



**STANDING COMMITTEE ON AGRICULTURE, ANIMAL  
HUSBANDRY AND FOOD PROCESSING**  
(2022-23)

**SEVENTEENTH LOK SABHA**

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

**DEMANDS FOR GRANTS (2023-24)  
(DEMAND NO. 2)**

**FIFTY-SECOND REPORT**



**LOK SABHA SECRETARIAT  
NEW DELHI**

March, 2023/Phalguna, 1944 (Saka)

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Presented to Lok Sabha on 13.03.2023

Laid on the Table of Rajya Sabha on 14.03.2023



**LOK SABHA SECRETARIAT  
NEW DELHI**

March, 2023/Phalguna, 1944 (Saka)

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**COMPOSITION OF THE STANDING COMMITTEE ON AGRICULTURE, ANIMAL  
HUSBANDRY AND FOOD PROCESSING (2022-23)  
SHRI P.C. GADDIGOUDAR- CHAIRPERSON  
MEMBERS**

**LOK SABHA**

2. Shri Afzal Ansari
3. Shri Horen Sing Bey
4. Shri A. Ganeshamurthi
5. Shri Kanakmal Katara
6. Shri Abu Taher Khan
7. Shri Ram Mohan Naidu Kinjarapu
8. Shri Mohan Mandavi
9. Shri Devji Mansingram Patel
10. Smt. Sharda Anilkumar Patel
11. Shri Bheemrao Baswanthrao Patil
12. Shri Shriniwas Dadasaheb Patil
13. Shri Vinayak Bhaurao Raut
14. Shri Pocha Brahmananda Reddy
15. Shri Rajiv Pratap Rudy
16. Mohammad Sadique
17. Shri Devendra Singh *alias* Bhole Singh
18. Shri Virendra Singh
19. Shri V.K. Sreekandan
20. Shri Ram Kripal Yadav
21. **VACANT\***

**RAJYA SABHA**

22. Smt. Ramilaben Becharbhai Bara
23. Shri Masthan Rao Beeda
24. Dr. Anil Sukhdeorao Bonde
25. Shri S. Kalyanasundaram
26. Shri Surendra Singh Nagar
27. Shri Kailash Soni
28. Shri Randeep Singh Surjewala
29. Shri Ram Nath Thakur
30. Shri Vaiko
31. Shri Harnath Singh Yadav

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\*Vacant w.e.f. 10.10.2022 due to demise of Shri Mulayam Singh Yadav on 10.10.2022 (Bulletin- Part II, Para No. 5316 dated 14.10.2022).

## **SECRETARIAT**

1. Shri Shiv Kumar - Additional Secretary
2. Shri Naval K. Verma - Director
3. Shri Uttam Chand Bharadwaj - Additional Director
4. Shri Prem Ranjan - Deputy Secretary

## INTRODUCTION

I, the Chairperson, Standing Committee on Agriculture, Animal Husbandry and Food Processing, having been authorized by the Committee to submit the Report on their behalf, present this Fifty-Second Report on the Demands for Grants (2023-24) 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 and Conduct of Business in Lok Sabha considered the Demands for Grants (2023-24) of the Ministry of Agriculture and Farmers Welfare (Department of Agricultural Research and Education), which were laid on the table of the House on 13 February, 2023. The Committee took evidence of the representatives of the Ministry of Agriculture and Farmers Welfare (Department of Agricultural Research and Education) at their Sitting held on 21<sup>st</sup> February, 2023. The Report was considered and adopted by the Committee at their Sitting held on 06<sup>th</sup> March, 2023.

3. For facility of reference and convenience, the Observations/Recommendations 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 Officials 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;**  
**06 March, 2023**  
**15 Phalgun, 1944 (Saka)**

**P.C. GADDIGOUDAR**  
***Chairperson,***  
***Standing Committee on Agriculture,***  
***Animal Husbandry and Food Processing***

## **ABBREVIATIONS**

AgIn	Agrinnovate India Limited
AnGR	Animal Genetic Resources
AE	Actual Expenditure
AICRPs	All India Coordinated Research Projects
ARYA	Attracting and Retaining Youth in Agriculture
ASRB	Agricultural Scientists Recruitment Board
AUs	Agricultural Universities
BE	Budget Estimates
BSMA	Broad Subject Matter Area
CAU	Central Agricultural University
CCARI	Central Coastal Agricultural Research Institute
CeRA	Consortium for e-Resources in Agriculture
CMFRI	Central Marine Fisheries Research Institute
CPWD	Central Public Work Department
CRAI	International Commission for <i>Agricultural</i> Research
CRIDA	Central Research Institute for Dryland Agriculture
CRM	Crop Residue Management
CSISA)	Cereal Systems Initiatives for South Asia
CSCs	Common Service Centers
CSIR	Council of Scientific and Industrial Research
CSR	Corporate Social Responsibility
CT	Conventional Tilling
CUs	Central Universities
DAFW	Department of Agriculture and Farmers Welfare
DAE	Department of Atomic Energy
DARE	Department of Agricultural Research and Education
DFMD	Directorate of Foot and Mouth Disease
DRDO	Defense Research and Development Organization
DST	Department of Science and Technology
DUs	Deemed-to-be-Universities
EARTH	Ecosystem Approach to Research, Technology Development and Agri-Habitats
EMR	Expert Market Research
EFC	Expenditure Finance Committee
EKTA	Ekikrit Krishi Shiksha Takniki Ayaam
EPN	Entomopathogenic Nematode
FMS	Financial Management System.
FAO	Food and Agriculture Organization
GoI	Government of India
GDP	Gross Domestic Product
GHG	Green House Gases
GVA	Gross Value Added



HAEI	Higher Agricultural Educational Institutions
HYVs	High Yielding Varieties
IARI	Indian Agricultural Research Institute
ICAR	Indian Council of Agricultural Research
ICMR	Indian Council of Medical Research
IEA	Institutional Eligibility for Accreditation
IEC	Information, Education and Communication
IFD	Internal Finance Division
IOFS	Integrated Organic Farming System
IPMTT/C	Intellectual Property Management and Technology Transfer/ Commercialization
IVRI	Indian Veterinary Research Institute
INM	Integrated nutrient management
IEC	Information, Education and Communication
JFR	Junior Field Representative
KVK	Krishi Vigyan Kendra
LoI	Letter of Intent
LRI	Land Resource Inventory
LTFE	Long Term Fertilizer Experiments
MANAGE	National Institute of Agricultural Extension Management.
MGMG	Mera Gaon Mera Gaurav
MSNP	Micro- and Secondary Nutrients and Pollutant Elements
MHA	Ministry of Home Affairs
MOF	Ministry of Finance
MS-Teams	Microsoft Teams
NAAS	National Academy of Agricultural Sciences
NABARD	National Bank on Agriculture and Rural Development
NAEAB	The National Agricultural Education Accreditation Board
NARS	National Agriculture Research System
NARI	Nutri-sensitive Agricultural Resources and Innovation
NAHEP	National Agricultural Higher Education Project
NASF	National Agricultural Science Fund
NBPGR	National Bureau of Plant Genetic Resources
NEH	North Eastern Hill
NEP	National Education Policy
NGOs	Non-Government Organizations
NIBSM	National Institute of Biotic Stress Management
NPOF	Network Project on Organic Farming
NPS	National Pension Scheme
NICRA	National Innovation In Climate Resilient Agriculture
NRM	Natural Resource Management
NRC	National Research Centre
NIHSAD	National Institute of High Security Animal Diseases
OC	Organic Carbon
ORPs	Operational Research Projects

PG	Post Graduate
PKVY	Paramparagat Krishi Vikas Yojana
RE	Revised Estimates
R&D	Research and Development
RKVY	Rashtriya Krishi Vikas Yojana
READY	Rural Entrepreneurship Awareness Development Yojana
SASCOF	South Asian Climate Outlook Forum
SAUs	State Agricultural Universities
SCSP	Scheduled Castes Sub-Plan
SDGs	Sustainable Development Goals
SFC	Standing Finance Committee
SLCCs	State Level Coordination Committees
SMDs	Subject Matter Divisions
SMSs	Subject Matter Specialists
STCR	Soil Test Crop Response
TMR	Total Mixed Ration
TSP	Tribal Sub-Plan
UC	Utilization Certificate
UG	Under Graduate
VATICA	Value Addition and Technology Incubation Centres in Agriculture
VCRMCS	Village Climatic Risk Management Committees
WHO	World Health Organization

**REPORT**  
**PART- I**  
**CHAPTER - I**

**Introductory**

1.1. The Department of Agricultural Research and Education (DARE) was established in the Ministry of Agriculture in December 1973. DARE coordinates and promotes Agricultural Research and Education in the country. It has the following four autonomous bodies under its administrative control:

- Indian Council of Agricultural Research (ICAR)
- Central Agricultural University (CAU), Imphal
- Dr Rajendra Prasad Central Agricultural University, Pusa, Bihar
- Rani Laxmi Bai Central Agricultural University, Jhansi, Uttar Pradesh

The DARE provides the necessary government linkages for the Indian Council of Agricultural Research (ICAR), the premier research Organisation for coordinating, guiding and managing research and education in Agriculture including horticulture, fisheries and animal sciences in the entire country. Besides, it has Agricultural Scientists Recruitment Board (ASRB) as an Attached Office and Agrinnovate India Limited (AgIn), a Government of India enterprise under its control.

1.2. The Indian Council of Agricultural Research (ICAR) is an apex scientific research Organization for planning, promotion, execution and coordination of agriculture research and education in the country. Formerly known as the Imperial Council of Agricultural Research, it was established on 16 July, 1929 as a registered society under the Societies

Registration Act, 1860 on the recommendations of the Royal Commission of Agriculture. It was reorganized in 1965 and again in 1973, with its Headquarters located in Krishi Bhawan, New Delhi with support facilities in Krishi Anusandhan Bhawan 1 and 2 and NASC Complex, Pusa, New Delhi. It functions at a national level through networks of institutes, projects (All-India Coordinated/ Networks) under five sectors comprising of eight Subject Matter Divisions with 28 Schemes and has linkages with State Agriculture Universities and other Departments of the Central and State Governments.

### **Organizational Set up of ICAR**

The ICAR, as a vibrant organization, continues to generate technologies for sustainable development of Agriculture. The ICAR is the guiding and monitoring entity of the country for National Agriculture Research System (NARS) consisting of 103 ICAR Research and Education Institutes, 74 Agricultural Universities and 731 Krishi Vigyan Kendras spread across the country having responsibility of development of technologies in various fields of agriculture and allied sectors.

There are eight Subject Matter Divisions, viz. i) Crop Science, ii) Natural Resources Management iii) Horticultural Science, iv) Animal Science, v) Fisheries Science, vi) Agricultural Engineering vii) Agricultural Education, and viii) Agricultural Extension and they are entrusted with the overall responsibility for the preparation, scrutiny, review, and technical supervision and guidance of the research schemes, educational and extension programs and projects within their respective disciplines.

### **ICAR has the following Mandate:**

- Plan, Undertake, Coordinate and Promote Research and Technology Development for Sustainable Agriculture.
- Aid, Impart and Coordinate Agricultural Education to enable Quality Human Resource Development.
- Frontline Extension for technology application, adoption, knowledge management and capacity development for agri-based rural development.
- Policy, Cooperation and Consultancy in Agricultural Research, Education and Extension.

### **Goal of ICAR:**

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.

ICAR has rationalized its Schemes, which have been organized into 28 Schemes.

The list of the Schemes is as follows:

Sl. No.	Central Sector Schemes/ Themes
	Scheme
<b>(1)</b>	<b>Management of Natural Resources + NICRA</b>
1	Sustainable Soil Health, Water Conservation and Management
2	Climate Resilient Agriculture
3	Sustainable Management of Challenged Agro-ecology
4	Sustainable Integrated and Organic Farming Systems
<b>(2)</b>	<b>Agricultural Engineering</b>
5	Agricultural Mechanization
6	Post-Harvest Process Engineering
<b>(3)</b>	<b>Crop Science</b>
7	Basic and Strategic Research and Education

8	Plant Genetic Resource Management, Seed and Hill Agriculture
9	Genetic Improvement for Food and Fodder Crops
10	Pulse and Oilseed Crop Improvement
11	Improvement of Commercial Crops for Genetic Gains
12	Insects and Microbes Resources, Plant Protection and Pollinator Research
<b>(4)</b>	<b>Horticultural Science</b>
13	Improvement and Management of Tropical, Subtropical and Temperate Fruit Crop
14	Improvement and Management of Root, Tuber, Bulbous and Arid Crops
15	Improvement and Management of Vegetables, Floriculture and Mushroom
16	Improvement and Management of Plantation Crop, Spices, Medicinal & Aromatic Plants and Island Ecosystem
<b>(5)</b>	<b>Animal Sciences</b>
17	Dairy Production and Technology Development
18	Animal Nutrition and Small Ruminant Production and Technology Development
19	Animal Health Management and Veterinary Education
20	Animal Genetic Resource Management, Production and Improvement
<b>(6)</b>	<b>Fisheries Science</b>
21	Management of Marine and Coastal Fisheries, Aquaculture, and Technology
22	Management of Freshwater Fisheries and Aquaculture
23	Fisheries Education and Genetic Resource Management
<b>(7)</b>	<b>Agricultural Extension</b>
24	Strengthening of KVK Schemes
<b>(8)</b>	<b>Agricultural Education</b>
25	Strengthening and Development of Higher Agril. Education in India
26	Economics, Statistics and Management
27	National Agricultural Science Fund (NASF) Component
<b>(9)</b>	
28. EAP	National Agricultural Higher Education Project (NAHEP)

1.3. The DARE along with ICAR has played a crucial role in making agriculture sustainable through use of eco-friendly management and innovative technologies which helped the country to achieve the production of food grains, pulses, oilseeds, cotton, sugarcane, horticulture, milk, fish, egg, meat by 3 to 127 times since 1950-51. Though the net sown area has remained same over the years, productivity has increased from 0.7 t/ha in 1970 to 2.3 t/ha in 2022. This enabled the nation to be food and nutrition secure.

## A. Summary of Demand for Grant

1.4. Department of Agricultural Research and Education has been allocated Rs. 9504.00 Crore for financial year 2023-24 under Demand No.2 presented to the Lok Sabha on 13.02.2023. Allocation of Funds to the Department under different Heads of Account alongwith Actuals for 2021-22 and BE and RE for 2022-23 are as follows:-

			Revenue	Capital	Total	(In ₹ Crore)
Charged :			...	...	...	
Voted :			9493.59	10.41	9504.00	
		Major Head	2021-2022 Actuals	2022-2023 Budget Estimates	2022-2023 Revised Estimates	2023-2024 Budget Estimates
	<b>REVENUE SECTION</b>					
	Secretariat-Economic Services	3451	5.98	32.65	37.37	25.87
	Agricultural Research and Education	2415	8433.96	8013.39	8151.94	8941.93
	North Eastern Areas	2552	...	467.58	469.58	525.79
	<b>Total-Revenue Section</b>		<b>8439.94</b>	<b>8513.62</b>	<b>8658.89</b>	<b>9493.59</b>
	<b>CAPITAL SECTION</b>					
	Capital Outlay on Other General Economic Services	5475	...	...	...	10.41
	<b>Total-Capital Section</b>		...	...	...	<b>10.41</b>
	<b>GRAND TOTAL</b>		<b>8439.94</b>	<b>8513.62</b>	<b>8658.89</b>	<b>9504.00</b>
<i>Note: The above estimates do not include the recoveries shown below which are adjusted in reduction of expenditure</i>						
	<b>Revenue Section</b>					
	Agricultural Research and Education	2415	-71.91	...	...	...
	Secretariat-Economic Services	3451	-0.02	...	...	...
	<b>Total-Revenue Section</b>		<b>-71.93</b>	...	...	...
<i>The expenditure provisions, net of the above recoveries, will be as under:</i>						
		Revenue	8368.01.	8513.62	8658.89	9493.59
		Capital	...	...	...	10.41
		<b>Total</b>	<b>8368.01</b>	<b>8513.62</b>	<b>8658.89</b>	<b>9504.00</b>

1.5. Unlike previous years, Rs. 10.41 Crore has been allocated in BE 2023-24 under 'Capital Section'. On being asked about the reasons for this, the Department stated:-

"The O/o CGA had operationalized revised/new object heads under Rule 8 of DFPR, 1978 from the Financial Year (FY) 2023-24. Further from the FY 2023-24 certain expenditure has been reclassified as Capital Expenditure such as :-

- (i) Office equipment and Furniture and fixtures exceeding the threshold limit (one lakh rupees or 3 years of useful life, either of the two) should be classified as 'Capital' expenditure under the relevant Object Head 'Machinery and Equipment' or 'Furniture and Fixtures' respectively.;
- (ii) Similarly, procurement of computer hardware, telecommunications devices and computer software exceeding the threshold limit of one lakh rupees or 3 years of useful life, either of the two should be capitalized under the Object Head 'ICT equipment';

Purchase of vehicles, however, irrespective of its usage (office or otherwise) should be classified as 'Capital' expenditure under the relevant Capital Object Head 'Motor Vehicles'. Therefore, as per the advice of PAO and O/o CGA a new Capital Section has been opened and an allocation of Rs. 10.41 crore made as per the revised classification of object heads."

1.6. When the Committee asked how the allocation of Rs. 10.41 Crore in BE 2023-24 under 'Capital Head' is going to be spent during the financial year 2023-24, the Department stated:-

"The breakup of different object heads under which budget allocation of Rs 10.41 is proposed to be spent under Capital Section is given in the table below:-

<b>DARE Secretariat</b>	
Machinery and Equipment	Rs. 0.04 crore
Information Computers Telecommunication (ICT) Equipment	Rs. 0.05 crore
Furniture and Fixtures	Rs. 0.03 crore
<b>Agricultural Scientists Recruitment Board (Attached Office)</b>	
Machinery & Equipment	Rs. 0.20 crore
Information Computers Telecommunication (ICT) Equipment	Rs. 0.80 crore
Buildings and Structures	Rs. 8.00 crore
Furniture and Fixtures	Rs. 1.19 crore
Other Fixed Asset	Rs. 0.10 crore
<b>Total Capital Section</b>	<b>Rs. 10.41 crore</b>

As seen from the table above a Major portion of expenditure under Capital Section Rs. 8.00 crore is proposed for the new building of ASRB."

1.7. The Sector-wise Budget Estimates for 2023-24 of the Department of Agricultural Research and Education are:



(In Rs. Crore)

<b>Major Head</b>	<b>Budget Estimates</b>
<b>Central Sector Schemes</b>	
Natural Resource Management + NICRA	240.00
Agricultural Engineering	65.00
Crop Science	714.41
Horticulture	212.00
Animal Science	300.00
Fisheries Science	150.00
Agriculture Extension	327.00
Agricultural Universities and Institutions	322.74
National Agricultural Higher Education Project (NAHEP)	92.26
<b>Total Central Sector Schemes</b>	<b>2423.41</b>
<b>Non-Scheme (Establishment)</b>	
Secretariat- Economic Service	43.71
ICAR Headquarter	6384.59
Central Agricultural Universities	651.53
National Academy of Agricultural Sciences (DARE- NAAS & IAUA)	0.76
<b>Total Non-Scheme (Establishment)</b>	<b>7080.59</b>
<b>Grand Total (Scheme + Non-Scheme)</b>	<b>9504.00</b>

## **B. An Analysis of Demand No.2**

1.8. The Sector-wise Budget Estimates, Revised Estimates and Actuals upto January, 2023 for 2022-23 and Budget Estimates for 2023-24 are as under:-

(In Rs. Crore)

Sl. No.	Major Head	Budget Estimates 2022-23	Revised Estimates 2022-23	Actual up to Jan 2023	Budget Estimates 2023-24
	<b>Central Sector Schemes</b>				
1	Natural Resource Management + NICRA	185.77	185.77	144.01	240.00
2	Agricultural Engineering	48.30	48.30		65.00
3	Crop Science	526.08	526.04	395.72	714.41
4	Horticulture	157.53	157.53	126.02	212.00
5	National Agricultural Science Fund (NASF)	35.67	35.67		
6	Animal Science	224.41	224.41	178.54	300.00
7	Fisheries Science	118.89	118.89		150.00
8	Agriculture Extension	243.72	243.72	187.71	327.00
9	Agricultural Education	288.28	288.28		322.74
10	National Agricultural Higher Education Project (NAHEP)	167.18	167.00		92.26
	<b>Total Central Sector Schemes</b>	<b>1995.83</b>	<b>1995.61</b>	<b>1908.61</b>	<b>2423.41</b>
	<b>Non-Scheme (Establishment)</b>				
1	Secretariat- Economic Service	39.68	44.80		43.71
2	ICAR Headquarter	5877.06	6006.28		6384.59
3	Central Agricultural Universities	599.45	611.02		651.53
4	National Academy of Agricultural Sciences (DARE- NAAS & IAUA)	1.60	1.18		0.76
	<b>Total Non-Scheme</b>	<b>6517.79</b>	<b>6663.28</b>	<b>6465.54</b>	<b>7080.59</b>
	<b>Grand Total (Schemes + Non-Scheme)</b>	<b>8513.62</b>	<b>8658.89</b>	<b>8374.15</b>	<b>9504.00</b>

1.9. According to the Department, the BE and RE proposed by the Department and allocations made by Ministry of Finance since the year 2020-21 are as under:-

(in Rs. Crore)

Year	BE Proposed	BE allocated	RE Proposed	RE allocated
2020-21	10650.17	8362.52	8397.71	7762.38
2021-22	10241.68	8513.62	9330.53	8513.62
2022-23	9698.91	8513.62	9943.07	8658.89
2023-24	10390.53	9504.00		

The Secretary, Department of Agricultural Research and Education *vide* DO letters dated 06. 06. 2022 and 10. 08. 2022 has requested Ministry of Finance to provide for additional allocation of funds to the Department. AS &FA, DARE/ICAR has also requested

vide DO letter dated 16. 06. 2022 for increasing the Scheme budget of DARE as per the EFC provisions. The higher authorities of the Department have also expressed the utmost need of additional funds before the Ministry of Finance during the pre-budget meeting held for finalization of expenditure ceilings chaired by the Secretary (Expenditure), DoE. On different occasions and platforms, Department has made sincere efforts to impress upon the MoF for enhancing the budget allocation.

1.10. When asked by the Committee about the proportion (in % terms) of Budgetary Allocation (Budget Estimates) made in favour of the Department out of the total Budget of the Government of India for the last three years, the Department submitted -

<b>Year</b>	<b>Outlay (BE) (In Rs. Crore)</b>	<b>Total Outlay (BE) (In Rs. Crore)*</b>	<b>% of the Total Outlay</b>
2020-21	8362.58	3042230.00	0.27
2021-22	8513.62	3483236.00	0.24
2022-23	8513.62	3944909.00	0.22
2023-24	9504.00	4503097.00	0.21

\*As per data on PRS website.

1.11. Further on being asked by the Committee about the proportion (in % terms) of Budgetary Allocation (Revised Estimates) made in favour of the Department out of the Total Budget of the Government of India during the last three years, the Department submitted:-

<b>Year</b>	<b>Outlay (RE) (In Rs. Crore)</b>	<b>Total Outlay (RE) (in Rs. Crore)</b>	<b>% of the Total Outlay</b>
2020-21	7762.38	3450305.00	0.22
2021-22	8513.62	3770000.00	0.23
2022-23	8658.89	4187232.00	0.206

1.12. On being asked about the adequacy of funds as allocated in RE 2022-23, the Department stated:-

"The Department has submitted the proposed RE for an amount of Rs 9943.07 crores (Scheme - 1995.61 crores and Non-Scheme of Rs 7947.46 crores) against which the Department received an amount of Rs 8658.89 crores (Scheme- 1995.61 crores and Non-Scheme 6663.28 crore). In view of the new Expenditure Committed

Liability (ECL) Module introduced by the MoF, the Scheme RE ceilings were mandatorily required to be kept up to the EFC ceilings. As a result of the same, no additional budget could be demanded by the Department at the RE stage. Consequently, ICAR institutes are facing huge budgetary constraints in carrying out the planned research and development activities which further affected the aim of achieving mandatory research targets/objectives adversely. To meet the requirements of committed expenditure like electricity, water, telephone and other maintenance expenditure, the Department had to provide financial assistance to various ICAR Institutes from its Non-Scheme Budget (GIA-General budget)."

### C. Allocation to the Department vis-à-vis other Departments

1.13. The Details and the Proportion of Budgetary Allocations (Revised Estimates) 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 important Ministries/Department:-

(In Rs. Crore)

Department/ Ministry	2019-20 Revised Estimates			2020-21 Revised Estimates			2021-22 Revised Estimates		
	Outlay	Total Outlay	% of Total Outlay	Outlay	Total Outlay	% of Total Outlay	Outlay	Total Outlay	% of Total Outlay
D/o Agriculture, Cooperation & Farmers Welfare	101904.00	2698552.00	3.78	116757.92	3450305	3.38	118294.24	3770000	3.14
<b>D/o Agricultural Research and Education</b>	<b>7846.17</b>	<b>2698552.00</b>	<b>0.29</b>	<b>7762.38</b>	3450305	<b>0.22</b>	<b>8513.62</b>	3770000	<b>0.23</b>
D/o Fisheries, Animal Husbandry and Dairying	3880.27	2698552.00	0.14	3556.81	3450305	0.10	1407.29 (Fy) 3053.75 (AH)	3770000	0.12
D/o Atomic Energy	25095.51	2698552.00	0.93	14274.96	3450305	0.41	31300.92	3770000	0.83
D/o Fertilisers	83515.00	2698552.00	3.09	134792.70	3450305	3.91	149663.28	3770000	3.97
D/o Food and Public Distribution	151240.39	2698552.00	5.60	438648.72	3450305	12.71	312000.00	3770000	8.28
D/o Drinking water and Sanitation	26110.36	2698552.00	0.97	17023.50	3450305	0.49	102047.90	3770000	2.71
Ministry of Food Processing Industries	1042.79	2698552.00	0.04	1247.42	3450305	0.04	1304.12	3770000	0.03
D/o Health Research	1950.00	2698552.00	0.07	4062.30	3450305	0.12	3080.00	3770000	0.08
D/o Higher Education	47716.04	2698552.00	1.77	32900.00	3450305	0.95	57607.57	3770000	1.53
D/o Science and Technology	5501.03	2698552.00	0.20	5000.00	3450305	0.14	5244.18	3770000	0.14
D/o Biotechnology	2381.10	2698552.00	0.09	2300.00	3450305	0.07	2961.00	3770000	0.08
D/o Scientific and Industrial Research	4883.24	2698552.00	0.18	4251.86	3450305	0.12	5297.72	3770000	0.14
D/o Space	13139.26	2698552.00	0.49	9500.00	3450305	0.28	12642.00	3770000	0.34
D/o Water Resources, River Development and Ganga Rejuvenation	7608.73	2698552.00	0.28	7262.09	3450305	0.21	18087.82	3770000	0.48

As evident from the above Table, the allocations (Revised Estimates) to Department of Agricultural Research & Education out of the Total Budget (Revised Estimates) of the Government of India has been reduced from 0.29% in 2019-20 to 0.22% in 2020-21 and marginally increased in 2021-22 i.e. 0.23, and is receiving higher proportion of allocations *vis-à-vis* other research departments such as Dept of Health Research, Dept of Science and Technology, Dept of Scientific and Industrial Research. However, the allocations are far lesser *vis-à-vis* Dept. of Agriculture, Cooperation and Farmers' Welfare, Dept. of Higher Education, M/o Food & Public Distribution and Dept. of Fertilizers.

1.14. On being asked by the Committee as to whether the Department has taken up the issue with the Ministry of Finance (Department of Expenditure) to ensure that their share in total allocation is brought at par with other Departments *viz.* Dept. of Higher Education, M/o Food & Public Distribution and Dept. of Fertilizers in the future, the Department in its reply stated -

"The Secretary, Department of Agricultural Research and Education *vide* DO letters dated 06.06.2022 and 10.08.2022 has requested the Ministry of Finance for additional allocation of funds to the Department. The AS &FA, DARE/ICAR has also requested MoF *vide* DO letter dated 16.06.2022 augmenting the scheme budget of DARE as per the EFC provisions. The issue was also discussed during the pre-budget meeting held for finalization of Expenditure ceilings under the Chairmanship of Secretary, Expenditure. The Department has been continuously requesting the Ministry of Finance for enhanced budgetary allocation through various means available in Govt. set up on different occasion and platforms. However, budget allocated by Ministry of finance has been on the lower side against the proposed budget allocation submitted by the Department."

#### **D. Financial Performance**

1.15. The details of allocations and expenditure by the Department during the last two Financial years *viz.*, 2020-21, 2021-22 and for the Current Financial year are:-

**(in Rs. Crore)**

<b>Year</b>	<b>BE</b>	<b>RE</b>	<b>Expenditure</b>	<b>% Utilization of RE</b>
2020-21	8362.58	7762.38	7644.25	98.48
2021-22	8513.62	8513.62	8439.94	99.13
2022-23	8513.62	8658.89	8374.15*	96.71*

\*Up to January 2023.

The Department has also stated that during the last two fiscal years it has reported more than 98% actual expenditure *w.r.t* RE. The Department has been continuously striving to achieve 100% utilization of funds.

1.16. Regarding mechanism available in the Department to monitor and ensure full utilization of Budgetary Allocation and quarter-wise quantum of funds spent by Department, during last three Financial years in absolute terms and in terms of a percentage of the Budgetary Allocations, the Department has submitted:-

"The Subject Matter Division (SMD) of each Central Sector Scheme has been entrusted responsibility to plan budgetary requirements and monitor the expenditure for its respective Central Sector Scheme and ensure full utilization of budgetary allocation. As regards the Non-Scheme budget requirement, the same is prepared centrally after seeking demand of funds for each ICAR institute, CAUs, DARE Secretariat and ASRB. Also the pace of expenditure and budget utilization under both Scheme and Non-Scheme budget is monitored by highest authorities in DARE/ICAR i.e. Secretary, DARE along with Additional Secretary, ICAR and AS&FA, DARE/ICAR during the monthly senior officers committee meetings held on monthly basis.

The quantum of fund spent by the Department quarter-wise during the last three fiscal in absolute terms is given below:-

**(In Rs. Crore)**

Quarter	2020-21			2021-22			2022-23*		
	Total Budget	Exp	% w.r.t Budget Allocation	Total Budget	Exp	% w.r.t Budget Allocation	Total Budget	Exp	% w.r.t Budget Allocation
Apr-Jun	1940.59	1648.75	84.96%	2128.41	2126.16	99.89%	2128.41	2122.21	99.71%
July-Sept	1940.59	1663.3	85.71%	2128.41	2126.66	99.92%	2128.41	2128.67	100.01%
Oct-Dec	1940.59	1816.05	93.58%	2128.41	2125.73	99.87%	2128.41	2123.2	99.76%
Jan-Mar	1940.61	2557.42	131.78%	2128.39	2061.39	96.85%	2273.66	2000.07	87.97%
<b>TOTAL</b>	<b>7762.38</b>	<b>7685.52</b>	<b>99.01%</b>	<b>8513.62</b>	<b>8439.94</b>	<b>99.13%</b>	<b>8658.89</b>	<b>8374.15</b>	<b>96.71%</b>

\* - Expenditure shown up to January 2023"

#### **E. Allocation Under Scheme Head**

1.17. The Year-wise Budget Estimates (BE), Revised Estimates (RE) and Actual Expenditure (AE) under Schemes Head since Financial Year 2020-21 are as follows:

(Rs. in Crore)

Year	BE	RE	Actual Expenditure
2020-21	2729.00	2305.00	2194.98
2021-22	2686.00	2347.00	2244.49
2022-23	1995.83	1995.61	1908.61*
2023-24	2423.41	-	-

\*Up to January, 2023

The Department also stated that it is committed to make full utilization of grants of Financial Year 2022-23.

1.18. According to the information furnished by the Department the Scheme Budget was proposed at Rs. 2914.30 Crore. The allocations made by Ministry of Finance for Scheme Budget is Rs. 2423.41 Crore only. This will impact the Schemes and Programmes planned by various Subject Matter Divisions (SMDs) and overall working of Research Institutes.

1.19. On being enquired by the Committee about reasons for reduction in Revised Estimate *vis-à-vis* the Budget Estimate in 2021-22 and 2022-23 and as to how the reduction of funds at RE Stage during the said Financial years has impacted the implementation of Schemes, the Department in its reply submitted:-

(In Rs. Crores)

Year	BE	RE	Increase/Reduction
2021-22	2686.00	2347.00	-339.00
2022-23	1995.83	1995.61	-0.22

The BE allocation of Rs. 2686.00 crores for 2021-22 got reduced to Rs 2347.00 crores at RE stage as the MOF did not enhance the overall allocation for the department demanded to meet the higher allocation under Non-Scheme to meet increased salary and pension requirements. Overall allocation was kept intact to Rs. 8513.62 Crores for 2021-22. The BE allocation for 2022-23 got further reduced to Rs 1995.83 crores as the overall BE allocation was kept Rs.8513.62 crores only. At RE stage, scheme allocation got reduced marginally."

1.20. On being asked how the Department is planning to utilize the increased allocation under Scheme Head in BE 2023-24 in comparison to BE and RE 2022-23, the Department stated:-

"Demand was raised for Rs. 2914.30 crore by the Department for BE 2023-24 as per the provisions made in the EFCs/SFCs. However, the Department was allocated Rs. 2423.41 crore only. The increase in BE 2023-24 allocation over RE 2022-23 allocation is not exactly as per proposed planning in the EFC/SFC for various R & D activities and allocation made to the Department will be utilized as per the provisions made in the EFC/SFC for various scientific programmes/activities."

1.21. During Evidence, representatives of the Department stated that there is a 20% reduction in the Scheme Budget since 2018-19 in nominal term which is actually about 40% reduction in real term.

**F. Allocation Under Non-Scheme Head**

1.22. The Year-wise Budget Estimates (BE), Revised Estimates (RE) and Actual Expenditure (AE) under Non- Scheme head since the year 2020-21 are as follows:

*(in Rs. Crore)*

Year	BE	RE	Actual Expenditure	Surrendered Funds
2020-21	5633.58	5457.38	5449.27	
2021-22	5827.62	6166.62	6116.81	
2022-23	6517.79	6663.28	6465.54*	
2023-24	7080.59	-	-	

\*Upto January, 2023

The Department also stated that it will be able to utilize allocated fund under Non-Scheme during the Financial Year 2022-23.

1.23. According to the Department the budget components covered under Non Scheme head are as under :-

1. ICAR Headquarter (includes Salary and Pension of all ICAR institutes and GIA Capital and GIA General of ICAR Headquarter Unit).
2. Central Agricultural Universities (Imphal, Pusa and Bundelkhand)



3. DARE Secretariat Allocation
4. Agricultural Scientists Recruitment Board allocations (Attached Office)
5. Contributions to International Bodies
6. Contribution to NAAS & IAUA.

1.24. When the Committee asked about the reasons for increase in allocation in RE 2022-23 *vis-a-vis* BE 2022-23 under the Non-Scheme Head, the Department stated:-

"The increase in Non-Scheme budget in RE 2022-23 over BE 2022-23 is Rs.145.49 crore. This increase is primarily due to increase in the committed liability of Salary and Pension."

1.25. On being asked about the reasons for substantial enhancement in allocation under Non-Scheme Head in BE 2023-24 in comparison to BE 2022-23, the Department stated:-

"The increased budget allocation under Non-Scheme to the tune of Rs. 526.280 crores (approx.) in the BE of Rs.7080.59 crore for 2023-24 in comparison to BE 2022-23 (*i.e.* Rs. 6517.79 crore) has been sought taking into consideration the increase in the Salary and Pension liability on account of various factors such as Dearness Allowance/Dearness Relief, Annual Increment, Promotions etc. Also enhanced budget allocation under Non-Scheme will be utilized towards meeting the additional salary liabilities of new recruitments of staff (Scientists, Technical and Administrative) planned during the FY 2023-24. Further the Scheme National Agricultural Science Fund having a budget allocation of Rs 35.67 crores in BE 22-23 has been merged from Scheme to Non-scheme component in the EFC from the year 2023-24 onwards on the recommendations of NITI Aayog and Ministry of Finance which has also augmented the Non-Scheme allocation."

#### **G. Internal Revenue Generation and its Utilization**

1.26. Secretary (DARE) and Director General (ICAR) *vide* D.O. Letter dated 03rd October, 2022 has *inter-alia* requested the Hon'ble Chairperson, Standing Committee on Agriculture, Animal Husbandry and Food Processing to review the recommendation/observation of the Committee contained in the 15<sup>th</sup> Report (16<sup>th</sup> Lok Sabha) on the Action Taken by the Government on the Recommendation contained in the 2<sup>nd</sup> Report on Demands-for-Grants (2014-15) wherein the Committee *'directed that any*

*money earned by the Government institutes ought to be deposited to the Consolidated Fund of India and therefore, require approval of Parliament for expenditure'* so as to permit ICAR to use its internal resources for its own requirements as permitted under General Financial Rules, 2017. The relevant provisions of the General Financial Rules, 2017 with regard to generation of the internal resources and their utilization by autonomous bodies receiving grant-in-aid from the Government of India are as under:-

**Rule 229 (iv) All autonomous organizations, new or already in existence should be encouraged to maximize generation of internal resources and eventually attain self-sufficiency.**

**Rule 229 (v) The Ministry or Department may consider creating a Corpus Fund for an Autonomous Body only with prior concurrence of Ministry of Finance if the corpus is created out of budgetary allocation. If the corpus is created out of internal accruals of the body, approval of the administrative Ministry must be obtained.**

1.27. The Committee in their Second Report (16<sup>th</sup> Lok Sabha) on Demands for Grants (2014-15) had recommended:-

"The Committee note that revenue generated by the institutes under ICAR are not reflected in Revenue Receipt presented to the Lok Sabha. They have been apprised that revenue generated from consultancy services and training are utilized as per approval given by the Ministry of Finance and that license fee generated by the institutes is remitted to the ICAR as per ICAR Guidelines. The Committee are given to understand that all revenues received by the Government by way of taxes like Income Tax, Central Excise, Customs and other receipts flowing to the Government in connection with the conduct of Government business i.e. Non-Tax Revenues are credited into the Consolidated Fund constituted under Article 266 (1) of the Constitution of India. The Committee, therefore, find violation of this provision of the Constitution as any money deposited to the Consolidated Fund of India ought to have the approval of Parliament for incurring expenditure. They desire that such revenue generated under the administrative control of the Department should be reflected in the budget documents including detailed Demands for Grants. They would like DARE to clarify the issue and rectify the irregularity, if any, in this regard."

1.28. The Department in its Action Taken Reply had stated:-

“The General Financial Rules GFR 2008(iii) states 'All autonomous organizations, new or already in existence should be encouraged to maximize generation of internal resource and eventually attain self- sufficiency'. ICAR, though a non-profit scientific organization, generates internal resources through the following:

1. Income from Sales of farm produce/livestock
2. Income from Services
3. Fees/Subscriptions
4. Income from Royalty, Publications etc.

The Revenue generated by ICAR is netted while submitting the demand of funds to the Ministry of Finance and as such the Revenue generated by ICAR is utilized by ICAR itself. The utilization of internal resources as such is permitted by Secretary (Expenditure), Ministry of Finance *vide* D.E.A Id. No. F. 2(45)-B (CDN)/2010 dated 12.09.2011. The revenue generated by ICAR are not transferred to the Department *viz.*, DARE and as such do not form a part of Non-Tax revenues of DARE."

1.29. The Committee in their 15<sup>th</sup> Report (16<sup>th</sup> Lok Sabha) on the Action Taken by the Government on the Recommendations contained in the 2<sup>nd</sup> Report on Demands for Grants (2014-15) had recommended/commented:-

"The Committee while observing non-reflection of revenue generated from the Institutes under ICAR in revenue receipt presented to Lok Sabha, had opined that revenue generated under administrative control of the Department should be reflected in Budget Documents including detailed Demands for Grants and had desired the DARE to clarify the issue and rectify the irregularity, if any. The Department in their action taken reply while referring to permission by Secretary (Expenditure), Ministry of Finance *Vide* D.E.A Id. No. F. 2(45)-B (CDN)/2010 dated 12.09.2011 have stated that the revenue generated by ICAR is netted while submitting the demand of funds to the Ministry of Finance and as such the Revenue generated by ICAR is utilized by ICAR itself. They have further stated that revenue generated by ICAR are not transferred to the Department *viz.*, DARE and as such do not form a part of Non-Tax revenues of DARE. The Committee are not convinced with the reply of the Department regarding validity of approval of Ministry of Finance without approval by the Parliament. The Committee find this practice as violation of this provision of the Constitution as any money earned by the

Government institutes ought to be deposited to the Consolidated Fund of India and therefore, require approval of Parliament for expenditure. The Committee, therefore, direct the Department to convey the serious concern of the Committee to the Ministry of Finance and to present a note on constitutional provisions regarding competence of the Government to allow use of commercial earnings of Government Departments without the approval and sanction of Parliament."

1.30. On being asked about the problems/constraints being faced due to the above-mentioned Recommendation/Observation of the Committee, the Department stated:-

"On account of the above-mentioned Recommendation /Observation of the Hon'ble Committee, the utilization of its internal revenue by ICAR was suspended since 2016 onwards. In view of the same, the Department is facing severe financial crisis due to progressive decline in grant-in-aid allocation by Ministry of Finance and this has adversely affected its ongoing research and development activities. The year on year reduction in budget allocation under Scheme has made it extremely difficult for the Department to carry out its research activities and on-going programmes. It is also imperative to mention here that a major segment of the Department is engaged in breeding various livestock animals and aquatic species whose sustenance requires huge spending on food, fodder and medicines. Expenditure incurred to sustain such varied animal species is inevitable and in the given scenario the Department is facing extremely difficult situation to sustain such huge livestock. Further, large number of Research Labs, farms & fields equipment and scientific equipment maintained by ICAR institutes across the nation requires considerable amount for its running and maintenance. Permission for the utilization of internally generated resources will certainly alleviate the grim situation prevailing currently. Therefore, in view of the above stated facts, it is requested that ICAR may be allowed to utilize its revenue generated to have functional autonomy and also to achieve self-sufficiency as envisaged by the Ministry of Finance, Government of India (GFR 229)."

1.31. The Department further stated :

"The Department is facing critical financial situation due to progressive decline in grant-in-aid allocation by the Ministry of Finance and this has adversely affected its ongoing research and development activities. The Department entrusted with the responsibility of doubling of farmers income, ensuring food and nutritional security and achieving other research objectives of National importance to make India Self-reliant and achieve the target of \$ 5-Trillion economy. This encompasses the research interventions in the fields of Crop Science, Horticulture, Fisheries, Animal Sciences, Natural Resource Management, Agricultural Education and Extension through ICAR-institutes, SAUs, KVKs, etc. Thus, Recommendations/Observations by the Committee may kindly be reviewed so that the department will not face extreme difficulties in operating its ongoing research as well as maintaining its genetic resources and also sustaining huge livestock. Moreover, the technological

advancements in the field of agriculture research including application of artificial intelligence, robotics, drone etc will remain a distant dream. Further, the Department will not be able to move towards achieving self-sufficiency as envisaged by the Ministry of Finance, Government of India (GFR 229)."

1.32. When asked why this issue has been taken up so late in October, 2022, whereas, the Recommendation/Observation pertains to the year 2014-15, the Department stated:-

"The recommendation of the Hon'ble committee came into force from the year 2016-17 and the department suspended utilization of funds from its available revenue resources since 2016-17 onwards. However, in subsequent years, the grant-in-aid received by the Department from the MoF has seen a gradual decline over the past successive years resulting in continuous financial hardship to the Department to carry out its mandated research activities. The Scheme budget of ICAR during 2018-19 was Rs 2508.43 crores which got reduced to Rs 2488.61 crores during 2019-20, Rs 2305.00 crores during 2020-21, Rs 2347.00 crores during 2021-22 and Rs 1995.61 crores during 2022-23. The Department has continuously taken up the matter with MoF for higher allocation but the same has not been considered by the MoF. In view of the declining trend of scheme budget allocation, the Department has made a request to the Hon'ble Committee to review its recommendation considering that the enabling provisions of GFR in respect to Autonomous Body allows utilization of its internal resources and to achieve self-sufficiency in the long run. Accordingly, Secretary, DARE vide DO No 6(123)/2021-Budget dated 03.10.2022 requested the Hon'ble Committee to review its recommendation. Such a review will certainly help the Department to achieve functional autonomy and to meet unforeseen expenditure and also to meet the shortfall in allocations, if any."

1.33. When the Committee asked to give examples of other similar Research Organizations in the Government, which are following practices of generating internal resources to supplement their budgetary resources to meet their requirements and the same is permitted under GFR, 2017, the Department stated:-

"On perusal of the annual accounts of other similar research organizations/autonomous bodies such as CSIR, it is observed that CSIR has reported an amount of Rs. 2002.70 Crore as Lab Reserve Fund in its annual accounts for the year 2019-20."

1.34. According to the Department, the revenue generation target and achievement in respect of ICAR since the year 2019-20 is as under:-

**(In Rs. Crores)**

<b>Year</b>	<b>Target</b>	<b>Achievement</b>
<b>2019-20</b>	91.675	76.46
<b>2020-21</b>	91.675	72.37
<b>2021-22</b>	76.00	73.16
<b>2022-23</b>	78.96	----

1.35. On being asked about the details of utilization of revenue generated by DARE/ICAR Institutes during the last 5 financial years, the Department stated:-

"The details of utilization of revenue generated for the last five years by ICAR Institutes are given as under:

**(in Rs. Crores)**

<b>Year</b>	<b>Utilization of revenue</b>
2017-18	28.34
2018-19	147.40
2019-20	14.58
2020-21	0.86
2021-22	62.79
2022-23	0.00

1.36. The Department has also stated that as per the books of account for the year 2021-22, an amount of around Rs. 1500.00 crores are available at ICAR Headquarter upto 31.03.2022 and shown as bank balances in the books of accounts.

#### **H. Surrender of Funds**

1.37. On being asked about the Funds surrendered by the Department during the years 2020-21 and 2021-22, the Department in its reply has stated:-

"The unspent balance of Rs.68.63 crore for the financial year 2020-21 has also been surrendered to Govt. It includes Rs.0.50 crores in Non-scheme and Rs.68.13 crore in Schemes. An amount of Rs.35.37 crore pertaining to NAHEP has been revalidated for utilization during 2021-22. The unspent balance of Rs. 66.86 crore for the financial year 2021-22 has been surrendered to the Government. It includes 2.56 crores in Non-Scheme and Rs. 64.3 Crore in Schemes.

Details of scheme wise surrender of funds for the year 2020-21

(Amount in actual Rs.)

Sr. No.	Division	Budget Allocation 2020-21	Expenditure during 2020-21	Unspent balance
1	Crop Science	6122500000.00	5783867453.33	338632546.67
2	Horticulture Science	1817200000.00	1771451705.00	45748295.00
3	Agricultural Extension	2374900000.00	2004175620.13	370724379.87
4	Agricultural Education	3199000000.00	3122462777.38	76537222.62
5	Economics Statistics and Management	300000000.00	299596461.20	403538.80
6	Agricultural Engineering	585500000.00	576179134.00	9320866.00
7	ICAR Hqrs. Admn.	49971500000.00	49955712551.48	15787448.52
8	National Agricultural Science Fund	420000000.00	301819462.80	118180537.20
9	Natural Resources Management	1733800000.00	1624076097.90	109723902.10
10	NICRA	498300000.00	417612166.16	80687833.84
11	Animal Science	2741200000.00	2596334245.62	144865754.38
12	Fisheries Science	1457600000.00	1439672412.00	17927588.00
13	NAHEP (EAP)*	1800000000.00	2013658113.00	-213658113.00
	Total	73021500000.00	71906618200.00	1114881800.00
	NAHEP previous year 2019-20 grant utilised during 2020-21			213658113.00
	NAHEP grant duly revalidated for utilization during FY 2021-22			353691187.00
	Amount Automatically Lapsed in TSA			642250990.00
	Total Refundable/Lapsed Grant	73021500000.00	71906618200.00	686288922.00
		Percentage Utilization		98.47%

\*Out of current year (2020-21) grant of NAHEP i.e. Rs.180,00,00,000.00 and unspent opening balance of NAHEP of Rs.567349300/- (Revalidated vide F No.3(13)/2020-NAHEP dated 18.05.2021) an amount of Rs.2013658113/- (Rs. 1800000000 of current year plus Rs. 213658113 against previous year unspent duly revalidated) was utilized during 2020-21, leaving an unutilized amount of Rs.353691187/-(revalidated vide F.No.1(1)/2021-NAHEP/Pt.I dated 04.08.2021) to be carried forward to financial year 2021-22."

Details of scheme wise unspent amount of funds for the year 2021-22:-

(Amount in actual Rs.)

S.No.	Division	Budget Allocation during 2021-22 (in Rs)	Funds Automatically lapsed in TSA	Expenditure during 2021-22 in Rs.	Unspent balance in Rs.
1	Crop Science	6150000000.00	136256794.00	5996624810.00	17118396.00
2	Horticulture Science	1830000000.00	17827624.00	1791737601.00	20434775.00
3	Agricultural Extension	2840000000.00	45288588.00	2697640159.00	97071253.00
4	Agricultural Education	3000000000.00	592423.00	2973870713.00	25536864.00
5	Economics Statistics	280000000.00	12047224.00	267952776.00	0.00

	<b>and Management</b>				
6	<b>Agricultural Engineering</b>	550000000.00	499189.00	548773880.00	726931.00
7	<b>ICAR Hqrs. Admn.</b>	55614800000.00	26064329.00	55563159261.00	25576410.00
8	<b>National Agricultural Science Fund</b>	420000000.00	0.00	303875950.00	116124050.00
9	<b>Natural Resources Management</b>	1680000000.00	12779045.00	1659757540.00	7463415.00
10	<b>NICRA</b>	470000000.00	0.00	456942650.00	13057350.00
11	<b>Animal Science</b>	2620000000.00	48949704.00	2530700920.00	40349376.00
12	<b>Fisheries Science</b>	1380000000.00	97972.00	1375643577.00	4258451.00
13	<b>NAHEP (EAP)**</b>	2250000000.00	520984.00	1843091094.00	406387922.00
	<b>Total-A</b>	<b>79084800000.00</b>	<b>300923876.00</b>	<b>78009770931.00</b>	<b>774105193.00</b>
	NAHEP grant of 2021-22 duly revalidated for utilization during FY 2022-23-B				406387922.00
	<b>Total Refundable/Unspent balance-A-B</b>	<b>79084800000.00</b>	<b>300923876.00</b>	<b>78009770931.00</b>	<b>367717271.00</b>
	<b>Total Refundable /lapsed grant</b>				<b>668641147.00</b>
				Percentage Utilization	98.64%

\* Out of current year (2021-22) grant of NAHEP i.e. Rs 225,00,00,000.00, an amount of Rs 184,30,91,094.00 is utilized during 2021-22 and an amount of Rs 5,20,984.00 was lapsed under TSA leaving unspent balance of Rs 40,63,87,922.00.

\*\* During 2022-23 an amount of Rs 241,42,15,000.00 was revalidated by NAHEP vide F.No.NAHEP-1-7(MISC)/2022-FINANCE dated 29-06-2022 which includes amount of Rs 40,63,87,922 + Rs 35,36,91,187 for the year 2021-22 and 2020-21 respectively.



## Chapter - II

### Analysis of Sectoral Schemes

#### A. Natural Resources Management and National Innovations in Climate Resilient Agriculture (NICRA)

2.1. Natural Resources Management Division covers the area of sustainable management of natural resources. 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. It has also demonstrated climate resilient technologies in NICRA villages in the climatically vulnerable districts of the country benefitting 29036 farmers, and organized 1114 capacity building programmes on climate resilient technologies throughout the country benefitting 30740 farmers.

2.2. The year-wise Budget Estimates (BE), Revised Estimates (RE) and Actual Expenditure (AE), under the head National Resources Management and National Innovations in Climate Resilient Agriculture (NICRA) head since the year 2020-21 are as follows:-

*(In Rs. Crore)*

<b>YEAR</b>	<b>BE</b>	<b>RE</b>	<b>Actual Expenditure</b>
2020-21	226.00	223.21	204.17
2021-22	250.00	215.00	211.67
2022-23	185.77	185.77	144.01*
2023-24	240	-	-

\*Up to January, 2023

2.3. On being asked by the Committee about the reasons for less utilization of funds during the years 2020-21 and 2021-22 and steps taken for Optimum Utilization of the Allocated Funds, the Department stated:-

Overall reduction of the allocations of the Department by Ministry of Finance effected the proportionate reduced allocation of the Division. The restrictions imposed by the Ministry of Finance in view of Covid-19 pandemic were the reasons for less actual expenditure during the years 2020-21 and 2021-22.

The Division has laid down roadmap and set targets to undertake planned activities during the year 2023-24 for ensuring optimum utilisation of the allocated funds. Further regular monitoring of the expenditure is being done and to ensure effective utilization of funds. Regular meetings are held with the constituent institutes and the utilization of funds is closely monitored and any deficiency is addressed immediately."

2.4. When the Committee asked how the Department is planning to utilize/spend the increased allocation in BE 2023-24 *vis-a-vis* 2022-23, the Department stated:-

"Programs and activities of the Division were prioritized and aligned as per the availability of funds so that physical targets were achieved accordingly in view of enhanced BE in 2023-24."

2.5. On being asked regarding shift in Agricultural Activities observed in the country due to Change in Climatic Pattern or Weather Fluctuation and the efforts made by the Department during the last three years for soil conservation and enhancing water holding capacity to enhance resilience of soil towards climate variability in the country, the Department in its reply has submitted the following:-

"ICAR under NICRA assessed the vulnerability of Indian Agriculture to climate change, placed agricultural contingency plans of 650 agriculturally predominant districts to sensitize developmental departments for climate sensitization, preparedness and adaption of real time measures. Since the launch of NICRA, a total of 57 interface meetings were conducted in the states facing significant weather fluctuations. Sixty-eight climate resilient technologies including soil and water conservation are demonstrated in 454 villages of 151 clusters. Further, 37 agro-forestry models have been developed and promoted to enhance resilience, livelihood and income security in different agro-ecologies."

2.6. On being asked whether the Department has any mechanism to advise farmers on crop selection taking into account the fluctuations in weather patterns, the Department stated:-

"Twenty-five centres of AICRP on Agro-meteorology studies shift in climatic pattern in major agricultural regions. ICAR also issues agromet advisories twice a week (Tuesday & Friday) for farm level interventions considering the prevailing weather forecast and fluctuations to 5.3 crores registered farmers in 660 districts using M-Kisan portal through the Gramin Krishi Mausam Seva."

2.7. On being asked how many climate resilient technologies of farming have been developed and their applicability to different regions of the country, the Department stated:-

"A total of 64 climate resilient integrated farming systems models for 26 States/UTs, 68 organic cropping system packages for 16 states have been developed, evaluated, and demonstrated through central and state schemes. The 65 climate resilient technologies such as crop varieties, intercropping systems, conservation agriculture, crop diversification, agroforestry systems, zero till drill sowing of wheat to escape terminal heat stress, alternate methods of rice cultivation (system of rice intensification, aerobic rice and direct seeded rice), *in-situ* moisture conservation etc. have been developed and disseminated in 151 vulnerable districts across the country. During the past eleven years 20,904 capacity building programs on various climate resilient technologies have been organized benefitting 5.16 lakh farmers across the country."

2.8. On being asked about the preparation of Land Resource Atlas and Land Resource Inventory (LRI) in the country and how these would help farmers of the country and make Indian Agriculture Climate Resilient, the Department stated:-

"Division has prepared the Soil Resource Map (Atlas) of the country at 1:1 million scale and is available in public domain. Large scale mapping of the country (higher scale) has been contemplated in collaboration with Soil & Land Use Survey of India to finish during next 5 years.

Soil resource inventory map (LRI) at district level is prepared based on priority / need. So far LRI for 73 districts at 1:50,000 scale is prepared and released in public domain. LRI maps are prepared by state soil survey department and NBSS&LUP has already trained them to take up district level (high resolution) LRI.

The land resource inventory is helpful to estimate strength, weakness and potential of land units. This enables the agriculture experts to suggest soil management practice, choice of crops, conservation strategies for mitigating adverse effects of climate change. In addition, effective use of soil data helps farmers and development planners to efficiently address local and region-specific climatic vagaries. For example, watershed development plans executed in Karnataka base on LRI have performed better than all other watershed programmes."

2.9. Further, when asked how many Research Projects have been undertaken in various Research Institutes under NICRA project during the last 5 financial years, the Department stated :-

"During the last five financial years, 92 Research Projects have been undertaken in various research institutes across the country covering various aspects viz., impact of climate change on major food crops, horticulture crops, livestock, fisheries and natural resources. As on date, 54 projects are on-going in various ICAR institutes, State Agriculture Universities, IIT, KVKs and Non-Governmental Organizations. The pilot studies at NICRA villages provide opportunity to evaluate and validate climate resilient technologies, and support the adoption and diffusion of resilient technologies through convergence with schemes implemented by Government of India and State Governments."

2.10. When queried regarding target set for training of farmers to create awareness on successful climate resilient practices and technologies under NICRA projects, the Department has stated:-

"Under NICRA, it is proposed to conduct 3000 trainings to benefit about 50000 farmers annually and also demonstrate location-specific, cost-effective, eco-friendly climate resilient practices and technologies through farmers' participatory mode in 151 vulnerable districts in the next few years. Since inception, about 20904 capacity building programs on various climate resilient technologies have been organized benefitting 5.16 lakh farmers across the country."

2.11. As per Economic Survey 2022-23, Climate-Smart Farming Practices are slowly gaining acceptance with farmers using clean energy sources like solar for irrigation. The farmers have been incentivised to transfer electricity generated through solar to the local grid. Crop yield prediction models using artificial intelligence and drones for monitoring

soil and crop health have been initiated. Smart farming also enables crop diversification, which will help farmers reduce their dependence on monsoons for water. There are over 1,000 agritech start-ups in India. These assist farmers in improving farming techniques.

2.12. When the Committee asked about steps being taken by the Department to promote Climate-Smart Farming practices in the country, the Department stated:-

"Under NICRA climate resilient varieties of rice (CR Dhan 201, NICRA Aerobic Dhan 1, CR Dhan 412), mungbean (Virat, Varsha, Heera, Kanika) and lentil (IPL 534) resistant to diseases and extreme weather conditions were developed and disseminated in the vulnerable districts. In addition, 65 climate resilient technologies such as intercropping systems, conservation agriculture, crop diversification, agroforestry systems, zero till drill sowing, alternate methods of rice cultivation (system of rice intensification, aerobic rice and direct seeded rice), in-situ moisture conservation etc. have been developed and disseminated in 151 vulnerable districts across the country. The integrated farming system (IFS) models developed by ICAR have been demonstrated at fields of 50,472 farmers in Kerala, Odisha and Tamil Nadu State with the investment of Rs 279.19 crores by converging various central and state schemes. In addition, 32 bankable IFS models suitable to 21 States have been shared with NABARD for whole package financing through State and district level technical committees."

## **B. Crop Science**

2.13. Crop Science Division of the ICAR undertakes research programs in the areas of management of genetic resources, crop improvement and crop management (production and protection). The focus of crop science program is on genetic enhancement of field crops for yield, quality and tolerance to biotic and abiotic stresses. Since 1965, 5967 improved field crop varieties have been developed which include 2943 of cereals, 975 of oilseeds, 1083 of pulses, 233 of forage crops, 538 of fiber crops, 146 of sugarcane, 49 of potential. During the last eight years (Since 2014 to till date), National Agricultural Research System (NARS) under the aegis of Indian Council of Agricultural Research has released 2122 high yielding stress tolerant crop varieties/hybrids of field crops, which

include 1008 of cereals (rice 496, wheat 132), 310 of oilseeds, 313 of pulses, 277 of fibre/commercial crops, 130 of forage crops, 68 of sugarcane and 16 others for different agro-climatic zones of the country, of which 1752 varieties are climate resilience for one or the other biotic and abiotic stresses. These varieties also include 87 biofortified varieties of rice(8), wheat (28), maize (14), pearl millet (9), finger millet (3), small millet (1), lentil (2), groundnut (2), linseed (1), mustard (6), soybean (5), cauliflower (1), potato (2), sweet potato (2), greater yam (2) and pomegranate (1).

During the 2021-22, total 167 varieties of field crops including cereals (85), oilseeds (19), pulses (9), forage crop (12), fibre crops (38) and sugarcane (4) have been released, which include rice varieties with inbuilt resistance/tolerance to drought, low soil P, and blast through Molecular breeding; bacterial blight and blast resistance varieties namely Pusa Basmati 1847, Pusa Basmati 1885, Pusa Basmati 1886 and herbicide tolerant basmati rice varieties suitable for direct seeded rice (DSR) conditions namely Pusa Basmati 1979 and Pusa Basmati 1985. A total of 99 genetic stocks of 35 crops with specific traits have been registered with NBPGR. Breeder seed 46344 q of 782 varieties of kharif crops has been produced. The major focus of research is on the development of nutrient and water use-efficient genotypes in different field crops using modern tools of genome editing, genomics and phenomics. In addition, post graduate teaching in agricultural, basic and social sciences is also an important component. Technologies developed for various crop-based programs were carried to farmer's field through various extension programs and activities.

2.14. The year-wise Budget Estimates (BE), Revised Estimates (RE) and Actual Expenditure (AE) under the Head of Crop Science since the year 2020-21 are as follow:-

**(In Rs Crore)**

<b>YEAR</b>	<b>BE</b>	<b>RE</b>	<b>Actual Expenditure</b>
2020-21	715.50	612.24	578.39
2021-22	708.00	615.00	599.66
2022-23	526.08	526.04	395.72*
2023-24	714.41	-	-

**\*Up to January, 2023**

2.15. On being asked about the reasons for reduction in allocations at RE Stage during 2020-21, 2021-22 and 2022-23 and how the decrease in allocation over the years have impacted implementation of the Schemes and Research activities under the Division, the Department replied as under:-

"The overall reduction imposed to the Department by Ministry of Finance effected the proportionate reduction of the allocations by the Department at RE stage for the Division during 2020-21 and 2021-22. During 2022-23, there is no much deviation between the BE and RE. Due to the reduction at RE stage during 2020-21 and 2021-22 and even low allocation under BE stage during 2022-23, the programs and activities of the Division were prioritized and aligned as per the availability of funds so that physical targets were achieved accordingly"

2.16. When the Committee asked about the reasons for less utilization during 2020-21 and 2021-22, the Department has stated:-

"The less actual expenditure and allocation in RE during 2020-21 and 2021-22 having been due to the restriction imposed by the Ministry of Finance in view of Covid-19 pandemic in the country."

2.17. The Department has informed that the first Biofortified Variety/Hybrid Vivek QPM 9 was developed during 2008. During 2021-22, the total area under cultivation of Biofortified Varieties/Hybrids of different crops was 5.5 million ha, which is expected to increase to more than 10.0 million ha during 2022-23. Total 78 Biofortified Varieties of field crops have been developed during FYs 2014-2022. The 47 Biofortified Varieties have been

developed during last three years (2020, 2021 and 2022) these includes varieties of rice (2), wheat (16), maize (9), bajra (2), finger miller (3), little millet (1), groundnut (2), mustard (4), soybean (4), potato (2) and greater yam (2). A target of 10 varieties every year was set for the development of Biofortified Varieties.

2.18. On being asked how many Bio-Fortified seeds developed by ICAR have been commercialized and what efforts have been made by the ICAR to enhance awareness about Biofortified seeds among farmers, the Department stated:-

"ICAR, since 2016-17 to 2021-22, 18322.9 q breeder seed of 61 biofortified varieties has been produced and supplied to various public and private seed production agencies for downstream multiplication of foundation and certified seed for cultivation by the farmers. The states are encouraged for indenting the biofortified varieties of different crops during finalization of Seed Rolling Plans as a result good quantity of breeder seed indents have been received during past six years and share of biofortified varieties has increased substantially. Department made several efforts for enhanced use of biofortified varieties, these includes the programs like Nutri-sensitive Agricultural Resources and Innovations (NARI) and Paushan Vatika for upscaling biofortified varieties. During past two years, ~500 demonstrations of biofortified varieties have been conducted through KVKs. In addition, KVKs have covered 5597 nutri-gardens and 628 nutri-thalis under awareness programmes. Bulletins and pamphlets have been shared with various agencies of state and central department of agriculture, public sector undertakings, farmer producer organizations and non-governmental organizations. Special efforts are being made to popularize these biofortified varieties among masses through All India Radio, Doordarshan, Social Media etc. In addition, the literature is being distributed among farmers during various Field Days, Kisan Melas and training programmes. Details of these varieties with package of practices are being shared on websites of the Institutes. Distributed 11000 seed packets of biofortified varieties of different crops to the farmers for on-farm demonstrations during past two years and 1215 MoUs have been signed with the private seed companies for seed production and marketing of these varieties. Under National Food and Nutrition Security mission (NFNSM) program of DA&FW, the state Governments were advised to use at least 30% of the latest crop production technology demonstrations for biofortified/stress tolerant varieties of rice and wheat on farmer's fields."



2.19. When the Committee asked whether the Department has made any assessment/study about the productivity and nutritional quality of Biofortified Varieties *vis-a-vis* Traditional Varieties of these crops, the Department stated:-

"All these varieties are evaluated/ assessed with the prevailing popular varieties at multi-locations for three years under the respective crops' All India Coordinated Research Projects (AICRPs) and based on better performance, these are identified and recommended for release and notification. Along with the biofortified varieties recommended for different agro-climatic zones, their production and protection package of practices are also developed and shared with the farmers. For each variety, the package of practices are standardized and areas of adaptation of varieties are identified along with its nutritional profiling with the checks as well as traditional varieties. The baseline targets for various nutritional factors in individual crops identified internationally are followed in all the crops."

2.20. The Department has also informed that during last three years *viz.*, 2020, 2021 and 2022, total 898 Varieties/Hybrids of various field crops have been released and notified for commercial cultivation by the farmers. These include 368 of cereals, 128 each of oilseeds and pulses, 51 of forage crops, 184 of fibre crops, 21 of sugarcane and 13 of potential crops.

2.21. When the Committee asked about the steps taken to popularize cropping/cultivation of these New varieties/Hybrids of Field Crops notified/released by ICAR during the year 2021 and 2022, the Department stated:-

"Various steps are being undertaken for popularizing and disseminating the newly released varieties. During the submission of breeder seed indents for formulation of Seed Rolling Plan by the states, the states are encouraged to indent newly released biofortified and climate resilient varieties. ICAR shares the crop-wise list of newly released and notified varieties recommended for different agro-climatic regions and sowing situation along with their salient features and source of seed availability, which is circulated to all states and central seed production agencies including private sector one month in advance before the cut-off date for submission of breeder seed indents. During interaction and discussion, the states are suggested to use the new varieties as alternative to the old varieties and

accordingly the new varieties are included in the seed chain. This practice during past four years has significant impact on increasing varietal replacement rates in all the crops.

The available technologies are disseminated through training programmes, Front Line Demonstrations (FLD), On-field Demonstrations (OFD), skill development programs, supplying literatures and handouts to the farmers and farm women, rural youth and in-service extension personnel. These activities are carried out by different agencies and schemes of the Government. The KVKs and the ICAR Institutes in last three years trained more than 62.99 lakhs farmers on improved and innovation technologies."

2.22. When the Committee asked whether the Department has made any assessment about the performance, productivity and nutritional quality of the New Varieties/Hybrids of Field Crops *vis-a-vis* Traditional varieties of these crops, the Department stated:-

"All the new varieties are tested for three years under All India Coordinated Research Projects (AICRPs) of respective crops at national/zonal/state level as the case may be before release and notification. All the quality parameters and resistance/tolerance to different biotic and abiotic stresses along with productivity are evaluated against the popular checks."

2.23. Further, when the Committee asked whether the ICAR has any system in place to monitor performance and productivity of New Crop Varieties and Hybrids released by their Institutes, the Department has replied:-

"Newly developed varieties and hybrids are demonstrated at farmers' field through front line demonstrations (FLDs) to evaluate the performance of varieties and hybrids outside the research farm. 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. Breeder seed indents are the indicators of adoptability and popularity of any variety. Higher the indent of variety in comparison to its other contemporary varieties establishes the popularity and acceptability of that variety among the framers. The feedback received from farmers oriented programmes after demonstrating the varieties also indicate the performance. The impact analysis studies are regularly conducted on performance of ICAR varieties."

### C. Horticulture Science

2.24. Horticultural Science Division is mandated with Research and Capacity Building of stakeholders on various aspects of production and post-harvest handling of horticultural crops. These horticultural crops are fruits including nuts; vegetables including potato, tropical tuber crops, onion & garlic; flowers and other ornamental crops; plantation crops, spices, medicinal and aromatic plants and; mushrooms. Emphasis is being directed toward gene management including genetic improvement for evolving varieties with improved productivity and tolerance to biotic or abiotic stresses, efficient inputs utilization for enhanced production per unit area and time and; developing technologies for processing and preparation of value-added products. The overall aim of the Division is to enhance productivity of horticultural crops for ensuring nutritional security of large population and help in improvement of the income of stakeholders through technological support.

2.25. The year-wise Budget Estimates (BE), Revised Estimates (RE) and Actual Expenditure (AE), under the Head of Horticulture since the year 2020-21 are as follow: -

*(In Rs. Crore)*

<b>Year</b>	<b>BE</b>	<b>RE</b>	<b>AE</b>
2020-21	194.00	181.72	177.15
2021-22	212.00	183.00	179.17
2022-23	157.53	157.53	126.02*
2023-24	212.00	-	-

**\*Upto January, 2023**

2.26. When the Committee asked how the Department is planning to utilize/spend the increased allocation in BE 23-24 *vis-a-vis* 2022-23, the Department stated:-

"The Division has planned programs, activities and targets aligned with available funds to achieve physical targets accordingly."

2.27. On being asked how many New Varieties/Hybrids of Horticultural crops have been notified/released and how much land area of the country has come under these varieties, the Department stated:-

"A total of 98 varieties during 2020-21 and 122 varieties of horticultural crops during 2021-22 have been released and notified. The proposals for 2022-23 have been received and the meeting has been scheduled for consideration and release/notification by the Committee.

Approximately, 4,44,568 ha of additional coverage of total cultivable area under Horticultural crops has come under new Varieties/Hybrids of Horticultural Crops notified/released by the ICAR during the last three years."

2.28. When the Committee asked about steps taken to popularize cropping/cultivation of these New Varieties/Hybrids of Horticultural crops notified/released by ICAR, the Department stated:-

"To popularize the cultivation of new varieties of horticultural crops, regular outreach programs in form of Kisan Melas/ Kisan Gosthis, Exhibitions, trainings & Field Demonstrations are organized. During 2021 and 2022 approximately 625 trainings and 730 field demonstrations were organized for the benefit of stake holders. In addition, a National Horticulture Fair was also organized during both the years benefitting country wide farmers and other stakeholders."

2.29. When the Committee asked whether the Department has made any assessment about the productivity and nutritional quality of the New Varieties/Hybrids of Horticultural Crops *vis-a-vis* Traditional Varieties of these crops, the Department stated :-

"The varieties are considered for release and notification after consideration of productivity, nutritional quality and similar other attributes desired for good quality produce. The varieties of horticultural crops such as Solapur Lal of pomegranate gives fruit yield of about 35 kg/tree (23-25t/ha) which is 25-30% more than Bhagawa. Besides, Solapur Lal has 60% more iron (1.5 mg/100g) and 25% more zinc (0.25 mg/100g) compared to Bhagawa. Besides, Solapur Lal has more Vitamin C and Anthocyanin compared to Bhagawa. Similarly, the varieties of sweet potato such Sree Kanaka, Bhu Sona, Bhu Krishna, Bhu Kanti, Bhu Ja, Sree Neelima and Da 340 of greater Yam and Kufri Neelkanth and Kufri Manik of Potato are biofortified with more nutrient contents and antioxidant properties. In fruit crops, guava cv. Arka Kiran (ICAR-IIHR) is rich in lycopene (7.14 mg/100g). In Grapes, Manjari Kishmish and Manjari Medika have more antioxidant properties while in turmeric IISR Pragati and IISR Prathiba have more productivity and curcumin content."

2.30. The Department has also informed that a total of 15 Biofortified and 138 Varieties tolerant to various biotic and abiotic stresses have been identified in horticultural crops. An estimated area of 1600 ha under pomegranate, 600 ha under tuber crops, 305 ha under guava has been covered. Efforts are made for increasing coverage of area under nutrient dense varieties of horticultural crops.

2.31. On being asked about steps taken to create awareness among farmers about the new and developed varieties of Horticultural crops and how these varieties have contributed in the increase in income of the farmers of the country, the Department stated:-

"To create awareness about the new and developed varieties of various horticultural crops, regular awareness programmes like Kisan Melas / Kisan Gosthis, Exhibitions, trainings & Field Demonstrations are organized. Also, mobile Apps have also been developed to disseminate technologies to farmers and growers. Every year, more than 300 trainings and field demonstration on improved varieties and related practices for production are organized for the benefit of farmers and other stakeholders.

The high yielding varieties of potato such as, Kufri Pukhraj, pomegranate 'Bhagawa' have resulted in increased productivity of the crop and hence, increased the income of the farmers of the country. The impact of Dogridge root stock of grapes in terms of direct total economic surplus/ benefits since adoption of *dogridge rootstock* for raising grape crops has been estimated at Rs 15,212 crores during 1996-97 to 2017-18 (at 2018 prices). The economic surplus for the year 2017-18 was Rs 1,721.6 crores.

In potato, Kufri Phukraj is one of the most popular short-duration varieties in North Indian Plain regions even today. The total economic surplus/benefit generated from Kufri Phukraj is estimated as Rs 92,650 crores during 1998-99 to 2017-18 (at 2018 prices). The economic surplus during the year 2017-18 was Rs 4,729.0 crores (at 2018 prices) and estimated area under this variety was 7.1 lakh ha mostly in the North Indian plain and plateau regions.

India is the largest producer of pomegranate in the world and with nearly 86% of present area under Bhagwa variety (2.05 lakh ha). With an estimated 100% yield increase, the total economic surplus since its release in 2003-04 is Rs 46,100 crores at 2018 price (15 years). The distribution of gains between consumers and producers was in the ratio of 73:27. The annual economic benefit for the year

2017-18 is Rs 9,617 crores at 2018 price. On export front, pomegranate export earnings increased from Rs 21 crores from 10,315 MT in 2003-04 to Rs 688.47 crores (98.98 million US\$) from 6.78 lakh MT. Presently, most of the fruits exported are fruits of Bhagwa variety of pomegranate."

2.32. When the Committee asked about steps taken to preserve and increase the shelf life of Horticultural crops, the Department stated:-

"Various pre-and post-harvest technologies were standardized to enhance the shelf life of horticultural crops, which were also disseminated to farmers and other stakeholders. A Controlled onion storage structure has been developed by which the shelf life of onion could be extended upto eight months as against four to five months in other storage systems with reduced post-harvest losses from 30 percent to 15 percent. Wax coating of fruits and vegetables such as oranges and apples with enhanced shelf life of more than a month and reduced weight loss of 12 to 15 per cent."

2.33. On being asked about steps taken for post-harvest handling of Horticultural crops so as to minimize their wastage, the Department stated:-

"Improved techniques of harvesting, curing & grading have been developed for Post-harvest handling of potatoes and minimizing wastage. The storage techniques have been improved and diversified utilization of potatoes by developing novel potato products & their commercialization is done. Developed and commercialized technologies (Technology for pomegranate juice & RTS, Technology for minimal processing of pomegranate arils and Technology for pomegranate seed oil extraction) to minimize the wastage. Besides, protocol standardized for other aspects viz., Pomegranate blended beverage, Hi-fibre digestive cookies, etc. The complete package of entrepreneur friendly sustainable value chain and process protocol for the post-harvest handling of coconut crop have been developed for various coconut products. A complete package of entrepreneur friendly sustainable process protocol for the post-harvest handling of coconut inflorescence sap (Neera/Kalparasa) for production of spray dried powder, heat preserved sap, sugar, jaggery, concentrate etc.) has been standardized. To control the post-harvest losses and extend the shelf-life of Alphonso mango an updated method of Hot Water Treatment (HWT) extended the shelf-life up to 4 weeks at 13°C. The shelf-life of water melon could be increased up to 3 weeks when stored at 10°C. Exposure of the highly perishable fruit like fig to 1-MCP (methyl-cyclopropane) at 500 ppb concentration extended the shelf life up to 4 weeks when stored at 5°C. Kamalam (Dragon fruit) when treated with salicylic acid (2 mM), packed in cling wrap film and stored at 6°C, the storage-life could be extended up to 28 days with better retention of quality, lowest spoilages and minimum weight loss."

## **D. Animal Science**

2.34. Animal Science Division coordinates and monitors research and education in the area of livestock and poultry production through a network of animal science research institutes and centres spread in different parts of the Country. ICAR focuses on several species like cattle, buffaloes, goat, sheep, camel, pig, horse, donkey, yak, mithun, poultry and other avian species. The focused research areas in animal science include germplasm conservation and improvement, characterization and registration of new populations of indigenous livestock, poultry and dogs; genetic improvement of livestock and poultry for various qualitative and quantitative traits as well as development of new strains with improved productivity; livestock nutrition, preventive health care, vaccine production and handling emerging diseases, surveillance and forecasting of diseases and development of new /improved processes for value addition of milk, meat, egg and fibre.

During 2021-22, Identified and characterized 28 genetic markers / disease diagnostics kits and vaccines / vaccine candidates, identification and developed diagnostic kits for adulterants and environmental pollutants completed; 14 new / improvised methods for enhancing reproductive efficiency; 35 methods for production of animal products and processes (milk, meat, wool, fibre); 23 resource-based region-specific feeding modules including feed additives for improving productivity. Improved production / quality traits of 8 dairy livestock breeds, 2 pig breeds, 4 avian species, 5 breeds (sheep and Goat) and produced 1283000 day old as well as 6 weeks old chicks and hatching eggs and 5640 piglets.

2.35. The year-wise Budget Estimates (BE), Revised Estimates (RE) and Actual Expenditure (AE) under the head of Animal Science Division since the year 2020-21 are as under: -

**(In Rs. Crore)**

<b>YEAR</b>	<b>BE</b>	<b>RE</b>	<b>Actual Expenditure</b>
2020-21	330.00	274.13	259.63
2021-22	302.00	262.00	253.07
2022-23	224.41	224.41	178.54*
2023-24	300.00	-	-

\*Up to January, 2023

2.36. When the Committee asked how the Department is planning to utilize/spend the increased allocation in BE 2023-24 *vis-a-vis* 2022-23 the Department stated:-

"Programs and activities of the Division are prioritized and aligned as per the availability of funds so that physical targets are achieved accordingly in view of enhanced BE in 2023-24.

2.37. On being asked about the achievement of the ICAR in development of vaccine for tackling diseases among Cattle in the country and efforts made to make the country self-sufficient in production of vaccines for animal diseases, the Department stated:-

The most effective way to increase livestock productivity and minimize losses from disease morbidity and mortality is by monitoring health, as well as diagnosis and control of diseases by using effective vaccines. The research on veterinary biologicals in the ICAR has led to successful eradication of important diseases *viz.*, rinderpest and contagious bovine pleuropneumonia from the country. ICAR has developed vaccines for economically important diseases for cattle in the country *viz.*, Foot and Mouth Disease, Anthrax Spore, Black Quarter (BQ), Haemorrhagic Septicaemia (HS), Brucella Abortus (S-19 Strain), Buffalo pox, Infectious Bovine Rhinotracheitis and Lumpy Skin Disease.

ICAR has contributed immensely through R&D to develop better, apt and effective vaccines for livestock as well as for their improvement in the light of epidemiological findings and contemporary advancement in technologies. In order to make the country self-sufficient in production of vaccines for animal diseases, Department licensed several vaccines to the vaccines production agencies/companies for mass production in meeting the requirement of the Country. Accordingly, developed Peste des petitis (PPR) Vaccine has been transferred to five State biologicals and many private manufacturers, and the vaccine is used in the PPR control programme of DAHD,GOI. Earlier lapinized swine fever vaccine



was used in the country since 1966 till 2021. This vaccine was produced in the rabbits and subsequently ICAR developed a cell culture vaccine in which huge number of doses can be produced easily in the culture flask. The technology is transferred to Indian Immunologicals Ltd (IIL), Punjab Veterinary vaccine institute and is used in the CSF control program. So far the country is self-sufficient in most of the vaccines which are required for the animal sector for their effective health management besides the role ICAR played through development of important vaccines for foot and Mouth disease, Brucellosis, HS and Anthrax. Various poultry vaccines have also been developed for important poultry diseases by ICAR Viz., Newcastle Disease (RDV), Fowl Pox vaccine, infectious Bursal Disease vaccine and recently Inactivated low pathogenic AI(H9N2) vaccine for Chickens and these vaccines have been instrumental in safe guarding the poultry sector in the country. In 2022 ICAR developed homologous live attenuated Lumpy Skin Disease Vaccine which is very safe and effective vaccine in cattle and can control the LSD effectively."

2.38. When the Committee asked about the steps taken to control Lumpy Skin Disease in Cattle in the country, the Department stated:-

"The Department has developed an indigenous LSD vaccine and the technology has been transferred to Biovet Pvt.Ltd, IIL and Maharashtra State Govt. There is single serotype and all the LSDV strains fully cross react with each other. The vaccine is fully protective against prevailing strains and is safe in cattle. It induces LSDV specific antibody and cell mediated immune response besides providing complete protection against lethal LSDV challenge in cattle. As the vaccine technology has been commercialized, it likely to be available soon in the market for field usage."

2.39. When the Committee asked about steps being taken by the Department for improvement, characterization and registration of populations of Indigenous livestock, poultry, dog, etc, the Department stated:-

"The ICAR has established a standard process of characterization, cataloguing and registration of animal genetic resources of the Country, which has been appreciated by UN recently. Department has launched "Mission toward non-descript AnGR in India" to characterize livestock, poultry and dog breeds of India. The registration of 212 livestock, poultry and dog breeds have been completed."

2.40. When the Committee asked how many new improved processes for value addition of milk, meat, egg, fibre etc have been developed by the ICAR in last 5 years, the Department stated:-

"The Division has developed value added milk and milk products by enhancing CLA, Omega 3 fatty acids through dietary manipulation in dairy animals and bio-fortification of milk by different minerals and vitamins. Value added eggs are produced by dietary manipulation, enriched with beneficial fatty acid and reducing harmful fatty acids. Value added meat products (sheep and goats) also developed by enhancing Conjugated linoleic acids and other beneficial fatty acids."

#### **E. Agriculture Extension**

2.41. 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 a network of 731 Krishi Vigyan Kendra (KVKs) spread all over the country. A total of 160.85 lakh farmers and other stakeholders benefitted through various extension activities. Mera Gaon- Mera Gaurav program was implemented in 3680 villages to provide information on newer technologies to the farmers. Attracting and Retaining Youth in Agriculture (ARYA) has been implemented in 100 districts of 29 States/UTs and 6610 rural youth were empowered for various Agri-enterprises in Agriculture, allied and service sector for sustainable income and gainful employment. 4.64 lakh advisories on improved package of practices of various crops and allied enterprises, weather based advisories and information on various Government schemes provided to farmers through messages utilizing services of mKIsan Portal.

2.42. The year-wise Budget Estimates (BE), Revised Estimates (RE) and Actual Expenditure (AE), under the head of Agriculture Extension since the year 2020-21 are as follow:-

*(in Rs. Crore)*

YEAR	BE	RE	Actual Expenditure
2020-21	242.50	237.49	200.42
2021-22	328.00	284.00	269.76
2022-23	243.72	243.72	187.71*
2023-24	327.00	-	-

\*Upto January, 2023

2.43. On being asked how the enhanced allocation in BE 2023-24 vis-a-vis BE 2022-23 is going to be utilized, the Department stated:-

"The enhanced BE during 2023-24 will be utilized for strengthening of KVKs and on establishment of new KVK in the approved districts. The BE 2023-24 also comprises of Heads under General Budget which are utilized for day to day functioning of the ATARIs and the KVKs."

2.44. On the query of the Committee regarding number of new KVKs opened during the last three years and how many of these new KVKs have been opened in a district where a KVK is already functioning, the Department has stated:-

"During 2019 additional 10 and a new, during 2020 additional 05 and a new, during 2021 additional 05 and a new and during 2022 additional one KVK was opened."

2.45. When queried regarding number of Districts having not a single KVK and Districts having more than one KVK, the Department stated:-

"There are 766 districts in the country, 93 districts have two KVKs, 638 districts have single KVKs and 128 districts do not have KVKs."

2.46. When further queried regarding constraints being faced by the Department to open atleast one KVK in each district of the country, the Department stated:-

"The scarcity of fund is the major constraint faced by the department to open at least one KVK in each district of the country."

2.47. On being further enquired by the Committee about the availability of adequate infrastructure in the existing KVKs and how the inadequate infrastructure is hampering the work of KVKs, the Department stated:-

"As per the EFC of the KVK scheme each KVK is given an Administrative Building, Farmers Hostel, Staff Quarters, Demo Unit and Compound Wall as the basic infrastructure requirement. A provision is placed in the EFC for the same and the respective civil work is undertaken on depending upon the availability of budget. KVKs are having adequate infrastructure and the same is strengthen depending upon the actual requirement in different plan period. The civil work related to creation of infrastructure at the KVKs is placed depending upon the actual requirement. The respective ATARI periodically monitor the status of completion of these civil works. The KVKs which do not have adequate infrastructure are supported by the respective host organizations through sharing of infrastructure of nearby research station/KVK/college, etc. till creation of infrastructure in the particular KVKs."

2.48. On being asked to provide details for vacancies in KVKs across the country, the Department stated:-

"The KVKs across the country have 3499 vacancies (Senior Scientist - 187, Subject Matter Specialist-1090, Technical Officer T4-688, Assistant-279, Stenographer-280, Driver-432 and Skilled Supporting Staff-543). The post of the KVKs is filled by respective Host Organization. In this regard instructions are made time and again by Director ATARI, Secretary, DARE & Director General, ICAR and Hon'ble Minister of Agriculture & Farmers Welfare and President of ICAR to the host organizations for recruitment."

2.49. When the Committee asked about steps being taken/contemplated by the Department to ensure benefit of Agriculture Extension Programme actually reach to farmers of the country, the Department stated:-

"The Department has established 731 KVKs in the Country with mandate of technology assessment and demonstration for its application and capacity development. The activities of KVKs include on-farm testing to identify the location

specificity of technology under various farming systems; frontline demonstration to establish the production potential of improved agricultural technologies on the farmers' fields; capacity development of farmers for knowledge and skill up gradation; and production of quality seeds, planting materials and other technology inputs for availability to the farmers. In order to develop awareness of improved agricultural technology among the farmers, a large number of extension activities are taken up by the KVKs. The activities of KVKs motivate the farmers to adopt new agricultural technologies."

2.50. When asked about the efforts made to make the KVKs more productive in terms of Extension Programs and outreach to maximize benefit to the farming population in their area, the Department has submitted:-

"KVKs are using the services of mKisan Portal of Department of Agriculture & Farmers' Welfare to provide the advisories and alerts to 5.36 crore farmers. KVKs have also formed different commodity based WhatsApp groups to reach large number of farmers. Besides, the KVKs have been linked with 3.5 lakh Common Service Centers (CSCs) established at Gram Panchayat level for providing technological solutions to the farmers visiting CSCs with agriculture related technological problems"

2.51. When further enquired by the Committee regarding efforts made by the KVKs in the country to attract and retain the rural youth towards agriculture, the Department submitted :-

"To attract and retain rural youth in Agriculture, entrepreneurial development and vocational trainings are provided to rural youth in various enterprises like mushroom cultivation, beekeeping, poultry farming, goat farming, dairy farming, vermi-compost production, nursery management, processing and value addition of minor millets, fruits and vegetables etc. so that they can start their enterprise at village level. Besides, Attracting and Retaining Youth in Agriculture (ARYA) project is under implementation in 100 KVKs of the country to provide the rural youth the income generating opportunities and engage them in agriculture. Furthermore, about 400 KVKs/ICAR Institutes/Agricultural Universities are also organizing National Skill Qualification Framework aligned skill development training programmes for the rural youth with funding support from the Department of Agriculture, Cooperation and Farmers' Welfare; GoI."

2.52. On being asked about the efforts made by ICAR in general and KVKs in particular to train, educate the women engaged in farm practices so as to reduce their hardships and drudgeries, the Department stated as under:-

"During the last three years, KVKs trained and educated about 18.50 lakh farm women on various aspect of agriculture and allied sectors to increase the productivity and profitability."

## CHAPTER-III

### **A. Research and Development (R&D) in Agriculture**

3.1. Research and Development and its application in agriculture and allied sectors can play a major role in realisation of sustainable agriculture practice that efficiently meets the objectives of food and nutritional security and improvement in farm income.

Research shows that every rupee spent on agricultural research and development, yields much better returns (11.2), compared to returns on every rupee spent on fertiliser subsidy (0.88), power subsidy (0.79), education (0.97) or on roads (1.10). Increasing R&D spending on agriculture is, therefore, not only a vital necessity for ensuring food security, but also important from the socio-economic point of view.

3.2. During the evidence on 21.02.2023, the representative of the Department also emphasized that Benefit: Cost of investment in agri-research is 10.7:1.0.

3.3. Year-wise information about the amount spent on R&D on Agriculture in the last three years, as furnished by the Department, is as under:-

<b>Year</b>	<b>Research and Education expenditure (in crores)</b>
<b>2019-20</b>	<b>7517.30</b>
<b>2020-21</b>	<b>7547.81</b>
<b>2021-22</b>	<b>8362.05</b>

**Source: Union Budget, MoF, GOI**

3.4. When the Committee asked whether the Department agrees with the view that to ensure long-term food and nutritional security for the largest population of this planet,

there is need to rouse expenditure on agricultural research, education and innovation to atleast 1% of the Agri-GDP, the Department stated:-

"To insure long term food and nutritional security of the Country, there is need to increase expenditure on agricultural research, education and innovation to at least 1.0 per cent of the agri-GDP for increasing agricultural total factor productivity in the light of emerging issues of land and water degradation, climatic uncertainties and high level of malnutrition. Though research investment has increased considerably in the country but the research intensity as a share of agricultural GDP is still much lower compared to like South Africa (2.8%), Argentina (1.3%), Brazil (1.8%), Sri Lanka (0.6%) and China (0.62%). Investing in R&D in bio-fortified and climate resilient crop varieties and natural resource management is essential for sustainable growth of agriculture, and farmers' income."

3.5. Further on being asked what per cent of agri-GDP is presently being spent on agricultural research, education and innovations in the country and steps being taken to raise it to one percent of agri-GDP, the Department stated:-

"In 2020-21, only 0.49 percent of agriculture GDP was spent on agricultural research and education in the country. The R&D spending has increased since 1980s but its share in agricultural GDP has never reached close to one percent. The Department has recently started doing R&D investment in promising areas of agriculture like development of bio-fortified varieties, climate smart technologies, natural resource management and livestock and fisheries sector. Department is continuously perusing with the Ministry of Finance for higher allocations to DARE/ICAR to a level of 1 per cent of agri-GDP."

3.6. When the Committee asked whether there is need to increase the spending on R&D on Agriculture especially in emerging areas of High Value Agriculture - Horticulture, Medicinal Plants, Livestock, Fisheries etc. and about the steps taken to increase R&D spending on Agriculture, the Department has stated:-

"There is a need to increase spending on agriculture for achieving an edge over other economies particularly for boosting external trade, it is crucial to develop new innovative technologies in the competitive sectors of agriculture like horticulture, livestock and fisheries by increasing R&D investment in these areas. Taking the note of growing demand and consumer preference for high value commodities and nutritious products the Department has gradually started investing more in bio-fortification of field crops. Department is continuously perusing with the Ministry of



Finance for higher allocations to DARE/ICAR so that spending on Agricultural Research should enhance for high value agricultural commodities."

3.7. On being asked about Private Sector Spending including collaboration on R&D in Agriculture and steps taken to increase Private investment in Agricultural Research, the Department has stated:-

"Private sector invests in the areas of agricultural biotechnology & tissue culture, seeds, machinery and food processing, fertilizers and pesticides. The major focus of private R&D is on tissue culture, bio-pesticides and bio-fertilizers, transgenics, and hybrid seeds.

Research-Industry collaboration have been implemented since the beginning of the reforms in 1991. In sugarcane, collaborations with DCM Sriram Ltd has been affected since 2016-17 for doubling the income of farmers of Lakhimpur-khiri district. The hybrid rice seed production and commercialization were licensed to 20 Seed Companies. The Basmati PB 1718 has been licensed to 19 Seed Companies in 2018. PB 1728 has been licensed to 15 industry partners in 2018. PB 1637 variety has been commercialized through 11 seed companies. IARI entered into PPP mode for seed production and marketing of HD 3086. This variety was commercialized to 202 companies within two years. In case of HI-1563 wheat, 40 licenses were issued for seed production and marketing. HD 3226 commercialized in 2019 to 70 industry partners. The DBW 187 was commercialized with 163 Seed Companies and DBW173 with 51 companies in 2017. Department has also made several collaborations with the private – sector and signed Memorandum of Understanding (MoU) with:

- M/s. Sumantrak Specialties, Mumbai to evaluate the efficiency of frozen zooplankton product in larval and nursery rearing systems of Penaeid shrimps.
- Coastal Corporation Ltd. for Production of Shrimp Larval Feed: India's First Indigenous Feed for Shrimp Larvae.
- M/s. Aggromalin Farmtech Service Pvt. Ltd., a Farm Diversification Corporate Business Enterprise to develop a Start-Up Programme on Mud Crab Seed Production and scaling-up of the Mud Crab Farming with a supply chain.
- M/s. Meyor Nature, Garacharma, South Andaman for the commercialization of "Dweep-Carp Grower Feed Technology" and "Incubation Facility of Pilot Scale Fish Feed Mill".
- The Sparsh Himalaya, Dehradun stimulate and facilitate the collaboration and promote mutually-interested common programs that help to advance the interests of the Himalayan ecosystems and related intellectual life & cultural development.
- M/s. Pinnacle Bioscience, Kanyakumari, Tamil Nadu to create market linkage for the CIBA mentored seaweed farmers to sell the cultivated indigenous brackishwater seaweed species.
- The M/s Pratima Biotech Ltd., Raipur, Chattisgarh for production of disease-free quality planting material of Citrus.

- CNH (INDIA) Pvt. Ltd. (New Holland) was primarily aimed at development of public-private partnership and industry ready human resources in the field of farm mechanization.
- M/s. Biofac Inputs Private Limited, Hyderabad for commercialization of Nano-Zn suspension production Technology.
- NamFarmers.com for faster dissemination of IISR developed technologies.
- Tara Blooms Private Limited, Coimbatore to promote the spread of scientific and technological information and knowledge products developed and available with the institute to a large number of farmers and other stakeholders.
- Flipkart India Private Limited to enable market access for FPOs and SHGs by procuring quality produce directly from the farmers.
- M/s. Jai Hind Nursery, Bhiwadi, Alwar District, Rajasthan for the Containerized Nursery Propagation Technique to Produce the Disease-Free Citrus Planting Material.
- The Jubilant Food Works Limited, Noida, Uttar Pradesh for conducting the Contract Research "Studies on Extended Shelf Life of Chicken and Enhancing Post Cooking Quality and Safety".
- The Vaikunth Mehta National Institute of Cooperative Management (VAMNICOM), Pune, a Grant-in-aid Institution under Department of Agriculture, Cooperation and Farmers Welfare for Joint Product Development with eight empaneled firms."

Many mechanisms have been developed by the Department which promote public-private partnerships in agricultural sector, like consultancy and contract services, commercialization of products and processes. A major step in this direction was the comprehensive guidelines for 'Intellectual Property Management and Commercialization of Technologies', enabling stronger partnerships which was framed in 2006 and revised in 2018 harmonizing them with the AgIn Guidelines for commercialization. Besides, many institute-industry meets are also organized by ICAR to present its technologies to industries and entrepreneurs for commercialization."

3.8. When the Committee asked about the efforts made by the Department to tap funding under CSR for Agricultural Research, the Department has stated:-

"The MoUs has inked with many private partners and industries to promote private investment in agriculture R&D. Collaboration with ITC Ltd. for marker assisted transfer of Rht gene revealed 6 wheat varieties HI 1544, HI 1605, HD 2987, HI 1621, MP 3288 and HI 1620 as the most suitable with superior yield potential and on par in quality parameters with C 306 based on trials at 20 centres across India where ITC manufacturing units are functioning. The collaborations for development of ginning machines were established between CIRCOT and M/s. Forech Mining & Constructions International New Delhi in 2017. In 2018, IARI and Ajay Bio tech (India) Ltd. entered into MoU for dissemination of entomopathogenic nematode in tea garden in West Bengal and Assam. A product 'Bio-fighter' was launched by the

company in July 2019 which is effective against tea semi-looper, armyworms, cutworms, white grubs and termites. Besides MoUs were also signed with followings for public-private partnership:

- ASCI, Hyderabad (2020) -advocacy, capacity building services to the ICAR
- ICICI, Foundation, Mumbai (2020)-training and capacity building of farmers
- NCDC, New Delhi (2020)- training and capacity building of farmers' cooperatives
- IFFCO (2020) – testing and validation, awareness campaigns, field demonstrations
- Common Service Centers (2019)- linking of KVKs with rural CSCs to enhance KVKs reach
- Indian Chamber of Food & Agriculture, New Delhi (2021) -Joint research, outreach programmes, exchange of information
- Chhattisgarh Minor Forest Produce Cooperative Federation Ltd (2021)- R&D on non-wood forest produce by ICAR institutes.

To sharpen the ICAR-Industry linkages under PPP, ICAR through IPTM Unit and Agri-Innovate organizes ICAR-Industry Meets."

3.9. When the Committee asked about the steps taken to make Research outcome marketable, the Department has stated:-

"ICAR has established a 3-tier system for commercialization of agricultural technologies and licensing to manufactures. The Agri-business Incubation Centres helped in developing agricultural technologies besides providing technology and skill up gradation, inputs supply and market support leading to promotion of viable enterprises and sustainable employment to entrepreneurs.Zonal Technology Management (ZTM) Units facilitate business and strengthen public-private partnerships. The AgriInnovate established under the Companies Act, 1956 is a "for profit" Company. It acts as an effective interface between Indian Council of Agricultural Research on one side and the Stakeholders of agricultural sector (Farmers; Public & Private Sector firms; R&D organizations; Educational Institutions- all of these at National and International level) on the other side, for purpose of securing, sustaining and promoting global agricultural development. It works for production, marketing and popularization of ICAR's products, processes and technologies related to seeds, planting materials, vaccines, diagnostics, biotechnological products, and farm implements and machinery. It also provides consultancies, contract research, contract service, customized capacity building. It also helps in creation of public-private partnerships in research, education and other capacity building endeavors in agriculture and allied sectors."

## **B. Global Hub for Millets: "Shree Anna"**

3.10. The United Nations General Assembly, in its 75<sup>th</sup> session during March 2021, declared 2023 the International Year of Millets (IYM). Millets are Smart Food with high nutritional value, are climate resilient, and align with several UN Sustainable Development Goals (SDGs). These are also important by virtue of their mammoth potential to generate livelihood, increase farmers' income and ensure food & nutritional security all over the world.

The Finance Minister in her Budget Speech 2023-24 stated as under:-

"India is at the forefront of popularizing Millets, whose consumption furthers nutrition, food security and welfare of farmers," said Hon'ble Prime Minister.

We are the largest producer and second largest exporter of 'Shree Anna' in the world. We grow several types of 'Shree Anna' such as jowar, ragi, bajra, kuttu, ramdana, kangni, kutki, kodo, cheena, and sama. These have a number of health benefits, and have been an integral part of our food for centuries. I acknowledge with pride the huge service done by small farmers in contributing to the health of fellow citizens by growing these 'Shree Anna'.

Now to make India a global hub for 'Shree Anna', the Indian Institute of Millet Research, Hyderabad will be supported as the Centre of Excellence for sharing best practices, research and technologies at the international level."

3.11. On being asked to provide crop-wise details of the contributions made by the Department/ICAR to increase production and productivity of the Millet in the country in the last three years, the Department stated:-

"During past three years, ICAR has developed 66 varieties/hybrids of seven millet crops (Sorghum 18, Pearl Millet 19, Little Millet 03, Kodo Millet 06, Finger Millet 15, Foxtail Millet 04 and Barnyard Millet 01) being grown in the country. The efforts have been made to enhance the quality seed availability of newly developed high yielding varieties/hybrids to the farmers, 25 breeder seed production centres and 19 certified seed production hubs have been established across the millet growing states. Total target of 1825.0 q breeder seed has been set during 2022-23 against the actual production of 1625.0q during 2021-22. Likewise, enhanced availability of quality seed of millets was ensured against the requirement for eight millets grown in our country.

The details of requirement and availability of quality seeds during 2021 and 2022 kharif season is as under:

Crop	Quality seed (q)			
	Kharif 2021		Kharif 2022	
	Requirement	Availability	Requirement	Availability
Bajra	226062	239467	251191	281692
Jowar	110304	117295	113437	131060
Ragi	45347	50108	47848	64070
Foxtail millet*	468	780	-	-
Italian millet	1737	1824	2842	2973
Little millet	764	734	634	660
Common millet	50	35	46	45
Kodo millet	3262	3656	3797	4175
Barnyard millet	742	785	384	1355
<b>Total</b>	<b>388736</b>	<b>414684</b>	<b>420179</b>	<b>486030</b>

\* - Being undertaken during Rabi 2022-23

3.12. During the evidence, the representative of the Department informed that the Department has already published a Recipe Book on Millets. Also, two minute videos of local recipes of millets including recipe of tribal areas have been prepared and are being disseminated not only in the country but also in Foreign countries to apprise them that food items of Millets can be prepared in these ways also.

3.13. When the Committee asked about the Research conducted in recent past to further increase the nutritional value of Millet crops, the Department stated:-

"In addition to higher yields, special efforts are made to breed millet varieties/hybrids with enhanced nutritional quality. Since 2018, nine hybrids of pearl millet, three varieties of finger millet and one varieties of little millet have been released and notified with enhanced protein, iron, zinc and calcium contents. A Consortium Research Platform on Biofortification of crops was launched by ICAR during 12<sup>th</sup> Five Year Plan focusing on Biofortification of eight crops including millets."

3.14. Regarding future plans of the Department/ICAR with regard to research on Millets in the Country, the Department stated:-

"DARE/ICAR has been entrusted by the Government on "Enhancement of production and productivity". ICAR-Indian Institute of Millet Research (IIMR), Hyderabad

has been identified focal point for Celebration of International Year of Millets (IYoM) 2023. Task Forces constituted have recommended the action plan for “Enhancing Production and productivity of Millets” and the action has been initiated by the Department on following;

#### **Seed systems**

- Developing a robust seed system for states to increase the area and production of millets (including small millets). on priority basis
- Improve the varietal replacement ratio with current 35 % of the varieties to higher levels with additional focus on including the small millets in seed value chain.
- Millets seed hubs to be provided operational funding in the form of revolving fund, and seed hubs to connected with state and national seed corporations to make requisite quantities of seeds of improved varieties to all the states.
- National Seed Corporation (NSC) to devise a plan along with ICAR-IIMR to utilize the farm facilities for seed production (including multiplication) and plan for distribution of mini kits to hasten production and multiplication of certified and foundation seeds.

#### **Area Expansion**

- Enhancement of production of millets by increasing the area under millets and improving the productivity of millets by using HYVs, introduction of millets in better endowed areas, fallow and wastelands.
- Identify the regions with reduced area under millets and create better profitability in millet cultivation through intensified breeding programs by creating HYVs like that of competing crops.
- Expanding the area under millets through promotion of organic cultivation and bio-fortification of millets.

#### **Crop improvement**

- Identification of product specific cultivars for different products of the industry (for all millets) to push the industry participation in demand creation which further contributes to enhanced area and production.
- Region-specific cultivar development for greater adaptation and acceptability of improved varieties.

#### **Preparedness for IYM 2023**

- Address the gap in production and consumption of millets globally by providing proper market connect and catch the advantage of IYoM 2023 ahead of other countries.
- Nutrition profiling of millet cultivars to show their potential alongside capturing the global market for gluten free and vegan foods in the form of plant-based protein.
- The activities related to enhancing production and productivity through awareness and value addition activities during IYoM 2023 have already been initiated by the National Agricultural Research System including ICAR Institutes, State Agricultural Universities and Krishi Vigyan Kendras under the leadership of ICAR.
- Recipe book on millets was developed which have been shared with all Chief Ministers, Cabinet Ministers of State, and Governors & Lt. Governors, Secretaries to GoI, and Embassies. The millet products/ millet meals and recipe book are being served/shared during all the meetings of the international programs like G20."

3.15. On being asked about the facilities to be provided to the Indian Institute of Millet Research, Hyderabad on being designated the Centre of Excellence, the Department stated:-

"The ICAR- Indian Institute of Millet Research (IIMR), Hyderabad on being designated the Centre of Excellence will be upgraded as a global hub on Millets by creating state of the art facilities for Millet Research and Development for Showcasing and replicating successful and sustainable millet value chain for other countries through capacity building, skill development and strengthening stakeholder linkages and linking farmers to markets. The infrastructure facilities for taking up the various activities under the following seven major components will be strengthened:

- Long-term Germplasm Storage Facility to Strengthen Millets Gene Bank for Conservation, Trait-specific Characterization and Utilization of Millet Biodiversity for Crop Improvement.
- Technology Innovation Centre for Trait, Seed and Crop Improvement of Millets for enhancing Yield and Productivity.
- Nutricereal Analytical, Food Safety and Quality Assurance Referral Laboratory for Millets.
- Centre of Excellence for Millet Value Chain and Business Facilitation for Entrepreneurship, Incubation and Startup Nurturing.
- International Knowledge, Skill Development and Capacity Enablement Centre with International Millet Museum & Halls of Residence.
- Global Facility for Millet Pilots on Feed, Fodder, Biofuels, Malting, Brewing and Promotion of Industrial utilization of Millets.
- Millet Technology Innovation and Outreach Hubs."

3.16. On being asked whether the Indian Institute of Millet Research, Hyderabad is capable of meeting the requirements in making India a global hub of Millets, the Department stated:-

"ICAR-Indian Institute of Millets Research, Hyderabad, the country's premier National Institute on Millets, has pioneered research on millets improvement, value chain modeling, capacity building, and entrepreneurship development. It has admirably supported the Government of India's Plan in designing and implementation of the sub-mission on Nutricereals under National Food Security Mission (NFSM). Keeping in view the efforts of ICAR-Indian Institute of Millets Research in creating an ecosystem to create demand for millets, the millets were notified as "Nutri-Cereals" by the Government of India through Gazette notification for their superior nutritional characteristics compared to fine cereals such as rice and wheat.

The Institute is having 50 scientists and 39 technical staff with wide experience in all areas of millet research and development including genetic enhancement, seed production, good agricultural practices, value addition and chain development, nutritional and nutraceutical profiling and agri-business development. Once the Institute is fully equipped with modern state of art well equipped laboratories and other infrastructures, it is fully capable of meeting the requirements in making India a global hub of Millets. IIMR is already operating two All India Coordinated Research Projects (AICRPs) on Sorghum and Small millets; and Pearl millet with more than 40 centres across various agro-climate zones of the country for area specific technologies development match with various agro-ecologies across the globe. Nutri-hub at IIMR, Hyderabad is one of the unique state of art facility for hand holding and providing working space to the start-ups and incubators in addition to research facilities for value addition and value chain development."

3.17. When the Committee asked about the number of projects sanctioned to IIMR, Hyderabad for Millets in last three years, the Department stated:-

"The ICAR IIMR has a budgetary outlay of Rs. 94.00 Crore during 2021-26 for scheme component for the Institute and AICRPs. The following projects were sanctioned by Department of Agriculture and Farmers Welfare to ICAR-IIMR, Hyderabad for promotion of millets during last three years.

<b>Sr. No.</b>	<b>Name of project</b>	<b>Duration of project (years)</b>	<b>Total funds sanctioned (Rs. Lakhs)</b>
3.1.	Shelf-life Enhancement in millets	2019-2021	99.40
3.2.	Development of a national data base on millets and establishing benchmarks for production, consumption and utilization of millets	2019-2021	100.00
3.3.	Frontline demonstrations on sorghum	2020-21	12.00
3.4.	Enhancing breeder seed production for increasing indigenous production of millets in India	2018-2023	140.00
3.5.	Creation of Seed-hubs for increasing production of Millet crops in India	2018-2023	175.00
3.6.	Promotion of Farmers Producer Organization (FPOs) in Nutricereals	2019-2022	122.22
3.7.	Formation of Millets and other crops FPOs	2021-2026	250.00
3.8.	A comprehensive study to establish the health benefits of Nutri Cereals	2022-23	395.30



**C. Manpower in ICAR Institutes**

3.18. There are large vacancies at the Institutes of ICAR. Out of Sanctioned Strength of 5988 Scientific Posts, 9857 Administrative Posts and 7102 Technical Posts, Actual Strength are 4636, 6440 and 4067 respectively at the Institutes of ICAR.

3.19. On being asked about the reasons for shortage of manpower at the Institutes of ICAR, the Department submitted:-

"The Department make out all efforts for filling up of vacant positions of different cadre (Scientific, Technical and Administrative) as and when arise. The recruitment process for filling up of vacant position is a regular process through an established procedure of the Recruitment, subject to availability of appropriately qualified candidates in the required areas of specialization."

3.20. On being asked to provide year-wise details of recruitment made by the ICAR during last 3 years, the Department submitted:-

"Due to restructuring of Agricultural Scientist Recruitment Board and outbreak of Covid-19, the conduct of direct recruitment examination during last three years was adversely affected. The recruitment of Scientists, Administrative and technical staff in ICAR has been vigorously pursued with advertisement of posts in 2021 and 2022 onwards. The recruitment process of 208 entry level Agriculture Research Service (ARS) Scientists has been completed by Agricultural Scientists Recruitment Board (ASRB). Further, the recruitment process for scientific posts has been completed in respect of 102 RMP positions."

3.21. On being asked whether the shortages of manpower at these Institutes affect their proper functioning and achieving the desired result and what steps have been taken/being taken by the Department to recruit and post desired/requisite manpower at these Institutes, the Department stated:-

"The vacancies in different cadres/positions do not affect functioning and achievement of desired results, as officiating arrangements are made, and work is carried out through available manpower. The vacancies in entry grade of scientists are filled regularly through ASRB and they are posted at Institutes after imparting necessary training. The recruitment process for scientific posts has been completed in respect of 102 Research Management Positions and 208 entry level scientists. The requisitions for DR-Principal Scientists and DR-Senior Scientists

(total 340) have already been sent for advertisement. In order to maintain the rationalisation for the purpose of providing opportunity for the future eligible aspirants every year, approximately 1/3<sup>rd</sup> of the total vacancies are filled in recruitment cycle at entry level Scientists. The mains examinations for the recruitment of Administrative officers and Finance and Account Officers have been completed. The result of Preliminary Examination for Assistant Grade has been declared. In so far as Technician is concerned, the recruitment process has been completed."

3.22. On specifically asked by what time, required Scientific and Administrative manpower will be posted to the Institutes of ICAR, the Department has stated:-

"Recruitment is a continuous process. As and when recruitment process is completed, manpower is posted at the respective Institutes considering the requirement."

3.23. On being asked about the problems/challenges being faced by the Department in fulfilling the vacancies at the Institutes of ICAR, the Department stated:-

"The Department is not facing any problem/ challenge in fulfilling the vacancies at the Institutes of ICAR."

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## Part-II

### Observations/Recommendations of the Committee

#### Budgetary Allocation

1. The Committee note that allocations (BE) of Rs. 9504.00 Crore has been made to the Department of Agricultural Research and Education which is 0.21% of total budget of Rs. 4503097.00 Crore of Central Government for the year 2023-24, though the Department had proposed Rs. 10390.53 Crore for BE 2023-24. The allocation of Rs. 9504.00 Crore made in BE 2023-24 for the DARE is higher than the allocations of Rs. 8513.62 Crore made in BE 2022-23 and Rs. 8658.89 Crore made in RE 2022-23, the proportion (in % terms) of Budgetary Allocation (BE) in favour of the Department out of the total Budget of the Government of India has been reduced from 0.22% in the year 2022-23 to 0.21% in 2023-24. The Committee further note that at the Revised Estimate Stage, the Budgetary Allocation out of the total Budget of the Government of India was reduced from 0.23% in the year 2021-22 to 0.20% in 2022-23.

The Committee feel that progressive reduction in proportion of Budgetary Allocation with respect to the total Budget of the Government of India is not a healthy trend particularly in view of the fact that the Department of Agricultural Research and Education/Indian Council of Agricultural Research is the largest Agri-Research Organization not only in India but also in the world. This Research Organization has contributed immensely in making the nation food and nutrition secure. The Committee are of the considered view that the present level of budgetary support/grant to DARE/ICAR is inadequate, which may impact its functioning and hamper the Department in achieving its cherished vision and mandate. The Committee, having taken the view of challenges before DARE/ ICAR and inadequate funds allocated to it, recommend the Government to enhance the allocation for the Department of Agricultural Research and Education at the Revised Estimates 2023-24 Stage. The Committee also desire the Department to

pursue for enhancement of allocation with the Ministry of Finance through Supplementary Grants.

### **Allocations Under Scheme Head**

2. The Committee note that out of the total allocation (BE) of Rs. 9504.00 Crore for the Department (DARE) for the year 2023-24, Rs. 2423.41 Crore has been allocated under Scheme Head which constitutes around 25.49% of the total allocation. The Allocation under Scheme Head in BE 2023-24 (Rs. 2423.41 Crore) is 427.58 Crore more than the allocation of Rs. 1995.83 Crore in BE 2022-23, however, it is Rs. 262.59 Crore less than BE 2021-22 allocation of Rs. 2686.00 Crore. The Committee also note that BE 2023-24 allocation is Rs. 490.89 Crore less than the Department's proposed amount of Rs. 2914.30 Crore for the Scheme Head for the year 2023-24.

The Committee are of considered view that inadequate allocation in BE 2023-24 particularly under Scheme Head would adversely impact the Schemes and Programmes planned by various Subject Matter Divisions (SMDs) and may impact the overall working of Research Institutes under the ICAR. The Committee, therefore, recommend the Department to take up the matter of enhancing the allocation under Central Sector Schemes with the Ministry of Finance at RE Stage.

### **Internal Revenue Generation and its Utilization**

3. The Committee note that the Institutes of ICAR/DARE generate revenue internally through consultancy, training, services, etc. The Committee also note that an amount of around Rs. 1500.00 Crore is available at ICAR Headquarter upto 31.03.2022 as bank balances in the books of accounts of the ICAR.

The Committee have been apprised that due to the Recommendations/Observations of the previous Committee contained in the 2<sup>nd</sup> Report (16<sup>th</sup> Lok Sabha) on Demands for Grants (2014-15) and subsequent 15<sup>th</sup> Report (16<sup>th</sup> Lok Sabha) on the Action Taken by the Government on the Recommendations/Observations contained in the 2<sup>nd</sup> Report, the Department/ ICAR suspended utilization of funds from its available revenue resources since 2016-17

which has resulted in financial hardships to the Department/ICAR to carry out its mandated research activities in the absence of grant-in-aid received by the Department from the Ministry of Finance. The Budgetary support to DARE has seen a decline over the past few successive years. The Committee have also been apprised of the relevant provisions of the General Financial Rules, 2017 with regard to generation of the internal resources and their utilization by autonomous bodies receiving grant-in-aid from the Government of India.

The Secretary (DARE) and Director General (ICAR) also requested the Chairperson to review the concerned Recommendations of the Committee so that the ICAR was able to utilize the funds generated through internal resources. Having considered all aspects of the issue in totality, the Committee accede to the request of the Department to use its internal resources including already accumulated funds since 2014-15 for its own requirements, provided that existing rules including General Financial Rules 2017, regulations, provisions, instructions, etc issued by the Ministry of Finance, Government of India from time to time in this regard are scrupulously adhered to.

### **Surrender of Funds**

4. The Committee note that the Department has surrendered unspent balances of Rs. 68.63 Crore and Rs. 66.86 Crore for the Financial Years 2020-21 and 2021-22 respectively. The break-up of the surrendered amount is Rs. 68.13 Crore under Scheme and Rs. 0.50 Crore under Non-Scheme in the Financial Year 2020-21 and Rs. 64.3 Crore under Scheme and Rs. 2.56 Crore under Non-Scheme in the Financial Year 2021-22. However, an amount of Rs. 35.37 Crore pertaining to National Agricultural Higher Education Project (NAHEP) was revalidated for utilization during 2021-22. However, the Committee also note the percentage utilization of RE-allocations for the Financial Years 2020-21 and 2021-22 are 98.48% and 99.13% respectively, which in the opinion of the Committee is highly appreciable. Further, during the Financial Year 2022-23, 96.71% of RE allocation has been utilized upto January, 2023.

The Committee having taken a holistic view, are of the considered opinion that surrender of allocated funds is not at all a healthy practice as it adversely affects implementation of the Schemes especially in view of the Department's request for enhancing Budgetary Allocations. The Committee, therefore, recommend that the pace of expenditure and flow of funds under various Schemes should be monitored regularly so as to avoid surrender of funds. The Committee also recommend the Department to identify the factors/reasons which hinder or restrict the utilization of funds and take appropriate action accordingly.

### **Promotion of Climate Resilient Farming**

5. The Committee note that the Natural Resources Management Division covers the area of sustainable management of natural resources and 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 resource availability with the farmers, traditional/ indigenous technological knowhow and grass-roots farm innovations to enhance agricultural production, productivity and profitability in the country. The Committee further note that 64 Climate Resilient Integrated Farming System models for 26 States/UTs, 68 Organic Cropping System packages for 16 states have been developed, evaluated, and demonstrated. Moreover, 65 Climate Resilient Technologies such as crop varieties, intercropping systems, conservation agriculture, crop diversification, agro forestry systems, zero till drill sowing of wheat to escape terminal heat stress, alternate methods of rice cultivation (system of rice intensification, aerobic rice and direct seeded rice), *in-situ* moisture conservation, etc. have also been developed and disseminated in 151 vulnerable Districts across the country.

The Committee also note that Capacity Building Programmes on various Climate Resilient Technologies are being organized for benefit of the farmers. The Committee, while appreciating the efforts of the DARE/ICAR, are of the view that more appropriate steps are required to be taken to promote Climate Resilient Farming by giving priority to Research for development of location-specific, cost-

effective, eco-friendly Climate Resilient Practices and Technologies and their dissemination and demonstration on large scale in the country so that adverse impact of climate change on Indian Agriculture is minimized and food and nutritional security of the nation is maintained. The Committee recommend the Department to develop a mechanism to ensure income safety to the farmers, so that they are inclined to adopt new cropping pattern/crops having Climate Resilient and water efficient qualities/traits.

#### **Availability of Quality Seeds to Farmers**

6. The Committee note that Crop Science Division undertakes research programs in the areas of management of genetic resources, crop improvement and crop management (production and protection). The focus of crop science program is on genetic enhancement of field crops using modern tools of genome editing, genomics and phenomics for yield, quality and tolerance to biotic and abiotic stresses. The Committee also note that many Biofortified and Hybrid Varieties of several Field Crops have been developed, released and notified for commercial cultivation by the farmers. The Committee are of the view that awareness among farmers about newly developed Biofortified and Hybrid Varieties of various Field Crops and their productivity and nutritional quality is limited. Also quality seeds of Field Crops are not easily available to them. The Committee, therefore, recommend the Department to take proactive steps for popularizing and disseminating the information about newly released varieties of Field Crops. The Committee also recommend the Department to give emphasis not only on increasing production and productivity of various crops but also on making available quality seeds to farmers. The Department should also lay emphasis on increasing the nutritional value of such modified crops.

#### **Availability of Quality Planting Material for Horticulture Crops**

7. The Committee have been apprised that several Biofortified and Hybrid varieties with increased nutritional value and productivity of various Horticulture Crops have been developed, released and notified for commercial cultivation by

the farmers. However, the Committee feel that availability of quality planting material of various Horticulture Crops particularly orange, mango, apples, etc are limited and as a result farmers are not able to procure quality planting material in sufficient quantity. The Committee, therefore, recommend the Department to produce quality planting material of various Horticulture Crops particularly orange, mango, apples, etc and make available to the farmers in the sufficient quantity at cheaper rate.

### **Preparedness to tackle spread of Disease in Animals**

8. The Committee note that some of the focused research areas in Animal Science are preventive health care, vaccine production, handling emerging diseases, surveillance and forecasting of diseases among livestock and poultry. The Committee have been apprised that the research on veterinary biologicals in the ICAR has led to successful eradication of important diseases *viz.*, rinderpest and contagious bovine pleuropneumonia from the country. ICAR has developed vaccines for economically important diseases for cattle in the country *viz.*, Foot and Mouth Disease, Anthrax Spore, Black Quarter (BQ), Haemorrhagic Septicaemia (HS), Brucella Abortus (S-19 Strain), Buffalo pox, Infectious Bovine Rhinotracheitis and Lumpy Skin Disease. The Committee are also aware about death of cattle on large scale in various regions of the country last year due to spread of Lumpy Skin Disease resulting in economic loss and hardships to animal farmers. The Committee, therefore, recommend the Department to prepare itself to prevent spread of diseases among livestock and poultry in the country and if spread of disease occurs, prompt steps be taken to prevent its further spread on large scale so as to minimize the losses.

### **Characterization, Cataloguing and Registration of Animal Genetic Resources of the Country**

9. The Committee note that one of the focused research areas in animal science is characterization and registration of new populations of indigenous livestock, poultry and dogs. The Committee have been apprised that the ICAR has established a standard process of characterization, cataloguing and registration



of animal genetic resources of the Country, which has been appreciated by UN recently. Department has launched “Mission toward non-descript Animal Genetic Resources (AnGR) in India” to characterize livestock, poultry and dog breeds. Under the Mission, registration of a total number of 212 breeds of livestock, poultry and dogs has been completed.

The Committee, therefore, recommend the Department to make best efforts to achieve the targets set under "Mission toward non-descript AnGR in India" so that all the indigenous livestock, poultry and dog breeds of the country would get registered.

#### **Krishi Vigyan Kendras (KVKs)**

10. The Committee note that Agricultural Extension Division is carrying out on-farm testing to identify the location specificity of agricultural technologies and frontline demonstration to demonstrate the production potential of different crops. The Division also provides training to farmers and extension personnel about knowledge and skill improvement and creating awareness. This is done through a network of 731 Krishi Vigyan Kendras spread all over the country. The Committee also note from the reply of the Department that at present there are 766 districts in the country, 93 districts have two KVKs, 638 districts have single KVK and 128 districts do not have KVK. The Committee further note that the KVKs across the country have 3499 vacancies (Senior Scientist -187, Subject matter specialist - 1090, Technical Officer T4 - 688, Assistant- 279, Stenographer- 280, Driver 432 and Skilled supporting staff - 543).

As the KVKs play an important role in extension services, the Committee recommend the Department to open a KVK in those 128 Districts which do not have even a single KVK. The Committee also recommend the Department to fill up the vacancies in KVKs on priority basis.

The Committee also recommend the Department to strengthen the existing mechanism and also develop online mechanism to ensure demonstration and dissemination of information about new varieties and technologies among farmers. The emphasis should also be laid on providing training to farmers and Farmer

**Producer Organisations (FPOs) so that benefits of the research and innovations in the field of agriculture are availed by them.**

### **Research and Development (R&D) in Agriculture**

**11. The Committee note that Research and Development and its application in Agriculture and Allied sector play a major role in realisation of sustainable agriculture practice that efficiently meets the objectives of food and nutritional security and improvement in farm income. The Committee also note that every rupee spent on agricultural research and development yields much better returns as Benefit: Cost of Investment in Agri-Research is 10.7:1.0.**

**The Committee further note that in 2020-21, only 0.49 percent of Agri-GDP was spent on agricultural research and education in the country. However, to ensure long term food and nutrition security atleast 1% of the Agri-GDP is needed in R&D services in Agriculture.**

**The Committee, therefore, recommend the Department to take pro-active steps for raising the expenditure on agricultural research, education and innovation to atleast 1% of the Agri-GDP so as to ensure food and nutritional security for the largest population of this planet.**

### **Global Hub for Millets: "Shree Anna"**

**12. The Committee note that Millets are Smart Food with high nutritional value and are also climate resilient. These are also important by virtue of their mammoth potential to generate livelihood, increase farmers' income and ensure food and nutritional security all over the world. The Committee also note that several types of Millets are grown in the country and India is the largest producer and second largest exporter of Millets in the world. The Committee have been apprised that to make India a global hub for Millets, the Indian Institute of Millet Research, Hyderabad would be supported as the Centre of Excellence for sharing best practices, research and technologies at the international level. The Committee, therefore, recommend the Department to make research to know the specialties and health benefits of Millet crops and disseminate this knowledge among people**

on large scale. The Committee also recommend the Department to do research for improving the production, productivity and nutritional values of Millets. The Committee further recommend the Department to take all efforts for making the Indian Institute of Millet Research, Hyderabad as the Centre of Excellence so as to make India a global hub for Millets and reap the maximum benefits for the country.

### **Manpower In ICAR Institutes**

13. The Committee note that a large number of posts including those in scientific, administrative and technical categories are lying vacant at various Institutes of the ICAR. The Department has apprised the Committee that the Department makes all out efforts for filling up of vacant positions of different cadre as and when the vacancies arise. The recruitment process for filling up of vacant position is a regular process through an established procedure of the Recruitment, subject to availability of appropriately qualified candidates in the required areas of specialization. Further, due to restructuring of Agricultural Scientist Recruitment Board and outbreak of Covid-19, the conduct of direct recruitment examination during last three years was adversely affected. However, the recruitment of Scientists, Administrative and technical staff in ICAR has been vigorously pursued. The Committee recommend the Department to fill up the vacant scientific, administrative and technical posts at Institutes of ICAR at the earliest for the smooth and more meaningful functioning of the Institutes. The Committee also recommend the Department to initiate recruitment process well in advance so that posts do not remain vacant for a long period.

**NEW DELHI;**  
**06 March, 2023**  
**15 Phalguna, 1944 (Saka)**

**P.C. GADDIGUDAR**  
***Chairperson***  
***Standing Committee on Agriculture,***  
***Animal Husbandry and Food Processing***

**Standing Committee on Agriculture, Animal Husbandry and Food Processing  
(2022-23)**

**Minutes of the Seventh Sitting of the Committee**

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The Committee sat on Tuesday, the 21<sup>st</sup> February, 2023 from 1405hrs to 1535 hrs, in Committee Room '3', Block-A, First Floor, Extension to Parliament House Annexe, New Delhi.

***Present***

**Shri P.C. Gaddigoudar, Chairperson**

***Members***

***Lok Sabha***

2. Shri Devji Mansingram Patel
3. Smt. Sharda Anilkumar Patel
4. Shri Rajiv Pratap Rudy
5. Mohammad Sadique

***Rajya Sabha***

6. Shri Masthan Rao Beeda
7. Dr. Anil Sukhdeorao Bonde
8. Shri S. Kalyanasundaram
9. Shri Kailash Soni
10. Shri Ram Nath Thakur

***Secretariat***

- |    |                            |   |                      |
|----|----------------------------|---|----------------------|
| 1. | Shri Shiv Kumar            | - | Additional Secretary |
| 2. | Shri Naval K. Verma        | - | Director             |
| 3. | Shri Uttam Chand Bharadwaj | - | Additional Director  |
| 4. | Shri Prem Ranjan           | - | Deputy Secretary     |

**LIST OF WITNESSES**  
**Ministry of Agriculture and Farmers Welfare**  
**Department of Agricultural Research and Education**  
**/ Indian Council of Agricultural Research (ICAR)**

<b><u>S.No.</u></b>	<b><u>Name of the Representatives</u></b>	<b><u>Designation</u></b>
1.	Dr. Himanshu Pathak	Secretary (DARE) & DG (ICAR)
2.	Shri Sanjay Garg	Addl. Secretary (DARE) & Secretary (ICAR)
3.	Smt. Alka Arora Nangia	Additional Secretary & FA, DARE/ ICAR
4.	Shri G.P. Sharma	Joint Secretary (Fin.), ICAR
5.	Dr. B. N. Tripathi	DDG (AS), ICAR
6.	Dr. S.K. Chaudhari	DDG (NRM), ICAR
7.	Dr. S.N. Jha	DDG (Ag. Engg.), ICAR
8.	Dr. T.R. Sharma	DDG (CS), ICAR
9.	Dr. A.K. Singh	DDG (Hort.), ICAR
10.	Dr. U.S. Gautam	DDG (Ag. Extn.), ICAR
11.	Dr. R.C. Agrawal	DDG (Ag. Edn.), ICAR
12.	Dr. J.K. Jenna	DDG (Fisheries), ICAR
13.	Dr. A.R. Rao	ADG (PIM), ICAR

2. At the outset, the Chairperson welcomed the Members of the Committee to the Sitting convened for taking Oral Evidence of the representatives of the Ministry of Agriculture and Farmers Welfare (Department of Agricultural Research and Education) - in connection with the examination of the Demands for Grants (2023-24) -Demand No. 2. Thereafter, the representatives of the Department of Agricultural Research and Education were called in. After welcoming the representatives of the Department to the Sitting, the Chairperson apprised them of the confidentiality of the proceedings.

3. After the introduction by the witnesses, a Power-Point Presentation was made briefing the Committee about the Department of Agricultural Research and Education/ Indian Council of Agricultural Research (ICAR), its Research Institutes, Krishi Vigyan Kendras (KVKs), and Staff position; achievement of Indian Agriculture since 1950-51; area under cultivation and production of foodgrains in India; movement of Indian Agriculture towards Climate Resilient Farming; Greenhouse Gas Emission from Indian Agriculture; salient achievements of the Department/ICAR during the year 2022-23 in the field of Crop Science, Horticultural crops, Natural Resource Management, enhancement

of mechanization, Animal Health Management, Fisheries, Extension for promoting technologies and increasing farmers' income, promotion of Natural Farming, strengthening of quality Agricultural Education etc; number of Publications made since 2018; People Intensive Campaigns during *Azadi ka Amrit Mahotsav*; ICAR's global reach; development of new infrastructure; activities carried out during 2022-23 with respect to launch of International Year of Millets 2023; trend of Budgetary allocation for DARE/ICAR under Scheme and Non-Scheme for the last 5 years; proposed outlay of DARE/ICAR Schemes from the year 2021-22 to 2025-26; Resource Generation Target under different Schemes; Aspiration of Indian Agriculture by 2047 (*Amrit Kaal*); Priorities, Commitments, Thrust Areas and Action Plan for Indian Agriculture; and requirement of Additional Financial support for the next three years.

4. The Chairperson and the Members of the Committee raised *inter-alia* important issues/points, as briefly mentioned below and sought clarification from the Department:-

- i. Need to give emphasis on not only increasing production and productivity of various crops but also on making available quality seeds to farmers and on quality of produce;
- ii. Need to ensure demonstration of various developed new varieties of seeds, plants, machinery, equipments, tools, technologies, agricultural practices, *etc* through KVKs and other existing mechanism and providing of training to farmers and Farmer Producer Organizations (FPOs) to provide maximum benefit to the farmers;
- iii. Need to produce quality planting material of various horticulture crops particularly orange, mango, apples, *etc* under PPP model and making them available to the farmers in sufficient quantity;
- iv. Mechanism/Procedure available for adoption of Farmers Startup by KVKs and Research Centres/Institutes;

- v. Need to develop an Agro-Forestry model by associating tribals in which small herbs and indigenous plants/trees are grown simultaneously to ensure remunerative prices to the tribal farmers;
- vi. Need to develop online mechanism to ensure dissemination of newly developed agricultural practices, technologies and varieties of various crops among large population of the peasantry so as to reap maximum benefits of the research and innovation;
- vii. Reasons for reduction in budgetary allocation to the Department over the years;
- viii. Proposal regarding development of Shrimp and Prawns and the need to provide financial support to make Shrimp culture commercially viable;
- ix. Challenges of Climate Change to Agriculture and the need to do more research for making Indian Agriculture Climate Resilient;
- x. Need to do research to know the specialities and health benefits of Millet crops and dissemination of this knowledge among people;
- xi. Number of patents granted to ICAR and revenue earned therefrom;
- xii. Issue of vacant post of Scientists, Technicians and Administrative Posts at different ICAR Institutes;
- xiii. Need to develop a mechanism to ensure income safety to the farmers, who are disinclined to adopt new cropping pattern/crops, which are climate resilient and water efficient;
- xiv. Issue of Internal Revenue Generation by the Institutes of ICAR and its utilization;  
*etc.*

5. The Representatives of the Ministry/Department responded to most of the queries raised by the Members. The Chairperson thereafter 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 by 24<sup>th</sup> February, 2023.

***The Committee then adjourned.***

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Appendix-II

**STANDING COMMITTEE ON AGRICULTURE, ANIMAL HUSBANDRY AND FOOD  
PROCESSING (2022-23)**

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

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The Committee sat on Monday, the 06<sup>th</sup> March, 2023 from 1100 hrs. to 1135 hrs. in the Committee Room '3', Block-A, First Floor, Extension to Parliament House Annexe, New Delhi.

***Present***

Shri P.C. Gaddigoudar – Chairperson

Members

**Lok Sabha**

2. Shri A. Ganeshamurthi
3. Shri Devji Mansingram Patel
4. Shri Bheemrao Baswanthrao Patil
5. Shri Pocha Brahmananda Reddy
6. Shri Rajiv Pratap Rudy

**Rajya Sabha**

7. Smt. Ramilaben Becharbhai Bara
8. Dr. Anil Sukhdeorao Bonde
9. Shri Surendra Singh Nagar
10. Shri Kailash Soni
11. Shri Harnath Singh Yadav

**Secretariat**

- |    |                     |   |                      |
|----|---------------------|---|----------------------|
| 1. | Shri Shiv Kumar     | – | Additional Secretary |
| 2. | Shri Naval K. Verma | – | Director             |
| 3. | Shri Prem Ranjan    | – | Deputy Secretary     |

2. At the outset, the 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 XXXX

(ii) Draft Report on 'Demands for Grants (2023-24)' of the Ministry of Agriculture and Farmers Welfare (Department of Agricultural Research and Education);

\*(iii) XXXX XXXX XXXX XXXX XXXX

\*(iv) XXXX XXXX XXXX XXXX XXXX

\*(v) XXXX XXXX XXXX XXXX XXXX

\*(vi) XXXX XXXX XXXX XXXX XXXX

3. After some deliberations, the Committee adopted the Draft Reports without any modifications and the Committee 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