



**STANDING COMMITTEE ON AGRICULTURE  
(2019-2020)**

**SEVENTEENTH LOK SABHA**

**MINISTRY OF AGRICULTURE AND FARMERS WELFARE  
(DEPARTMENT OF AGRICULTURAL RESEARCH AND EDUCATION)**

**'DEMANDS FOR GRANTS (2019-20)'**

# **THIRD REPORT**



**LOK SABHA SECRETARIAT  
NEW DELHI**

**DECEMBER 2019/AGRAHAYANA, 1941 (SAKA)**

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**STANDING COMMITTEE ON AGRICULTURE**  
**(2019-2020)**

**(SEVENTEENTH LOK SABHA)**

**MINISTRY OF AGRICULTURE AND FARMERS WELFARE**  
**(DEPARTMENT OF AGRICULTURAL RESEARCH AND EDUCATION)**

**DEMANDS FOR GRANTS (2019-2020)**

Presented to Lok Sabha on 03.12.2019

Laid on the Table of Rajya Sabha on 03.12.2019



**LOK SABHA SECRETARIAT**  
**NEW DELHI**

**DECEMBER 2019/AGRAHAYANA, 1941 (SAKA)**

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**COMPOSITION OF THE STANDING COMMITTEE ON AGRICULTURE  
(2019-20)**

**Shri Parvatagouda Chandanagouda Gaddigoudar - Chairperson**

**MEMBERS**

**LOK SABHA**

2. Shri Afzal Ansari
3. Shri Horen Sing Bey
4. Shri Devendra Singh 'Bhole'
5. Shri A. Ganeshamurthi
6. Shri Kanakmal Katara
7. Shri Abu Taher Khan
8. Shri Bhagwanth Khuba
9. Dr. Amol Ramsing Kolhe
10. Shri Mohan Mandavi
11. Shri Devji Mansingram Patel
12. Smt. Shardaben Anilbhai Patel
13. Shri Bheemrao Baswanthrao Patil
14. Smt. Navneet Ravi Rana
15. Shri Vinayak Bhaurao Raut
16. Shri Pocha Brahmananda Reddy
17. Shri Mohammad Sadique
18. Shri Virendra Singh
19. Shri V.K. Sreekandan
20. Shri Mulayam Singh Yadav
21. Shri Ram Kripal Yadav

**RAJYA SABHA**

22. Shri Partap Singh Bajwa
23. Sardar Sukhdev Singh Dhindsa
24. Shri Narayan Rane
25. Shri Kailash Soni
26. Shri Ram Nath Thakur
27. Shri Vaiko
28. Shri R. Vaithilingam
29. Smt. Chhaya Verma
30. Dr. Chandrapal Singh Yadav
31. Shri Harnath Singh Yadav

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**SECRETARIAT**

- |    |                           |   |                             |
|----|---------------------------|---|-----------------------------|
| 1. | Shri Shiv Kumar           | - | Joint Secretary             |
| 2. | Arun K Kaushik            | - | Director                    |
| 3. | Smt Juby Amar             | - | Additional Director         |
| 4. | Shri Nirantar Kumar Singh | - | Assistant Executive Officer |

## INTRODUCTION

I, the Chairperson, Committee on Agriculture, having been authorized by the Committee to submit the Report on their behalf, present this Third Report on the Demands for Grants (2019-20) of the Ministry of Agriculture and Farmers Welfare (Department of Agricultural Research and Education).

2. The Committee under Rule 331E(1)(a) of the Rules of Procedure considered the Demands for Grants (2019-20) of the Department of Agricultural Research and Education, which were laid on the table of the House on 17.07.2019. The Committee took evidence of the representatives of the Department of Agricultural Research and Education at their Sitting held on 06<sup>th</sup> November, 2019. The Report was considered and adopted by the Committee at their Sitting held on 29 November, 2019.

3. For facility of reference and convenience, the Recommendations/Observations of the Committee have been printed in bold letters in Part-II of the Report.

4. The Committee wish to express their thanks to the officers of the Ministry of Agriculture and Farmers Welfare (Department of Agricultural Research and Education) for appearing before the Committee and furnishing the information that they desired in connection with the examination of Demands for Grants of the Department.

5. The Committee would also like to place on record their deep sense of appreciation for the invaluable assistance rendered to them by the officials of Lok Sabha Secretariat attached to the Committee.

**NEW DELHI;**  
**29 November, 2019**  
**08 Agrahayana, 1941 (Saka)**

**SHRI P. C. GADDIGOUDAR**  
***Chairperson,***  
***Standing Committee on Agriculture***

(v)

## CHAPTER- I

### **Introductory**

1.1 Sustainable Agriculture requires successful management of resources to satisfy human needs in current times, without endangering the ability of future generations. From agriculture-for-subsistence-farming to now the problem-of-plenty, it has passed through many transforming stages. There has been an emphasis now to consider Agriculture Sector at par with Industrial Sector as also to ensure substantial income from farming. Technological advancements have provided farmers with tools and resources to make farming more handy and sustainable.

### **Department Of Agricultural Research And Education**

1.2 The Department of Agricultural Research and Education (DARE) / Indian Council of Agricultural Research (ICAR) has played major role in providing long term sustained yields through use of ecologically sound management and innovative technologies. The DARE is the nodal Department which provides necessary government linkages to the (ICAR), the premier research organization for coordinating, guiding and managing research in areas including Crop Science, Horticultural Science, Natural Resource Management, Agricultural Engineering, Animal Science, Fisheries Science, Agricultural Education and Agriculture Extension in the entire country. The Council has been providing technology solutions in the field of Agriculture and Allied Sectors and thereby enabling the country to become not only self-sufficient but also surplus in the production of several agricultural commodities and thus, helped ensuring the food security and Agricultural Exports. The Council under its ambit has one of the strongest agricultural research systems of the world with a network of ICAR Institutes and State Agricultural Universities (SAUs) and effective linkages with other Departments of the Central and State Governments and International agencies. It has also played a major role in promoting excellence in higher education in Agricultural Sciences and reaching to the community through its Krishi Vigyan Kendras (KVKs) and extension activities.

1.3 The goal of ICAR is to promote sustainable and inclusive agricultural growth and development in the country by interfacing education, research and extension initiatives complemented with efficient and effective institutional, infrastructure and policy support, for ensuring livelihood and environmental security.

### **Schemes Under ICAR**

1.4 The ICAR Schemes are being operationalised under five major outcome based themes. The Schemes have been rationalized and organized into thirty-five schematic themes and two non-schemes. The list of the schemes is given as under:



Sector (Outcome based Schemes)	Sub-sector (Output based Cost Centres)	Theme/Scheme	
<b>CENTRAL SECTOR SCHEMES</b>			
<b>1. MANAGEMENT OF NATURAL RESOURCES</b>			
	1. Natural Resource Management including Agroforestry Research		
		1	Soil Characterization and Management
		2	Water Harvesting, Conservation and Management
		3	Dryland Agriculture
		4	Sustainable Cropping and Farming System Research
		5	Management of Arid, Hill and Coastal Eco System
	2. Climate Resilient Agriculture Initiative		
		6	National Innovation in Climate Resilient Agriculture, Hyderabad
	3. Agricultural Engineering		
		7	Farm Mechanization
		8	Post production Mechanization and Value Addition
		9	Fiber Processing and Value Addition
<b>2. CROP SCIENCE</b>			
	4. Crop Science		
		10	Genetic Resource Management
		11	Basic and Strategic Research and Education
		12	Rice, Wheat and Barley Improvement
		13	Maize, Millet & Forage Crop Improvement and Hill Agriculture
		14	Pulse Improvement and Seed Research
		15	Oilseed Crop Improvement
		16	Commercial Crop Improvement
		17	Plant Protection and Pollinator Research
	5. Horticulture Science		
		18	Tropical and Subtropical Horticulture
		19	Temperate Horticulture
		20	Vegetable Crops
		21	Plantation Crops and Island Ecosystem
		22	Arid Horticulture, Spices and Medicinal & Aromatic Plants
	6. National Agricultural Science Fund		
		23	National Agricultural Science Fund
<b>3. ANIMAL SCIENCE</b>			
	7. Animal Science		
		24	Dairy Production and Technology
		25	Small Ruminants Production and Technology
		26	Animal Nutrition and Products Technology
		27	Animal Health Management
		28	Animal Genetic Resource Management, Production and Improvement
		29	Pig Production and Hill Animal Agriculture
	8. Fishery Science		
		30	Management of Marine and Coastal Fisheries and Aquaculture
		31	Management of Freshwater Fisheries and Aquaculture
		32	Fisheries Education and Genetic Resource Management
<b>4 AGRICULTURAL EXTENSION</b>			
	9. Agricultural Extension		

		33	Krishi Vigyan Kendras (Includes ATARIs, ARYA, EMF, FF, Disaster Management) & Directorate of Knowledge Management in Agriculture, New Delhi
<b>5 AGRICULTURAL EDUCATION</b>			
	10. Agricultural Universities and Institution		
	34	Agricultural Universities and Institutions	
		National Agricultural Higher Education Project(NAHEP) - New	
	11. Economics, Statistics and Management		
	35	Economics, Statistics and Management	
<b>OTHER CENTRAL SECTOR COMPONENTS (NON-SCHEMES)</b>			
	1	ICAR Headquarter	
	2	Central Agriculture Universities	
		Secretariat Economic Service	
		National Academy of Agricultural Science	

## A. AN ANALYSIS OF DEMANDS FOR GRANTS (2019-20)

1.5 For the financial year 2019-20, Department of Agricultural Research and education (Ministry of Agriculture and Farmers Welfare) have sought a provision of Rs. 8078.76 crore vide Demand No. 2, laid on the Table of Lok Sabha on 17 July, 2019. The Detailed analysis of the Demands for Grants (2019-20) is given below:-

<b>MINISTRY OF AGRICULTURE AND FARMERS WELFARE</b>				
<b>DEMAND NO. 2 - DEPARTMENT OF AGRICULTURAL RESEARCH AND EDUCATION</b>				
	<b>Actuals 2017-18</b>	<b>BE 2018- 19</b>	<b>RE 2018- 19</b>	<b>BE 2019- 20</b>
Centre's Expenditure	<b>Rs in crore</b>			
<b>Establishment Expenditure of the Centre</b>				
1. Secretariat	13.03	14.30	14.42	14.80
<b>Central Sector Schemes/Projects</b>				
2. Agricultural Extension	232.51	241.81	205.53	221.15
3. Agricultural Engineering	42.68	100	59.50	64.02
4. Natural Resources Management Institutes including Agro Forestry Research	167.68	174.39	148.24	159.48
5. Climate Resilient Agriculture initiative	50.00	52.00	44.21	47.56
6. Crop Science	399.66	800.00	651.99	701.53
7. Horticulture Science	154.90	200.00	165.75	178.34
8. National Agricultural Science Fund	36.55	50.75	50.75	54.60
9. Animal Science	271.97	400.00	288.98	310.98
10. Fisheries Science	115.85	170.69	132.34	142.39
11. Agricultural Universities and Institutes	658.37	684.70	525.59	565.51
12. Economic Statistics and Management	31.29	32.54	27.66	29.76
13. National Agricultural Higher Education Project	5.00	7.89	155.27	
14. National Agricultural Higher Education Project(EAP)			52.62	223.68
<b>Non Schemes/Projects</b>				
15. ICAR Headquarters	4574.09	4599.37	5056.08	4868.80
16 Central Agricultural Universities	234.93	270.00	363.92	455.00
17 National Academy of Agricultural Sciences	1.41	1.56	1.96	1.56
18 Agricultural Scientists Recruitment Board			7.92	39.60
19. Actual Recoveries	-47.00			
<b>Grand Total (DARE/ICAR)</b>	<b>6942.92</b>	<b>7800.00</b>	<b>7952.73</b>	<b>8078.76</b>

<b>Developmental Heads</b>				
<b>Economic Services</b>				
1 Agricultural Research and Education	6936.21	7368.46	7485.17	7584.37
2 Secretariat-Economic Services	6.71	8.06	7.60	7.95
<b>Total Economic Services</b>	<b>6942.92</b>	<b>7376.52</b>	<b>7492.77</b>	<b>7592.32</b>
3 North Eastern Region		423.48	459.96	486.44
<b>Grand Total</b>	<b>6942.92</b>	<b>7800.00</b>	<b>7952.73</b>	<b>8078.76</b>

1.6 During the year 2019-20, the Budgetary Allocation has been increased substantially as compared to previous two years as can be seen from the table given below :-

<i>(Rs. in crore)</i>			
Year	BE	RE	Actual Expenditure
2017-18	6800.00	6992.00	6942.92
2018-19	7800.00	7952.73	7809.49
2019-20	8078.76	-	-

1.7 The funds at RE level during 2017-18 and 2018-19 were revised upwards. When the Committee enquired about the reasons for increase in the RE for the year 2018-19, the Department in a written reply submitted:-

"The Allocations at BE Stage for 2018-19 have been substantially increased at RE stage for the payment of 7th CPC arrears to ICAR's Scientific Personnel and Pensioners."

1.8 It is evident that despite increase in allocation at RE stage during the last two fiscals, the Department could not fully utilise the allocated funds. While submitting reasons for under utilization of funds, the Secretary DARE stated as follows-

"हमें जितनी बजट मिलती है, उसका 95-98 परसेंट जो रिवाइज्ड एस्टिमेट हमें मिलता है, उसे हम खर्च करते हैं। ऐसा थोड़ा-बहुत रहता है, क्योंकि लास्ट पैसा थोड़ा लेट जाता है। उस से सारी व्यवस्था पूरी नहीं हो पाती है और शत-प्रतिशत खर्च नहीं हो पाती है। कुछ प्रोसेस होते हुए आधे रह जाते हैं और 31 मार्च तक वे पूरे नहीं हो पाते हैं। उसमें 150-200 करोड़ रुपये के करीब खर्च नहीं हो पाते हैं।"

1.9 The Committee also wanted to know as to how the increase in Allocation would help in augmenting the pace of implementation of Schemes and Research Activities of the Department, the Department in its written reply submitted:-

"Department plan to utilize increased BE allocation in meeting out the increased cost of the recurring and non-recurring expenses of the Schemes and research programmes and education targets. New establishment and infrastructure development will be in place, which will support the research activities for efficient delivery of the research outputs of the Department."

## **B. BUDGETARY ALLOCATION**

1.10 The details and the proportion of Budgetary Allocations made in favour of the Department out of the total budget of the Government of India during the last three financial years and their comparison with other departments are given below-

(Rs in crore)

Department/ Ministry	2016-17 Revised Estimates			2017-18 Revised Estimates			2018-19 Revised Estimates		
	Outlay	Total Outlay	% of total Outlay	Outlay	Total Outlay	% of total Outlay	Outlay	Total Outlay	% of total Outlay
D/o Agriculture and Cooperation & Farmers Welfare	39840.50	2014406.95	1.98	41855.00	2146734.78	1.95	67800.00	2457235	2.76
<b>D/o Agricultural Research and Education</b>	<b>6238.00</b>	<b>2014406.95</b>	<b>0.31</b>	<b>6800.00</b>	<b>2146734.78</b>	<b>0.32</b>	<b>7952.73</b>	2457235	<b>0.32</b>
D/o Animal Husbandry, Dairying and Fisheries	1994.00	2014406.95	0.10	2371.00	2146734.78	0.11	3663.28	2457235	0.15

1.11 It is quite evident from the analysis above data that the proportion of budgetary allocation was 0.31% of total Central Plan Outlay in 16-17 while it was 0.32% in 17-18 and 18-19. When asked to furnish the figures for 2019-20, the Department in its reply stated:-

"The proportion of budgetary allocation is 0.28% of total Central Plan Outlay in 2019-20."

1.12 When queried about the requirement of funds proposed by the Department for 2019-20 and last two fiscals, the Department in its written reply submitted:-

"An amount of Rs.10191.09 crores were proposed by the Department for fiscal year 2019-20. During 2017-18 and 2018-19, Rs.

7665.48 Crore and Rs.8380.92 crore, respectively were proposed by the Department."

1.13 During the course of oral evidence, the Department informed the Committee as under-

"हम बी.ई. को थोड़ा आगे बढ़ा कर रखे हैं। यह 8,078 से 10,650 करोड़ रुपये किया गया है। हमारा उद्देश्य ही है कि हमारे सामने काफी चुनौतियां हैं। We have to meet several challenges. हमारे आईसीएआर का जो खर्चा होता है, आईसीएआर में रिसर्च के लिए हमारे आठ डिवीजन बनाए गए हैं। इन आठों डिवीजन के तहत हमारी सारी स्कीम्स चलती हैं"

### **C. SCHEME HEAD WISE**

1.14 The Department of Agricultural Research and Education / Indian Council of Agricultural Research consists of Central Sector Schemes only. The details of year-wise allocations i.e. Budget Estimates, Revised Estimates and Expenditure Incurred i.e. Actual Expenditure on Central Sector Schemes being implemented are as follows:

Year	BE	RE	Actual Expenditure
2017-18	2166.46	2166.46	1878.14
2018-19	2914.77	2508.43	2439.44
2019-20	2699	-	-

1.15 It is clear that the Actual Expenditure during 2017-18 and 2018-19 was quite less in comparison to allocation at BE stage. When asked about under utilization of funds under Scheme Head during 2017-18 and 2018-19 and latest utilization figures for 2019-20, the Department in its reply has submitted-

"Under-utilization of funds in 2017-18 was mainly due to the approval and the sanction of the SFC/ EFCs of the schemes, which were conveyed mostly in the later half of the financial year, and hence funds allocated for non-recurring items (works and equipments) could not be utilized. In 2018-19, utilization stands at 97.24% with respect to actual allocations (RE). Rs. 1314.50 crores has been utilized against release of Rs. 1319.20 crores for the year 2019-20 as on 24.10.2019 which stands at 99.64% of release."

1.16 Further, while furnishing reasons for reduced BE for 2019-20 vis-a vis 2018-19, the Department in its reply stated as under-

"The reduced BE for 2019-20 in comparison to the BE figure for preceding year is due to over all cut by Ministry of Finance. However, it is more than RE 2018-19."

1.17 On being queried by the Committee regarding mechanism available with the Department to monitor and ensure full utilization of funds, the Department has submitted in its written reply as follows-

"Department has inbuilt mechanism to ensure qualitative and optimal utilization of target funds through efficient and effective monitoring and management of allocations, which is enforced throughout the year through Heads (Deputy Director Generals) of the schemes. The quantum of funds spent by Department quarter-wise during two fiscals in absolute terms and in terms of a percentage of Budgetary Allocations is as under:

(Rs. In crore)

Sl. No.	Financial year	BE	Exp	%utilisa tion	BE	Exp	%utilisa tion	BE	Exp	% utilisati on	RE	Exp	%utilisat ion	
			Q1 Apr-JUN			Q2 Jul -Sep			Q3 Oct -Dec			Q4 Jan - March		
1	2017-18	6800	981.71	14.44%	6800	2660.88	39.13%	6800	4331.31	63.70%	6992	6698.92	95.81%	
2	2018-19	7800	1614.16	20.69%	7800	3622.18	46.44%	7800	5560.18	71.28%	7943.29	7811.67	98.34%	

\* Data for Financial Year 2016-17 is not available as the file has been weeded out.

#### **D. NON -SCHEME HEAD WISE**

1.18 The year-wise Budget Estimate (BE), Revised Estimate (RE) and Actual Expenditure (AE) regarding Non- Scheme expenditure is as follows:

(Rs. in Crore)

Year	BE	RE	Actual Expenditure
2017-18	4633.54	4825.54	4712.49
2018-19	4885.23	5444.3	5370.05
2019-20	5379.76		

1.19 The above Table shows that allocation at both BE& RE stage has substantially increased during 2017-18 to 2018- 19. The allocation for 2019-20 at BE level has also

been increased to the tune of Rs 494.53 crore compared to previous fiscal. On being asked to furnish reasons for increase, the Department replied as given below-

"The implementation of 7<sup>th</sup> CPC has led to substantial increase in Non-scheme allocations for the fiscals 2017-18 and 2018-19. The implementation of 7<sup>th</sup> CPC to Scientific Personnel and Pensioners has led to substantial increase in RE 2018-19 and BE 2019-20.

Department has been able to utilize the funds to the tune of 97.6% and 98.6% during 2017-18 and 2018-19, respectively. The BE for the current fiscal is less than RE of 2018-19 and allocated funds will be utilized."

## **E. ALLOCATION FOR NORTH-EASTERN STATES**

1.20 DARE/ICAR is implementing number of activities through dedicated institutions in NEH Region as well as through the Subject Matter Programmes for research and farmers outreach. The first ever Central Agricultural University was established in Imphal in 1992 which has its constituent colleges in all the States except Assam. Besides, the ICAR Research Complex for NEH Region is functioning since 70s. The Complex has its regional centres in every hill State of the region. The Research Institutes on pig, mithun, yak and orchids are also located in NEH States. The Department has furnished the following data in respect of allocations to North-Eastern Regions-

(Budget Estimate), RE (Revised Estimate) and AE (Actual Expenditure) for Projects/Schemes for the benefit of the North-Eastern Hill (NEH) Region are as under:

(Rs. In crores)

Sector	2017-18			2018-19			2019-20
	BE	RE	Actual	BE	RE	Actual	BE
Crop Science	170	170	170	5375	4515	4515	4859
Horticulture	484	484	484	532	452	452	487
Natural Resource Management	3400	3400	3400	3740	3180	3180	3420
Agricultural Engineering	171	171	171	188	160	160	172
Animal Science	1035	1035	1035	1139	967	967	1043
Fisheries	100	100	100	110	94	94	101
Agricultural Extension	1240	1240	1240	1364	1159	1159	1248
Agricultural Education	3000	3000	3000	3300	2805	2805	3016
CAU Imphal	12000	12000	12000	13400	19120	19120	18593
ICAR Hqrs	10700	10700	10700	13200	13544	13544	15705
<b>TOTAL</b>	<b>32300</b>	<b>32300</b>	<b>32300</b>	<b>42348</b>	<b>45996</b>	<b>45996</b>	<b>48644</b>

1.21 The Department during the course of evidence informed the Committee as under-

"नॉर्थ-ईस्ट का भी जितना आवंटन होता है, उसका भी हम शत-प्रतिशत खर्च करते हैं।"

1.22 Further, when asked to furnish a detailed note on the roadmap chalked out for optimum utilization of funds meant for NEH Region, the Department in its written note replied as under-

"In order of optimizing utilization of funds for NEH region under different schemes of the Department, the activities of different components are being monitored every month. Besides, Department reviews the progress of all schemes during 1<sup>st</sup> week of every month, and the same is being submitted to DoNER at quarterly intervals for monitoring the allocations and expenditure as per guidelines laid down for the purpose."

#### **F. SPENDING ON AGRICULTURAL RESEARCH AND DEVELOPMENT**

1.23 Strengthening and Development of Agricultural Research and Education is *sine qua non* for sustained agricultural productivity growth in the long-term. The allocation of Department of Agricultural Research and Education has increased from Rs 5,393 crore in 2010-11 to Rs.7800 crore (BE) crore during 2018-19. The allocation at BE level for 2019-20 is Rs. 8078 crores.

1.24 On being asked to furnish data regarding share of Agricultural Research and Education in agricultural GDP during last five years, the Department in its written reply submitted as under-

"The public funding to agricultural research and education (R&E) in the country at 2011-12 prices was about 0.61 per cent of Agricultural Gross Domestic Product (Ag-GDP) during triennium ending (TE) 2017-18. The trend in share of agricultural R&E is around 0.61 per cent of agricultural GDP in last five years. The share of agricultural R&E to agricultural GDP during last five years is given in the following table"

Table: Agricultural R&E expenditure and its share in Agricultural GDP in India

<b>Year (TE)</b>	<b>Agricultural GDP</b>	<b>Agricultural R&amp;E</b>	<b>% share</b>
<b>2013-14</b>	1562167	10266.04	0.657
<b>2014-15</b>	1625573	10093.54	0.621
<b>2015-16</b>	1697898	10566.83	0.622
<b>2016-17</b>	1808194	10985.99	0.608
<b>2017-18</b>	1911943	11656.90	0.610

(Amount in crores, at 2011-12 prices)



1.25 During the course of evidence, the representatives added in the replies as under-

"If we compare it with other countries, it is pretty low. China spends more than one per cent of its Agri GDP on agricultural research and education. Other countries, even the smaller ones like South Africa spends more than what we do on agriculture research and education. उस हिसाब से यह कम है और दूसरी बात, यह है कि out of it, 75 percent budget goes to salaries and pensions. So, the money left for research per se is very less."

1.26 Regarding efforts made by the Department to impress upon the Government to increase the allocation, the following reply has been submitted-

"Department has been trying to impress upon the Government to increase the allocation for agricultural research and education to the 1% of GDP. The role of agricultural research and education in enhancing rural income & reducing poverty, increasing food security, improving agricultural productivity and rate of returns to investment have been highlighted globally."

1.27 Further, while giving emphasis on increase in investment on Agricultural Research to meet the objectives set out by the Government, the representatives during the course of evidence submitted before the Committee as follows-

"The first objective is to double the income of farmers by 2022. For this we need investment. We do not invest in research and also research associated frontline extension. Without this, we actually will not be able to meet this target. Then, if we want to make a 5 trillion dollars economy, that also needs frontline research. If we want to increase our export, which is where we can make 5 trillion dollars economy a possibility, it also requires an increased investment. बाहर के जिन देशों में हम टेक्नोलॉजी तथा प्रोडक्ट्स को ले जाएंगे, अगर वह उनके मुताबिक नहीं होगा, कम्पिटेटिव नहीं होगा, तो हम विश्व के बाजार में अपने प्रोडक्ट को नहीं ले जा पाएंगे। इसीलिए उसी तरह का उत्पादकता बढ़ाने के लिए तथा टेक्नोलॉजी डेवलप करने में हमें इनवेस्टमेंट की आवश्यकता है।"

## CHAPTER II

### SCHEMATIC ANALYSIS

#### A. CROP SCIENCE

2.1 Crop Science Division undertakes research programs in the areas of management of Genetic Resources, crop improvement, crop management (production and protection). The Genetic Resource programs include plant, microbial and insect genetic resources. The focus of Crop Improvement Programme is on genetic enhancement of field crops for yield, tolerance to biotic and abiotic stresses and quality. The concerted efforts of crop improvement programs have led to the release of high yielding stress tolerant varieties in different field crops during the current year. Different management measures for controlling insect-pests damage in crops have been devised and various molecules are identified, tested and recommended for plant protection. The emphasis is also given on the development of nutrient and water use-efficient genotypes in different field crops using modern tools including genomics, phenomics, etc. Status of allocation and utilization of funds are as follows:-

(Rs. in crore)			
YEAR	BE	RE	Actual Expenditure
2017-18	387.41	399.66	369.66
2018-19	776.00	651.99	628.05
2019-20	701.53		

2.2 From the above table, it is evident that funds have been reduced at RE stage during 2018-19 and the Actual Expenditure is also less in comparison to allocation during the last two fiscal years. When enquired about reasons for reduction in funds at RE level during 2018-19 and less Actual Expenditure during the last two fiscals, the Department in a written note submitted as under:-

"The reduction of allocation of budget of DARE/ICAR by the Ministry of Finance at the RE 2018-19 lead to proportionate reduction of Rs. 124.01 crore in the allocation of Crop Science Division during RE 2018-19.

The less actual expenditure during 2017-18 and 2018-19 was due to the approval and the sanction of the SFC/EFCs of the schemes which were conveyed mostly in the later half of the financial year 2017-18 and hence funds allocated for non-recurring items (works and equipments) could

not be utilized. The introduction of new purchase procedure GeM and the funds earmarked for two new Institutes during 2018-19 required several lengthy codal formalities that caused reduced utilization of funds."

2.3 On being queried by the Committee about affect of reduced allocations at RE stage on Research work in Institutes under Crop Science Division, it has been stated in written reply as follows:-

"Reduced allocations at RE stage have led to downsizing of some of the programs and postponed some activities for later years. Division has made efforts to ensure that activities/programs of high priority do not suffer due to reduced allocations and also made all out efforts to achieve the set physical targets and set its priorities according to the available funds.

During the year 2018, total 370 varieties were developed-196 high yielding varieties/hybrids of cereals, 49 oilseeds, 48 of pulses, 39 of commercial crops, and 29 of forage crops were released for cultivation in different agro-ecologies. Major emphasis was on the development of new varieties and hybrids tolerant to various biotic and abiotic stresses and enhanced quality."

2.4 When the Committee wanted to know whether ICAR set any Institute-wise target for development and release of new crops varieties and hybrids, the Department in its reply has submitted:-

"Department does set Institute-wise targets for development and release of new crop varieties and hybrids as the development of varieties is a consolidated, holistic and continuous approach. Crop Science Division undertakes research programs for the development of new crop varieties/ hybrids to enhance crop productivity and production. During last five years (2014-2018), a total of 1014 high yielding climate resilient crop varieties/ hybrids of field crops have been released and notified for cultivation. The varieties released comprising 549 of cereals, 146 of oilseeds, 136 of pulses, 80 of fiber/commercial crops, 64 of forage crops, 38 of sugarcane and 1 of others (Kalingada). During 2019 a total of 104 varieties of field crops comprising 48 of cereals, 20 of oilseeds, 18 of pulses, 7 of fibre crops, 5 of forage crops, 5 of sugarcane and one of grain amaranth have been released."

Institutes of Crop Science division have succeeded in achieving the targets in terms of development and release of varieties and hybrids in field crops.

2.5 On being asked about quality of seeds developed *vis-a-vis* traditional seeds, the representatives during the course of evidence replied:-

"पहले गुणवत्ता पर ज्यादा ध्यान नहीं था । हमारे भूखमरी थी तो उत्पादकता बढ़ाने के ऊपर हमारा ध्यान था । यह सच है । करीब 10-15 सालों से हमारा ध्यान गुणवत्ता के ऊपर गया है । धीरे-धीरे कार्यक्रम शुरू हुए हैं और अभी ऐसे 50 किस्म लाए हैं, जिनमें गुणवत्ता है । हमारे ट्रेडिशनल वेरायटी में क्या गुणवत्ता थी, उसको समझने के लिए एक नया प्रोग्राम ला रहे हैं, यह फ्लैगशिप प्रोग्राम होगा और उसके लिए नए इक्विप्मेंट्स आए हैं, जिससे हम दूढ़ पाएंगे कि इसमें क्या गुणवत्ता है । हम इसे दूढ़कर पशुओं में इस्तेमाल करेंगे । रैट और माउस में इस्तेमाल करके बताएंगे कि पुराने अनाजों में क्या था और नए किस्म के अनाजों में क्या नहीं है।"

2.6 When queried about the system in place to monitor performance and productivity of new crop varieties and hybrids released by their institutes and efforts made by the ICAR to enhance awareness about new crop varieties and hybrids among farmers, the Department submitted in its written note as follows-

"The ICAR has well established system of monitoring the performance and productivity of the new crop varieties/ hybrids before and after release. Before the release, a new variety undergoes multi-location testing to evaluate the performance for yield and other traits. After the release of new varieties/hybrids, front line demonstrations are organized at farmers' field to assess the performance and productivity. In addition, ICAR institutes also work with the State Departments of Agriculture to evaluate the performance of the new varieties and hybrids through the centrally sponsored schemes like minikits and cluster demonstrations. Survey and surveillance activities are regularly carried to check the performance and reaction of varieties to diseases and insect-pests. High yielding varieties and hybrids, after their release, find place in the seed chain based upon the indents of different seed multiplying agencies. During the breeder seed production process, a constituted team of experts (NARS, State seed certification agency and NSC) monitors the performance and genetic purity of varieties and

hybrids and submit the report Ministry of Agriculture and Farmers Welfare for further allotment to various seed production agencies."

## 2.7 Further, the Department added in its reply-

"The ICAR undertakes programs/activities to educate the farmers and create awareness among the farmers about new varieties, hybrids and technologies includes demonstration through Krishi Vigyan Kendras situated across the country, Front Line Demonstration Programme operated by Department of Agriculture, Cooperation and Farmers Welfare with support of full package inputs. Collaboration with voluntary organizations and Non-Government Organizations for spread of new technologies to the farmers' fields, through TV and radio talks, scientist farmer interactions etc."

## 2.8 Moreover, during the course of examination when the Committee desired to know about the steps undertaken by the Department for promotion of organic farming in the country, the representatives submitted the following-

"जैविक खेती पर करीब दस-पंद्रह साल पहले शोध शुरू हुआ। उसमें हम ने करीब-करीब 50 लोकेशंस तय किए, जहां हमारा यह शोध हो। यूनिवर्सिटी एवं अन्य संस्थानों में काफी पैसा खर्च किया गया। इसमें सालाना लगभग बीस करोड़ रुपये से ज्यादा खर्च करते हुए शोध कर रहे हैं।

इस शोध के तहत हमने अभी तक करीब-करीब 45 ऐसे सिस्टम्स बनाए हैं, जिनसे किसी भी किसान द्वारा जैविक खेती करते वक्त उसकी पैदावार नहीं घटेगी। हमने सात सालों तक यह शोध किया और 23 लोकेशंस पर इसकी टेस्टिंग की। यह करते हुए हमने तय किया कि ये इन 45 सिस्टम्स से विभिन्न फसलों के क्रम में जैविक खेती की जाए तो किसान की आमदनी में कोई फर्क नहीं पड़ेगा, इसलिए किसान इसे कर सकते हैं। इसमें खासकर कीड़े और बीमारी आ जाते हैं, इसलिए उनका दमन करने के लिए किसी दूसरे कीड़े या जीव को लगाकर हम इसका दमन करने का प्रयास करते हैं।

इसी तरह जो दूसरे पेड़-पौधे हैं, जैसे नीम है — उसका एक्सट्रैक्ट लेकर भी हम छिड़काव करते हैं। अतः हमने इस तरह की व्यवस्था बनाई है। इसके ऊपर और भी शोध चल रहे हैं, जिन्हें हमें आगे बढ़ाना है। यह हमारे कृषि विज्ञान केन्द्रों के तहत किसान के खेतों में कैसे जाएगा, हम इसका भी डिमॉन्स्ट्रेशन लगा रहे हैं। कृषि मंत्रालय के जो दूसरे मंत्रालय सुबह सिमित की बैठक में आए थे, उनकी परंपरागत खेती की जो पूरी योजना है, उसके तहत हम इसे भी बढ़ावा दे रहे हैं। हम सारे विषयों पर मिलकर काम करते हैं। हम अपनी टेक्नोलॉजी उन्हें देते हैं, जिसके बाद वे राज्य सरकारों को बताते हैं। उसके बाद राज्य सरकारें अपने प्रोग्राम्स, स्कीम्स के तहत उन्हें किसानों तक पहुंचाती हैं।"

## **Crop Residue Management**

2.9 The Department in its Annual Report has stated that the Department of Agriculture, Cooperation and Farmers Welfare (DAC&FW), Ministry of Agriculture Government of India has sanctioned a project on Crop Residue Management to ICAR under Central Sector Scheme on promotion of Agricultural Mechanization for in-situ management of crop residue in Punjab, Haryana, Uttar Pradesh and NCT of Delhi, with a total budgetary allocation of Rs. 21.29 crore. This Project is being implemented by 60 KVKs belonging to three Zones (ATARI, Zone-I, Ludhiana, Zone-II Jodhpur and Zone-III, Kanpur), There are 22 KVKs of Punjab, 15 KVKs of Haryana and Delhi and 23 KVKs of Uttar Pradesh, which have been assigned information education and communication (IEC) component of Central Sector Scheme, For smooth execution of the Project, ICAR-ATARI, Ludhiana, has organised three capacity development programmes of two days each on in-situ Crop Residue Management for scientist of 60 KVKs of Punjab, Haryana, Uttar Pradesh and Delhi Besides this, one stakeholders meet was also organised at ICAR-ATARI, Ludhiana in which more than 150 delegates participated.

2.10 During the course of examination, the Committee expressed their concern over severe pollution due to Stubble Burning and asked the Department about its plans to solve this problem. The representative of the Department stated:-

"सर, यह ज्वलन्त मुद्दा है, जो काफी चर्चा में है। स्टबल बर्निंग जो रही है, इसके बारे में दो साल पहले बहुत चर्चा की गई। All the alternatives were discussed and presented in the PMO and elaborate discussions happened on that. डिजीजन यह लिया गया की हम जो इमीडिएटली कर सकते हैं, उसके लिए इमीडिएटली प्रोग्राम बनाते हुए उसे इम्प्लीमेंट किया जाए और जिसमें थोड़ा समय लगेगा, उसके लिए प्लानिंग करते हुए उसे आगे इम्प्लीमेंट किया जाए। So, what was evident is that the technology which was available with us, in terms of implements and machineries, eight machines we had already manufactured and synthesised. And then they were manufactured by the local manufacturers. They were included in the subsidy scheme and about Rs. 1,152 crore were provisioned for this project for these eight machines and they were supplied through two mechanisms, individual farmers and also through Custom Hiring Centres. The Custom Hiring Centres were given 80 per cent subsidy while the individual farmers were given 50 per cent subsidy because Custom Hiring Centres are to cover a particular area. So, they were given 80 per cent subsidy. Last

year 56,000 machines were supplied through this scheme. About Rs. 550 crore were provided for this.

This year also, an equal amount of money has been provisioned and also a part of this amount has been released. The progress so far, what the machines earmarked, has been that the States are claiming that they have already supplied more than 80 per cent machines. So, machines are already there in the field.

But this is a real challenge. There are two-three issues. One, the farmers have to spent in hiring of this equipment, if they have not purchased themselves. अगर किसान खुद से खरीदता है तो वह यूज करेगा नहीं तो कस्टम हायरिंग सेंटर से हॉयर करेगा। हॉयर करने के लिए उसको दो से ढाई हजार रुपये खर्च करने पड़ेंगे। किसान लोग वह खर्च नहीं करना चाहते हैं, इसलिए वे उसको जला रहे हैं। उनको कन्वीन्स करने के लिए गांव-गांव में हमारे कृषि विज्ञान केंद्र, वैज्ञानिक एवं राज्य सरकार की सारी मिशनरी लगी हैं। इसमें एक चीज है जो दिखाई नहीं देती है, वह यह कि इससे जमीन की उर्वरा शक्ति बढ़ती है। The carbon content adds the nutrients to the soil very quickly. It doubles the nutrients in five-six years. In Indo-Gangetic plane, the carbon content has come down below 0.4 per cent. In some areas, it is 0.2 per cent. It is very frightening. Whenever we have done experiments by incorporating crop residues, there has been double increase.

We are trying to convince the farmers that the sustainability will be better. Everybody talks about sustainable agriculture. Unless the soil health is maintained, obviously, it will not be able to have that kind of harvesting. Also, the micro and major nutrients get improved and water requirement is also reduced because there will be crop residue cover.

There are also alternatives like preparing bio ethanol, bio gas etc. out of it. So, there are alternatives. But the expenditure is bit more. It is not so economical in this particular method. Moreover, soil would be devoid of the nutrients. These are the kind of issues in this case."

## **B. NATURAL RESOURCES MANAGEMENT**

2.11 Natural Resources Management Division covers the area of sustainable management of natural resources. It is vital as agricultural development with positive growth and long-term sustainability cannot thrive on a deteriorating natural resource

base. Accordingly, the Division is conducting research in farmers' participatory mode addressing issues at ground level to develop location specific, cost effective, eco-friendly, climate resilient technologies keeping in view the farmers' resource availability, traditional/ indigenous technology knowhow and grass-root farm innovations to enhance agricultural production, productivity and profitability in the country. Major achievements during current year pertains to the development of Block level soil micro-nutrient maps of the country; identification of salt tolerant varieties of Indian mustard CS 60 and wheat variety KRL 283; development of Calliandra and Napier based silvi-pasture system for the farmers of Kerala; development of organic farming package of practices for different agro-climatic conditions; development of drip fertigation schedule for tomato, vegetable pea, Rabi sorghum, garlic, papaya and zaid okra and creation of online Salinity Management App "Salinity Expert".

2.12 Under the Head of Natural Resource Management, the details of status of allocation and utilization of funds are as follows:-

**(Rs. in crore)**

<b>YEAR</b>	<b>BE</b>	<b>RE</b>	<b>Actual Expenditure</b>
2017-18	<b>167.68</b>	<b>167.68</b>	<b>129.19</b>
2018-19	174.39	148.24	153.80
2019-20	159.48		

2.13 As can be seen, the allocation at RE stage during 2018-19 was reduced and also for 2019-20, the allocation at BE stage has been reduced in comparison to 2018-19 & 2017-18. When the Committee queried about reasons for less allocation in 2018-19 at RE level and reduced allocation at BE level for 2019-20, the Department in its written reply submitted as below-

"The Ministry of Finance had reduced the overall allocation of Department at the RE 2018-19 stage, which effected proportionate reduction of allocation of the Division. Department allocated higher funds toward high priority programs that causes a reduction of allocation at BE during 2019-20."

2.14 Replying to the query regarding impact of the reduced allocations at RE stage on Research work in Institutes under Natural Resources Management Division, the Department in written note submitted :-

"The Division has made efforts to ensure that activities/programs of high priority do not suffer due to reduced allocations. The Department has also made all out efforts to achieve the set physical targets and set its priorities according to the available funds. New activities were not undertaken during the year and differed for coming fiscal years."



2.15 When the Committee enquired about the efforts made by the Division to augment water resources and Scientific Management of water resources in the country, reply submitted by the Department informed-

"Department in has developed cost effective, location specific modern agronomic practices like raised bed sowing, alternate furrow irrigation, sprinkler irrigation, drip irrigation, mulching, Direct Seeded Rice (DSR) through seed drills and drum seeders, System of Rice Intensification (SRI), alternate wetting and drying method, laser land leveling, adoption of varieties which require less water to ensure improved irrigation water use efficiency and higher crop productivity in the country. Department educates farmers and other stakeholders, and also provides technological backstopping."

2.16 Regarding judicious use of water in agriculture and conservation of water, the Department during the course of examination submitted as follows:-

"पंजाब और हररयाणा में जल स्तर सालाना एक मीटर नीचे जा रहा है। जमीन बंजर हो जाएगी और नीचे से नमकीन पानी आएगा और लांग टर्म पर्सपेक्टिव में उसको मैनेज करना बहुत खतरनाक होगा। लेकिन उन क्षेत्रों में जमीन थोड़ा खराब होने के बावजूद वे अच्छी पैदावार दे रहे हैं, क्योंकि हम उसी तरह की सेलेक्शन कर रहे हैं, लेकिन यह ज्यादा दिन नहीं चल पाएगा। इसलिए हमें सूक्ष्म सिंचाई की व्यवस्था पर जाना पड़ेगा। अभी हम दस से बारह मिलियन हेक्टेअर पर पहुंचे हैं, 142 मिलियन हेक्टेअर एररया में हमारी खेती होती है, उस पूरे क्षेत्र को कवर करने का रास्ता बहुत लम्बा है। इसके लिए किसानों को प्रोत्साहित करना पड़ेगा, बहुत सारी व्यवस्थाओं को दुरुस्त करना होगा, तभी हम इसे आगे बढ़ा सकते हैं। पानी का संरक्षण और हार्वेस्टिंग करना बहुत जरूरी है। अभी सब पानी बह जाता है। अभी प्रधान मंत्री जी का जो आह्वान था, उसके तहत बहुत सारे पॉण्ड्स बन गए हैं, यह भी इसमें मदद करेगा।"

2.17 Further, on the query regarding efforts made by ICAR for judicious and integrated use and management of water in agriculture along with increase in yield, the Department in its written reply submitted as under:-

"Department has developed cost effective, location specific modern agronomic practices like raised bed sowing, alternate furrow irrigation, sprinkler irrigation, drip irrigation, mulching, Direct Seeded Rice (DSR) through seed drills and drum seeders, System of Rice Intensification (SRI), alternate wetting and drying method, laser land leveling, adoption of varieties which require less water to ensure improved irrigation water use efficiency and higher crop productivity in the country. Department educates farmers and other stakeholders, and also provides technological backstopping."

### **C. NATIONAL INNOVATION IN CLIMATE RESILIENT AGRICULTURE (NICRA)**

2.18 Changing contours of climatic conditions are posing serious risks to livelihoods of rural poor and small landholders in India. An integrated approach to adaptation strategies is needed, which can encompass farm level adaptation, institutional adaptation, technological adaptation and social adaptation for mainstreaming into developmental framework. Moreover, decentralized mechanism forms an effective pathway for sustainable resource-based planning and adoption of location-specific policy interventions.

2.19 The Department in its written note has submitted that NICRA is being implemented under strategic research, sponsored and competitive grants and technology demonstration components. Salient achievements include i) development of district level vulnerable Atlas considering the latest climate change projections as per IPCC AR-5 and other updated data sets; ii) Established GHG inventory for different production systems across different locations, this will be input for BUR report and National Communication to be submitted to IPCC; iii) Developed several climate resilient crop varieties and technologies; iv) Established climate change research facilities across country at 7 locations to undertake studies on impact of climate change on different sectors viz., crops, livestock, fisheries, horticulture and Natural resources; v) established 151 climate resilient villages across the country and vi) organized 14,407 meetings that benefitted 5,14,816 farmers. A total of 247 Institutes/Research Stations/ KVKs are functioning under NICRA. The fund allocation for Institutes/Research Stations is Rs.10151.86 lakhs and Rs 3182.14 lakhs for KVKs under NICRA for three years.

2.20 On being asked about efforts being made by the Department for soil conservation and enhancing water holding capacity to enhance resilience of soil towards climate variability in the country, the Department has submitted:-

"Division has developed several location specific bio-engineering measures of soil & water conservation to check soil erosion due to run-off from rain water. Developed sand dune stabilization and shelter belt technology to check wind erosion. Impart training to educate farmers and staff and provide technological backstopping to various developmental schemes/projects on all these aspects. Department demonstrated various climate resilient technologies including soil & water conservation measures in 151 most vulnerable districts in the country to minimize vulnerability against climate change."

2.21 When the Committee wanted to know as to how Agro-forestry and Precision Agriculture will be helpful in mitigation of impact of Climate Change on agriculture, the Department in its written note submitted :-

"Agro forestry has a major role in mitigation of climate change through carbon sequestration. The role of agro forestry in soil conservation, bio-amelioration and climate moderation is most widely acclaimed. Agro forestry is known to have potential to mitigate the climate change through micro-climate moderation, natural resources management in short run and through carbon sequestration in long run. In general, agro forestry systems on the arid, semi-arid and degraded sites have a lower carbon sequestration potential than those on fertile humid sites; and the temperate agro forestry systems have relatively lower sequestration potential when compared with the tropical systems. Substantial carbon is sequestered in below ground tree parts, part of which is added to the soil every year thus contributing to soil carbon. Trees in agro forestry system also moderate temperatures and help in reducing the impact of heat waves on crops. The proven agro forestry practices of drought prone regions focus on agri-horti systems that provide assured returns and helped to stabilize incomes.

In precision agriculture, site-specific management practices are adopted paying due consideration to the spatial variability of land to maximize crop production and minimize cost of production with least environmental damage. Precision farming helps in efficient use of water and nutrients, and placement of N-fertilizer through precision planter helps in reducing nitrous oxide emissions. Variable-rate precision seeder is used for sowing seeds of wheat and soybean crops. Urea solution spraying system was developed and used in real time spraying of urea solution on baling straw during paddy harvesting. Real time soil moisture data recorded from fields under irrigated condition during 2017-2018 showed that volumetric soil moisture typically varied between 18 – 44% at any one time, because some areas remained saturated while other areas drained rapidly, when irrigation was used to relieve plant water stress. This system is continuously monitored the soil moisture variation in 2018-19 to achieve the goal of real time data collection and

management as needed by field crops and thus helped in optimizing plant growth, production, and saving water. The study also predicted the saving of water from 12 to 15% with respect to traditional method using bed planting, and minimizing the loss occurring due to water logging in soybean crop. The hyperspectral remote sensing using ground based remote sensing sensitive bands to differentiate several biotic and abiotic stresses have also been identified in selected crops. In long run, it will enable application of precision farming techniques."

#### **D. ANIMAL SCIENCE**

2.22 Under the Head of Animal Science, the allocation for 2019-20 at BE stage has been reduced in comparison to 2018-19. The details of status of allocation and utilization of funds are as follows:-

(Rs. in crore)			
YEAR	BE	RE	Actual Expenditure
2017-18	271.97	271.97	252.27
2018-19	340.00	288.98	275.54
2019-20	310.98		

2.23 From the above, it can be inferred that the allocation of funds at RE stage was reduced to 288.98 crores from 340. crore at BE stage. When asked to furnish reasons for reduction of Rs. 51.02 crore i.e. about 15% at RE stage during 2018-19 under this Head , in its written reply the Department submitted :-

"The reduction of allocation of DARE/ICAR by the Ministry of Finance at the RE 2018-19 has contributed to proportionate reduction in the allocation of Animal Science Division during RE 2018-19."

2.24 Further, regarding impact on research activities due to reduced allocation, the Department submitted as under-

"The Division has made efforts to ensure that activities/programs of high priority do not suffer due to reduced allocations during 2018-19. The department has also made all out efforts to achieve the set physical targets and set its priorities according to the available funds."

2.25 When asked about reasons for less Actual Expenditure during 2017-18 and 2018-19, the Department in its written submission stated:-

"The less actual expenditure during 2017-18 and 2018-19 was due to the approval and the sanction of the SFC/EFCs of the schemes which was conveyed mostly in the later half of the financial year 2017-18 and hence funds allocated for non-recurring items (works and equipments) could not be utilized. The funds earmarked for vehicles were not utilized due to the ban on the purchase of the new vehicles and a higher allocation towards NEH & TSP during 2018-19 forced division to revisit the committed expenditure and prioritize plan activities."

Animal Science Division coordinates and monitors research and education in the area of livestock and poultry through a network of research institutes and their Regional Centers. The research efforts in livestock and poultry sector have been redefined / assigned under different thematic areas to develop need based technologies for productivity enhancement by addressing the existing/ new emerging issues and to bridge the gap between the potential and actual yield along with skill up-gradation of various categories of end users of the technologies. Issues specific to States/ regions/ agro-climatic zones/ production systems are being addressed by Institutes, regional centres and the AICRP/ Network/ Outreach/ Seed projects with the overall objectives of improving profitability, nutritional / livelihood security of farmers. Research outputs are infusing improved / high-yielding technology with required skill up gradation keeping input cost to the minimum ensuring quality and profitable outcome."

2.26 On the query of the Committee regarding mechanism available to promote region specific and breed specific breeding programmes to implement the Conservation and Development Programmes for Indigenous Cattle, the Department in its written reply has submitted as follows-

"Animal Science Division is operating All India coordinated research projects, Network projects and seed Projects in the Country for different animal species to promote conservation, improvement and development of Indigenous cattle breeds. Almost all animal species including Indigenous cattle are being indebted at National level under these projects at regional and location specific conservation, improvement and strengthening through conventional and Artificial Insemination Breeding programs."

2.27 When asked about the steps being taken by ICAR for identification of disease prevalent among Indigenous Breeds of Cattle and Buffalo in the Country, the reply submitted by the Department is as given under-

"ICAR is operating research programs Animal Science Division for improving and strengthening the Animal Health Management System in the country. These programs are providing the country-wise data pertaining to the prevalent diseases of the livestock including cattle and buffalo. India is endemic to FMD, Brucellosis etc. The most prevalent disease in livestock including cattle and buffaloes are FMD, Brucellosis, Haemorrhagic septicaemia, Parasitic and Protozoal diseases, enterotoxemia, etc. Monthly Disease forewarning and alerts at two months in advance with preventive measures for livestock diseases (Alerts) are being issued to all the Animal husbandry departments of state governments and central governments. Monthly Forewarning bulletin is being regularly sent to all stakeholders."

2.28 On a query of the Committee regarding steps undertaken for improvement of socio-economic status of Small and Marginal Farmers through livestock and poultry rearing activities, the Department submitted:-

"The Department has initiated training programmes, capacity building programmes and also started awareness initiatives to improve the socio-economic status of small and marginal farmers. Poultry/poultry seed/Pig seed/Piglets/kids are being distributed to the farmers for improving the germplasm and also to uplift the socio-economic status of the resource poor livestock/poultry farmers. Backyard poultry in rural and tribal areas of the Country is being promoted for socio economic improvement of small and marginal farmers. Department is distributing about 19.0 lakhs of improved chicken germplasm per year, and improved chicken germplasm has a capacity to produce twice the productivity of native chickens leading to the increased income to the farmers. Consumption of highly nutritious chicken products improves the health status of the rural and tribal farmers. Approx. 3000 ST farmers are being also benefited every year through improved chicken germplasm distribution. Therefore, the propagation and promotion of backyard poultry is playing a vital role in improving the socio economic condition of the small and marginal farmers."

2.29 When the Committee asked about the efforts been made by DARE to create awareness among poultry farmers regarding use of antibiotics in poultry feed and growth promoters and the alternatives been given to them, in its written reply the Department has stated submitted:-

"ICAR/DARE is regularly carrying out training programmes for farmers to create awareness among the poultry farmers regarding judicious use of antibiotics. The poultry farmers and poultry industry

professionals have been advised by ICAR, not to use antibiotics as growth promoters/feed additives in the poultry feed as prophylactics. Antibiotics are being used only for therapeutic purposes as and when required for treatment. Alternatives to antibiotics for growth promotion and as prophylactics, such as herbal preparations, herbal medicated feeds and micro-organism (Probiotics) have been suggested. Better cage system, proper aeration and adequate drainage system with advanced cages/dip litter are also being suggested to bring down morbidity and mortality in the poultry farms that reduced antibiotics uses."

## **E . AGRICULTURAL EXTENSION**

2.30 The Department in its Annual Report (2018-19) has submitted that the frontline extension system as part of National Agriculture Research System of the country has taken up a number of activities through Krishi Vigyan Kendras (KVKs) and other programmes for application of Farm Technology in farmers' field. Besides taking up technology assessment, refinement, demonstration and capacity development programmes during the year, the other initiatives such as Farmers FIRST, Attracting and Retaining Youth in Agriculture (ARYA), Climate Resilient Integrated Farming System (IFS), Cluster Frontline Demonstration of pulses and oilseeds, National Innovations in Climate Resilient Agriculture (NICRA), Pulses Seed hubs, ATICs, Mera Gaon Mera Gaurav and awareness creation about mega government schemes, etc., were also implemented to espouse the cause of farming community through technology application with their active participation.

2.31 Under the Head of Agriculture Extension, the allocation for 2019-20 at BE stage has been reduced in comparison to 2018-19. The details of status of allocation and utilization of funds are as follows:-

*(Rs. in crore)*

<b>YEAR</b>	<b>BE</b>	<b>RE</b>	<b>Actual Expenditure</b>
2017-18	<b>232.51</b>	<b>232.51</b>	<b>231.98</b>
2018-19	241.81	206.62	200.71
2019-20	221.15		

2.32 It can be inferred from the above table that the allocation of funds during 2018-19 at RE stage was reduced and the Actual expenditure of RE during 2018-19 was Rs.200.71 crore against allocated RE Rs. 206.62 crores. Moreover, the allocation of funds at BE level for 2019-20 has also been reduced vis-à-vis 2018-19 and 2017-18. On being asked about impact of reduction on implementation of Schemes under the Division, the Department has in its written reply submitted:-

"The allocation at BE for 2019-20 is 7.61 % higher than the RE of 2018-19, thus implementation of Schemes under Agricultural Extension shall not be impacted. Available funds are being rationalized and provided for achieving the physical targets of the programs carried by KVKs, ATARIs, ARYA, Disaster Management, DKMA, etc for plan activities."

2.33 Agricultural Extension Division is carrying out on-farm testing to identify the location specificity of agricultural technologies, frontline demonstration to demonstrate the production potential of different crops, training of farmers and extension personnel on knowledge and skills improvement, and creating awareness on improved technologies among farmers of the country through Krishi Vigyan Kendra (KVKs) spread all over the country. Technology assessment and refinement is one the main activities of KVKs to identify the location specificity of agricultural technologies under various farming systems.

2.34 When the Committee enquired about the details of New Technologies developed, front line demonstrations conducted and Farmers Trainings organized by the DARE during the last three years and the results achieved thereby, the Department in its written submission has stated as given below-

"The new technologies developed by National Agricultural Research Systems (NARS) are region specific. In view of suitability to the existing farming situations of the district, the KVKs take up these technologies under different programmes including frontline demonstrations (FLDs) and training of farmers. The FLDs conducted on farmers' fields brings about enhancement in farmers' awareness about improved technologies, increase in knowledge, skills and adoption of new technologies ultimately results in increase in yield. KVKs during 2018-19 conducted FLDs that increased yield of various pulse crops like, pigeon pea (56.8%), green gram (35.98%), lentil (35.32%), black gram (34.91%), Rajmash (34.64%), Chickpea (30.01%), and horse gram



(28.33%). Similarly, the increase in yield under FLDs on oilseed crops were 42.15% in soybean, 40.43% in linseed, 36.64% in niger, 35.47 % in sesame, 34.63% in mustard, 31.36% in sunflower, 28.36% in groundnut, 18.75% in castor, and 16.09% in safflower. Likewise, in cereals and millets, the yield advantages under FLD plots were 15.5% in rice, 20.5% in wheat, 22.1% in maize, 37.5% in buck wheat, 52.5% in kodo millets, 54.3 % in minor millets. Average yield increase in horticultural crops was 31.6% in vegetables, 25.7% in fruits, 23.6% in flowers, 27.3% in spices, and 36.4% in plantation crops."

2.35 On being asked to furnish the details of total number of KVKs in the country as on date and whether there is any district in the country where more than one KVK is functioning, the Department in its reply submitted:-

"There are 715 KVKs as on date. Two KVKs are functioning in 81 districts for wider coverage of KVK activities in districts having larger geographical area, rural population and net sown area, therefore an additional KVK has been set up in these districts for the purpose. During XI plan, 54 larger districts and during XII plan, 60 larger and mountain as well as boarder districts were approved for opening of one additional KVK. Since then, one additional KVK has been set up in 81 districts. Proposals for rest of the additional KVKs are being pursued from the State Governments."

2.36 When asked to furnish the details of KVKs in the country that are managed by ICAR, SAUs, NGOs and any other Organization, the Department informed as under-

"A total of 715 KVKs have been established under the administrative control of different host organizations including State Agricultural Universities (468), Central Agricultural Universities (22), ICAR Institutes (65), NGOs (104), PSUs (03), State Governments (37), Central Universities (03), Deemed Universities (08) and other educational institutions (05)"

2.37 The Committee further queried as to how the quantum of funds being provided to KVKs managed by Private Organizations are decided and how much funds were provided under the Scheme to KVKs managed by NGOs etc. during last five years-

"The quantum of funds provided to KVKs are irrespective of their host organizations, funds are decided on the basis of stage of development of infrastructure in the KVK, number of staff in position in the KVK and mandated activities approved in the action plan of the

KVKs. During the last five years, the KVKs under NGOs were provided an amount of Rs. 660.57 crore"

2.38 Regarding the number of vacant posts of Scientists in the KVKs and steps taken by ICAR, the Department in its written reply has submitted as under-

"Each KVK has provision of one Senior Scientist and Head and six Subject Matter Specialists (SMSs) in each KVK. There are 216 vacant posts of Senior Scientist and Head and 1330 vacant posts of SMSs. The filling of posts is the responsibility of Host Organizations. The Host Organizations are requested time to time to fill up the vacant posts. In spite of vacancies in KVKs, it is emphasized that the mandated activities are organized as per approved action plan with the help of staff deputed by the Host Organizations."

2.39 When asked about the steps undertaken through its extension programmes to promote and disseminate information and research outcomes amongst Small and Marginal Farmers in different regions of the country, the Department has stated in its written note as under-

"Majority of the farmers in the country are small and marginal ones. Therefore, majority of the activities conducted by the KVKs have the participation of these farmers. A number of steps have been taken to reach out to large number of farmers through frontline extension programmes of National Agricultural Research Systems including Institutes of ICAR, Agricultural Universities and KVKs to promote and disseminate information and research outcomes. The Directorates of Extension Education of Agricultural Universities organize extension education programmes through their Farm Advisory, Farm Information & publication and farm training units. The scientists of ICAR Institutes and agricultural universities are in direct interface with farmers to disseminate information and research outcomes under Mera Gaon Mera Gaurav initiative. Apart from conducting the mandated activities, the Subject Matter Specialists of KVKs provide large number of agro advisories to farmers through M-Kisan portal."

## **F. AGRICULTURAL EDUCATION**

2.40 The Agricultural Education Division is mandated for maintaining, upgrading quality and relevance of higher agricultural education through partnership with State

Agricultural Universities (63 SAUs), Deemed-to-be-Universities (4 DUs) with Agricultural faculties and 3 Central Agricultural, Universities (CAUs) under the National Agricultural Research and Education System (NARES) to address the challenges of agricultural growth and upgrading quality of higher agricultural education. The Division, through the implementation of Scheme-Strengthening and Development of Higher Agricultural Education in India, assists the AUs to plan, undertake, aid, promote and coordinate agricultural education in the country.

2.41 The year-wise Budget Estimate (BE), Revised Estimate (RE) and Actual Expenditure (AE) under Agriculture Education Division are as follows:

<b>(Rs. in crore)</b>			
<b>YEAR</b>	<b>BE</b>	<b>RE</b>	<b>Actual Expenditure</b>
2017-18	<b>663.37</b>	<b>522.07</b>	<b>618.70</b>
2018-19	826.59	733.48	713.29
2019-20	789.19		

2.42 As can be seen from the above table that the allocation at RE stage during 2017-18 and 2018-19 was reduced and allocation for 2019-20 at BE level is also less in comparison to previous year. When asked about impact on research work carried out by ICAR on account of less allocation at RE level during 2018-19, the Department in its written reply has stated:-

"The reduction of allocation of DARE/ICAR by the Ministry of Finance at the RE during last fiscal has effected to proportionate reduction in the allocation of Education Division. RE allocated was fully utilized. Research activities Institutes were prioritized according to the available funds, and made all out efforts to achieve the set physical targets."

2.43 On a query of the Committee regarding the proposal of the Department for funds for Agricultural Education Division during 2019-20, The Department replied as follows-

"The proposal for the year 2019-20 was Rs.807.39 crores for Agricultural Education Division.

The Agricultural Education Division helps maintain the quality of higher agricultural education in 74 Agricultural Universities (AUs) through accreditation periodic revision of courses, and helps attract the talented students by providing support for various scholarships/fellowships, capacity building of faculty in challenging areas through Centres for

Advanced Faculty Training, Niche Area of Excellence, as well as through promotion of holistic higher education, viz. Experiential Learning Modules, emphasis on improving and modernising teaching and learning infrastructure and student amenities, including those pertaining to sports and personality development."

2.44 On being asked regarding steps undertaken by the Department/ICAR for strengthening and development of Agricultural Education System in the country during last five years, the Department in its written note has submitted as under-

Department is committed for *Strengthening and Development of Higher Agricultural Education in India*". Department supports the Agriculture Higher Education's institutions for the emerging challenges in the agriculture sector for which catalytic financial support is provided to agricultural universities. Major supports are improving infrastructure and amenities, competence enhancement of faculty, attracting talented youth to agriculture education, curriculum and delivery mechanism, improving quality of post graduate research, encouraging holistic development of students, Niche area of Excellence for education, research and capacity building in challenging areas, making higher agricultural education relevant and responsive and to bring in entrepreneurship and skills to enable graduates to take up their own enterprises as job providers, ranking of universities, linking accreditation to support to funding for quality assurance, Revision of courses and addition of new courses etc.

2.45 Further, when queried about the number of Private Universities in the country providing Higher Agricultural Education (UG, PG and Ph.D) and whether ICAR coordinates and provide support to such Private institutions as and when requested to, the Department submitted:-

"About 97 Private Universities, established as per State Acts, are offering Programs in Higher Agricultural Education. ICAR is only granting accreditation based on their request. So far, 44 private Universities have applied for ICAR accreditation."

2.46 The Committee also wanted to know about Agricultural Education Portal EKTA (Ekikrit Krishi Shiksha Takniki Ayaam) and therefore, asked the Department to furnish a detailed note on EKTA and its contribution in the development of Agricultural Education in the Country. The Department in its written reply has submitted as follows-

"EKTA is a single platform for payment, accounting & reconciliation and finally for review and monitoring of different scheme of Agriculture

Education Division. A Centralized Uniform Solution for Schemes, Funds, Scholarships, Fellowships, Accreditation, digital Library, AIEEA Admissions, Student Portal & Database Management". The system provides real-time asses to the intended users for quick redressal of queries, timely facilitation and monitoring of utilization of funds and progress.

EKTA is a comprehensive e-Governance System for University functions. It facilitates Institutions to manage the activities and submit progress and linking of different programs of the department with Schemes-Strengthening and Development of Higher Agricultural Education in India. It also facilitates the Institutions to submit details of research collect and manage student information on admission, fellowship and scholarship and provide country wide information. This centralized online system to automate accreditation of Universities System will be linked with Scheme National Agricultural Education Accreditation Board (NAEAB). The real-time information on students enrollments, teachers, admissions, affiliations, fees, student attendance, learning, timetables, results, employee attendance and payroll, fund, budget, recruitment, training, research etc. are available through this system."

2.47 When asked whether any Indian Agricultural University figures in the world ranking of such universities and reasons thereof, the Department in its written reply has stated:-

"None of the Agricultural Universities figures in the World ranking. In order to improve the quality of agriculture education to the level of World class, Department has initiated accreditation system of Agriculture Universities through National Agricultural Education Accreditation Board. The ranking of University is being done based on the performance of University in the following six metrics: 1) Academic Reputation, 2) Employer Reputation, 3) Faculty/Student Ratio, 4) Citations per faculty, 5) International Faculty Ratio, 6) International Student Ratio."

2.48 In this context, the Finance Minister in her Budget Speech (2019-20) stated as under-

"...We propose to establish a National Research Foundation (NRF) to fund, coordinate and promote research in the country. NRF will assimilate the research grants being given by various Ministries independent of each other. NRF will ensure that the overall research eco-system in the country is strengthened with focus on identified thrust areas relevant to our national priorities and towards basic science

without duplication of effort and expenditure. We would work out a very progressive and research oriented structure for NRF. The funds available with all Ministries will be integrated in NRF. This would be adequately supplemented with additional funds..."

2.49 On being asked whether Agricultural Research also comes under the proposed National Research Foundation (NRF) and how the integrated research under NRF will be helpful in strengthening and development of agricultural research in the country, the Department replied as under-

"National Research Foundation (NRF) includes all scientific research including agriculture. The Ministry of Human Resources Development in consultation of NITI Aayog and Principal Scientific Adviser to Government has been working on the details of the NRF. The NRF is yet to be finalized."

Recently, the Government has decided to allow corporate India to use their mandatory Corporate Social Responsibility spending on publicly-funded incubators and contribute to research efforts in science, technology, medicine and engineering at major institutions and bodies.

2.50 When the Committee queried about efforts made by the Department to tap CSR funds for boosting Agriculture Research in the country and how the change in Government policy would help in giving fillip to Agriculture Research activities in the country, the Department has stated in its written reply as follows-

"The Schedules VII of the Companies Act, 2013 provides an umbrella of the activities that can be taken up through CSR including Scientific Research and agricultural extension as an admissible activity. DARE/ICAR has been working with corporate/Industries for promotion of technologies. ICAR is also finalizing its CSR guidelines. Recently, Ministry of Corporate Affairs amended the specific portions of Schedule VII of the Act to include contribution to incubators funded by Central Government or State Government or any agency or Public Sector Undertaking of Central Government or State Government and contribution to public funded Universities, Indian Institute of Technology (IITs), National Laboratories and Autonomous Bodies (established under the auspices of ICAR, ICMR, CSIR, Department of Atomic Energy (DAE), DRDO, DST, Ministry of Electronics and Information Technology) engaged in conducting research in science, technology, engineering and medicine aimed at promoting Sustainable Development

Goals (SDGs) as eligible to approved CSR funding modes mandated under Section 135 of the Act.

The policies of governance, taxation like GST, and others will help in doing ease of business and attracting more private investment in research, smoothen the public-private partnership, infuse more use of ICT technologies for research and research governance, make equipment procurement cost effective and easy, help in broaden the scope and space for collaborations with global best institutions, attract more talent and resources from overseas, etc. In a long run it would strengthen the national system for the best research and technology generation."

## CHAPTER -III

### ALLOCATION UNDER TRIBAL SUB-PLAN AND SCHEDULED CASTE COMPONENT

#### A. TRIBAL SUB-PLAN (TSP)

3.1 DARE/ICAR has separate allocations under Tribal Sub plan or Scheduled Tribe Component (STC). This fund is utilized specifically for the development of Tribal Community in Tribal Areas. The Ministry of Tribal Affairs in GOI is the nodal ministry for overall monitoring of the TSP. In ICAR, the targets and action plan are monitored for all the Schemes/Subjects.

#### DARE/ICAR allocations in ST Component

(Rs in crore)

NAME OF THE SECTOR	2017-18 RE	Expenditu re 2017-18	2018-19 RE	Expenditure 2018-19	BE 2019-20
Crop Science	6.21	6.21	20.6	20.6	22.17
Horticulture	3.73	3.73	4.86	4.86	5.23
Agricultural Extension	31.05	31.05	27.71	27.71	29.83
Agricultural Education	33.54	33.54	29.94	29.94	32.19
Natural Resource Management	12.42	12.42	11.08	11.08	11.93
Animal Science	4.97	4.97	9.54	9.54	10.26
Fisheries	1.24	1.24	2.97	2.97	3.2
<b>TOTAL</b>	<b>93.16</b>	<b>93.16</b>	<b>106.70</b>	<b>106.70</b>	<b>114.81</b>

3.2 On the query of the Committee regarding States covered under Tribal Sub Plan or Scheduled Tribe Component (STC), the Department replied as follows:-

"DARE/ICAR does not provide funds State-wise however the Department supports the tribal welfare programs all over the country through NARS."

3.3 When asked about Training Programmes, workshops and other awareness activities have been organised under Tribal Sub Plan during last three years and as to how the Schemes implemented under this component have helped the tribal community in socio-economic development, the Department in its submission has stated as under-

"Department has organized 62,245, 12,968 and 35,697 training programmes, workshops and other awareness activities under Tribal sub plan during 2016-17, 2017-18 and 2018-19, respectively."



The interventions undertaken under STC component have led to adoption and spread of nutritional garden in some tribal areas and training for mushroom production and post-harvest processing. Farmers are being made aware about benefits of scientific housing of animal, adoption and spread of improved breeds of animals and poultry, and health care of pig, production of silk yarn etc. Inputs are distributed i.e. goats, pigs, spinning machine, honey bee colonies, seed etc. to uplift the economic conditions of tribal farmers through participation in production activities."

## **B. SCHEDULED CASTE COMPONENT**

3.4 As per the GOI stipulations about 8.3% Schematic allocations are earmarked for the developmental activities related to scheduled caste community. When asked about the funds allocated under this Component during last three fiscal years and for current fiscal, the Department in its written reply stated as under:-

"Rs. 190.94 crore (Revised Estimate) and Rs. 205.45 crore (Budget Estimate) have been allocated under SCSP component during 2018-19 and 2019-20 respectively."

3.5 Further, regarding Actual Expenditure the Department submitted as follows-

"The component started from 2018-19. The actual expenditure for the year 2018-19 is Rs 120.59 cr."

3.6 On being queried by the Committee as regards the developmental activities being carried out by the Department under this Component and the mechanism available to ensure that the targeted Group is actually getting the benefits of the Scheme, the Department in its written reply submitted :-

"DARE/ICAR carry out research in crops, horticulture, natural resource management, animals and fisheries, farm power and engineering, agricultural extension along with frontline agricultural extension through KVKs and strengthening of agricultural education for SC population of the country. The scope of applications and benefits of these activities has pan India impact. The research outcomes like varieties, seeds, technologies, farm machines etc have equal and meaningful benefits to SC dominated areas. DARE/ICAR is doing research based on agro climatic conditions and farming situations rather than social classification/demographic indicators, but wherever possible, Department have been working for the capacity building, skill up

gradation, awareness camps, kisan melas, exposure visits etc of the farmers and other stakeholders of Scheduled Cast communities for their economic empowerment."

3.7 On a query regarding number of beneficiaries have been covered during last five years under this component and how the allocation under this component have been helpful in improvement of socio-economic status of schedule caste farmers, the Department in a written note has submitted:-

"DARE/ICAR was exempted for implementation of the component till 2017-18. The Component was initiated at the RE stage of 2018-19. Department is extending support to SC community in improvement of agricultural and allied activities through creating awareness and input supports. A total of 527400 beneficiaries were covered. Allocation under this component have been helpful in improvement of socio-economic status of Scheduled Caste farmers through improved agricultural production and productivity, which was due to supply of inputs such as seeds of improved crop varieties, planting materials, improved germplasm of poultry, pigs and fingerlings and farm implements. Training, demonstration and exposure visits also enabled SC farmers in skill up gradation and adoption of new agricultural technologies, which indeed improved farm productivity and income."

**PART –II**  
**OBSERVATIONS AND RECOMMENDATIONS**

**1. BUDGETARY ALLOCATION *vis-a-vis* PROPOSED ALLOCATION**

The Committee note that the allocation proposed by the Department for the fiscal year 2019-20 was Rs.10191.09 crore. However, Rs 8078.76 has been allocated at BE level for 2019-20. During 2017-18 as against the proposed allocation of Rs 7665.48 Crores, Rs. 6800 crore was allocated at BE level which was further increased to Rs. 6992.00 crore at RE. Similarly, during 2018-19, Rs.8380.92 crore was proposed by the Department, whereas the BE allocation for the Department was Rs. 7800 crore and it was increased to Rs. 7952.00 at RE level. The Committee are concerned to note the quantum deduction in funds sought by the Department every year. Regarding increase in funds at RE level at for 2018-19 the Committee note that the allocations at BE Stage for 2018-19 have been substantially increased at RE Stage for the payment of 7th CPC arrears to ICAR's Scientific Personnel and Pensioners. The Committee have been further informed that the Department plan to utilize increased BE allocation during 2019-20 in meeting out the increased cost of the recurring and non-recurring expenses of the Schemes and Research Programmes and education targets. The Committee desire the Department to impress upon the Ministry of Finance to increase the allocation at RE level for 2019-20 so that the various Schemes of the Department do not get jeopardized for want of funds.

## **2. SPENDING ON AGRICULTURAL RESEARCH**

The Committee observe that sufficient investment in Agricultural Research and Education (R&E) is a pre-requisite for sustained Agricultural Growth. The Committee note that the public funding to Agricultural Research and Education in the Country at 2011-12 prices was about 0.61 per cent of Agricultural Gross Domestic Product (Ag-GDP) during triennium ending (TE) 2017-18. The trend in share of Agricultural R&E is around 0.61 per cent of Agricultural GDP in last five years and in comparison to other countries, it is pretty low. China spends more than one per cent of its Agri GDP on Agricultural Research and Education. Other countries, even the smaller ones like South Africa spends more than what we spend on Agriculture Research and Education. The Committee have been informed that almost 75% of expenditure of the allocated Budget to the Department is incurred on salaries, pensions, etc and only 25% is left for research activities. They have also been informed that Department has been trying to impress upon the Government to increase the allocation for Agricultural Research and Education to 1% of Agri-GDP. They have been further informed that in order to achieve the objective of Doubling Farmers Income by 2022 and to make India a 5 trillion economy, more investment in Agricultural Research is needed and without which it may not be possible to meet the target. The Committee are of the firm view that since larger portion of the allocated funds are spent on salaries, pensions, etc., more funds should be provided to the Department to promote Agricultural Research and Education. Keeping in view the significance of the Agriculture Sector and its contribution towards Gross Domestic Product, the Committee recommend the Department to take up issue

with Ministry of Finance so as to gradually increase the percentage share of the allocation for Agricultural Research and Education.

### **3. ALLOCATION UNDER SCHEME HEAD**

The Committee note that the allocation under Scheme Head is Rs.2699 crore at BE level during 2019-20. The allocation under this Head during 2017-18 was 2166.46 crore as compared to Rs.2914.77 crore during 2018-19 under the Head. The Department has informed that the reduction in BE figure is due to over all cut by Ministry of Finance. The Committee observe that the Actual Expenditure during 2017-18 was quite less in comparison to allocation at BE Stage. It has been informed that the under-utilization of funds in 2017-18 was mainly due to the delayed approval and the sanction of the SFC/ EFCs of the Schemes, which were conveyed mostly in the latter half of the financial year, and hence funds allocated for non-recurring items (works and equipments) could not be utilized. The Committee observe that almost 75% of total allocation to the Department are expended on Salaries, Pension etc (Non-Scheme Head) and only 25% is used for actual research work under Scheme Head. And importantly, any reduction under Scheme Head would adversely affects the implementation of Schemes. The Committee in their previous Reports have also been repeatedly emphasizing on increase in allocation of funds to the Department and reduction of allocation under Scheme Head is not desirable. The Committee, therefore, strongly recommend the Department to seek increased allocation at RE Stage.

#### **4. CROP SCIENCE DIVISION**

The Committee note that the allocation of funds during 2017-18 and 2018-19 was Rs. 387.41 crore and Rs. 776.00 crore at BE level respectively which was reduced to Rs. 369.66 crore and Rs. 652.99 crore respectively at RE level. The Actual Expenditure for 2018-19 is Rs. 628.05 crores. The allocation at BE level for the Current Fiscal is Rs. 701.53 crore. The Department informed that the reduction of allocation of budget of DARE/ICAR by the Ministry of Finance at the RE 2018-19 lead to proportionate reduction of Rs. 124.01 crore in the allocation of Crop Science Division during RE 2018-19. Stating the reasons for the less-Actual Expenditure during 2018-19, the Department has submitted that the less actual expenditure during 2017-18 and 2018-19 was due to the delayed approval and the sanction of the SFC/EFCs of the Schemes; which were conveyed mostly in the latter half of the financial year 2017-18 and hence funds allocated for non-recurring items (works and equipment) could not be utilized. The introduction of New Purchase Procedure GeM and the funds earmarked for two new Institutes during 2018-19 required several lengthy codal formalities that caused reduced utilization of funds.

The Committee are constrained to note that the reduced allocations at RE stage have led to downsizing of some of the Programs and postponed some activities for later years and are of the opinion that the reasons cited by the Department for less Actual Expenditure of funds under this Scheme in 2017-18 and 2018-19, which are purely administrative in nature and could have been avoided by proactive approach and strict monitoring. The Committee, therefore,

recommend that the Department should plug the loopholes in the system and ensure that the funds allocated under various Heads are more judiciously utilized.

#### **5. STUBBLE BURNING**

The Committee express their serious concern over the harmful effects of Stubble Burning in Punjab, Haryana and some parts of Uttar Pradesh on the environment particularly in Delhi/NCR. Informing the Committee about the steps taken in this regard, the Department have stated that with a view to counter the menace of stubble burning, eight machines have already been manufactured and synthesized and these machines are now available with local manufactures. These machines were included in the subsidy scheme and about Rs. 1,152 crore were provisioned for this Project for these eight machines and were supplied through two mechanisms, individual farmers and also through Custom Hiring Centres. The Custom Hiring Centres were given 80 percent subsidy while the individual farmers were given 50 per cent subsidy. The Committee are of the view that not many farmers are willing to use these machines as in spite of being subsidized the cost of buying or even hiring these machines is too high. In the opinion of the Committee, a large scale campaign is needed to educate the farmers about the benefits of crop residue for the soil. Further, the Department need to develop more economically viable method for crop residue management besides subsidizing the Machines being used at present. The Committee would like to be informed about the action taken in this regard by the Department at the earliest.

## **6. NATURAL RESOURCE MANAGEMENT**

The Committee note that scarcity of water is one of the biggest challenges of the modern times and express their concern over inefficient and overuse of water resources in agriculture. The Committee have been informed that in the States like Punjab and Haryana, the water level is depleting almost at the rate of one meter per year. Gradually the land would turn infertile and it would become very difficult to manage the situation in long perspective. The Committee also note that the Department has developed cost effective, location specific modern agronomic practices like raised bed sowing, alternate furrow irrigation, sprinkler irrigation, drip irrigation, mulching, Direct Seeded Rice (DSR) through seed drills and drum seeders, System of Rice Intensification (SRI), alternate wetting and drying method, laser land leveling, adoption of varieties which require less water to ensure improved irrigation water use efficiency and higher crop productivity in the country. The Department also educates the farmers and other stakeholders, and also provides technological backstopping. The Committee are of the considered opinion that concrete steps are required to be taken on priority basis to save water through efficient and judicious use. The Committee also desire the Department to conduct training, workshops to educate and convince the farmers about the new methods of irrigation so that wastage of water can be minimised.

## **7. AGRICULTURAL EXTENSION**

The Committee note that BE of Rs. 241.81 crore for the Scheme has been pruned to Rs. 206.62 crore at RE Stage during the year 2018-19 and the allocation for



2019-20 at BE Level has also been reduced to Rs. 221.15 crore compared to Rs. 232.51 crore during 2017-18 and Rs. 241.81 crore during 2018-19. Though the Committee has been informed that the allocation at BE for 2019-20 is 7.61 % higher than the RE of 2018-19, thus implementation of Schemes under Agricultural Extension shall not be impacted, the Committee feel that the programmes under Agricultural Extension division be implemented in such a way that the benefits of Agricultural Research are able to percolate down to the farmers. Further, Government should ensure adequate funding and impress upon for increase in allocation of funds for Agricultural Extension. The Department should conduct periodic training of Scientists and Subject Matter Specialists posted in Krishi Vikas Kendra (KVKs), who would in turn impart training to the farmers.

The Committee have been informed that there are 715 KVKs as on date. Two KVKs are functioning in 81 districts for wider coverage of KVK activities in districts having larger geographical area, rural population and net sown area, therefore an additional KVK has been set up in these districts for the purpose. During XI plan, 54 larger districts and during XII plan, 60 larger and mountain as well as boarder districts were approved for opening of one additional KVK. Since then, one additional KVK has been set up in 81 districts. Notwithstanding the fact that the Department has set up an additional KVK in 81 districts, the Committee are of the considered view that in many more districts of the country one KVK is not able to cater to whole district on account of large population of farmers, vast area, etc. and therefore recommend the Department to conduct a comprehensive

study regarding establishment of more than one KVK in a District and also uniform policy and guidelines be made in this regard.

#### **8. VACANT POSTS IN KVKs**

The Committee were informed that a total of 715 KVKs have been established under the administrative control of different organizations including State Agricultural Universities (468), Central Agricultural Universities (22), ICAR Institutes (65), NGOs (104), PSUs (03), State Governments (37), Central Universities (03), Deemed Universities (08) and other educational institutions (05). During the last five years, the KVKs under NGOs were provided an amount of Rs. 660.57 crore. It has also been informed that each KVK has provision of one Senior Scientist and Head and six Subject Matter Specialists (SMSs) in each KVK. However, the Committee are dismayed to note that there are 216 vacant posts of Senior Scientist and Head and 1330 vacant posts of SMSs i.e in total 1546 posts are vacant. The Committee express their displeasure over the fact that such a large number of posts are lying vacant in the KVKs. The Committee are not happy with such state of affairs and therefore recommend the Department to fill up the vacant posts at the earliest.

#### **9. AGRICULTURAL EDUCATION**

The Committee find that the allocation for Agricultural Education Division at RE Stage was revised during 2017-18 from 663.37 crore to Rs. 522.07 crore and 2018-19 from Rs.826.59 crore to 733.48 crore allocation for 2019-20 at BE Level is also less in comparison to previous year. Regarding proposed allocation for the

Division by the Department it has been informed that the proposal for the year 2019-20 was Rs. 807.39 crore. The reduction of allocation of DARE/ICAR by the Ministry of Finance at the RE during the last fiscal has effected to proportionate reduction in the allocation of Education Division. The Committee are satisfied to note that RE for 2018-19 has been fully utilised. Since the Agricultural Education Division coordinates education planning, human resource development and quality reforms of National Agricultural Research Systems (NARS) of the country and strives for maintaining and upgrading the quality and relevance of higher agricultural education, the Committee, therefore, recommend the Department to make efforts for increase in allocation and ensure that allocation is not reduced at RE level during 2019-20.

The Committee have been informed that the Department supports the Agriculture Higher Education's Institutions for the emerging challenges in the Agriculture Sector for which catalytic financial support is provided to Agricultural Universities. It has also been submitted that about 97 Private Universities, established as per State Acts, are offering Programs in Higher Agricultural Education. ICAR is only granting accreditation based on their request. So far, 44 Private Universities have applied for ICAR accreditation. The Committee feel that the role of ICAR should not be limited to grant of accreditation to the Private Universities engaged in imparting higher agricultural education. The Committee recommend the Department to establish a proper mechanism for monitoring of course curriculum, capability of faculties and quality of education being imparted at Private Universities at regular intervals.

**10. NATIONAL RESEARCH FOUNDATION**

The Committee note that it has been proposed to establish National Research Foundation (NRF) to fund, coordinate and promote research in the country. NRF will ensure that the overall research eco-system in the country is strengthened with focus on identified thrust areas relevant to our national priorities and towards basic science without duplication of effort and expenditure. The Committee have been informed that the Ministry of Human Resources Development in consultation of NITI Aayog and Principal Scientific Adviser to Government has been working on the details of the NRF. The NRF is yet to be finalized. The Committee desire the Department to apprise the Committee regarding details of National Research Foundation as and when it is finalised.

**11. CSR FUNDS FOR AGRICULTURAL RESEARCH**

The Committee are pleased to note that the Government has decided to allow corporate India to use their mandatory Corporate Social Responsibility spending on publicly-funded incubators and contribute to research efforts in science, technology, medicine and engineering at major Institutions and bodies. The Department has informed that the Schedules VII of the Companies Act, 2013 provides an umbrella of the activities that can be taken up through CSR including Scientific Research and Agricultural Extension as an admissible activity. DARE/ICAR has been working with Corporate/Industries for promotion of technologies. ICAR is also finalizing its CSR guidelines. The Committee are of the considered opinion that channelizing CSR funds towards Agricultural Research

would help in giving fillip to Agriculture Research activities in the country and attract more investment in research. The Committee, therefore, recommend the Department to make sincere efforts to tap CSR funding in Agricultural Research and inform the Committee, accordingly.

**12. ALLOCATION UNDER SCHEDULED TRIBE COMPONENT AND SCHEDULED CASTE COMPONENT**

The Committee note that the funds allocated to the Department under Scheduled Tribe Component (STC) is utilized specifically for the development of tribal community and that the Ministry of Tribal Affairs is the nodal ministry for over all monitoring of the TSP. The Committee are pleased to note that the allocation of funds under this component has been increased from Rs. 93.16 crore during 2017-18 to Rs. 114.81 crores during 2019-20. The Committee are also satisfied that the Department has fully utilized the funds allocated under this Component during last three fiscals. The Department also informed that the interventions undertaken under STC component have led to adoption and spread of nutritional garden in some Tribal Areas and training for mushroom production and post-harvest processing. Farmers are being made aware about benefits of scientific housing of animal, adoption and spread of improved breeds of animals and poultry, and health care of pig, production of silk yarn, etc. The Committee desire the Department to initiate a programme for socio-economic development of Tribal Community through adoption of some villages having majority tribal population for a limited time-period in each State under this Plan.

Under Scheduled Caste Component, the Committee note that Rs. 190.94 crore (Revised Estimate) and Rs. 205.45 crore (Budget Estimate) have been allocated during 2018-19 and 2019-20, respectively, and the actual expenditure for 2018-19 is Rs.120.59 cr. As per Government of India stipulations about 8.3% Schematic allocations are earmarked for the developmental activities related to scheduled caste community. The Committee have been informed that the DARE/ICAR was exempted for implementation of the component till 2017-18. The component was initiated at the RE stage of 2018-19. The Department is extending support to SC community in improvement of agricultural and allied activities through creating awareness and providing input support. The Committee are of the opinion that the allocation under this Component is meant for socio-economic development of Scheduled Caste communities and, therefore, recommend the Department to regularly monitor the utilization of funds under this Component and ensure that the funds are utilized, properly.

**NEW DELHI;**  
**29 November, 2019**  
**08 Agrahayana , 1941 (Saka)**

**SHRI P. C. GADDIGOUDAR**  
***Chairperson,***  
***Standing Committee on Agriculture***

**STANDING COMMITTEE ON AGRICULTURE BRANCH  
(2019-20)**

**MINUTES OF THE SEVENTH SITTING OF THE COMMITTEE**

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The Committee sat on Wednesday, the 06<sup>th</sup> November, 2019 from 1230 hours to 1400 hours in Room "62", Parliament House, New Delhi.

**PRESENT**

Shri Parvatagouda Chandanagouda Gaddigoudar – Chairperson

**MEMBERS**

**LOK SABHA**

2. Shri Afzal Ansari
3. Shri Horen Singh Bey
4. Shri Devendra Singh 'Bhole'
5. Shri A Ganeshamurthi
6. Shri Kanakmal Katara
7. Shri Devji Mangingram Patel
8. Shri Bheemrao Baswanthrao Patil
9. Shri Pocha Brahmananda Reddy

**RAJYA SABHA**

10. Smt. Chhaya Verma
11. Dr. Chandrapal Singh Yadav
12. Shri Harnath Singh Yadav

**SECRETARIAT**

- |    |                      |   |                     |
|----|----------------------|---|---------------------|
| 1. | Shri Shiv Kumar      | – | Joint Secretary     |
| 2. | Shri Arun K. Kaushik | – | Director            |
| 3. | Smt. Juby Amar       | – | Additional Director |

## LIST OF WITNESSES

### MINISTRY OF AGRICULTURE AND FARMERS WELFARE

#### (DEPARTMENT OF AGRICULTURAL RESEARCH AND EDUCATION)

<u>S.No.</u>	<u>NAME OF THE OFFICER</u>	<u>DESIGNATION</u>
1.	Dr. Trilochan Mohapatra	Secretary (DARE) & DG (ICAR)
2.	Shri Sushil Kumar	Addl. Secretary (DARE) & Secretary (ICAR)
3.	Shri Bimbadhar Pradhan	Addl. Secretary & Financial Adviser (DARE/ICAR)
4.	Dr. K. Alagusundaram	Deputy Director General (Engg. & NRM), ICAR
5.	Dr. A.K. Singh	Deputy Direction General (Extension), ICAR
6.	Dr. A.K. Singh	Deputy Direction General (Hort. & Crop Science), ICAR
7.	Dr. Joy Krushna Jena	Deputy Direction General (Fisheries & Animal Science), ICAR
8.	Dr. R. C. Agrawal	Deputy Director General (Education), ICAR - Acting

2. At the outset, the Chairperson welcomed the Members of the Committee to the Sitting convened for Evidence of the representatives of Ministry of Agriculture and Farmers Welfare (Department of Agricultural Research and Education) in connection with the examination of the Demands for Grants (2019-20) and apprised them of the provisions of the confidentiality of the proceedings.

3. After the introduction, the Chairperson initiated the discussion. Thereafter, the Committee raised several issues/points as briefly mentioned below and sought clarification / information from the Department thereon:

- I. Need to chalk out concrete plans to address the issue of stubble burning;
- II. Emphasis should be laid on production of commercially important varieties of major fruit crops so that import of these fruits are minimised;



- III. Need to create adequate infrastructure in the KVKs;
- IV. Need to develop a mobile app for other fruits, as it has been developed for apple, so as to ascertain the stage of ripening of fruits.
- V. Need to make efforts to preserve the quality of traditional seeds;
- VI. Need to make efforts to promote Organic Farming;
- VII. Need to ban use of chemicals in ripening of fruits;
- VIII. Research should be initiated on conservation of Arid Tree Species like Khejari etc found in Rajasthan;

4. The Representatives of the Ministry responded to most of the queries raised by the Members. The Chairperson, then, thanked the witnesses for sharing valuable information with the Committee on the subject and directed them to furnish the requisite information on the points/items, which were not readily available with them to the Secretariat of the Committee at the earliest.

**The Committee then adjourned.**

*(A copy of the verbatim proceedings of the Sitting has been kept separately.)*

**STANDING COMMITTEE ON AGRICULTURE**

**(2019-20)**

**MINUTES OF THE TWELFTH SITTING OF THE COMMITTEE**

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The Committee sat on Friday, the 29<sup>th</sup> November, 2019 from 1000 hrs. to 1050 hrs. in the Committee Room '2', Block-A, Extn to Parliament House Annexe Building, New Delhi.

**PRESENT**

Shri Parvatagouda Chandanagouda Gaddigoudar– Chairperson

**MEMBERS**  
**LOK SABHA**

2. Shri Afzal Ansari
3. Shri A. Ganeshamurthi
4. Shri Abu Taher Khan
5. Shri Mohan Mandavi
6. Shri Devji Mansingram Patel
7. Shri Bheemrao Baswanthrao Patil
8. Smt. Navneet Ravi Rana
9. Shri Pocha Brahmananda Reddy
10. Shri V.K. Sreekandan
11. Shri Ram Kripal Yadav

**RAJYA SABHA**

12. Shri Partap Singh Bajwa
13. Shri Kailash Soni
14. Shri Ram Nath Thakur

## SECRETARIAT

1.	Shri Shiv Kumar	–	Joint Secretary
2.	Shri Arun K. Kaushik	–	Director
3.	Smt. Juby Amar	–	Additional Director
4.	Shri Sumesh Kumar	–	Deputy Secretary

2. At the outset, Chairperson welcomed the Members to the Sitting of the Committee. Thereafter, the Committee took up for consideration the followings Reports:

\* (i)                                XXXX                XXXX                XXXX                XXXX

\* (ii)                                XXXX                XXXX                XXXX                XXXX

(iii) Draft Report on 'Demands for Grants (2019-20)' of the Ministry of Agriculture and Farmers Welfare (Department of Agricultural Research and Education); and

\* (iv)                                XXXX                XXXX                XXXX                XXXX

3. After some deliberations, the Committee adopted the Draft Report on 'The National Institute of Food Technology, Entrepreneurship and Management Bill, 2019' of the Ministry of Food Processing Industries with minor modifications. The other Draft Reports were adopted without any modifications and the Committee then authorized the Chairperson to finalize and present these Reports to Parliament.

***The Committee then adjourned.***

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\*Matter not related to this Report