood etc./year)

- The average annual expenditure incurred on purchased inputs has sharply declined by Rs. 21,73,874 during the period (2015-19) of management interventions compared to the period prior to implementing management interventions (2011-15).

- Per hectare expenditure incurred on purchased inputs has substantially reduced by 40% (Rs. 16,411 *i.e.* from an average Rs. 40,834/ha to Rs. 24,423/ha during the corresponding period).

- The change in the average annual expenditure incurred on labour (outsourced) inputs and purchased inputs prior and after implementing interventions is presented in graphical form (Figure 1).

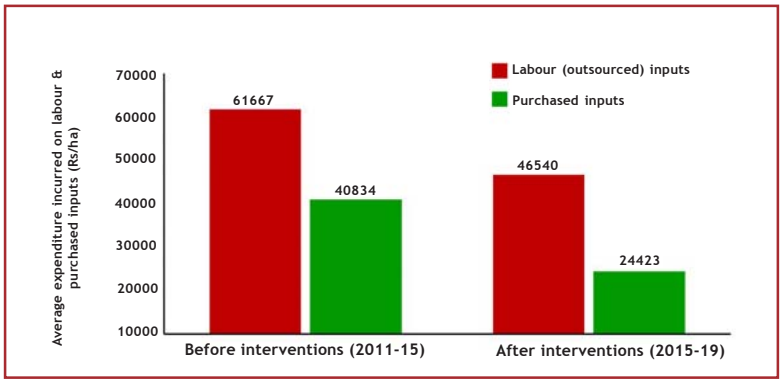

Fig. 1: Change in expenditure on labour (outsourced) and purchased inputs during the 4 years period before and after management interventions

Note: Expenditure incurred on labour inputs includes wages paid for the outsourced labour and expenditure incurred on purchased inputs includes seeds, fertilizers, pesticide, weedicides, curing fuel, country twine and barn material.

- The significant amount of reduction in expenditure incurred on labour and purchased inputs has led to commensurate increase in the income of research farms.

d) Expenditure on fuel (POL charges)

- The average annual expenditure on fuel showed a marginal decline (Rs. 31,545) during the period (2015-19) after management interventions in comparison to the period before management interventions (2011-15).

- Though the fuel charges have been continuously increasing over the years, the expenditure during the period of management reforms has decreased due to rational and efficient use of fuel (Figure 2).

e) Cost of cultivation (Total)

- The total cost of cultivation has reduced to a great extent of Rs. 41,55,142 during the period (2015-19) after management interventions compared to the period prior to implementing interventions (2011-15).

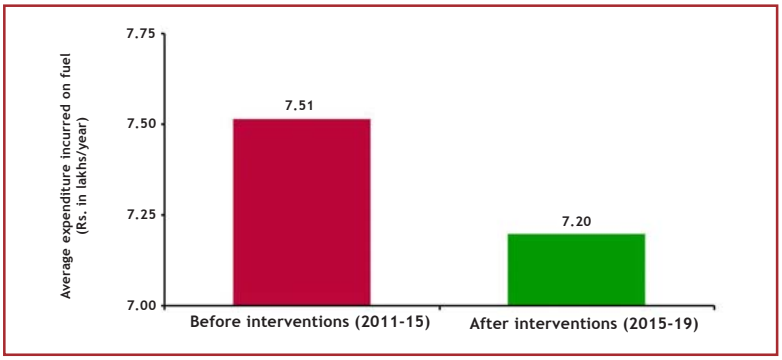

Fig. 2: Change in expenditure incurred on fuel during the 4 years period before and after management interventions

- The average cost of cultivation per ha has significantly declined by Rs. 24,154 (*i.e.* from an average Rs.1,35,869/ha during 2011-15 to Rs. 1,11,715/ha during 2015-19) (Figure 3).

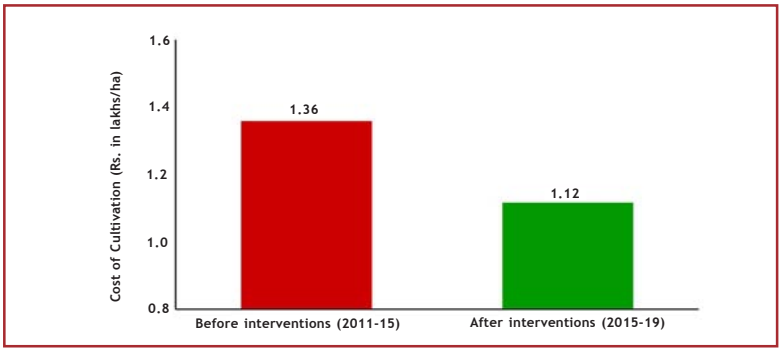

Fig. 3: Average Cost of Cultivation/ha during 4 years period before and after management interventions

- There has been a significant reduction (17.78%) in the cost of cultivation during the period after management interventions.

f) Gross returns

- The gross returns has increased substantially by Rs. 18,41,827 during the period (2015-19) after management interventions in comparison to the period of 2011-15.

- The average gross returns per ha has significantly increased by Rs. 31,462 (i.e. from an average Rs. 1,03,490/ha during 2011-15 to Rs. 1,34,952/ha during 2015-19) (Figure 4).

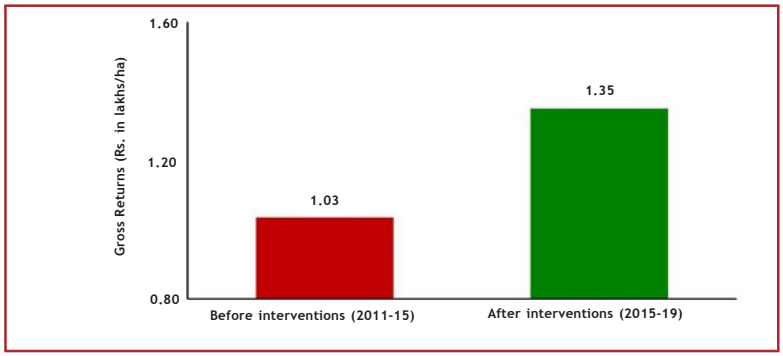

Fig. 4: Average Gross Returns/ha during 4 years period before and after management interventions

- The changes in gross returns implied a significant growth (30.40%) in the farm returns during the period after management interventions.

g) Net returns

- Implementation of farm management interventions led to huge positive impact on net returns from the institute research farms.
- The average net returns per ha displayed a significant change from the huge loss of Rs. 32,379/ha in the period of 2011-15 interventions to handsome profit of Rs. 23,237/ha during the period of 2015-19.
- The absolute change in average net income translated to be Rs. 55,616/ha during the period after interventions (Figure 5).

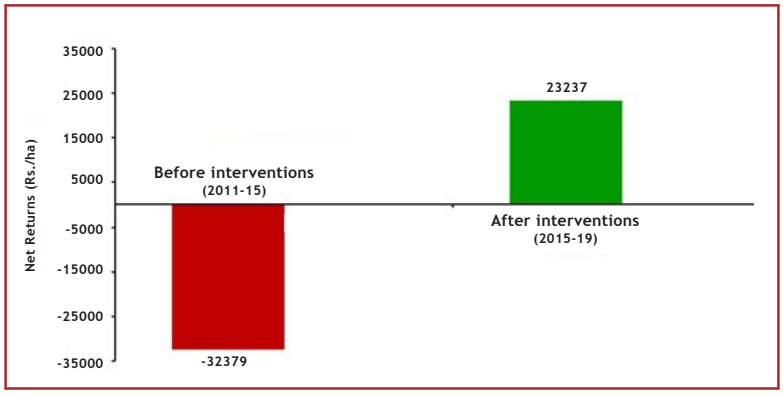

Fig. 5: Net Returns from ICAR-CTRI Farms during 4 years period before and after management interventions

- Of the total gain in net income, 57% was due to income enhancement interventions and the rest 43% accrued from cost cutting interventions.

- The net impact of interventions in institute research farms translates to an increase in average net income of Rs. 56,17,216/annum during the 4 years period (2015-19) of management interventions.

Conclusion

This case study on the "Impact of Farm Management Interventions on Returns from Research Farms of ICAR-CTRI" clearly demonstrates existence of tremendous scope to enhance farm income through innovative management interventions. Implementation of a set of management interventions in the research farms of ICAR-CTRI and its Research Stations (about 100 ha) for 4 years (2015-19) led to increased farm income as evident from the increase in average annual net income of Rs (-) 32,379/ha (loss) during 2011-15 to Rs. 23,237/ha (profit) during 2015-19, with the effective impact being Rs. 55,616/ha per annum. The increased farm returns is attributed to both cost-cutting and income enhancement measures, with the relative contribution of 43% and 57%, respectively. It needs to be highlighted that identifying and proper implementation of key management interventions covering whole production and post-production process are crucial for enhancing economic returns from the research farms. Thus, the present impact evaluation offers more insights and unlocks new avenues for enhancing farm income. The farm management interventions implemented at ICAR-CTRI which created huge impact in terms of reducing costs and enhancing income would serve as motivator for similar initiatives elsewhere. This kind of innovative farm management interventions need to be emulated by those agricultural research institutions with large land banks to ensure that the current mismatch between expenditure incurred and income accrued is avoided and the overall economic viability of farms is improved.

Annexure-IA

ICAR-CTRI RESEARCH STATION, GUNTUR, AP

STATEMENT OF MANPOWER AVAILABILITY, EXPENDITURE IN AGRICULTURAL OPERATIONS & FARM RETURNS FOR THE PERIOD FROM 2011-12 TO 2018-19

Particulars		2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
	Area (ha)	15	15	15	15	15	15	15	17
A.	**Manpower availability & minimum wages (Rs.)**								
A1	Minimum wage labour (Number)	10	10	10	9	7	6	6	6
A2	Minimum wages (Rs.)	262985	273500	287630	265450	208797	188079	285187	299446
	Sub total for A(=A2) (Rs.)	262985	273500	287630	265450	208797	188079	285187	299446
B.	**Expenditure in agricultural operations (Rs.)**								
B1	Labour (Rs.) (contract basis)	24000	57000	300000	396000	475200	603750	825000	850000
B2	Material inputs (Fertilizers, seed, pesticides & weedicides, curing fuel, country twine, barn material, etc.) (Rs.)	575698	527794	452595	407630	335962	356100	374260	386250
	Sub total for B (B1+B2) (Rs.)	599698	584794	752595	803630	811162	959850	1199260	1236250
C.	**POL charges (Rs.)**	77890	81500	80000	82500	85800	90200	105300	110000
D.	**Cost of cultivation (Rs.)**								
D1	Total cost of cultivation *i.e.* A+B+C	940573	939794	1120225	1151580	1105759	1238129	1589747	1645696
D2	Cost of cultivation in Rs./ha(=D1/area in ha)	62704	62652	74681	76772	73717	82541	105983	96805
E.	**Farm returns**								
E1	Gross returns from farming (Rs.)	929418	995256	1441182	1636172	1643495	1872251	2156584	2988899
E2	Returns in Rs./ha (=E1/area in ha)	61961	66350	96078	109078	109566	124816	143772	175817
F.	**Net returns**								
F1	Total net returns in Rs. (E1-D1)	-11155	55462	320957	484592	537736	634122	566837	1343203
F2	**Net returns in Rs./ha (F1/area in ha)**	**-744**	**3697**	**21397**	**32306**	**35849**	**42275**	**37789**	**79012**

(P. VENKATESWARLU)

ICAR-CTRI, BSR FARM, KATHERU, AP

STATEMENT OF MANPOWER AVAILABILITY, EXPENDITURE IN AGRICULTURAL OPERATIONS & FARM RETURNS FOR PERIOD FROM 2011-12 TO 2018-19

Particulars		2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
	Area (ha)	34	34	34	33.2	28.8	27.6	27.2	27.9
A.	**Manpower availability & minimum wages (Rs.)**								
A1	Minimum wage labour (Number)	62	62	49	31	18	18	15	12
A2	Minimum wages (Rs.)	962029	743573	623591	508503	459396	453081	672449	479917
	Sub total for A(=A2) (Rs.)	962029	743573	623591	508503	459396	453081	672449	479917
B.	**Expenditure in agricultural operations (Rs.)**								
B1	Labour (Rs.) (contract basis)	3413444	3383901	4066493	3490795	992283	865164	805091	636966
B2	Material inputs (Fertilizers, seed, pesticides & weedicides, curing fuel, country twine, barn material, etc.) (Rs.)	1313501	1213462	1604492	1381489	429260	573433	378088	493026
	Sub total for B (B1+B2) (Rs.)	4726945	4597363	5670985	4872284	1421543	1438597	1183179	1129992
C.	**POL charges (Rs.)**	194917	157336	269815	291654	192378	226048	231042	268960
D.	**Cost of cultivation (Rs.)**								
D1	Total cost of cultivation *i.e.* A+B+C	5883891	5498272	6564391	5672441	2073317	2117726	2086670	1878869
D2	Cost of cultivation in Rs./ha(=D1/area in ha)	173056	161713	193070	170856	71990	76729	76715	67342
E.	**Farm returns**								
E1	Gross returns from farming (Rs.)	2790000	3710000	3070000	2481041	3153435	3353782	3435850	2731892
E2	Returns in Rs./ha (=E1/area in ha)	82059	109117	90294	74730	109494	121513	126318	97917
F.	**Net returns**								
F1	Total net returns in Rs. (E1-D1)	-3093891	-1788272	-3494391	-3191400	1080118	1236056	1349180	853023
F2	**Net returns in Rs./ha (F1/area in ha)**	**-90997**	**-52596**	**-102776**	**-96127**	**37504**	**44785**	**49602**	**30574**

(T. KIRAN KUMAR)

ICAR-CTRI RESEARCH STATION, VEDASANDUR, TAMIL NADU

STATEMENT OF MANPOWER AVAILABILITY, EXPENDITURE IN AGRICULTURAL OPERATIONS & FARM RETURNS FOR THE PERIOD FROM 2011-12 TO 2018-19

Particulars		2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
	Area (ha)	6.1	6.6	6.2	9.4	7.9	7.8	9.33	7.4
A.	**Manpower availability & minimum wages (Rs.)**								
A1	Minimum wage labour (Number)	8	6	6	4	3	3	1	1
A2	Minimum wages (Rs.)	181583	155532	177003	138523	119109	150335	39472	52050
	Sub total for A(=A2) (Rs.)	181583	155532	177003	138523	119109	150335	39472	52050
B.	**Expenditure in agricultural operations (Rs.)**								
B1	Labour (Rs.) (contract basis)	486889	606404	593670	595218	433129	553880	1031087	486483
B2	Material inputs (Fertilizers, seed, pesticides & weedicides, curing fuel, country twine, barn material, etc.) (Rs.)	130601	109190	236187	200205	131409	187051	174950	162024
	Sub total for B (B1+B2) (Rs.)	617490	715594	829857	795423	564538	740931	1206037	648507
C.	**POL charges (Rs.)**	34007	58173	24019	54546	42480	52398	42944	37152
D.	**Cost of cultivation (Rs.)**								
D1	Total cost of cultivation *i.e.* A+B+C	833080	929299	1030879	988492	726127	943664	1288453	737709
D2	Cost of cultivation in Rs./ha(=D1/area in ha)	136570	140803	166271	105159	91915	120983	138098	99690
E.	**Farm returns**								
E1	Gross returns from farming (Rs.)	1117228	1461172	799491	1105619	766766	1856654	1624647	1153371
E2	Returns in Rs./ha (=E1/area in ha)	183152	221390	128950	117619	97059	238033	174132	155861
F.	**Net returns**								
F1	Total net returns in Rs. (E1-D1)	284148	531873	-231388	117127	40639	912990	336194	415662
F2	**Net returns in Rs./ha (F1/area in ha)**	**46582**	**80587**	**-37321**	**12460**	**5144**	**117050**	**36034**	**56171**

(M. KUMARESAN)

ICAR-CTRI RESEARCH STATION, DINHATA, WEST BENGAL

STATEMENT OF MANPOWER AVAILABILITY, EXPENDITURE IN AGRICULTURAL OPERATIONS & FARM RETURNS FOR PERIOD FROM 2011-12 TO 2018-19

Particulars		2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
	Area (ha)	11.41	11.57	13.72	11.68	15.02	10.08	6	8.8
A.	**Manpower availability & minimum wages (Rs.)**								
A1	Minimum wage labour (Number)	0	0	0	0	0	0	0	0
A2	Minimum wages (Rs.)	0	0	0	0	0	0	0	0
	Sub total for A(=A2) (Rs.)	0	0	0	0	0	0	0	0
B.	**Expenditure in agricultural operations (Rs.)**								
B1	Labour (Rs.) (contract basis)	413316	648323	907166	1065848	797966	493688	378264	630247
B2	Material inputs (Fertilizers, seed, pesticides & weedicides, curing fuel, country twine, barn material, etc.) (Rs.)	55145	47979	71301	89188	112613	101201	52521	141193
	Sub total for B (B1+B2) (Rs.)	468461	696302	978467	1155036	910579	594889	430785	771440
C.	**POL charges (Rs.)**	56694	64393	78569	77897	48649	49664	36427	28395
D.	**Cost of cultivation (Rs.)**								
D1	Total cost of cultivation *i.e.* A+B+C	525155	760695	1057036	1232933	959228	644553	467212	799835
D2	Cost of cultivation in Rs./ha(=D1/area in ha)	46026	65747	77043	105559	63863	63944	77869	90890
E.	**Farm returns**								
E1	Gross returns from farming (Rs.)	873856	1440320	1189420	1087861	1263817	1033011	734232	705913
E2	Returns in Rs./ha (=E1/area in ha)	76587	124487	86692	93139	84142	102481	122372	80217
F.	**Net returns**								
F1	Total net returns in Rs. (E1-D1)	348701	679625	132384	-145072	304589	388458	267020	-93922
F2	**Net returns in Rs./ha (F1/area in ha)**	**30561**	**58740**	**9648**	**-12421**	**20278**	**38537**	**44503**	**-10673**

(A. SRINIVAS)

ICAR-CTRI RESEARCH STATION, HUNSUR, KARNATAKA

STATEMENT OF MANPOWER AVAILABILITY, EXPENDITURE IN AGRICULTURAL OPERATIONS & FARM RETURNS FOR THE PERIOD FROM 2011-12 TO 2018-19

Particulars	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Area (ha)	9.22	6	6	6	6.57	6	8	8
A. Manpower availability & minimum wages (Rs.)								
A1 Minimum wage labour (Number)	37	37	37	36	34	30	30	22
A2 Minimum wages (Rs.)	854000	958000	937000	1151000	985000	1297000	1692000	1378000
Sub total for A(=A2) (Rs.)	854000	958000	937000	1151000	985000	1297000	1692000	1378000
B. Expenditure in agricultural operations (Rs.)								
B1 Labour (Rs.) (contract basis)	518000	96000	165000	220000	200000	177000	337000	405000
B2 Material inputs (Fertilizers, seed, pesticides & weedicides, curing fuel, country twine, barn material, etc.) (Rs.)	431000	250000	260000	257000	272000	240000	285000	317000
Sub total for B (B1+B2) (Rs.)	949000	346000	425000	477000	472000	417000	622000	722000
C. POL charges (Rs.)	73000	40000	43000	48000	40000	39000	30000	50000
D. Cost of cultivation (Rs.)								
D1 Total cost of cultivation *i.e.* A+B+C	1876000	1344000	1405000	1676000	1497000	1753000	2344000	2150000
D2 Cost of cultivation in Rs./ha(=D1/area in ha)	203470	224000	234166	279333	227853	292166	293000	268750
E. Farm returns								
E1 Gross returns from farming (Rs.)	1788000	1718000	1673000	1407000	1224000	1495000	2022000	2162000
E2 Returns in Rs./ha (=E1/area in ha)	193926	286333	278833	234500	186301	249166	252750	270250
F. Net returns								
F1 Total net returns in Rs. (E1-D1)	-88000	374000	268000	-269000	-273000	-258000	-322000	12000
F2 Net returns in Rs./ha (F1/area in ha)	**-9544**	**62333**	**44667**	**-44833**	**-41553**	**-43000**	**-40250**	**1500**

(S. RAMAKRISHNAN)

Annexure-IF

ICAR-CTRI RESEARCH STATION, KANDUKUR, AP

STATEMENT OF MANPOWER AVAILABILITY, EXPENDITURE IN AGRICULTURAL OPERATIONS & FARM RETURNS FOR THE PERIOD FROM 2011-12 TO 2018-19

Particulars		2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
	Area (ha)	28	28	22	26	20	20	20	18.6
A.	**Manpower availability & minimum wages (Rs.)**								
A1	Minimum wage labour (Number)	40	36	35	34	33	31	29	25
A2	Minimum wages (Rs.)	735819	888229	940144	1008703	1086858	1078618	1427369	1130267
	Sub total for A(=A2) (Rs.)	735819	888229	940144	1008703	1086858	1078618	1427369	1130267
B.	**Expenditure in agricultural operations (Rs.)**								
B1	Labour (Rs.) (contract basis)	667473	378600	806527	79,000	16,500	237390	407760	372000
B2	Material inputs (Fertilizers, seed, pesticides & weedicides, curing fuel, country twine, barn material, etc.) (Rs.)	1454878	1725353	1939840	1056363	580900	564986	457737	361019
	Sub total for B (B1+B2) (Rs.)	2122351	2103953	2746367	1135363	597400	802376	865497	733019
C.	**POL charges (Rs.)**	124415	135701	182330	122982	84,518	189810	172658	138878
D.	**Cost of cultivation (Rs.)**								
D1	Total cost of cultivation *i.e.* A+B+C	2982585	3127883	3868841	2267048	1768776	2070804	2465524	2002164
D2	Cost of cultivation in Rs./ha(=D1/area in ha)	106521	111710	175856	87194	88439	103540	123276	107643
E.	**Farm returns**								
E1	Gross returns from farming (Rs.)	1600045	2653061	2241339	1762423	2000789	2340949	2745724	2063505
E2	Returns in Rs./ha (=E1/area in ha)	57144	94752	101879	67785	100039	117047	137286	110941
F.	**Net returns**								
F1	Total net returns in Rs. (E1-D1)	-1382540	-474822	-1627502	-504625	232013	270145	280200	61341
F2	**Net returns in Rs./ha (F1/area in ha)**	**-49376**	**-16958**	**-73977**	**-19409**	**11601**	**13507**	**14010**	**3298**

M. Anuradha

(M. ANURADHA)

ICAR-CTRI RESEARCH STATION, JEELUGUMILLI, AP

STATEMENT OF MANPOWER AVAILABILITY, EXPENDITURE IN AGRICULTURAL OPERATIONS & FARM RETURNS FOR PERIOD FROM 2011-12 TO 2018-19

Particulars	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Area (ha)	12.4	14	12.4	12.8	12.4	14	12.8	12
A. Manpower availability & minimum wages (Rs.)								
A1 Minimum wage labour (Number)	0	0	0	0	0	0	0	0
A2 Minimum wages (Rs.)	0	0	0	0	0	0	0	0
Sub total for A(=A2) (Rs.)	0	0	0	0	0	0	0	0
B. Expenditure in agricultural operations (Rs.)								
B1 Labour (Rs.) (contract basis)	929800	1315221	1274842	1141000	1424007	1491800	1499932	1384819
B2 Material inputs (Fertilizers, seed, pesticides & weedicides, curing fuel, country twine, barn material, etc.) (Rs.)	706150	891025	476729	702505	615088	541309	564588	682835
Sub total for B (B1+B2) (Rs.)	1635950	2206246	1751571	1843505	2039095	2033109	2064520	2067654
C. POL charges (Rs.)	180200	111038	159000	101648	87497	105000	145000	148846
D. Cost of cultivation (Rs.)								
D1 Total cost of cultivation *i.e.* A+B+C	1816150	2317284	1910571	1945153	2126592	2138109	2209520	2216500
D2 Cost of cultivation in Rs./ha(=D1/area in ha)	146464	165520	154078	151965	171499	152722	172619	184708
E. Farm returns								
E1 Gross returns from farming (Rs.)	1609720	1607276	1421758	1417698	1851087	2077322	2214187	1723500
E2 Returns in Rs./ha (=E1/area in ha)	129816	114805	114657	110757	149281	148380	172983	143625
F. Net returns								
F1 Total net returns in Rs. (E1-D1)	-206430	-710008	-488813	-527455	-275505	-60787	4667	-493000
F2 Net returns in Rs./ha (F1/area in ha)	**-16648**	**-50715**	**-39420**	**-41207**	**-22218**	**-4342**	**365**	**-41083**

(S. KASTURI KRISHNA)





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