



**STANDING COMMITTEE ON AGRICULTURE
(2016-2017)**

SIXTEENTH LOK SABHA

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

'DEMANDS FOR GRANTS (2017-18)'

**{Action Taken by the Government on the Observations/
Recommendations contained in the Thirty Sixth Report (Sixteenth Lok Sabha)
of the Standing Committee on Agriculture (2016-2017)}**

FORTY THIRD REPORT



**LOK SABHA SECRETARIAT
NEW DELHI**

August 2017/Bhadrapada, 1939 (Saka)

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Presented to Speaker
Presented to Lok Sabha on
Laid on the Table of Rajya Sabha on

30.08.2017



LOK SABHA SECRETARIAT
NEW DELHI

August 2017/Bhadrapada, 1939 (Saka)

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<CONTENTS>

	PAGE
COMPOSITION OF THE COMMITTEE.....	(iii)
INTRODUCTION.....	(v)
CHAPTER I Report	
CHAPTER II Observations/Recommendations which have been accepted by the Government	
CHAPTER III Observations/Recommendations which the Committee do not desire to pursue in view of the Government's replies	
CHAPTER IV Observations/Recommendations in respect of which replies of the Government have not been accepted by the Committee	
CHAPTER V Observations/Recommendations in respect of which final replies of the Government are still awaited	

ANNEXURE

- I. Minutes of the 27th Sitting of the Committee held on 28.08.2017

APPENDIX

Analysis of Action Taken by the Government on the
Recommendations contained in the Thirty Sixth Report
(Sixteenth Lok Sabha) of the Standing Committee on Agriculture
(2016-2017).

(i)

COMPOSITION OF THE STANDING COMMITTEE ON AGRICULTURE (2016-17)

Shri Hukm Deo Narayan Yadav - Chairperson

MEMBERS

LOK SABHA

2. Prof. Ravindra Vishwanath Gaikwad
3. Shri Sanganna Karadi
4. Shri Nalin Kumar Kateel
5. Smt. Raksha Khadse
6. Md. Badaruddoza Khan
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RAJYA SABHA

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30. Shri Shankarbhai N. Vegad
31. Shri Darshan Singh Yadav

SECRETARIAT

- | | | | |
|----|----------------------|---|---------------------|
| 1. | Shri D.S. Malha | - | Joint Secretary |
| 2. | Shri Arun K. Kaushik | - | Director |
| 3. | Smt. Juby Amar | - | Additional Director |
| 4. | Shri Sumesh Kumar | - | Under Secretary |

INTRODUCTION

I, the Chairperson, Standing Committee on Agriculture (2016-17), having been authorized by the Committee to submit the Report on their behalf, present this Forty Third Report on action taken by the Government on the Observations/Recommendations contained in the Thirty Sixth Report (Sixteenth Lok Sabha) of the Standing Committee on Agriculture (2016-17) on 'Demands for Grants (2017-18)' pertaining to the Ministry of Agriculture and Farmers Welfare (Department of Agricultural Research and Education).

2. The Thirty Sixth Report (Sixteenth Lok Sabha) of the Standing Committee on Agriculture (2016-17) on 'Demands for Grants (2017-18)' pertaining to the Ministry of Agriculture and Farmers Welfare (Department of Agricultural Research and Education) was presented to Lok Sabha and laid on the Table of Rajya Sabha on 10 March, 2017. The Action Taken Notes on the Report were received on 06 June, 2017.

3. The Report was considered and adopted by the Committee at their Sitting held on 28.08.2017.

4. An analysis of the action taken by the Government on the Observations/Recommendations contained in the Thirty Sixth Report (Sixteenth Lok Sabha) of the Committee is given in **Appendix**.

NEW DELHI;
28 August, 2017
06 Bhadrapada, 1939(Saka)

HUKM DEO NARAYAN YADAV
Chairperson,
Standing Committee on Agriculture

CHAPTER-I REPORT

This Report of the Committee on Agriculture deals with the action taken by the Government on the Observations/Recommendations contained in the Thirty-Sixth (Sixteenth Lok Sabha) of the Standing Committee on Agriculture (2016-2017) on 'Demands for Grants' (2017-18) pertaining to Ministry of Agriculture (Department of Agricultural Research and Education) which was presented to Lok Sabha and laid on the Table of Rajya Sabha on 10.03.2017.

1.2 The Ministry of Agriculture (Department of Agricultural Research & Education) have furnished Action Taken Replies in respect of all the 13 Observations/Recommendations contained in the Report. These replies have been categorized as under:

- (i) Observations/Recommendations that have been accepted by the Government:

Recommendation Nos. 1, 2, 3, 4, 5, 6, 7, 10, 11 and 13

**Total 10
Chapter - II**

- (ii) Observations/Recommendations in respect of which the Committee do not desire to pursue in view of the Government's reply:

Recommendation No. NIL

**Total 00
Chapter - III**

- (iii) Observations/Recommendations in respect of which action taken replies of the Government have not been accepted by the Committee:

Recommendation Nos. NIL

**Total 00
Chapter - IV**

- (iv) Observations/Recommendations in respect of which final replies of the Government are still awaited :

Recommendation Nos. 8, 9 and 12

**Total 03
Chapter - V**

1.3 The Committee trust that utmost importance would be given to implementation of the Observations/Recommendations accepted by the Government. In cases, where it is not possible for the Department to implement the Recommendations in letter and spirit, the matter should be reported to the Committee with reasons for non-implementation. The Committee desire that further Action Taken Notes on the Observations/Recommendations contained in Chapter-I and final Action Taken Replies to the Recommendations contained in Chapter-V of this Report be furnished to them at an early date.

1.4 The Committee will now deal with the action taken by the Government on some of the Recommendations in the succeeding paragraphs.

A. NEED FOR OPTIMUM UTILIZATION OF FUNDS

Recommendation (Serial No. 2)

1.5 The Committee had observed/ recommended as under:-

"The Committee note that only 69.43 % (BE) funds were allocated to the DARE/ICAR as against earmarked outlays of Rs.25553.00 crore during XII plan. The BE allocations were further drastically reduced at RE stage and DARE/ICAR got only 53.95 % of earmarked outlays during entire XII plan. The Committee also observe that the Department failed to fully utilize funds under plan head during 2015-16 as only Rs. 2735.32 crore were utilized as against RE allocations of Rs. 3000 crore. The same trend has been observed during entire XII plan as the Department utilized only Rs. 10992.31 crore i.e. 79.73% as against RE allocations of Rs. 13786.58 crore under plan head till December, 2016. The Committee are not convinced with the reasons put forward by the Government such as involvement of several agencies, time consuming codal formalities/ procedures, seeking the preliminary estimates,

tendering of proposals for equipment, vetting by Director works, concurrence/ interventions of the Internal Finance, approval of the competent authority and finally placement of orders for procurements/ going ahead with constructions, failure of supplying firms/ construction agencies to supply the articles/ initiation of constructions on time , review of proposal due to reduction of allocations at RE stage etc. accounted for failure of Department to fully utilize allocated funds. The Committee note with concern that same reasons are cited year after year to justify the failure of the Ministry to fully utilize the allocated funds. The Committee desire the Ministry to review the entire system and look into the constraints or causes for under-utilization of funds during the previous years and make concerted and coordinated efforts to make full use of allocated funds."

1.6 The Department in its Action Taken Reply has stated as under:-

"Recommendation of the Committee has been noted for necessary compliance. The entire system of funds flow from Department to its different centres and utilisation has been reviewed in view of merger of Plan and Non-Plan funds. The concerted and coordinated efforts will be made for efficient and maximum utilisation of allocated funds."

1.7 The Committee while showing concern over failure of the Department to fully utilize allocated funds had recommended the Government to review the entire system and look into the constraints or causes for under-utilization of funds during the previous years and make concerted and coordinated efforts to make full use of allocated funds. The Department in their action taken reply, without providing details of review, has stated that entire system of fund flow from Department to its different centres and utilisation has been reviewed in view of merger of Plan and Non-Plan funds and assured the Committee about concerted and coordinated efforts for efficient and maximum utilisation of allocated funds. The Department deprecate the callous attitude of Department on the important issue of financial management which causes delay in financial approval, thereby, hampering the scientific projects. The Committee,

therefore, desire the Department to furnish details of review undertaken by the Department for identification of constraints for under-utilization of funds during the previous years. The Committee also desire the Department to furnish steps being undertaken for enhancing the fund utilization in various institutes under ICAR.

B. HORTICULTURE SCIENCE DIVISION

Recommendation (Serial No. 07)

1.8 The Committee had observed/ recommended as under:-

"The Committee note that Horticulture Science Division under ICAR coordinates and monitors the research programs in the country with the network of 12 Research Institutes, 06 National Research Centres, 05 Project Directorates, 10 All India Coordinated Research Projects and 02 Network Research Projects for technological development in enhancing the horticulture crop productivity through science led growth in the sector. The Committee were informed that the Division have notified 115 varieties of horticultural crops during the period of 2014-16. Further, 52 varieties of vegetable and spices were also notified during the last five years. However, the Committee are constrained to note that only Rs. 778.35 crore i.e. 54.74 % out of earmarked outlays of Rs. 1422 crore for the XII plan was allocated to the division at RE stage. Nevertheless, for 2017-18, the combined allocations of Rs. 602.65 crore have been made to the Division which is 13.95 % higher than the combined allocations i.e. Rs. 528.27 crore made at RE stage during 2016-17. In its explanation, the Department informed that funds are allocated to different division on the basis of overall allocations received by the DARE/ICAR from the M/o Finance at BE and RE stage. Every year, the M/o Finance had reduced the allocation of DARE/ICAR. This has resulted in proportionate reduction to various Divisions at RE state, which is the prime reason for significant cut in the allocation of Horticulture Science Division for the entire 12th plan period. The Committee are of the opinion that a significant cut in the plan allocation adversely affect the smooth and effective

implementation of the various activities/programmes and achievements of planned targets. The Committee, therefore, recommend that the Department may pursue the matter with M/o Finance for allocation of adequate funds at RE stage so as to ensure that various activities/programmes of the Division do not suffer for want of funds.

The Committee also note that India imports a lot of agricultural and allied products from other countries. The total agricultural and allied products imports of the Country has increased from Rs. 70165 crore during 2011-12 to Rs. 139934 crore during 2015-16. As a result, the share of agriculture import in total import in the country has increased from 2.99 % in 2011-12 to 5.63 % during 2015-16. The Committee further observe that vegetable oils, pulses, fresh fruits, cashew, spices and sugar are some of the major agricultural commodities in terms of value which were imported in the country during the said period. The Committee recall that ICAR has started major research efforts to develop improved varieties of pulses to increase their production in the country. The Committee were also informed that ICAR has initiated work to develop local varieties of exotic vegetables and fruits such as cape gooseberry, peppeno, rambuttan, dragon fruits, mangosteen, sweet carambola, durian, pulasan, jackfruit, broccoli, Chinese cabbage, lettuce and English cucumber. However, the Committee are surprised to know that ICAR has not taken steps for research on development of local 79 varieties of olive, almond, walnut etc. The ICAR has also failed to develop improved varieties of oil seeds which can bring revolution in oil seed production in the Country. The Committee are of considered opinion that demands for agriculture products in the country is bound to change significantly with changing dietary pattern associated with rising income and impact of globalization, necessitating import and thereby, causing strain on foreign exchange . The Committee are of the view that there is need for enhancing production of agriculture products which are currently being imported. The Committee, therefore, recommend that a detailed study to find ways to enhance production of these agriculture produce in different agro-climatic zones and subzones in the country be conducted. The Committee also recommend the ICAR to start a special

research project for development of local varieties of dry fruits, spices, olive etc. which are currently being imported in the country. The Committee also recommend the Government to allocate additional funds to the ICAR for this purpose. The Committee would like to be apprised of the initiatives undertaken by the Department in this regard."

1.9 The Department in its Action Taken Reply has stated as under:-

"Recommendation of the Committee has been noted for necessary compliance. Accordingly, the Department has requested to the Ministry of Finance for allocation of enhanced funds during RE stage for the current financial year. On the availability of enhanced funds from Ministry of Finance, department shall allocate adequate funds to the division at RE stage in the current fiscal so that all activities/programmes undertaken by them may run smoothly and effectively to achieve the planned physical and financial targets.

ICAR has initiated work to develop local varieties of exotic vegetables and fruits such as cape gooseberry, peppeno, rambuttan, dragon fruits, mangosteen, sweet carambola, durian, pulasan, jackfruit, broccoli, Chinese cabbage, lettuce and English cucumber. The details are given below;

Under-utilized fruits: Superior germplasm of dragon fruit (*Hylocerusspp.*), rambutan (*Nepheliumlappaceum*), mangosteen (*Garciniamangostana*), sweet carambola (*Averrhoacarambola*) and edible cactus (*Opuntiaficus-indica*) have been successfully introduced. further evaluation and validation of their performance will pave way for cultivation of non-conventional and exotic crops in the islands. 200 accessions of rambutan, 10 accessions of carambola, 5 accessions of durian, 2 accessions of Pulassan, 13 accessions of mangosteen and 60 accessions of jackfruit have been collected and evaluated. After rigourous trials on under-utilized fruits two varieties of rambutan have been released for commercial cultivations. Several elite lines are in the process of release and registration.

Two improved varieties of jackfruit have been identified and their faster multiplication through soft wood grafting have been standardized. Several

products of underutilized fruits such as osmo-dehydrated products of jackfruit, RTS beverages have been developed.

Organized several field days, seminars, field visits, farmers meetings to popularize cultivation of underutilized fruits in the humid tropical regions of Karnataka, Kerala, Tamil Nadu, Goa and Andhra Pradesh during the last one decade. More than 1000 acres have been brought under rambutan orchards and the area under mangosteen, dragon fruit and other has increased several folds during this period. Since, most of the orchards of underutilized fruits are still to start fruiting and it is expected that the import of these fruits will reduce as the country orchards attain full production stage.

The fruits of **pepino or sweet cucumber** are yet to get popularity among the farmers of the region.

Research on local varieties of Olive, Walnut and Almonds have been initiated - **for Walnut**, 20 high yielding varieties have been identified and 10 walnut varieties suitable for temperate region of Jammu & Kashmir have been released. Registration has been applied through PPV&FRA for protection of five walnut varieties. Research on **Almond** is focussed for development of technologies such as rejuvenation of old and senile orchards, pollination management for higher productivity, *in-situ* moisture conservation for enhanced Water Use Efficiency (WUE) and productivity, High Density Plantation (HDP) on clonal rootstocks for improved productivity and quality development. On **Olive**: a total of eighteen olive genotypes have been imported from Egypt, UC-DAVIS, California and Ramban (J&K), preliminary trials have been performed for fruit yield and oil content, results are encouraging under temperate climate. The preliminary research on floral biology, cross compatibility and maturity indices is also initiated to develop complete package of technologies in olive.

Cape Gooseberry: Development of package of practices for growing Cape goose berry under temperate conditions of Jammu and Kashmir is in process, varieties are being evaluated for their suitability and further exploitation. Post-

harvest management and value addition through product diversification like cape goose berry fruit bar, jam, jelly etc. have been done.

High Value Leafy Vegetables: Research on production technology for raising high value leafy vegetables like parsley, lettuce, celery, kale and Chinese cabbage have been taken up. Seed production for commercialization, Post-harvest management for quality retention, packaging, value addition and anti-oxidant potential of kale is being carried out.

Import of spices: India imports of spices such as Black pepper, Cardamom (Small & large), ginger, turmeric, clove, nutmeg, mace, Cassia is mainly for value addition by the industry as they can source for the cheapest produce from other producing countries. However, area under clove and cinnamon are low in India and these are imported to meet the domestic demand.

Measures for minimizing import of spices: Research are being taken at the ICAR-Indian Institute of Spices Research & the AICRP on Spices through its Centers located across the country to increase the productivity of spices by popularization of new high yielding, high quality and disease tolerant varieties of spices. Conserving soil and water resources and developing micro irrigation facilities for spice crops which are otherwise grown as rain fed crops, will increase the productivity under changing climatic scenario. Further, exploiting the potential of increasing spices production by expanding the crops to non-traditional areas like North Eastern States etc. and popularisation of good agricultural practices (GAPs) in spices for sustainability and production of clean and safe produce for market requirement are some other measures to improve production and minimize imports. Besides, India has the largest diversity in major spices and popularising the high quality, disease/pest resistant spice varieties will increase the intrinsic quality of Indian spices.

Import of cashew: India is importing (> 9 lakh tones) cashew raw nuts due to shortage of raw nut availability in the country. India also exports, approximately 45 % of imported cashew raw nuts after processing in the form of cashew kernels. During 2014 -15, India imported 9.39 lakh MT raw cashew

nuts of which 2.35 lakh MT kernels were obtained and 1.18 lakh MT kernels were exported. ICAR-Directorate of Cashew Research, Puttur is carrying out research for the development of technologies to improve raw nut production. The production and productivity is in increasing trend over the years.

Vegetable oil: ICAR-Indian Institute of Oil Palm Research is taking steps to improve vegetable oil situation through oil palm as Oil palm is the highest edible oil yielding perennial crop. The fresh fruit bunch yields obtained by progressive farmers of Andhra Pradesh and Karnataka, under optimum technologies is between 20 and 25 tons per ha per annum with 4-5 tonnes of oil per ha per annum from fourth year onwards. The maximum yield of 30-35 tons FFB/ha during the seventh year was also recorded in many plantations. A record yield of 53.2 tons FFB/ha per annum has been recorded by a farmer in Karnataka.

A total of 128 Oil palm germplasm have been collected from different countries with wide variability for different characteristics. High yielding cross combinations have been identified and mother palms for production of new hybrids planted in seed gardens. The development of drought tolerant, dwarf and compact palms cultivars is in progress. Protocol for *in vitro* regeneration of oil palm using explants from mature palms has been developed and has entered into the commercialization phase.

Established four seed gardens in Karnataka and Andhra Pradesh each with production potential of one million sprouts per annum for planting an area of 5,000 ha per annum. Thus, over the period of productive phase of 20 years, the planting materials could be utilized for planting one lakh ha, thus resulting in 10 lakh tons of additional production in terms of fresh fruit bunch yield per annum. The additional yield from the new hybrids would enable the State Governments also to step up the Area Expansion Programme for oil palm as per the expectations of NITI Aayog. The technology of oil palm tissue culture has been commercialized through AgrInnovate India Limited to four Entrepreneurs.

Underutilized/exotic vegetables Broccoli, Chinese cabbage and Lettuce:

Production module for Chinese cabbage and lettuce through use of organic amendments has been standardized. Variability in carotenes, Vitamin C, E and phenolics were estimated in different cultivars of **Broccoli, Chinese cabbage** and **Brussels sprouts**. In broccoli, the maximum yield 137.72 q/ha has been obtained.

1.10 While Observing increase in import of agricultural products especially vegetable oils, pulses, fresh fruits, cashew, spices in the country during recent years, the Committee had recommended the ICAR to take a detailed study to find ways to enhance production of these agriculture produce in different agro-climatic zones and sub-zones in the country. The Committee had also recommend the ICAR to start a special research project for development of local varieties of dry fruits, spices, olive etc. which are currently being imported in the country. The Department in their Action Taken Replies, apart from providing details of research being undertaken for development of local varieties of underutilized fruits, Olive, Walnut, almond, oil palm, exotic vegetables Broccoli, Chinese cabbage, Lettuce and spices has also stated that cashew nut and some spices such as Black pepper, Cardamom (Small & large), ginger, turmeric, clove, nutmeg, mace, Cassia are being imported in the country for value addition and further export. The Committee, however, do not find any response of Department about ways to enhance production of these agriculture produce in different agro-climatic zones and sub-zones in the country. The Department is also silent on the issue of providing additional funds for these research projects. The Committee while appreciating efforts of ICAR for initiating these studies, are of opinion that there is need to study the pattern of import of agricultural produce in the country as it provides insight about changing consumption pattern of consumers. The Committee are also of view that there is need to identify new areas where these exotic fruits, vegetables, olives, walnut, almonds etc. can be grown. The Committee, therefore, reiterate their earlier recommendation for dovetailing adequate efforts and funds on development of local varieties of abovementioned fruits, vegetables etc. and desire the

ICAR to sponsor a study to analyze pattern of import of agriculture produce in the country and identify new areas where cultivation of these crops may be promoted. The Committee would like to be apprised about steps taken in this regard within three months of presentation of this Report.

C. NATURAL RESOURCES MANAGEMENT DIVISION

Recommendation (Serial No. 08)

1.11 The Committee had observed/ recommended as under:-

"The Committee note that Natural Research Management (NRA) Division of ICAR is engaged in developing location-specific, cost effective and eco-friendly technologies for conservation and management of natural resources through the network of 12 Research Institutes, 01 Bureau, 01 National Research Centre, 01 Project Directorate, 10 All India Coordinated Research Projects and 02 Network Research Projects in the country. The Committee observe that only Rs. 1339.5 80 crore i.e. 61.34 % of earmarked outlays for the XII plan were allocated to the Division at RE stage. The Committee also note that the combined allocations of Rs. 732.17 crore have been made to the Division for 2017-18 as against Rs. 890.96 crore as proposed by the Department during 2017-18. Needless to say, the drastic cut in the plan allocation has its adverse impact on various activities/research projects undertaken by the NRM division. The Committee, therefore, recommend that plan allocation made to the Division may be reviewed at RE stage and the matter may be taken up with the M/o Finance at RE stage for allocation of adequate funds at RE stage so as to ensure effective and efficient implementation of its various activities/research programmes.

The Committee note that NRM Division is engaged in research programmes in the field of organic farming. The Committee note that 5.71million Hectare area including 1.49 million Hectare and 4.22 million hectare forest and wild area for collection of minor forest produces is under organic certification in the country. The Committee were informed that ICAR is developing technologies and low cost manure under Network Project on

Organic Farming to reduce the cost of production of crops. The Committee were also informed that conversion period of shift from chemical fertilizer based to organic farming ranges between 2-4 years in high intensive areas depending on the soils and 0-2 years in hilly and rain fed areas for different crops. However, research done by the ICAR shows that addition of more legumes in the systems (intercropping and 2 legume crops in a year) and addition of low nutrient requiring crops in the rotation are helpful in reducing the conversion period. The Committee further note that ICAR is working 81 for establishment of separate institute for organic farming. However, the Committee are distressed to note that ICAR or any other Government agencies have not undertaken any study to assess the market for organic agricultural products in domestic and international market.

The Committee appreciate the efforts made by the ICAR for research on organic farming. Nevertheless, the Committee are of the view that organic farming is one of the areas where farmers of our country are at advantage due to their traditional knowledge and limited use of fertilizer. Better marketing of organic agriculture products can be useful in achieving the aim of doubling the income of farmers in the country. However, there is need to provide a fillip to traditional knowledge of farmers through infusion of technology, provision of cost effective green manure and reduction of conversion time. The Committee, therefore, recommend the Department to gear their scientific prowess to start a new era of farming based on sustainable use of natural resources. The Committee also desire the Department to constitute a specific cell in every ICAR institute and KVK for organic farming wherein, consultation services and accesses to developed technologies, green manure, plant materials, agronomic methods may be provided to the farmers at a reasonable cost. The Committee appreciate the efforts made by the ICAR for research on organic farming. The Committee also expect the Department to expedite the process of submission of EFC for establishment of an independent Institute for organic farming so that it can be operationalized within minimum possible time. Further, the Committee also desire that ICAR or any other agencies would also be entrusted to conduct a 82 study to

assess the market for organic agricultural products in domestic and international market so as to enable them, to plan organic farming in the Country so as to meet the demand of domestic and international market. The Committee would like to be apprised of the initiatives undertaken by them in this regard."

1.12 The Department in its Action Taken Reply has stated as under:-

"Recommendation of the Committee has been noted for necessary compliance. Accordingly, the Department has requested to the Ministry of Finance for allocation of enhanced funds during RE stage for the current financial year. On the availability of enhanced funds from Ministry of Finance department shall allocate adequate funds to the division at RE stage in the current fiscal so that all activities/programmes undertaken by them may run smoothly and effectively to achieve the planned physical and financial targets.

Organic farming has been studied in different contexts by the scientists. The analysis primarily related to economics of organic farming and the potential benefits to the farmers. The issues of market potential at national & international level and value chain analysis of the produce of organic farming in the North-East is under consideration by the Department as a part of large collaborative projects on value chain analysis.

Further, KVKs impart training to the farmers in various agricultural activities including organic farming to update their knowledge and skills. Farmers are provided training on production of bio-pesticides, bio-agents, and organic manures through vermi composting, green manuring, etc. The KVKs are providing advisories to farmers free of cost on various aspects of organic farming.

During 2016-17, the KVKs conducted 650 trials and 3239 demonstrations in farmers' fields with technological interventions organic farming. The KVKs also provided training to 60743 farmers and 6671 extension personnel by conducting 2473 courses on organic farming technologies. Besides, 6575.67 quintal seeds, 20.39 lakh planting materials, 260.05 quintal bio agents,

343.50 quintals bio-pesticides and 7292.11 quintal bio-fertilizers were produced and provide to farmers engaged in organic farming."

1.13 The Committee while observing potential of Organic farming in enhancing the income of farmers had recommended the Department to constitute a specific cell in every ICAR institute and KVK for organic farming wherein, consultation services and accesses to developed technologies, green manure, plant materials, agronomic methods may be provided to the farmers at a reasonable cost. The Committee also recommended the Department to expedite the process of submission of EFC for establishment of an independent Institute for organic farming so that it can be operationalized within minimum possible time. The Department in their Action Taken reply has stated about works being done by the Krishi Vigyan Kendra (KVKs) in the field of organic farming. The Committee are anguished to note that the Department is silent on the issue of early submission of EFC for establishment of an Institute for organic farming. The Committee are of view that constitution of specific cell on Organic farming in every ICAR institute and independent Institute for organic farming will go a long way to promote research on development of advanced methods of organic farming. It will also help in provision of extension services for organic farming to the farmers and other stakeholders. The Committee, therefore, while reiterating their earlier recommendation, desire the Department to take steps for constitution of specific cell on organic farming in ICAR institute. The Committee also desire the Department to expedite the process for establishment of independent Institute for organic farming.

D. ANIMAL SCIENCE DIVISION

Recommendation (Serial No. 09)

1.14 The Committee had observed/ recommended as under:-

"The Committee note that Animal Science Division of ICAR coordinates and monitors research programmes for sustainable enhancement of productivity and improvement in health status of livestock and poultry in the country

through its 10 Research Institutes, 01 Bureau, 06 National Research Centres, 02 Project Directorates, 07 All India Coordinated Research Projects and 08 Network Research Project. The Committee observe that only Rs. 970.98 crore i.e. 62.93 % of earmarked outlays of Rs.1543.00 crore for the XII plan were allocated to the Division at RE stage. The Committee also note that combined allocations of Rs. 885.77 crore have been made to the Division against Rs. 1001.35 crore as proposed by the Department during 2017-18. The Committee are of the opinion that adequate funds need to be provided to the division so that activities/research/programmes undertaken by the Division are not hindered for want of adequate funds. The Committee, therefore, recommend that the allocation of funds to the Division may be reviewed at RE stage and the matter may be pursued with M/o Finance in this regard.

The Committee note that Animal Science Division is involved in research on development and production of vaccine for various diseases of animal. The 83 Committee were informed that ICAR institutes are engaged in development of gene deleted IBR vaccine, which will be DIVA capable, DIVA enabled mutant Brucella vaccine strain, Johne's disease vaccine, 3A and 3B epitope deletion mutant of FMDV to explore marker vaccine potential, infectious cDNA clone for a serotype Asia 1 and O FMD virus and many other vaccines. The Committee further observe that production of animal vaccine is woefully short of requirement in the country. The Committee were informed that vaccine production of Foot and Mouth disease vaccine, swine fever vaccine, PPR Vaccine, Sheep pox vaccine is only 400 million doses/year, 0.7 million doses/year, 160 million doses/year and 31 million doses/year respectively which is quite low as against requirement of 1022 million doses/year, 10 million doses/year, 200 million doses/year and 65 million doses/year respectively. The Committee are of the view that there is an urgent need for adequate facility and availability of animal vaccine in the country to fully utilize potential of milk, meat and wool from cattle and other animals which are largest in numbers in entire world. The Committee desire the ICAR to take a detailed study on the ways by which production of animal

vaccine may be enhanced to make the country self reliant. The Committee also desire the ICAR to devote adequate resources and man power for development of animal vaccines in which the country lacks necessary technology."

1.15 The Department in its Action Taken Reply has stated as under:-

"Recommendation of the Committee has been noted for necessary compliance. Accordingly, the Department has requested to the Ministry of Finance for allocation of enhanced funds during RE stage for the current financial year. On the availability of enhanced funds from Ministry of Finance department shall allocate adequate funds to the division at RE stage in the current fiscal so that all activities/programmes undertaken by them may run smoothly and effectively to achieve the planned physical and financial targets.

The Animal Science Division has initiated a Consortia Platform on Vaccines and Diagnostics during 2015-16 with a view to make a detailed study on the ways by which production of animal vaccine may be enhanced to make the country self-reliant and the department is trying its best to get enhanced funds from the Ministry of Finance."

1.16 While observing the need to enhance production and development of animal vaccines in the country, the Committee had desired the ICAR to take a detailed study on the ways by which production of animal vaccine may be enhanced to make the country self-reliant. The Committee had also recommended the ICAR to devote adequate resources and man power for development of animal vaccines in which the country lacks necessary technology. The Department in their Action taken reply have submitted that Animal Science Division has initiated a Consortia Platform on Vaccines and Diagnostics during 2015-16 with a view to make a detailed study on the ways by which production of animal vaccine may be enhanced to make the country self-reliant. However, the Department is silent on the issue of steps taken by the ICAR to dovetail resources for research on development of animal vaccines in which the country lacks necessary technology. The Committee

would like the ICAR to instruct the Animal Science Division to complete the said study at the earliest and forward the outcome to the Ministry concerned for necessary action. The Committee also desire the Department to take effective steps for research on development of animal vaccines in which country lacks the technology. The Committee would like to be apprised about the steps taken in this direction within three months of presentation of this Report.

E. AGRICULTURAL ENGINEERING DIVISION

Recommendation (Serial No. 11)

1.17 The Committee had observed/ recommended as under:-

"The Committee note that Agricultural Engineering Division through its 05 Research Institutes, 06 All India Coordinated Research Projects and 02 Network Research Projects mandated to plan, coordinate, and monitor R&D programmes and serve as an information repository in Agricultural Engineering to make Indian agriculture profitable, sustainable and globally competitive enterprise through engineering interventions. The Committee observe that only Rs. 332.00 crore i.e. 30.18 % of earmarked outlays of Rs.1100.00 crore for the XII plan were allocated to the division at RE stage. The Committee also note that combined allocations of Rs. 213.54 crore were made to the Division for 2017-18 against an amount of Rs. 255.91 crore as proposed by the Division during 2017-18. While appreciating the efforts of the Division to ensure that activities/programmes of high priority do not suffer due to reduced allocations during the various years of the 12th Plan, the Committee are of the view that non-availability of funds as proposed by the Department adversely impact the various activities undertaken by the Division. The Committee, therefore, recommend that the Department may taken up the matter with Ministry of Finance and urge them to allocate funds as per their demand.

The Committee note that Agricultural Engineering Division is involved in development and demonstration of technologies related to mechanization of production and post-production agriculture using conventional and nonconventional energy sources and includes mechanization of irrigation and drainage activities; post-harvest and value addition of agricultural products and 86 by products. The Committee were informed that Institutes under the Division have developed locally suitable thirteen technologies related to seeding, planting, plant protection, harvesting, threshing etc. The Committee were also informed that 239 technologies/farm equipments/machine have been developed by the different institutes during the XII plan. The Committee also note that Institutes under the division were able to commercialize 118 these thirteen technologies related to seeding, planting, plant protection, harvesting, threshing etc. Besides, technologies and protocols pertaining to post harvest loss reduction and value addition, renewable energy for agriculture and irrigation have also been developed and were able to generate revenue of Rs. 3.15 crore during XII Plan. However, the Committee are surprised to know that the ICAR does not maintain information regarding import of agricultural machineries and tools in the country. The Committee observe that farming practice of the country is witnessing a gradual shift to the mechanization due to shortage of farm labour, necessitating availability of efficient and cost effective farm equipments and machineries. The Committee also observe that farmers of the country require small and efficient farm equipment due to small and fragmented size of land holdings. The Committee are of the considered view that easy availability of advanced, cost effective and small farm machineries suitable for small and fragmented land holdings will radically transform agriculture by cutting expenses and thereby enhancing income of the farmers in the country. The Committee, therefore, recommend the Department to analyze the availability and use of agriculture machineries in technologically advanced countries and trend of import of these 87 machineries in the country. The Committee also recommend the ICAR to start a dedicated mission for development of advanced agriculture machineries keeping in view the requirement of farmers in the country."

1.18 The Department in its Action Taken Reply has stated as under:-

"Recommendation of the Committee has been noted for necessary compliance. Accordingly, the Department has requested to the Ministry of Finance for allocation of enhanced funds during RE stage for the current and coming financial years. On the availability of enhanced funds from Ministry of Finance, the Department shall allocate adequate funds to the Agricultural Engineering Division at RE stage in the current and coming fiscal to carryout envisaged Agriculture Machinery development programs.

In the technologically advanced countries, due to large farm holdings, large size machinery is used at farms. Whereas in India, small to medium size farm equipment are used for mechanization. Most of these implements are manufactured in India. However, some sophisticated components of these equipment are imported for its manufacturing such as laser transmitter and receiver of laser land leveller, hydraulics motors etc. A consortia Research Platform on Farm Mechanization & Precision Farming was initiated in 2015-16 for development of precision machinery."

1.19 The Committee while recognizing the need for enhancing the level of mechanization in agriculture according to fragmented land holding pattern in large part of the country, had recommended the Department to analyze the availability and use of agriculture machineries in technologically advanced countries and trend of import of these machineries in the country and start a dedicated mission for development of advanced agriculture machineries keeping in view the requirement of farmers in the country. The Department in their Action Taken Reply has submitted that most of small and medium size farm equipments barring some sophisticated components such as laser transmitter and receiver of laser land leveller, hydraulics motors etc. are being manufactured in India. The Department have also submitted that a consortia Research Platform on Farm Mechanization & Precision Farming was initiated in 2015-16 for development of precision machinery. The Committee are of view that farm mechanization will be key to enhancing agricultural productivity, to face the challenges of global warming and reduced availability

of farm labour in coming decades. Therefore, it becomes imperative that advanced, efficient and effective farm implements/machineries are developed indigenously and made available to the farmers. Further, complete indigenisation will help to reduce cost of these farm machineries apart from saving precious foreign currency. The Committee, therefore, reiterate their earlier recommendation and desire the ICAR to take the project of development of advanced farm machineries at priority. The Committee would like to be informed about steps taken in this regard.

F. AGRICULTURE EXTENSION

Recommendation (Serial No. 12)

1.20 The Committee had observed/ recommended as under:-

"The Committee note that ICAR has established a network of 665 Krishi Vigyan Kendra (KVKs) in the country aiming at technology assessment and demonstration for its application and capacity development. Provision of extension services to farmers in the Country is done by the main extension system operated by State Governments. The Department of Agriculture, Cooperation and Farmers Welfare has provided support to States for setting up of Agricultural Technology Management Agency (ATMA) aiming at making extension system farmer driven and farmer accountable by way of new institutional arrangements for technology dissemination at district level. ATMA Scheme is under implementation in 652 districts in 29 States and 3 UTs in the country with provision for active participation of farmers/farmer-groups, NGOs, KVK, Panchayati Raj Institutions and other stakeholders operating at district level and below. However, the Committee note that allocations for KVKs are not sufficient enough to provide them all necessary infrastructure and manpower. Only Rs. 2998.36 crore were allocated for KVKs scheme at RE stage which works out 76.88% of the approved outlays of Rs.3900 crore for the XII plan. The Committee also note that allocations of Rs. 867.60 crore for KVKs scheme during 2017-18 is not sufficient to meet obligations under the scheme and Department will need additional requirement of Rs.200.00 crore during current fiscal. The 88 Committee in their previous reports had

time and again emphasized for allocation of adequate resources for implementation of KVKs scheme to strengthen the system of agriculture extension in the country. The Committee are of the considered view that KVKs due to their linkage with vast network of ICAR institute can be effectively leveraged for dissemination of information about crop varieties and hybrids, technologies, machineries, dairy management practices etc. among farmers in the country and to create a group of progressive farmers who can act as trainers for downward dissemination of these knowledge. The Committee, therefore urge the M/o Finance to allocate additional funds as required by the ICAR for the KVKs scheme at RE stage.

The Committee note that KVK scheme is wholly funded by the Government of India. The Committee were informed that ICAR did not explore the possibilities for accessing the funds available under Corporate Social Responsibility (CSR) of Public/private companies registered in the Country funds for providing necessary infrastructure and equipment to the KVKs scheme. The Committee are of the view that funds available under Corporate Social Responsibility with Public/private companies as mandated by the recently amended Company Act can be effectively utilized for provision of necessary infrastructure, equipments and other facilities in KVKs. The Committee, therefore, recommend the ICAR to make a proposal for tapping the CSR funds for KVKs scheme and approach various Public/private companies either directly or through their representative bodies such as FICCI, ASSOCHAM etc. after obtaining necessary approval. The Committee would like to be apprised of the initiatives undertaken by the Department/ICAR in this regard.

The Committee note that various initiatives under KVK scheme have been undertaken such as Mera Gaon Mera Gaurav (MGMG) and Farmer FIRST Programme (FFP) and Attracting and Retaining Youth in Agriculture (ARYA) during 12th plan. The Farmer FIRST Programme (FFP) aims at increased farmers – scientist interface for enriching knowledge and integrating technology for field application and Mera Gaon Mera Gaurav

(MGMG) aims to encourage agriculture scientists to adopt villages and give suitable advice to the farmers on technical and other related aspects in a time frame through personal visits or on telephone. While appreciating these initiatives of ICAR, the Committee are of the view that that current system of agriculture extension support system needs to be reoriented according to the needs of the farmers keeping in view their socioeconomic conditions and the mental ability to understand and adapt the new technologies and practice for sustained growth in agriculture sector. The Committee, therefore, recommend that the existing system of agriculture extension services in the entire country may be reviewed and reoriented and to make it more effective and accessible to the farmers in the Country in coordination and consultation with all stakeholders including State Governments to elicit their views. The Committee would like to be apprised of the initiatives undertaken by the Department/ICAR in this regard.

Since 2015-16, Attracting and Retaining Youth in Agriculture (ARYA) is being implemented in 25 States through KVKs with an objective to attract and empower the youth in rural areas to take up various agriculture and allied enterprises for sustainable income and gainful employment in selected districts. 90 The Committee were also informed that one district from each State with technical partners from ICAR Institutes and Agricultural Universities for taking up entrepreneurial activities through skill development of rural youth. However, the Committee note that meager allocation of Rs. 2 crore and Rs. 7 crore were made during 2015-16 and 2016-17 respectively. The Committee are of the view that farming sector as a whole is unable to attract the young talent, thereby, affecting income of the farmers in entire country primarily due to lack of entrepreneurship in the field of agriculture. The Committee observe that several private companies have successfully combined the agriculture extension services and agriculture marketing in various parts of the country. The Committee desire the ICAR to study the system of these companies and other such initiatives taken in the private sectors either in the country or abroad and analyze as to in what ways these can be utilized for attracting youth for entrepreneurial startups in the field of

agriculture. The Committee also desire the ICAR to take steps for enhancing awareness among farming community and youth in rural areas for taking benefits under 'Startup India' Initiatives of the Government of India in the field of agriculture. The Committee also recommend the Government to enhance allocations to the ARYA scheme to widen its reach among rural youth in the entire Country."

1.21 The Department in its Action Taken Reply has stated as under:-

"Recommendations of the Committee have been noted for compliance. Accordingly, the Department has requested to the Ministry of Finance for allocation of enhanced funds during RE stage for the current and coming financial years. On the availability of enhanced funds from Ministry of Finance, the Department shall allocate adequate funds to the Agricultural Extension Division at RE stage in the current and coming fiscal to carryout envisaged Agriculture Extension Programs and for further strengthening of the current farmers development related activity and establishment of new KVKs.

Apart from regular budget, KVKs were provided with additional fund of Rs. 16.0 crore for conducting Frontline Demonstrations (FLDs) on oilseed crops; Rs. 25.31 crore for conducting FLDs on pulse crops; Rs. 8.00 crore for purchase of 930 mini soil testing kits; Rs. 3.22 crore for organizing Skill training programmes for farmers/rural youth; and Rs. 1.50 crore for establishment of demonstration units on Integrated farming systems during 2016-17.

The ARYA scheme is being widened by including 75 more districts of the country under the scheme. During 2016-17, 100 KVKs conducted 200 courses of 200 hours each for development of skills in rural youth. During 2017-18, 250 KVKs, 60 SAUs and 50 ICAR Institutes will organize 820 such courses.

Review and reorientation of extension services is being carried out in the Country. Department of Agriculture, Cooperation and Farmers' Welfare

(DAC&FW) is providing funds to States under the scheme “Support to State Extension Programmes for Extension Reforms” which aims at making extension system farmer driven and farmer accountable by way of new institutional arrangements for technology dissemination in the form of an Agricultural Technology Management Agency (ATMA) at district level to operationalize the extension reforms. The DAC&FW has also provided fund for KVK activities like FLDs on Pulses and Oilseeds, Pulses Seed Hubs, IFS Demonstration Units, Skill development training and Mini Soil Testing Kits. Besides, all stakeholders like ICAR Institutes, State Agricultural Universities, KVKs, and other institutes of DAC&FW and Department of Animal Husbandry, Dairying and Fisheries are providing farm advisories through Farmers’ Portal.

So far, no public/private company has come forward for providing Corporate Social Responsibility (CSR) funds to Krishi Vigyan Kendras."

1.22 The Committee while recognizing the need of review of agriculture extension support system according to socio- economic conditions and mental ability of farmers of the country to understand and adapt the new technologies and practices, had recommended for review of existing system of agriculture extension in coordination and consultation with all stakeholders including State Governments. The Department in their Action Taken Reply have submitted that review and reorientation of extension services is being carried out in the Country and Department of Agriculture, Cooperation and Farmers’ Welfare (DAC&FW) is providing funds to States under the scheme “Support to State Extension Programmes for Extension Reforms” which aims at making extension system farmer driven and farmer accountable by way of new institutional arrangements for technology dissemination in the form of an Agricultural Technology Management Agency (ATMA) at District level to operationalize the extension reforms. The Committee also desired the ICAR to take steps for enhancing awareness among farming community and youth in rural areas for taking benefits under 'Start-up India' Initiatives of the Government of India in the field of agriculture. The Committee find that

Department is silent on the recommendation of the Committee regarding analyzing models of private companies which successfully combined the agriculture extension services and agriculture marketing in order to utilize it for attracting youth for entrepreneurial start-ups in the field of agriculture. The Committee are anguished to note that department have not given attention to spirit of recommendation regarding need of making agriculture extension services available to the farmers in every nook and corner in the country. In this regard, the Committee have been informed about expansion of ARYA scheme in 75 more Districts of the Country and courses of skill development for rural youth conducted by KVKs. The Committee are anguished to note about cavalier approach of the Department regarding recommendation of the Committee. The Committee, while reiterating their earlier recommendation, desire the Department to initiate study to analyze models of private company and ways by which these can be utilized for restructuring of Agriculture Extension Services and starting a trend of agro-entrepreneurship among rural youths/farmers in the country. The Committee would like to be apprised about outcome of study within three months of presentation of this Report.

On the issue of exploring the possibility for tapping the funds available under Corporate Social Responsibility (CSR) of Public/private companies registered in the Country for providing necessary infrastructure and equipment to the KVKs scheme, the Department have informed that no public/private company has come forward for providing Corporate Social Responsibility (CSR) funds to Krishi Vigyan Kendras (KVKs). In this regard, the Committee desire the ICAR to take proactive step to approach private companies, FICCI, ASSOCHAM etc. for tapping funds available under Corporate Social Responsibility for improvement of infrastructure and equipments in KVKs. The Committee would like to be apprised about steps taken in this direction within three months of presentation of this Report.

CHAPTER - II

OBSERVATIONS/RECOMMENDATIONS THAT HAVE BEEN ACCEPTED BY THE GOVERNMENT

NEED FOR OPTIMUM UTILIZATION OF FUNDS (Recommendation Para No. 1)

The Committee note that the Government has done away with the distinction between Plan and Non Plan funds and adopted the system of presenting a combined budget of each head as per revised structure w.e.f. 2017-18. The Committee were informed that annual Accounts of ICAR are being prepared strictly as per the guidelines of C&AG for autonomous bodies. The Revenue and Capital expenditure are distinctly depicted in the Accounts. According to the Department, introduction of new system of presentation of budget will bring higher efficiency and optimal utilization of allocated funds due to reduced codal formalities. The Committee express their sense of satisfaction about the current changes in process of budgeting by doing away with distinction between Plan and Non-Plan funds and advancing the date for presentation of budget. The Committee hope that these changes will simplify the process of accounting and expenditure control mechanism, reduction of codal formalities etc. thereby optimizing the utilization of allocated funds. Parliamentary approval to Demands for Grants before the start of next fiscal and availability of funds at the beginning of financial year will also help the Department for timely planning and execution of research. The Committee hope that DARE/ICAR will strengthen their system to take maximum benefits out of these changes and fully utilize allocated funds. The Committee also desire the Department to take an overview of existing procedure 72 for approval of funds for projects, tendering process and procurement system and undertake necessary changes in order to minimize the time gap between approval and execution of projects/Research.

Reply of the Government

Subsequent to merger of Plan and Non-Plan funds, ICAR has allocated funds after extensive exercise of ascertaining the need and priority areas under various schemes in which the funds are being drawn from the Government and hence, working towards achieving the target of optimum utilization of funds through simplified process of accounting and expenditure control mechanism, etc. Further, in so far as taking overview of existing procedures for approval of funds for projects, tendering process and procurement system are concerned, it is submitted that ICAR follows the EFC/SFC processes for approval and appraisal of the schemes, strictly as per Government Rules & extant Guidelines and also follows General Financial Rules as amended from time to time.

Ministry of Agriculture & Farmers Welfare O.M No.7 (5)/2017, dated 06th June, 2017,

Department of Agricultural Research and Education

NEED FOR OPTIMUM UTILIZATION OF FUNDS **(Recommendation Para No. 2)**

The Committee note that only 69.43 % (BE) funds were allocated to the DARE/ICAR as against earmarked outlays of Rs.25553.00 crore during XII plan. The BE allocations were further drastically reduced at RE stage and DARE/ICAR got only 53.95 % of earmarked outlays during entire XII plan. The Committee also observe that the Department failed to fully utilize funds under plan head during 2015-16 as only Rs. 2735.32 crore were utilized as against RE allocations of Rs. 3000 crore. The same trend has been observed during entire XII plan as the Department utilized only Rs. 10992.31 crore i.e. 79.73% as against RE allocations of Rs. 13786.58 crore under plan head till December, 2016. The Committee are not convinced with the reasons put forward by the Government such as involvement of several agencies, time consuming codal formalities/ procedures, seeking the preliminary estimates, tendering of proposals for equipment, vetting by Director works, concurrence/ interventions of the Internal Finance, approval of the competent authority and finally placement of orders for procurements/ going ahead with constructions, failure of supplying firms/ construction agencies to supply the articles/

initiation of constructions on time , review of proposal due to reduction of allocations at RE stage etc. accounted for failure of Department to fully utilize allocated funds. The Committee note with concern that same reasons are cited year after year to justify the failure of the Ministry to fully utilize the allocated funds. The Committee desire the Ministry to 73 review the entire system and look into the constraints or causes for under-utilization of funds during the previous years and make concerted and coordinated efforts to make full use of allocated funds.

Reply of the Government

Recommendation of the Committee has been noted for necessary compliance. The entire system of funds flow from Department to its different centres and utilisation has been reviewed in view of merger of Plan and Non-Plan funds. The concerted and coordinated efforts will be made for efficient and maximum utilisation of allocated funds.

[Ministry of Agriculture & Farmers Welfare O.M No.7 (5)/2017, dated 06th June, 2017,
Department of Agricultural Research and Education

Comments of the Committee

For comments of the Committee please refer to Para No.1.7 of Chapter I of this Report.

NEED FOR ADEQUATE ALLOCATION OF FUNDS FOR RESEARCH WORK **(Recommendation Para No. 3)**

The Committee note that a sum of Rs. 6800.00 crore has been allocated to the Department as against proposal of Rs. 7665.48 crore for the financial year 2017-18. The Committee observe that allocation during current fiscal are only 9.01 % higher than combined RE allocations to the Department during 2016-17. The Committee also observe that major amount of funds available to the DARE/ICAR are utilized for payment of salary. The Committee were informed that around 14 per cent of the total R&D expenditure of the Union Government is on agricultural research and education, and more than half of ICAR budget is spent on SAUs, KVKs and AICRPs. The representative of DARE/ICAR submitted during the sitting that Rs.

4200 crore out of allocations of Rs. 6800 crore during 2017-18 will be utilized under the head of salary/pension and Department has been left only with limited funds for research after payment of salary/pension, KVKs and education. The Committee are of view that there is need for huge investment in the agricultural research and education sector and extension services if the Government wants to achieve the aim of doubling the income of farmers in the country by 2022. However, the Committee are distressed to note that there is stagnation in the allocations to these sectors as over a period of time the share of annual allocation to the DARE/ICARs with respect to corresponding Agricultural GDP (at current prices) is oscillating between 0.3 to 0.4 %. The Committee in their earlier reports had stressed on allocations of around 1 % of agricultural GDP to the DARE/ICAR in order to transform the agriculture research sector. The Committee, therefore, reiterate their earlier recommendation and urge the Government to enhance allocations to the DARE/ICAR during current fiscal and future so that various research projects/ related programmes undertaken by the Department do not suffer for want of funds and target of 4% annual growth in agriculture sector could be accomplished without any constraints.

Reply of the Government

Recommendation of the Committee has been noted for necessary compliance. Accordingly, the Department has requested Ministry of Finance for allocation of enhanced funds to DARE/ICAR during RE stage for the current financial year and expedite the modalities to increase the investment to the extent of 1% of agricultural GDP in forthcoming financial years also so that the contribution of agricultural research in achieving 4% annual growth in agriculture sector could be accomplished without financial constraints.

Ministry of Agriculture & Farmers Welfare O.M No.7 (5)/2017, dated 06th June, 2017, Department of Agricultural Research and Education

FINANCIAL IRREGULARITIES **(Recommendation Para No. 4)**

The Committee note that 5 cases of financial irregularities were reported in the Institutes of ICAR to the DARE during 2015-16 and 2016-17. The Committee

further note that ICAR has initiated necessary proceedings under relevant conduct rules in all cases. The Committee were informed that ICAR has strengthened the internal audit system and they regularly interact with authorities in various ICAR institutes to prevent irregularities. The Committee hope that the strict vigil will be maintained by ICAR in future and desire that the Department should make provisions for time bound completion of inquiry.

Reply of the Government

Recommendation of the Committee has been noted for necessary compliance.

Ministry of Agriculture & Farmers Welfare O.M No.7 (5)/2017, dated 06th June, 2017,
Department of Agricultural Research and Education

GENERATION OF INTERNAL REVENUE **(Recommendation Para No. 5)**

The Committee note that the Institutes of ICAR generate significant revenue from copyrights, sale of seeds/ planting materials /vaccines, consultancy/training services etc. The Committee were informed that ICAR institutes utilized revenue 75 of Rs. 733.66 crore during 2012-16. The Committee are of view that there is need of enhancing internal revenue generation from ICAR Institutes. There is huge market for hybrid seeds, crop varieties, agricultural machineries, vaccines, dairy formulations etc. developed by the ICAR institutes within the country and abroad which are yet to be explored. The Committee, therefore, recommend the Department to take steps for availability of all ICAR products and services on a single platform and make it accessible and cost effective in order to maximize revenue from intellectual properties available with vast network of ICAR Institutes. The Committee desire the Department to make it mandatory to channelize services of all ICAR institutes through a single platform. The Committee also expect from the Department to take steps to make Agrinnovate more vibrant and market savvy.

Reply of the Government

Recommendation of the Committee has been noted for necessary compliance. The Intellectual Property and Technology Management unit of the ICAR is having the inventories of all technologies/ products/ process and other intellectual

properties of the Department and putting concerted efforts for commercialisation. The hybrid seeds, crop varieties, agricultural machineries, vaccines, dairy formulations and other technologies developed by the ICAR institutes are being assessed and demonstrated for their application and capacity development through a vast network of Krishi Vigyan Kendras of the country. The seeds, planting materials and other technology inputs produced by ICAR institutes as well as Krishi Vigyan Kendras are made available to farmers on a nominal price without any profit motive for enhancement of productivity and farmers' welfare.

ICAR Institutes are generating revenue through the sale of products/ seeds/ technology/ consultancies etc. as per target provided by the Department keeping in view the capacity of the institute. Institutes will be further advised to enhance their internal revenue by exploring saleable technological inputs, etc.

Agrinnovate is gearing to be more vibrant and market savvy by standardizing its processes and procedures so that technology and services of ICAR are available to the market in a very efficient and transparent manner. Agrinnovate has also been working with various ICAR Institutes to generate revenues. It endeavours to improve the internal processes by benchmarking these processes against the best in the Industry. It has started collaborating with other organizations (Government and Private) in the sector along with apex industry bodies such as FICCI, CII, ASSOCHAM etc to increase revenues through technology transfer, capacity building, collaborative research etc.

Ministry of Agriculture & Farmers Welfare O.M No.7 (5)/2017, dated 06th June, 2017, Department of Agricultural Research and Education

CROP SCIENCE DIVISION
(Recommendation Para No. 6)

The Committee note that Crop Science Division is engaged in the development of improved crop varieties/hybrids, cost effective production and environment friendly crop protection technologies to enhance crop productions and ensure food and nutritional security in the Country through a network of 17 Research Institutes, 03 Bureaux, 02 National Research Centres, 04 Project Directorates, 22 All India Coordinated Research Projects and 11 Network Research Projects. The

Committee were informed that the 265 field crop varieties and hybrids out of 698 varieties released during XII Plan have been commercialized till date and currently are under seed chain. The Committee were further informed that 76 awareness campaign are conducted among farmers about new crop varieties and hybrids through nationwide Front Line Demonstrations (FLDs), on and off farm trainings, skill development program by the ICAR institutes, State Agricultural Universities (SAUs) and Krishi Vigyan Kendras (KVKs). However, the Committee regret to note only Rs. 2512.75 crore were allocated at BE stage as against earmarked outlays of Rs. 4141.31 crore for XII plan under the head Crop Science which works out only 60.97 %. This amount was further reduced to Rs. 2099.66 crore at RE stage. However, the Committee are distressed to note that the Division could utilize only Rs. 1938.49 crore till December 2016. The budget estimates to the Division during 2017-18 is only Rs.1486.58 crore as against Rs. 1639.10 crore proposed by the Division.

According to the Department, the division has made efforts to ensure that activities/programmes of high priority do not suffer due to reduced allocations during the various years of 12th plan period. The Department has also made more efforts to achieve the set physical targets and set its priorities according to the available funds. While appreciating the efforts of the Division, the Committee are of the opinion that drastic cut in plan allocation of funds to the extent of 39% as against the earmarked outlays of Rs 4141.39 crore for 12th plan would bound to affect adversely the implementation of various activities/programmes of the Division. The Committee, therefore, desire the Department to impress upon the Ministry of Finance for adequate allocations of funds as proposed by them to the division at RE stage in the current fiscal so that all activities/programmes undertaken by them may run smoothly and effectively with a view to achieve the 77 planned physical and financial targets. The Committee would like to be apprised of the initiatives undertaken by the Department in this regard. The Committee also desire that a mechanism may be put in place in ICAR to monitor activities/programmes of the Division so as to ensure timely and optimum utilization of allocated funds for this purpose.

Reply of the Government

Recommendation of the Committee has been noted for necessary compliance. Accordingly, the Department has requested to the Ministry of Finance for allocation of enhanced funds during RE stage for the current financial year. Subsequently on the availability of enhanced funds from Ministry of Finance at RE stage in the current fiscal, the Department shall allocate adequate funds to the division so that all activities/programmes undertaken by them may run smoothly and effectively to achieve the planned physical and financial targets.

ICAR has devised the process of monthly monitoring of the progress of the Divisions to ensure optimum utilisation of allocated funds. The activities and programmes of the Divisions are being monitored/ reviewed at EFC/ SFC stages also, and the activities and programmes of the ICAR institutes are being monitored by Institute Research Committee (every six month) and by Research Advisory Committee on yearly basis.

Ministry of Agriculture & Farmers Welfare O.M No.7 (5)/2017, dated 06th June, 2017,

Department of Agricultural Research and Education

HORTICULTURE SCIENCE DIVISION **(Recommendation Para No. 07)**

The Committee note that Horticulture Science Division under ICAR coordinates and monitors the research programs in the country with the network of 12 Research Institutes, 06 National Research Centres, 05 Project Directorates, 10 All India Coordinated Research Projects and 02 Network Research Projects for technological development in enhancing the horticulture crop productivity through science led growth in the sector. The Committee were informed that the Division have notified 115 varieties of horticultural crops during the period of 2014-16. Further, 52 varieties of vegetable and spices were also notified during the last five years. However, the Committee are constrained to note that only Rs. 778.35 crore i.e. 54.74 % out of earmarked outlays of Rs. 1422 crore for the XII plan was allocated to the division at RE stage. Nevertheless, for 2017-18, the combined allocations of Rs. 602.65 crore have been made to the Division which is 13.95 %

higher than the combined allocations i.e. Rs. 528.27 crore made at RE stage during 2016-17. In its explanation, the Department informed that funds are allocated to different division on the basis of overall allocations received by the DARE/ICAR from the M/o Finance at BE and RE stage. Every year, the M/o Finance had reduced the allocation of DARE/ICAR. This has resulted in 78 proportionate reduction to various Divisions at RE state, which is the prime reason for significant cut in the allocation of Horticulture Science Division for the entire 12th plan period. The Committee are of the opinion that a significant cut in the plan allocation adversely affect the smooth and effective implementation of the various activities/programmes and achievements of planned targets. The Committee, therefore, recommend that the Department may pursue the matter with M/o Finance for allocation of adequate funds at RE stage so as to ensure that various activities/programmes of the Division do not suffer for want of funds.

The Committee also note that India imports a lot of agricultural and allied products from other countries. The total agricultural and allied products imports of the Country has increased from Rs. 70165 crore during 2011-12 to Rs. 139934 crore during 2015-16. As a result, the share of agriculture import in total import in the country has increased from 2.99 % in 2011-12 to 5.63 % during 2015-16. The Committee further observe that vegetable oils, pulses, fresh fruits, cashew, spices and sugar are some of the major agricultural commodities in terms of value which were imported in the country during the said period. The Committee recall that ICAR has started major research efforts to develop improved varieties of pulses to increase their production in the country. The Committee were also informed that ICAR has initiated work to develop local varieties of exotic vegetables and fruits such as cape gooseberry, peppeno, rambuttan, dragon fruits, mangosteen, sweet carambola, durian, pulasan, jackfruit, broccoli, Chinese cabbage, lettuce and English cucumber. However, the Committee are surprised to know that ICAR has not taken steps for research on development of local 79 varieties of olive, almond, walnut etc. The ICAR has also failed to develop improved varieties of oil seeds which can bring revolution in oil seed production in the Country. The Committee are of considered opinion that demands for agriculture products in the country is bound to change significantly with changing dietary pattern associated with rising income and impact

of globalization, necessitating import and thereby, causing strain on foreign exchange . The Committee are of the view that there is need for enhancing production of agriculture products which are currently being imported. The Committee, therefore, recommend that a detailed study to find ways to enhance production of these agriculture produce in different agro-climatic zones and subzones in the country be conducted. The Committee also recommend the ICAR to start a special research project for development of local varieties of dry fruits, spices, olive etc. which are currently being imported in the country. The Committee also recommend the Government to allocate additional funds to the ICAR for this purpose. The Committee would like to be apprised of the initiatives undertaken by the Department in this regard.

Reply of the Government

Recommendation of the Committee has been noted for necessary compliance. Accordingly, the Department has requested to the Ministry of Finance for allocation of enhanced funds during RE stage for the current financial year. On the availability of enhanced funds from Ministry of Finance, department shall allocate adequate funds to the division at RE stage in the current fiscal so that all activities/programmes undertaken by them may run smoothly and effectively to achieve the planned physical and financial targets.

ICAR has initiated work to develop local varieties of exotic vegetables and fruits such as cape gooseberry, peppeno, rambuttan, dragon fruits, mangosteen, sweet carambola, durian, pulasan, jackfruit, broccoli, Chinese cabbage, lettuce and English cucumber. The details are given below;

Under-utilized fruits: Superior germplasm of dragon fruit (*Hylocerusspp.*), rambutan (*Nepheliumlappaceum*), mangosteen (*Garciniamangostana*), sweet carambola (*Averrhoacarambola*) and edible cactus (*Opuntiaficus-indica*) have been successfully introduced, further evaluation and validation of their performance will pave way for cultivation of non-conventional and exotic crops in the islands.

200 accessions of rambutan, 10 accessions of carambola, 5 accessions of durian, 2 accessions of Pulassan, 13 accessions of mangosteen and 60 accessions of jackfruit have been collected and evaluated. After rigorous trials on under-utilized fruits two varieties of rambutan have been released for commercial cultivations. Several elite lines are in the process of release and registration.

Two improved varieties of jackfruit have been identified and their faster multiplication through soft wood grafting have been standardized. Several products of underutilized fruits such as osmo-dehydrated products of jackfruit, RTS beverages have been developed.

Organized several field days, seminars, field visits, farmers meetings to popularize cultivation of underutilized fruits in the humid tropical regions of Karnataka, Kerala, Tamil Nadu, Goa and Andhra Pradesh during the last one decade. More than 1000 acres have been brought under rambutan orchards and the area under mangosteen, dragon fruit and other has increased several folds during this period. Since, most of the orchards of underutilized fruits are still to start fruiting and it is expected that the import of these fruits will reduce as the country orchards attain full production stage.

The fruits of **pepino or sweet cucumber** are yet to get popularity among the farmers of the region.

Research on **Local varieties of Olive, walnut and almonds** have been initiated - **for Walnut**, 20 high yielding varieties have been identified and 10 walnut varieties suitable for temperate region of Jammu & Kashmir have been released. Registration has been applied through PPV&FRA for protection of five walnut varieties. Research on **Almond** is focussed for development of technologies such as rejuvenation of old and senile orchards, pollination management for higher productivity, *in-situ* moisture conservation for enhanced Water Use Efficiency (WUE) and productivity, High Density Plantation (HDP) on clonal rootstocks for improved productivity and quality development. On **Olive**: a total of eighteen olive genotypes have been imported from Egypt, UC-DAVIS, California and Ramban (J&K), preliminary trials have been performed for fruit yield and oil content, results are encouraging under temperate climate. The preliminary research on floral biology, cross compatibility and maturity indices is also initiated to develop complete package of technologies in olive.

Cape Gooseberry: Development of package of practices for growing Cape goose berry under temperate conditions of Jammu and Kashmir is in process, varieties are being evaluated for their suitability and further exploitation. Post-harvest management and value addition through product diversification like cape goose berry fruit bar, jam, jelly etc. have been done.

High Value Leafy Vegetables: Research on production technology for raising high value leafy vegetables like parsley, lettuce, celery, kale and Chinese cabbage have been taken up. Seed production for commercialization, Post-harvest management for quality retention, packaging, value addition and anti-oxidant potential of kale is being carried out.

Import of spices: India imports of spices such as Black pepper, Cardamom (Small & large), ginger, turmeric, clove, nutmeg, mace, Cassia is mainly for value addition by the industry as they can source for the cheapest produce from other producing countries. However, area under clove and cinnamon are low in India and these are imported to meet the domestic demand.

Measures for minimizing import of spices: Research are being taken at the ICAR-Indian Institute of Spices Research & the AICRP on Spices through its Centers located across the country to increase the productivity of spices by popularization of new high yielding, high quality and disease tolerant varieties of spices. Conserving soil and water resources and developing micro irrigation facilities for spice crops which are otherwise grown as rain fed crops, will increase the productivity under changing climatic scenario. Further, exploiting the potential of increasing spices production by expanding the crops to non-traditional areas like North Eastern States etc. and popularisation of good agricultural practices (GAPs) in spices for sustainability and production of clean and safe produce for market requirement are some other measures to improve production and minimize imports. Besides, India has the largest diversity in major spices and popularising the high quality, disease/pest resistant spice varieties will increase the intrinsic quality of Indian spices.

Import of cashew: India is importing (> 9 lakh tones) cashew raw nuts due to shortage of raw nut availability in the country. India also exports, approximately 45 %

of imported cashew raw nuts after processing in the form of cashew kernels. During 2014 -15, India imported 9.39 lakh MT raw cashew nuts of which 2.35 lakh MT kernels were obtained and 1.18 lakh MT kernels were exported.

ICAR-Directorate of Cashew Research, Puttur is carrying out research for the development of technologies to improve raw nut production. The production and productivity is in increasing trend over the years.

Vegetable oil: ICAR-Indian Institute of Oil Palm Research is taking steps to improve vegetable oil situation through oil palm as Oil palm is the highest edible oily yielding perennial crop. The fresh fruit bunch yields obtained by progressive farmers of Andhra Pradesh and Karnataka, under optimum technologies is between 20 and 25 tons per ha per annum with 4-5 tonnes of oil per ha per annum from fourth year onwards. The maximum yield of 30-35 tons FFB/ha during the seventh year was also recorded in many plantations. A record yield of 53.2 tons FFB/ha per annum has been recorded by a farmer in Karnataka.

A total of 128 Oil palm germplasm have been collected from different countries with wide variability for different characteristics. High yielding cross combinations have been identified and mother palms for production of new hybrids planted in seed gardens. The development of drought tolerant, dwarf and compact palms cultivars is in progress. Protocol for *in vitro* regeneration of oil palm using explants from mature palms has been developed and has entered into the commercialization phase.

Established four seed gardens in Karnataka and Andhra Pradesh each with production potential of one million sprouts per annum for planting an area of 5,000 ha per annum. Thus, over the period of productive phase of 20 years, the planting materials could be utilized for planting one lakh ha, thus resulting in 10 lakh tons of additional production in terms of fresh fruit bunch yield per annum. The additional yield from the new hybrids would enable the State Governments also to step up the Area Expansion Programme for oil palm as per the expectations of NITI Aayog. The technology of oil palm tissue culture has been commercialized through AgriInnovate India Limited to four Entrepreneurs.

Underutilized/exotic vegetables Broccoli, Chinese cabbage and Lettuce: Production module for Chinese cabbage and lettuce through use of organic

amendments have been standardized. Variability in carotenes, Vitamin C, E and phenolics were estimated in different cultivars of **Broccoli, Chinese cabbage** and **Brussels sprouts**. In broccoli, the maximum yield 137.72 q/ha has been obtained.

Ministry of Agriculture & Farmers Welfare O.M No.7 (5)/2017, dated 06th June, 2017,

Department of Agricultural Research and Education

Comments of the Committee

For comments of the Committee please refer to Para No.1.10 of Chapter I of this Report.

FISHERIES SCIENCE DIVISION **(Recommendation Para No. 10)**

The Committee note that Fisheries Science Division under ICAR is undertaking research and academic programmes in fisheries and aquaculture sector in the country through the network of 06 Research Institutes, 01 Bureau, 01 Project Directorates. However, the Committee note that Division were allocated only 48.98 % (RE) of the plan of earmarked outlays of Rs. 735.00 crore for XII Plan. The Committee were informed that the overall reduction in the Plan outlay of the ICAR/DARE by Ministry of Finance led to a proportionate cut in the budget of the Fisheries Science Division. However, the Committee were assured that funds made available to the Division at RE stage were judiciously distributed among the on-going Plan Schemes depending on their priorities, to ensure that the on-going research priorities are addressed smoothly and efficiently. The Committee further note that combined allocations to the division during 2017-18 is only Rs. 446.69 which is 12.48 % higher than allocations available to the division at RE stage during 2016-17. The Committee are of view that apart from providing important and cheap source of protein for vast majority of our countrymen, fishery sector is one of largest sector for employment generation in the country. There is need for large investment in research and development in the sector so that scientist can solve problems being faced by the fisherman in the country. The Committee, therefore, recommend the Government to enhance allocations to the Division at RE stage during current and coming fiscal to bolster the sector in the country.

Reply of the Government

Recommendation of the Committee has been noted for necessary compliance. Accordingly, the Department has requested to the Ministry of Finance for allocation of enhanced funds during RE stage for the current and coming financial years. On the availability of enhanced funds from Ministry of Finance Department shall allocate adequate funds to the division at RE stage in the current and coming fiscal to bolster the Fisheries research and development in the country.

Ministry of Agriculture & Farmers Welfare O.M No.7 (5)/2017, dated 06th June, 2017,

Department of Agricultural Research and Education

AGRICULTURAL ENGINEERING DIVISION **(Recommendation Para No.11)**

The Committee note that Agricultural Engineering Division through its 05 Research Institutes, 06 All India Coordinated Research Projects and 02 Network Research Projects mandated to plan, coordinate, and monitor R&D programmes and serve as an information repository in Agricultural Engineering to make Indian agriculture profitable, sustainable and globally competitive enterprise through engineering interventions. The Committee observe that only Rs. 332.00 crore i.e. 30.18 % of earmarked outlays of Rs.1100.00 crore for the XII plan were allocated to the division at RE stage. The Committee also note that combined allocations of Rs. 213.54 crore were made to the Division for 2017-18 against an amount of Rs. 255.91 crore as proposed by the Division during 2017-18. While appreciating the efforts of the Division to ensure that activities/programmes of high priority do not suffer due to reduced allocations during the various years of the 12th Plan, the Committee are of the view that non-availability of funds as proposed by the Department adversely impact the various activities undertaken by the Division. The Committee, therefore, recommend that the Department may taken up the matter with Ministry of Finance and urge them to allocate funds as per their demand.

The Committee note that Agricultural Engineering Division is involved in development and demonstration of technologies related to mechanization of production and post-production agriculture using conventional and nonconventional

energy sources and includes mechanization of irrigation and drainage activities; post-harvest and value addition of agricultural products and 86 by products. The Committee were informed that Institutes under the Division have developed locally suitable thirteen technologies related to seeding, planting, plant protection, harvesting, threshing etc. The Committee were also informed that 239 technologies/farm equipments/machine have been developed by the different institutes during the XII plan. The Committee also note that Institutes under the division were able to commercialize 118 these thirteen technologies related to seeding, planting, plant protection, harvesting, threshing etc. Besides, technologies and protocols pertaining to post harvest loss reduction and value addition, renewable energy for agriculture and irrigation have also been developed and were able to generate revenue of Rs. 3.15 crore during XII Plan. However, the Committee are surprised to know that the ICAR does not maintain information regarding import of agricultural machineries and tools in the country. The Committee observe that farming practice of the country is witnessing a gradual shift to the mechanization due to shortage of farm labour, necessitating availability of efficient and cost effective farm equipments and machineries. The Committee also observe that farmers of the country require small and efficient farm equipment due to small and fragmented size of land holdings. The Committee are of the considered view that easy availability of advanced, cost effective and small farm machineries suitable for small and fragmented land holdings will radically transform agriculture by cutting expenses and thereby enhancing income of the farmers in the country. The Committee, therefore, recommend the Department to analyze the availability and use of agriculture machineries in technologically advanced countries and trend of import of these 87 machineries in the country. The Committee also recommend the ICAR to start a dedicated mission for development of advanced agriculture machineries keeping in view the requirement of farmers in the country.

Reply of the Government

Recommendation of the Committee has been noted for necessary compliance. Accordingly, the Department has requested to the Ministry of Finance for allocation of enhanced funds during RE stage for the current and coming financial

years. On the availability of enhanced funds from Ministry of Finance, the Department shall allocate adequate funds to the Agricultural Engineering Division at RE stage in the current and coming fiscal to carry out envisaged Agriculture Machinery development programs.

In the technologically advanced countries, due to large farm holdings, large size machinery is used at farms. Whereas in India, small to medium size farm equipment are used for mechanization. Most of these implements are manufactured in India. However, some sophisticated components of these equipment are imported for its manufacturing such as laser transmitter and receiver of laser land leveller, hydraulics motors etc. A consortia Research Platform on Farm Mechanization & Precision Farming was initiated in 2015-16 for development of precision machinery.

Ministry of Agriculture & Farmers Welfare O.M No.7 (5)/2017, dated 06th June, 2017,
Department of Agricultural Research and Education

Comments of the Committee

For comments of the Committee please refer to Para No.1.19 of Chapter I of this Report.

AGRICULTURAL EDUCATION DIVISION

(Recommendation Para No. 13)

The Committee note that Agricultural Education Division strives for maintaining and upgrading quality, relevance and strengthening of higher agricultural education through 02 Research Institutes and 1 All India Coordinated 91 Research Projects in partnership with 73 Agricultural Universities (AUs) comprising of State Agricultural Universities (SAUs), ICAR Deemed-to-be Universities (ICAR DUs), Central Agricultural University (CAU) and Central Universities (CUs) with Agriculture Faculty by providing support for student and faculty amenities and for holistic development of students. The Committee NOTE that only Rs. 2421.40 crore i.e. 60.53 % of earmarked outlays of Rs.4000 crore for the XII plan were allocated to the division at RE stage. The Committee also note that combined allocations of Rs. 805.95 (Rs. 736.71 for Agriculture Education and Rs. 69.24 crore for ESM) were

made to the Division against an amount of Rs. 828.25 crore as proposed during 2017-18. The Committee were informed during oral evidence that ICAR will face limitation of funds in current financial year as no separate provision of funds has been made for IARI, Jharkhand and Assam. The Committee are of the considered view that investment in agriculture education sector may yield rich dividends in terms of generation of generation of skilled manpower and may encourage research and innovations in the field of agriculture which may, in turn, induce faster improvement in socio-economic conditions of poor and marginal farmers of the Country. The Committee, therefore, urge the Ministry of Finance to suitably enhance the allocation to the Department so that they do not face financial constraints in providing resources to the agriculture education institutes in the country including for establishment of new agricultural universities and research initiatives in the Country.

The Committee note that National Agricultural Education Accreditation Board (NAEAB) under ICAR is empowered to grant accreditation Agricultural Institutes/Universities in the country. The Committee were also informed that ICAR also has a system of Institute Research Committee (IRC) for periodic evaluation (half yearly and yearly basis) of Professors/Research scientists in agriculture institutes in the country. Research Advisory Committee (RAC) of each institute which reviews progress of research and provides advice on the direction and types of scientific aspects and methods /processes of research. The research programme of the institutes are subjected to quinquennial review through eminent experts in respective fields of science. However, the Committee are surprised to know that none of Agriculture Universities/ Research Institutes in the country has secured position in global ranking. The Committee are of view that there is need of comparative analysis of agriculture education system of the country with other successful countries in the field and take corrective steps to improve the academic and research performance of agricultural institute in the country so that they can secure high global ranking. The Committee desire the ICAR to identify agriculture institutes in the country which have potential to compete at the global level and to provide necessary support to them in the form of necessary funds and infrastructure.

The Committee note that ICAR has made significant changes in the course curriculum for agriculture to include learning on traditional agriculture and rural

agriculture economy. The Committee also note that experiential learning in the farmers field has also been included in the course curriculum under Rural Entrepreneurship Awareness Development Programme (READY) for final year students. The Committee are of the view that there is lack of professional help to 93 the farmers in the country due to limitation of traditional agriculture extension system and inclusion of course content on rural agriculture economy, traditional methods of farming and experiential learning in the village with farmers will help to create an informed pool of students who may create a revolution with their entrepreneurial and innovative research projects. The Committee, therefore, appreciate these steps of ICAR for making agriculture education beneficial for the country. The Committee also desire the ICAR to explore possibilities for designing short term certificate courses/vocational courses after class 10/12 standard which can help to create a pool of agriculture foot soldiers in the country who may in turn provide professional support to the farmers in guiding them to increase their production and productivity of crops efficiently and effectively.

Reply of the Government

Recommendation of the Committee has been noted for necessary compliance. Accordingly, Secretary, DARE and Director General, ICAR has requested to the Ministry of Finance for allocation of enhanced funds during RE stage for the current and coming financial years. On the availability of enhanced funds from Ministry of Finance, the Department shall allocate adequate funds to the Agriculture Education Division at RE stage in the current and coming fiscal.

To inculcate competitiveness among the Agricultural Universities, ICAR has initiated Ranking Framework at national level from 2016-17 for different SAUs/DUs/CAUs etc. A proforma/score card to evaluate the universities for ranking has been designed by the National Academy of Agricultural Sciences which is to be done annually based on the performance of the Universities in the areas of teaching, research and extension during the preceding five years. The proforma has already been sent to the Vice Chancellors of all Agricultural Universities to

provide information for ranking. However, majority of universities are facing problems like shortage of staff, lack of technology enabled learning tools and industry-academic platform etc. ICAR is also committed to have international ranking for SAUs etc.

ICAR has also planned to introduce one-year certificate course for the Agriculture Input dealers and 3 years' diploma course in Agriculture, Horticulture & Agriculture Engineering to create a pool of agriculture professionals to guide and support the farmers in efficient and effective use of agriculture inputs to enhance the production and productivity of different Agriculture and Horticulture crops.

Ministry of Agriculture & Farmers Welfare O.M No.7 (5)/2017, dated 06th June, 2017,
Department of Agricultural Research and Education

CHAPTER - III

**OBSERVATIONS/RECOMMENDATIONS WHICH THE COMMITTEE DO NOT
DESIRE TO PURSUE IN VIEW OF THE GOVERNMENT'S REPLIES**

- N I L -

CHAPTER - IV

**OBSERVATIONS/ RECOMMENDATIONS IN RESPECT OF WHICH REPLIES OF
THE GOVERNMENT HAVE NOT BEEN ACCEPTED BY THE COMMITTEE**

- N I L -

CHAPTER - V

OBSERVATIONS/ RECOMMENDATIONS IN RESPECT OF WHICH FINAL REPLIES OF GOVERNMENT ARE STILL AWAITED

NATURAL RESOURCES MANAGEMENT DIVISION **(Recommendation Para No. 08)**

The Committee note that Natural Research Management (NRA) Division of ICAR is engaged in developing location-specific, cost effective and eco-friendly technologies for conservation and management of natural resources through the network of 12 Research Institutes, 01 Bureau, 01 National Research Centre, 01 Project Directorate, 10 All India Coordinated Research Projects and 02 Network Research Projects in the country. The Committee observe that only Rs. 1339.58 crore i.e. 61.34 % of earmarked outlays for the XII plan were allocated to the Division at RE stage. The Committee also note that the combined allocations of Rs. 732.17 crore have been made to the Division for 2017-18 as against Rs. 890.96 crore as proposed by the Department during 2017-18. Needless to say, the drastic cut in the plan allocation has its adverse impact on various activities/research projects undertaken by the NRM division. The Committee, therefore, recommend that plan allocation made to the Division may be reviewed at RE stage and the matter may be taken up with the M/o Finance at RE stage for allocation of adequate funds at RE stage so as to ensure effective and efficient implementation of its various activities/research programmes.

The Committee note that NRM Division is engaged in research programmes in the field of organic farming. The Committee note that 5.71million Hectare area including 1.49 million Hectare and 4.22 million hectare forest and wild area for collection of minor forest produces is under organic certification in the country. The Committee were informed that ICAR is developing technologies and low cost manure under Network Project on Organic Farming to reduce the cost of production of crops. The Committee were also informed that conversion period of shift from chemical fertilizer based to organic farming ranges between 2-4 years in high intensive areas depending on the soils and 0-2 years in hilly and rain fed areas for

different crops. However, research done by the ICAR shows that addition of more legumes in the systems (intercropping and 2 legume crops in a year) and addition of low nutrient requiring crops in the rotation are helpful in reducing the conversion period. The Committee further note that ICAR is working 81 for establishment of separate institute for organic farming. However, the Committee are distressed to note that ICAR or any other Government agencies have not undertaken any study to assess the market for organic agricultural products in domestic and international market.

The Committee appreciate the efforts made by the ICAR for research on organic farming. Nevertheless, the Committee are of the view that organic farming is one of the areas where farmers of our country are at advantage due to their traditional knowledge and limited use of fertilizer. Better marketing of organic agriculture products can be useful in achieving the aim of doubling the income of farmers in the country. However, there is need to provide a fillip to traditional knowledge of farmers through infusion of technology, provision of cost effective green manure and reduction of conversion time. The Committee, therefore, recommend the Department to gear their scientific prowess to start a new era of farming based on sustainable use of natural resources. The Committee also desire the Department to constitute a specific cell in every ICAR institute and KVK for organic farming wherein, consultation services and accesses to developed technologies, green manure, plant materials, agronomic methods may be provided to the farmers at a reasonable cost. The Committee appreciate the efforts made by the ICAR for research on organic farming. The Committee also expect the Department to expedite the process of submission of EFC for establishment of an independent Institute for organic farming so that it can be operationalized within minimum possible time. Further, the Committee also desire that ICAR or any other agencies would also be entrusted to conduct a 82 study to assess the market for organic agricultural products in domestic and international market so as to enable them, to plan organic farming in the Country so as to meet the demand of domestic and international market. The Committee would like to be apprised of the initiatives undertaken by them in this regard.

Reply of the Government

Recommendation of the Committee has been noted for necessary compliance. Accordingly, the Department has requested to the Ministry of Finance for allocation of enhanced funds during RE stage for the current financial year. On the availability of enhanced funds from Ministry of Finance department shall allocate adequate funds to the division at RE stage in the current fiscal so that all activities/programmes undertaken by them may run smoothly and effectively to achieve the planned physical and financial targets.

Organic farming has been studied in different contexts by the scientists. The analysis primarily related to economics of organic farming and the potential benefits to the farmers. The issues of market potential at national & international level and value chain analysis of the produce of organic farming in the North-East is under consideration by the Department as a part of large collaborative projects on value chain analysis.

Further, KVKs impart training to the farmers in various agricultural activities including organic farming to update their knowledge and skills. Farmers are provided training on production of bio-pesticides, bio-agents, and organic manures through vermicomposting, green manuring, etc. The KVKs are providing advisories to farmers free of cost on various aspects of organic farming.

During 2016-17, the KVKs conducted 650 trials and 3239 demonstrations in farmers' fields with technological interventions organic farming. The KVKs also provided training to 60743 farmers and 6671 extension personnel by conducting 2473 courses on organic farming technologies. Besides, 6575.67 quintal seeds, 20.39 lakh planting materials, 260.05 quintal bio agents, 343.50 quintals bio-pesticides and 7292.11 quintal bio-fertilizers were produced and provide to farmers engaged in organic farming.

Ministry of Agriculture & Farmers Welfare O.M No.7 (5)/2017, dated 06th June, 2017, Department of Agricultural Research and Education

Comments of the Committee

For comments of the Committee please refer to Para No.1.13 of Chapter I of this Report.

ANIMAL SCIENCE DIVISION
(Recommendation Para No. 09)

The Committee note that Animal Science Division of ICAR coordinates and monitors research programmes for sustainable enhancement of productivity and improvement in health status of livestock and poultry in the country through its 10 Research Institutes, 01 Bureau, 06 National Research Centres, 02 Project Directorates, 07 All India Coordinated Research Projects and 08 Network Research Project. The Committee observe that only Rs. 970.98 crore i.e. 62.93 % of earmarked outlays of Rs.1543.00 crore for the XII plan were allocated to the Division at RE stage. The Committee also note that combined allocations of Rs. 885.77 crore have been made to the Division against Rs. 1001.35 crore as proposed by the Department during 2017-18. The Committee are of the opinion that adequate funds need to be provided to the division so that activities/research/programmes undertaken by the Division are not hindered for want of adequate funds. The Committee, therefore, recommend that the allocation of funds to the Division may be reviewed at RE stage and the matter may be pursued with M/o Finance in this regard.

The Committee note that Animal Science Division is involved in research on development and production of vaccine for various diseases of animal. The Committee were informed that ICAR institutes are engaged in development of gene deleted IBR vaccine, which will be DIVA capable, DIVA enabled mutant Brucella vaccine strain, Johne's disease vaccine, 3A and 3B epitope deletion mutant of FMDV to explore marker vaccine potential, infectious cDNA clone for a serotype Asia 1 and O FMD virus and many other vaccines. The Committee further observe that production of animal vaccine is woefully short of requirement in the country. The Committee were informed that vaccine production of Foot and Mouth disease vaccine, swine fever vaccine, PPR Vaccine, Sheep pox vaccine is only 400 million doses/year, 0.7 million doses/year, 160 million doses/year and 31 million doses/year respectively which is quite low as against requirement of 1022 million doses/year, 10 million doses/year, 200 million doses/year and 65 million doses/year respectively. The Committee are of the view that there is an urgent need for adequate facility and availability of animal vaccine in the country to fully utilize potential of milk, meat and

wool from cattle and other animals which are largest in numbers in entire world. The Committee desire the ICAR to take a detailed study on the ways by which production of animal vaccine may be enhanced to make the country self reliant. The Committee also desire the ICAR to devote adequate resources and man power for development of animal vaccines in which the country lacks necessary technology.

Reply of the Government

Recommendation of the Committee has been noted for necessary compliance. Accordingly, the Department has requested to the Ministry of Finance for allocation of enhanced funds during RE stage for the current financial year. On the availability of enhanced funds from Ministry of Finance department shall allocate adequate funds to the division at RE stage in the current fiscal so that all activities/programmes undertaken by them may run smoothly and effectively to achieve the planned physical and financial targets.

The Animal Science Division has initiated a Consortia Platform on Vaccines and Diagnostics during 2015-16 with a view to make a detailed study on the ways by which production of animal vaccine may be enhanced to make the country self-reliant and the department is trying its best to get enhanced funds from the Ministry of Finance.

Ministry of Agriculture & Farmers Welfare O.M No.7 (5)/2017, dated 06th June, 2017,

Department of Agricultural Research and Education

Comments of the Committee

For comments of the Committee please refer to Para No.1.16 of Chapter I of this Report.

AGRICULTURE EXTENSION **(Recommendation Para No. 12)**

The Committee note that ICAR has established a network of 665 Krishi Vigyan Kendra (KVKs) in the country aiming at technology assessment and demonstration for its application and capacity development. Provision of extension services to farmers in the Country is done by the main extension system operated by State Governments. The Department of Agriculture, Cooperation and Farmers

Welfare has provided support to States for setting up of Agricultural Technology Management Agency (ATMA) aiming at making extension system farmer driven and farmer accountable by way of new institutional arrangements for technology dissemination at district level. ATMA Scheme is under implementation in 652 districts in 29 States and 3 UTs in the country with provision for active participation of farmers/farmer-groups, NGOs, KVK, Panchayati Raj Institutions and other stakeholders operating at district level and below. However, the Committee note that allocations for KVKs are not sufficient enough to provide them all necessary infrastructure and manpower. Only Rs. 2998.36 crore were allocated for KVKs scheme at RE stage which works out 76.88% of the approved outlays of Rs.3900 crore for the XII plan. The Committee also note that allocations of Rs. 867.60 crore for KVKs scheme during 2017-18 is not sufficient to meet obligations under the scheme and Department will need additional requirement of Rs.200.00 crore during current fiscal. The 88 Committee in their previous reports had time and again emphasized for allocation of adequate resources for implementation of KVKs scheme to strengthen the system of agriculture extension in the country. The Committee are of the considered view that KVKs due to their linkage with vast network of ICAR institute can be effectively leveraged for dissemination of information about crop varieties and hybrids, technologies, machineries, dairy management practices etc. among farmers in the country and to create a group of progressive farmers who can act as trainers for downward dissemination of these knowledge. The Committee, therefore urge the M/o Finance to allocate additional funds as required by the ICAR for the KVKs scheme at RE stage.

The Committee note that KVK scheme is wholly funded by the Government of India. The Committee were informed that ICAR did not explore the possibilities for accessing the funds available under Corporate Social Responsibility (CSR) of Public/private companies registered in the Country funds for providing necessary infrastructure and equipment to the KVKs scheme. The Committee are of the view that funds available under Corporate Social Responsibility with Public/private companies as mandated by the recently amended Company Act can be effectively utilized for provision of necessary infrastructure, equipments and other facilities in KVKs. The Committee, therefore, recommend the ICAR to make a proposal for

tapping the CSR funds for KVKs scheme and approach various Public/private companies either directly or through their representative bodies such as FICCI, ASSOCHAM etc. after obtaining necessary approval. The Committee would like to be apprised of the initiatives undertaken by the Department/ICAR in this regard.

The Committee note that various initiatives under KVK scheme have been undertaken such as Mera Gaon Mera Gaurav (MGMG) and Farmer FIRST Programme (FFP) and Attracting and Retaining Youth in Agriculture (ARYA) during 12th plan. The Farmer FIRST Programme (FFP) aims at increased farmers – scientist interface for enriching knowledge and integrating technology for field application and Mera Gaon Mera Gaurav (MGMG) aims to encourage agriculture scientists to adopt villages and give suitable advice to the farmers on technical and other related aspects in a time frame through personal visits or on telephone. While appreciating these initiatives of ICAR, the Committee are of the view that that current system of agriculture extension support system needs to be reoriented according to the needs of the farmers keeping in view their socioeconomic conditions and the mental ability to understand and adapt the new technologies and practice for sustained growth in agriculture sector. The Committee, therefore, recommend that the existing system of agriculture extension services in the entire country may be reviewed and reoriented and to make it more effective and accessible to the farmers in the Country in coordination and consultation with all stakeholders including State Governments to elicit their views. The Committee would like to be apprised of the initiatives undertaken by the Department/ICAR in this regard.

Since 2015-16, Attracting and Retaining Youth in Agriculture (ARYA) is being implemented in 25 States through KVKs with an objective to attract and empower the youth in rural areas to take up various agriculture and allied enterprises for sustainable income and gainful employment in selected districts. 90 The Committee were also informed that one district from each State with technical partners from ICAR Institutes and Agricultural Universities for taking up entrepreneurial activities through skill development of rural youth. However, the Committee note that meager allocation of Rs. 2 crore and Rs. 7 crore were made during 2015-16 and 2016-17 respectively. The Committee are of the view that farming sector as a whole is unable

to attract the young talent, thereby, affecting income of the farmers in entire country primarily due to lack of entrepreneurship in the field of agriculture. The Committee observe that several private companies have successfully combined the agriculture extension services and agriculture marketing in various parts of the country. The Committee desire the ICAR to study the system of these companies and other such initiatives taken in the private sectors either in the country or abroad and analyze as to in what ways these can be utilized for attracting youth for entrepreneurial startups in the field of agriculture. The Committee also desire the ICAR to take steps for enhancing awareness among farming community and youth in rural areas for taking benefits under 'Startup India' Initiatives of the Government of India in the field of agriculture. The Committee also recommend the Government to enhance allocations to the ARYA scheme to widen its reach among rural youth in the entire Country.

Reply of the Government

Recommendations of the Committee have been noted for compliance. Accordingly, the Department has requested to the Ministry of Finance for allocation of enhanced funds during RE stage for the current and coming financial years. On the availability of enhanced funds from Ministry of Finance, the Department shall allocate adequate funds to the Agricultural Extension Division at RE stage in the current and coming fiscal to carryout envisaged Agriculture Extension Programs and for further strengthening of the current farmers development related activity and establishment of new KVKs.

Apart from regular budget, KVKs were provided with additional fund of Rs. 16.0 crore for conducting Frontline Demonstrations (FLDs) on oilseed crops; Rs. 25.31 crore for conducting FLDs on pulse crops; Rs. 8.00 crore for purchase of 930 mini soil testing kits; Rs. 3.22 crore for organizing Skill training programmes for farmers/rural youth; and Rs. 1.50 crore for establishment of demonstration units on Integrated farming systems during 2016-17.

The ARYA scheme is being widened by including 75 more districts of the country under the scheme. During 2016-17, 100 KVKs conducted 200 courses of 200 hours each for development of skills in rural youth. During 2017-18, 250 KVKs, 60 SAUs and 50 ICAR Institutes will organize 820 such courses.

Review and reorientation of extension services is being carried out in the Country. Department of Agriculture, Cooperation and Farmers' Welfare (DAC&FW) is providing funds to States under the scheme "Support to State Extension Programmes for Extension Reforms" which aims at making extension system farmer driven and farmer accountable by way of new institutional arrangements for technology dissemination in the form of an Agricultural Technology Management Agency (ATMA) at district level to operationalize the extension reforms. The DAC&FW has also provided fund for KVK activities like FLDs on Pulses and Oilseeds, Pulses Seed Hubs, IFS Demonstration Units, Skill development training and Mini Soil Testing Kits. Besides, all stakeholders like ICAR Institutes, State Agricultural Universities, KVKs, and other institutes of DAC&FW and Department of Animal Husbandry, Dairying and Fisheries are providing farm advisories through Farmers' Portal. So far, no public/private company has come forward for providing Corporate Social Responsibility (CSR) funds to Krishi Vigyan Kendras.

Ministry of Agriculture & Farmers Welfare O.M No.7 (5)/2017, dated 06th June, 2017,
Department of Agricultural Research and Education

Comments of the Committee

For comments of the Committee please refer to Para No. 1.22 of Chapter I of this Report.

NEW DELHI;
28 August, 2017
06 Bhadrapada, 1939 (Saka)

HUKM DEO NARAYAN YADAV
Chairperson,
Standing Committee on Agriculture.

**STANDING COMMITTEE ON AGRICULTURE
(2016-17)**

MINUTES OF THE TWENTY SEVENTH SITTING OF THE COMMITTEE

The Committee sat on Monday, the 28th August, 2017 from 1500 hrs. to 1530 hrs. in the Room No. 53, Parliament House, New Delhi.

PRESENT

Shri Hukm Deo Narayan Yadav – Chairperson

MEMBERS

LOK SABHA

02. Md. Badaruddoza Khan
03. Dr. Tapas Mandal
04. Shri Janardan Mishra
05. Shri Nityanand Rai
06. Shri Mukesh Rajput
07. Shri C.L. Ruala
08. Shri Satyapal Singh (Sambhal)
09. Shri Jai Prakash Narayan Yadav

RAJYA SABHA

10. Shri Sambhaji Chhatrapati
11. Sardar Sukhdev Singh Dhindsa
12. Shri Janardan Dwivedi
13. Shri Vinay Katiyar
14. Shri Mohd. Ali Khan
15. Shri Ram Nath Thakur

SECRETARIAT

1.	Shri D.S. Malha	–	Joint Secretary
2.	Shri Arun K. Kaushik	–	Director
3.	Smt. Juby Amar	–	Additional Director
4.	Shri C. Vanlalruata	–	Deputy Secretary
5.	Shri Sumesh Kumar	–	Under Secretary

2. At the outset, Hon'ble Chairperson welcomed the Members to the Valedictory Sitting of the Committee. Thereafter, the Committee took up the following draft Reports for consideration:

(i) Draft Report on Action Taken by the Government on the Observations/Recommendations Contained in the Thirty Sixth Report of the Standing Committee on Agriculture on 'Demands for Grants (2017-18)' pertaining to the Ministry of Agriculture and Farmers Welfare (Department of Agricultural Research and Education).

*(ii) XXXXX XXXXX XXXXX XXXXX

*(iii) XXXXX XXXXX XXXXX XXXXX

3. After some deliberations, the Committee adopted the draft Reports without any modifications and authorized the Chairperson to finalize these reports. Since the House is not in Session, the Committee decided to present the Reports to Hon'ble Speaker under Direction 71A of The Direction by the Speaker, Lok Sabha.

*4. XXXXX XXXXX XXXXX XXXXX

The Committee then adjourned.

***Matter not related to this Report.**

Appendix

ANALYSIS OF ACTION TAKEN BY GOVERNMENT ON THE THIRTY SIXTH REPORT (16th LOK SABHA) OF STANDING COMMITTEE ON AGRICULTURE (2016-17) (Vide Para 4 of Introduction of the Report)

(i)	Total number of Recommendations	13
(ii)	Recommendations/Observations which have been Accepted by the Government	
	Para Nos. 1, 2, 3, 4, 5, 6, 7, 10, 11 & 13	
	Total	10
	Percentage	76.92%
(iii)	Recommendations/Observations which the Committee Do not desire to pursue in view of the Government's replies	
	Para No. NIL	
	Total	00
	Percentage	0.00%
(iv)	Recommendations/Observations in respect of which replies of the Government have not been accepted by the Committee	
	Para Nos. NIL	
	Total	00
	Percentage	0.00%
(v)	Recommendations/Observations in respect of which Final replies of the Government are still awaited	
	Para Nos. 8, 9 and 12	
	Total	03
	Percentage	23.07%