



**STANDING COMMITTEE ON
AGRICULTURE
(2004-2005)**

FOURTEENTH LOK SABHA

**MINISTRY OF AGRICULTURE
(DEPARTMENT OF AGRICULTURAL RESEARCH & EDUCATION)**

**DEMANDS FOR GRANTS
(2004-2005)**

{Action Taken by the Government on the Recommendations/
Observations contained in the Second Report of the
Standing Committee on Agriculture (2004-2005)}

SIXTH REPORT



**LOK SABHA SECRETARIAT
NEW DELHI**

February, 2005/Phalguna, 1925 (Saka)

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Presented to Lok Sabha on 2.3.2005
Laid in Rajya Sabha on 3.3.2005



**LOK SABHA SECRETARIAT
NEW DELHI**

February, 2005/Phalguna, 1925 (Saka)

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Composition of the Standing Committee on Agriculture (2004-2005)

Prof. Ram Gopal Yadav – Chairman

MEMBERS

LOK SABHA

2. Shri Hiten Barman
3. Shri Manoranjan Bhakta
4. Shri G.L. Bhargava
5. Shri Kuldeep Bishnoi
6. Shri Nihal Chand Chauhan
7. Shri Shivraj Singh Chouhan
8. Shri Lalchand Kol
9. Shri Khagen Das
10. Shri Dharmendra
11. Shri Sharanjit Singh Dhillon
12. Shri Raghunath Jha
13. Smt. Rupatai D. Patil Nilangekar
14. Shri Prakash V. Patil
15. Shri A. Ravichandran
16. Shri K.J.S.P. Reddy
17. Shri Y.S. Vivekananda Reddy
18. Shri Harihar Swain
19. Shri M.P. Veerendra Kumar
20. Shri Mahboob Zahedi
21. # Smt. Anuradha Choudhary

RAJYA SABHA

22. Smt. Mohsina Kidwai
23. Shri Harish Rawat
24. Shri Pyarelal Khandelwal
25. Shri Raj Nath Singh
26. Shri Sk. Khabir Uddin Ahmed
27. Shri Bhagwati Singh
28. Shri Datta Meghe
29. Shri Bashistha Narain Singh
30. Shri Sharad Anantrao Joshi
31. *Dr. M.S.Gill

Chaudhary Munawwar Hassan ceased to be the Member of this Committee owing to his nomination to the Standing Committee on Labour w.e.f.16.8.04 vide L.S. Bt.Pt.-II dt.16.8.04

Smt. Anuradha Choudhary has been nominated to this Committee w.e.f. 30.8.2004 vide L.S. Bt.Pt-II, dt. 30.8.2004

Shri Raashid Alvi ceased to be the Member of this Committee owing to his nomination to the Committee on Personnel, Public Grievances, Law & Justice w.e.f 31.8.2004 vide R.S. Bt Pt-II dt. 31.8.2004

*Dr. M.S. Gill has been nominated to this Committee w.e.f 31.8.2004 vide R. S. Bt Pt-II dt. 31.8.2004

SECRETARIAT

1. Shri N.K. Sapra - Joint Secretary
2. Shri Devender Singh - Director
3. Shri K.D. Muley - Under Secretary
4. Shri Anil Kumar - Senior Executive Asstt.

INTRODUCTION

I, the Chairman of the Standing Committee on Agriculture (2004-2005) having been authorised by the Committee to submit the Report on their behalf, present this Sixth Report on Action Taken by the Government on the recommendations/observations contained in the Second Report of the Standing Committee on Agriculture (2004-2005) (Fourteenth Lok Sabha), on Demands for Grants (2004-2005) of the Ministry of Agriculture (Department of Agricultural Research and Education).

2. The Second Report of the Standing Committee on Agriculture (2004-2005) on Demands for Grants (2004-2005) of the Ministry of Agriculture (Department of Agricultural Research & Education) was presented to Lok Sabha on 17.08.2004 and laid in Rajya Sabha on the same day. The Ministry of Agriculture (Department of Agricultural Research & Education) was requested to furnish action taken replies of the Government to recommendations contained in the Second Report. The replies of the Government to all the recommendations contained in the Report were received.

3. The Committee considered these action taken replies furnished by the Government in its sitting held on 25 January, 2005, approved the draft comments and adopted the Sixth Report. Minutes of the sitting are placed in Appendix I.

4. An analysis of the Action Taken by the Government on the recommendations/observations contained in the Second Report (14th Lok Sabha) of the Committee is given in Appendix-II.

New Delhi;
25 February, 2005
5 Magha, 1926 (Saka)

PROF. RAM GOPAL YADAV
Chairman,
Standing Committee on Agriculture.

CHAPTER I

REPORT

This Report of the Committee on Agriculture deals with the action taken by the Government on the recommendations contained in the second Report (Fourteenth Lok Sabha) of the Standing Committee on Agriculture (2004-05) on Demands for Grants (2004-05) of the Ministry of Agriculture (Department of Agricultural Research and Education) which was presented to the Lok Sabha and laid in the Rajya Sabha on 17.8.2004.

1.2 The Action Taken Replies have been received from the Ministry of Agriculture (Department of Agricultural Research & Education) in respect of all the 11 recommendations contained in the Report. These have been categorized as under:-

- (i) Recommendations/Observations that have been accepted by the Government (Chapter II of the Report)

Recommendation Sl. Nos. 1, 2, 3, 5, 7 and 10 (Total-6)

- (ii) Recommendations/Observations which the Committee do not desire to pursue in view of the Government's action taken reply (Chapter III of the Report) - NIL

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

Recommendations Sl. Nos. 4, 8, 9 and 11 (Total-4)

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

Recommendation Sl. No. 6 (Total-1)

1.3 The Committee will now deal with the action taken by the Government on some of their recommendations.

Recommendation No.2

Insufficient Tenth Plan Public funding for DARE/ICAR

1.4 The Committee had observe that the Department had proposed a minimum requirement of Rs. 16,000 crore for the Tenth Plan. Against this requirement, the Planning Commission approved only Rs. 4,868 crore which was subsequently enhanced to Rs. 5,368 crore by providing Rs. 500 crore for establishing new KVKs.

The Committee had strongly deplore this tendency of the Planning Commission and the Ministry of Finance for imposing drastic cuts as high as up to 55 per cent to 60 per cent on the amount demanded by the Department as per their pressing needs.

The Committee were of the strong opinion that although the DARE/ICAR make high claims in matching the quality of their agrarian and allied sectors in R&D activities with other advanced countries, the ground reality is entirely different, especially when compared with the kind of research and development activities and the actual achievements made by the agriculturally advanced countries in the field of Hybrid Technology, Biotechnology, Management of Biotic and Abiotic stresses, quality of Seed and Planting Material, quality of Energy and Farm machinery, post-harvest technologies, natural resource management, animal sciences and fisheries sectors and speedy transfer of technology from Land to Lab.

The Committee were of the considered view that addressing of all the important areas of agricultural research, development and education practically requires huge and well planned funding. Unfortunately, the Planning Commission and the Ministry of Finance have been ignoring the genuine and pressing demands of the Ministry of Agriculture to provide higher amount of public funding than being provided at present for

the R&D activities of the DARE/ICAR to prove their talent. This will give them encouragement to put in more dedicated efforts in making new strides in the Agriculture sector and the benefits of which only reach to the common people of the country.

The Committee, had, therefore, strongly recommend that the Department should be provided with Rs. 16,000 crore by the Planning Commission and the Ministry of Finance for the Tenth Plan period as per their original proposal.

1.5 The Government in its action taken reply have stated that the Department has already completed the exercise of Xth Plan SFCs / EFCs and the financial requirement has already been adjusted with the overall Xth Plan outlay of Rs.5368 crore allocated to the Department by the Planning Commission during the Xth Plan.

Depending on the total resource availability, the Planning Commission had allocated Rs. 5368 crore to DARE / ICAR during Xth Plan for on-going as well as new research initiatives to be undertaken by the Department. As such, the Department had prioritized its requirements to adjust within the allocated amount of Rs.5368 crore. Apart from the on-going plan schemes / projects including new activities already approved by the Xth Plan SFCs / EFCs of the Department, there are still a few new programmes, some of which have already been forwarded to the Planning Commission for its consideration and in-principle approval. These programmes are : Seed Production in Agricultural Crops and Fisheries (with outlay of Rs.247.54 crore); Productivity enhancement (Rs.2000 crore); input use efficiency enhancement (Rs.1000 crore); Modernization of laboratories (Rs.950 crore); Centres of Excellence in SAUs (Rs.1050 crore) – all four components totaling Rs.5000 crore for Xth Plan period. Planning Commission has also been requested to provide Rs.550 crore during 2004 – 05) to address these issues. The National Agricultural Technology Project – Phase II (Rs.200 crore as Xth Plan component) –

already agreed to in principle by Planning Commission would be costing around Rs.900 crore over the period of five years and other priority project namely Network Project on Microorganisms in relation to Agriculture is projected at Rs.200 crore approximately – which is at processing stage. In the event of approval of these priority projects, as explained above, the Department will need additional funds over and above to the allocated amount of Rs.5368 crore during Xth Plan period.

Comments of the Committee

1.6. The Committee view the reply of the Planning Commission to continue the supportive for the R&D projects of DARE/ICAR in future as rather paradoxical, given the fact that the DARE was allocated a meager amount of Rs.5,368 crore as against the demand of Rs.16,000 crore. Since the Planning Commission has assured to be supportive in future, the Committee expect that the various projects and programmes forwarded by the Department to the Planning Commission would not languish for want of funds/approval. The Committee would also like the Department to take appropriate caution and remedial action to absorb in time the allocations made to them.

RECOMMENDATION NO.4

Requirement of One-Time Catch Up Grant

1.7 The Committee had note that the DARE has a number of institutions/laboratories, which are more than twenty years old. In order to have excellent academic standards of the State Agricultural Universities and to have globally competitive research working environment, the Eighth Plan and Ninth Plan Working Groups had recommended Rs.300 crore and Rs.500 crore, respectively one time catch up grant to meet the critical need for

upgrading laboratory equipment, pilot plants, farm and laboratory facilities, class rooms and audio visual facilities.

The Committee had also note that during the Eighth Plan Period, Planning Commission did not provide any one time catch up grant. During the Ninth Plan, the Planning Commission had communicated a total outlay of Rs.3,376.95 crore including Externally Aided Projects (EAPs) out of which Rs.400 crore was indicated as one time catch-up grant but no separate allocations were made for catch up grant, though the Department had proposed an allocation of Rs.100 crore, Rs.200 crore, Rs.250 crore and Rs.306.81 crore for the year 1998-99, 1999-2000, 2000-2001 and 2001-02 respectively.

Subsequently, Planning Commission had communicated that the amounts indicated for annual plans also included the amount for one time catch-up grant, i.e., the Department could meet its requirement of catch up grant out of their Annual Plan budgets only. Accordingly, the Department had taken a decision in the year 1999-2000 that the Institutes could spend up to a maximum of 20 per cent of their respective Plan B.E. (1999-2000); during 2000-2001 this percentage limit was raised to 30 per cent and for 2001-02, it was decided that the Institutes could incur expenditure under one time catch up grant to the extent to which they could spare the money after meeting their other essential research requirements. For State Agricultural Universities, these per centages were 30 per cent for 1999-2000, 40 per cent for 2000-01 and for 2001-02 it was allowed at par with institutes.

The Department again proposed an amount of Rs.1,000 crore during Tenth Five Year Plan but the Planning Commission has not yet made separate allocations specifically for catch up grant through Annual Plans

The Committee had, therefore, unanimously opine that unless the Government is actually willing and come forward to support DARE/ICAR with this directly needed One-Time Catch-Up grant to change the obsolete equipments, age old infrastructure including laboratories and other related research facilities, the Scientists and Researchers of ICAR and all their related institutes/SAUs will continue to suffer from want of latest state-of-the-art equipments and research infrastructure/laboratories as this change over from old to new technology requires additional funding.

The Committee were also of the unanimous opinion that the serious problem of brain-drain is practically linked with the situation in which the scientists of the country engaged in the entire spectrum of R&D activities of ICAR are forced to work under poor work/research environment and are left to struggle with obsolete equipments, research tools and laboratories which gradually gives birth to work dissatisfaction and ultimately forces the scientists to seek greener pastures where their creative urge and talent come to foreplay and they get higher pay and other facilities.

The Committee had also feel that although the Government and the people have great expectations from our agricultural scientists to achieve major breakthroughs in finding out solutions for problems faced by farmers and people engaged in agrarian and allied sectors apart from bringing total food and fodder security and overall prosperity and growth, yet the fulfillment of these great expectations will not be possible unless the Government provide the much desired and direly needed funds and incentives to ICAR to make it a real apex organization and the hub of the most talented scientists of the nation.

The Committee had once again strongly urge the Planning Commission and the Ministry of Finance to provide much needed one time catch up grant of Rs. 1000 crore in

Tenth Plan in a phased manner to ICAR given its track record of service to the nation and being privy to agricultural revolution in the country.

1.8 The Government in its action taken reply have stated that the recommendation of PSCA was sent to the Planning Commission which responded that “the catch up grant which was meant for upgrading and updating the research facilities of ICAR’s institutions had already been taken care of while approving the proposals during Tenth Five Year Plan”.

The Xth Plan SFCs / EFCs agreed to a meagre amount, that too in some very specific cases, to meet the urgent need of renovation of age old infrastructure. The National Agricultural Research System comprising a large network of ICAR institutions and SAUs having dilapidated buildings, laboratories, class rooms and other farm and research related facilities as well as outdated / obsolete equipment needing large scale renovation / upgradation / modernization. The Department still requires substantial funds on this count. For this purpose Rs.1000 crore were proposed to the Planning Commission as part of the Department’s Xth Plan proposals, but separate funds for this purpose were not allocated or provided during Xth Plan / Annual Plans, so far.

Comments of the Committee

1.9 The Committee once again reiterate that the Planning Commission must consider favourably the bonafide – long felt need of the Department for Rs. 1000 crore in addition to the Xth Plan funding as one-time catch up grant for renovation of age old infrastructure of National Agricultural Research System (NARS). Undoubtedly, such a one time catch-up grant will go a long way in creating a congenial working environment for our scientist engaged in agricultural research. Taking note of the stated liberal and supportive attitude of the Planning Commission towards R&D projects, the Committee

hope the Department of Agricultural Research & Education would receive necessary budgetary support for creating state-of-the-art laboratory/research facilities for the greater benefit of the nation.

RECOMMENDATION NO.6

Urgent Need to fill all the vacancies in ICAR

The Committee had noted that there is an acute shortage of manpower as 3,784 posts are lying vacant in ICAR. It is more so, especially in the scientific category, which has a shortfall of about 1,400 posts. This position has aggravated since 2001. As per orders of the Department of Personnel dated 16 May 2001, direct recruitment is to be restricted to 1/3rd of the vacancies arising in a particular year with a further stipulation that the vacancies filled in a year should not exceed one per cent of the total sanctioned strength. In 1999, the Ministry of Finance had imposed a 10 per cent cut on the sanctioned posts of all categories. Though the Department has taken up the matter of seeking exemption for the scientific category with the Ministry of Finance at various levels, yet the final decision is pending.

The Committee were of the considered view that the Department should give top priority to this matter and take up the matter immediately with top officers in the Ministry of Finance and the Department of Personnel for getting exemption from 10 per cent cut on the sanctioned posts and lift restrictions imposed by Department of Personnel on at least scientific and technical categories of posts.

The Committee had also urge the Department of Personnel and Ministry of Finance to consider the issue of granting exemption from their respective orders in this regard, expeditiously for recruitment of the scientific and technical categories as the output and efficiency of the ICAR has been suffering owing to shortage of

scientific/technical manpower. Moreover, vacancies of scientists have been adversely affecting the scientific output in terms of basic, strategic, applied and anticipatory research. Since all the R&D activities of the ICAR are meant for bringing overall progress and prosperity to the people engaged in agrarian and allied sectors, the nation as a whole can ill-afford to have such restrictions causing adverse effect on the working of a reputed scientific organization like ICAR.

1.11 The Government in its action taken reply have stated that in the post VII Plan period, the institutes of ICAR have been increased from 75 to 96. However, not a single scientific post has been approved for creation commensurate with the expanding activities and the same are being managed by internal redeployment of the available specialized manpower. Now the organization has been stretched virtually to its limits and the demands on the research system are increasing and options available from within the prevailing system have been totally exhausted. In an effort to minimize the severity of the personnel crunch the ICAR has resorted to curtailing posts from all its other cadres in order to provide the bare minimum personnel required in the cadre of scientists. Regarding the action taken so far by the Department, it is clarified that the Secretary, DARE and DG, ICAR had made a presentation before the Cabinet Secretary on 27th June, 2003 highlighting the following issues:

- a) The ICAR should be exempted from the application of 10% reduction in manpower, at least in the scientific category.
- b) Similarly, the restriction imposed by the DOPT O.M. dated 16.05.2001 on direct recruitment vacancies to 1/3rd may not be made applicable to ICAR in so far as scientific staff is concerned.

- c) The ICAR should be permitted to fill up all the posts contained in the approved SFCs/ EFCs of Tenth Plan.

As desired by the Cabinet Secretary a detailed proposal was sent on 30.09.2003 and was subsequently followed up at the level of then Hon'ble Agriculture Minister with the then Hon'ble Deputy Prime Minister on 06.01.2004. The response of MOS (Personnel) dated 11.02.2004 was again considered/processed and the matter was taken up by the Hon'ble AM with the Hon'ble Prime Minister and Finance Minister vide a demi-official letter dated 22.07.2004.

In response the Hon'ble Finance Minister has clarified on 15th September, 2004 that so far no Ministry/Department has been exempted from the orders of 10% cut in manpower and filling up of only 1/3rd of vacancies in a particular year. However, it has been clarified that specific proposals received from the Council shall be considered on merits within the ambit of existing instructions. However, looking to the gravity of the situation all possible efforts would continue to be made to mitigate the situation.

Comments of the Committee

1.12 The Committee are seriously concerned about the continuing shortage of scientific and technical staff in ICAR. The Committee note that the Department has vigourously pursued the matter with the Government and have succeeded to elicit an assurance from the Ministry of Finance that specific proposals from the ICAR would be considered on merit and that all possible efforts will be made to mitigate the situation. The Committee desire that the Department should continue to make all out efforts at the highest level to resolve the issue and keep the Committee apprised periodically after every three months till the matter is favourably resolved. If necessary, the Committee

would not hesitate to examine the representatives of Ministry of Finance considering the continuing grim situation arising out of utter shortage of scientific and technical staff in ICAR.

RECOMMENDATION NO.8

Urgent Need for Minimising Huge Post Harvest Losses of Agrarian and Allied Sectors Produces

1.13 The Committee had note that the ICAR is having a number of schemes meant for assessing and addressing the issues pertaining to post-harvest losses along with the mandate of R&D in Post-Harvest technology. The two main schemes are (i)the Central Institute on Post Harvest Engineering and Technology (CIPHET) Ludhiana, established in 1989, and (ii) All India Coordinated Research Project (AICRP) on Post Harvest Technology (PHT) established in 1972. The Department has spent Rs.55.62 crore against the total allocation of Rs.57.73 crore provided for these schemes during the last five years.

Despite this the value addition is only 79 per cent and agro processing is only 2 per cent in case of perishable produces. There is a vast scope for value addition to the extent of 35 per cent and processing to the extent of 10 per cent in the next ten years. As regards the data on quantum of post harvest losses and value in term of rupee of such wastage, the Committee are informed that at present, no authoritative estimates of post harvest losses in various agricultural livestock and Fisheries sectors are available. However, on the basis of limited area general Post Harvest loss estimates available with ICAR, the minimum Post Harvest losses are about Rs.51,500 crore annually. The Committee are surprised as to how ICAR being a national apex organization for agricultural research and education has been performing its role to safeguard the scarce

resources without any authoritative estimates of Post Harvest losses. The Committee, therefore, strongly recommend that the ICAR should take immediate steps to collect, compile and analyse data at the earliest at national level in order to have better Planning to stop wastages of such a magnitude. The Committee hope that this would also help the concerned Ministries/Department/Agencies to develop appropriate technologies to prevent the avoidable waste. Unless, this is done, and the desired post harvest technologies developed and implemented to plug the big hole in the basket of agrarian produces, all the efforts made by the ICAR to increase production and productivity of agrarian and allied produces will continue to go down the drain.

1.14 The Government in its action taken reply have stated that the efforts have been made to assess the harvest and post harvest losses of agricultural commodities namely Oil Seeds, Wool, Meat, Eggs & Poultry Meat, Fisheries and Milk at Producer, Consumer and Market levels under the National Agricultural Technology Project (NATP). The details are given in Annexe-1.

Comments of the Committee

1.15 The Committee note that the DARE/ICAR, being the Apex body, responsible for agricultural research and education has done precious little work in collecting, assessing and analyzing the data of post harvest losses of all the agrarian and allied sector produces and for developing and implementing technologies to prevent enormous recurring post harvest losses. The reply of the Department is totally devoid as it does not indicate any institutionalized action plan to assess the post harvest losses that the country incurs year after year. Considering the fact that the nation suffers an whopping estimated loss of Rs. 50,000 crore per annum, the Committee, reiterate their earlier recommendation that the Department should take immediate steps to collect, compile and analyse the data

regarding post harvest losses of all the major agrarian produces and should develop and implement the appropriate post harvest technologies without further delay to arrest such a colossal national loss without further delay.

RECOMMENDATION NO.9

Need to check mal-functioning in Krishi Vigyan Kendras

1.16 The Committee had noted that a total of 415 Krishi Vigyan Kendras have been sanctioned till date. Out of these, 318 are functional and 50 which were sanctioned during the first two years of Tenth Plan, are partially functional. While 39 Krishi Vigyan Kendras recently sanctioned are in the process of being made functional, the remaining 8 which were non-functional have been closed down. The Committee are informed about some more Krishi Vigyan Kendras in Bihar and Uttar Pradesh in which mal-functioning is going on without any check.

Considering the laudable objectives of Krishi Vigyan Kendras, the Committee recommend that all the remaining 50 partially functional Krishi Vigyan Kendras should be made fully functional on top priority basis within a stipulated period of six months from the date of presentation of this Report to Parliament.

The Committee are also concerned over the reports of complaints of financial irregularities in 6 Krishi Vigyan Kendras. The Committee note that though the Indian Council of Agricultural Research claims that they have a multi-tier monitoring mechanism for periodic and frequent evaluation of all the Krishi Vigyan Kendras, yet the closing down of these 6 Krishi Vigyan Kendras has belied their claim. Apparantly, the ICAR has failed to check financial irregularities in time which allowed the unscrupulous elements to flourish unhindered upto a level that not only proved fatal to the very existence of those 6 Krishi Vigyan Kendras but also Such malpractices, if unchecked,

would undermine public confidence in Krishi Vigyan Kendras. The Committee, therefore, desire that the Department should take appropriate steps to reform and strengthen their monitoring system, and bring transparency in the functioning of Krishi Vigyan Kendras so that Krishi Vigyan Kendras continue to perform their basic function of transfer of technology from Lab to Land and continue to enjoy trust and confidence of the innocent farmers.

1.17 The Government in its action taken reply have stated that funds have been provided for creation of infrastructural facilities for the Krishi Vigyan Kendras (KVKs) sanctioned during the Xth Plan period. In order to check any financial irregularities, the funds for the current financial year are released strictly after receiving the AUC of the previous year by the respective Zonal Coordinating Unit. The release of funds has also been decentralized at the level of the Zonal Coordinating Unit.

Comments of the Committee

1.18 The Committee are anguished to note that the Department has not indicated as to what corrective or punitive action/has been initiated in the complaints of financial irregularities in the 6 KVKs. The Committee believe that the concept of KVKs is laudable but the Department has abysmally failed to translate the objectives by making them fully functional. The Committee reiterate the need for thorough probe into the complaints of financial irregularities in the KVKs so that guilty are brought to book and the KVKs cleansed of corruption. The Committee expect to be apprised of the remedial and penal action taken on the complaints within three months of presentation of this Report.

RECOMMENDATION NO.11

Need to Popularise R&D Support from ICAR to identify Synthetic Milk

1.19 The Committee had noted that ICAR has spent about Rs.450 crore so far during the last few decades on the Research and Developmental aspects of Milk and training personnel/people engaged in Dairy sector. As a matter of fact ICAR has made significant contributions through their R&D support in ushering White Revolution in the country. They also note that the per capita availability of milk has gone up to 226 gms per day against 127 gms per day during 1979-80. Milk has been the life line of millions of people as it continues to be the most popular and potent source of nutrition and income generation for their survival and prosperity from time immemorial. The Committee were perturbed to note that unscrupulous elements are supplying synthetic or adulterated milk imperilling the life of consumers, particularly the young children.

The Committee were aware that though the prevention of supply of synthetic milk/adulterated milk is the responsibility of Ministry of Health, prevention of Food Adulteration Department, yet the ICAR equipped with its well-equipped research can come forward by providing their R&D support in detecting the supply of synthetic or adulterated milk.

Once the primary data are collected/compiled and analysed area-wise, the ICAR will be in a better position to formulate strategies to promote and popularize their research and development activities to enhance the production and productivity of Pure Milk and milk products particularly in the areas bedevilled by Synthetic/ adulterated milk.

The ICAR can also help other concerned Ministries/ Departments and law enforcement agencies engaged in promoting public health by providing them with valuable input for detecting synthetic milk.

The Committee had also felt that the ICAR can also produce self-help smaller and economy versions of the diagnostic kits they have already produced for identifying 12

common adulterants in milk and make all out efforts to popularize their low priced smaller version of the Diagnostic Kits which can be gainfully used by the common man.

1.20 The Government in its action taken reply have stated that the the NDRI, Karnal has developed the diagnostic kit to identify the adulterated / synthetic milk which contain urea, starch, glucose, sugar, hydrogen peroxide, pond water, neutralizers (like sodium hydroxide sodium carbonate sodium bicarbonate), sodium chloride, vanaspati in ghee, formalin, malto-dextrin and ammonium compounds. The cost of this kit is Rs.8600/= and can be obtained from NDRI, Karnal.

The work on pesticide residue in Indian milk is in progress. However, limited study done on residual level of DDT and BHC in milk in Northern India under NATP Project indicated an average DDT level of 0.028 ug/g fat which is below the permissible MRL (0.05 ug/g of fat). The average BHC level in 600 milk samples was 0.001 ug/g against the permissible MRL (0.01 ug/g of fat).

If need be, the logistic R&D support would be provided to Ministry of Health, which is the nodal agency, in analyzing the adulterated / synthetic milk samples.

Comments of the Committee

1.21 The Committee note with anguish that the Department has merely repeated the replies that was given earlier to the Committee. Obviously, no action, worthwhile, seems to have been taken on their specific recommendation to promote and popularise their research in detecting synthetic/adulterated milk and to produce a diagnostic kit affordable by general milk consumers in the country. The Committee would like to know as to how many pieces of the diagnostic kits developed by NDRI, Karnal have been sold so far and what logistic R&D support. DARE has given to Ministry of Health in this behalf and accepted the latter for mass dissemination or detecting adulterated milk.

CHAPTER II

RECOMMENDATIONS/OBSERVATIONS WHICH HAVE BEEN ACCEPTED BY THE GOVERNMENT

RECOMMENDATION NO.1

Need for increasing DARE's Allocation to at least 1 per cent of AGDP

2.1 The Committee note that the Planning Commission had constituted the Tenth Plan Working Group for the Department of Agricultural Research and Education (DARE) and the Working Group had recommended that the DARE should be provided one per cent of the Gross Domestic Product of Agriculture and Allied Sector (AGDP) which amounted to approximately Rs. 25,000 crore at that time. As a matter of fact, this recommendation of the Tenth Plan Working Group for DARE was in tune with the oft repeated recommendation of the Parliamentary Standing Committee on Agriculture as well as the Ninth Plan Working Group for DARE which had recommended that DARE should be provided at least one per cent of AGDP initially with a gradual increase up to two per cent of AGDP in subsequent years. Against the most needed minimum one per cent of AGDP outlay, the Department had proposed a minimum requirement of Rs. 15,000 crore plus a one time catch up grant of Rs. 1,000 crore for the Tenth Plan. However, the Planning Commission approved an amount of only Rs. 4,868 crore which was subsequently raised to Rs. 5,368 crore by providing Rs. 500 crore for setting up new Krishi Vigyan Kendras (KVKs).

The Committee note that Sri Lanka and some Latin American countries spend 0.81 per cent and 0.98 per cent of AGDP on Agricultural Research, respectively. Astonishingly, in comparison to some of the leading industrialized countries whose spending on agricultural research ranges between 2.45 per cent and 4.02 per cent of

AGDP, India's spending on agricultural R&D ranged between 0.17 and 0.32 per cent during the last one decade which was even less than the average of all the developing countries.

The Committee are unable to comprehend the constraints of the Planning Commission why they could not earmark adequate resources for DARE based on the recommendations of its own Working Group during the Ninth and Tenth Plans and the recommendation of the Parliamentary Standing Committee on Agriculture to increase the Tenth Plan outlay to at least one per cent of AGDP for the DARE. Considering the role of an applied research-based Department like DARE and its potential to accelerate the growth of agriculture and allied sectors, the Committee hope that the Government will earmark higher outlays for the Department in accordance with its declared commitment to accord priority to agriculture and the allied sectors so that India emerges a stronger, if not the strongest, global player in the field of agricultural produces and exports.

REPLY OF THE GOVERNMENT

2.2 The recommendations of the Committee were sent to Planning Commission on which it responded that "the Planning Commission have allocated Rs.5368 crore to DARE / ICAR during X Plan for on-going as well as new research initiatives to be undertaken by the Department. The SFCs / EFCs clearances of these schemes have already been completed. However, the department is yet to absorb the total allocated outlay for the Tenth Plan. Planning Commission has always been liberal in supporting DARE / ICAR's R&D projects and would continue to be so in the future. Moreover, the predetermined earmarking of plan allocation has the potential of misallocation of scarce resources, which can and should be an avoidable situation".

Depending on the total resource availability, the Planning Commission had allocated Rs. 5368 crore to DARE / ICAR during Xth Plan for on-going as well as new research initiatives to be undertaken by the Department. As such, the Department had prioritized its requirements to adjust within the allocated amount of Rs.5368 crore. Apart from the on-going plan schemes / projects including new activities already approved by the Xth Plan SFCs / EFCs of the Department, there are still a few new programmes, some of which have already been forwarded to the Planning Commission for its consideration and in-principle approval. These programmes are : Seed Production in Agricultural Crops and Fisheries (with outlay of Rs.247.54 crore); Productivity enhancement (Rs.2000 crore); input use efficiency enhancement (Rs.1000 crore); Modernization of laboratories (Rs.950 crore); Centres of Excellence in SAUs (Rs.1050 crore) – all four components totaling Rs.5000 crore for Xth Plan period. Planning Commission has also been requested to provide Rs.550 crore during 2004 – 05) to address these issues. The National Agricultural Technology Project – Phase II (Rs.200 crore as Xth Plan component) – already agreed to in principle by Planning Commission would be costing about Rs.900 crore over the period of five years and other priority project namely Network Project on Microorganisms in relation to Agriculture is projected at Rs.200 crore approximately – which is at processing stage. In the event of approval of these priority projects, as explained above, the Department will need additional funds over and above to the allocated amount of Rs.5368 crore during Xth Plan period.

RECOMMENDATION NO.2

Insufficient Tenth Plan Public funding for DARE/ICAR

2.3 The Committee observe that the Department had proposed a minimum requirement of Rs. 16,000 crore for the Tenth Plan. Against this requirement, the Planning Commission approved only Rs. 4,868 crore which was subsequently enhanced to Rs. 5,368 crore by providing Rs. 500 crore for establishing new KVKs.

The Committee strongly deplore this tendency of the Planning Commission and the Ministry of Finance for imposing drastic cuts as high as up to 55 per cent to 60 per cent on the amount demanded by the Department as per their pressing needs.

The Committee are of the strong opinion that although the DARE/ICAR make high claims in matching the quality of their agrarian and allied sectors in R&D activities with other advanced countries, the ground reality is entirely different, especially when compared with the kind of research and development activities and the actual achievements made by the agriculturally advanced countries in the field of Hybrid Technology, Biotechnology, Management of Biotic and Abiotic stresses, quality of Seed and Planting Material, quality of Energy and Farm machinery, post-harvest technologies, natural resource management, animal sciences and fisheries sectors and speedy transfer of technology from Land to Lab.

The Committee are of the considered view that addressing of all the important areas of agricultural research, development and education practically requires huge and well planned funding. Unfortunately, the Planning Commission and the Ministry of Finance have been ignoring the genuine and pressing demands of the Ministry of Agriculture to provide higher amount of public funding than being provided at present for the R&D activities of the DARE/ICAR to prove their talent. This will give them encouragement to put in more dedicated efforts in making new strides in the Agriculture sector and the benefits of which only reach to the common people of the country.

The Committee, therefore, strongly recommend that the Department should be provided with Rs. 16,000 crore by the Planning Commission and the Ministry of Finance for the Tenth Plan period as per their original proposal.

REPLY OF THE GOVERNMENT

2.4 The Department has already completed the exercise of Xth Plan SFCs / EFCs and the financial requirement has already been adjusted with the overall Xth Plan outlay of Rs.5368 crore allocated to the Department by the Planning Commission during the Xth Plan. Depending on the total resource availability, the Planning Commission had allocated Rs. 5368 crore to DARE / ICAR during Xth Plan for on-going as well as new research initiatives to be undertaken by the Department. As such, the Department had prioritized its requirements to adjust within the allocated amount of Rs.5368 crore. Apart from the on-going plan schemes / projects including new activities already approved by the Xth Plan SFCs / EFCs of the Department, there are still a few new programmes, some of which have already been forwarded to the Planning Commission for its consideration and in-principle approval. These programmes are : Seed Production in Agricultural Crops and Fisheries (with outlay of Rs.247.54 crore); Productivity enhancement (Rs.2000 crore); input use efficiency enhancement (Rs.1000 crore); Modernization of laboratories (Rs.950 crore); Centres of Excellence in SAUs (Rs.1050 crore) – all four components totaling Rs.5000 crore for Xth Plan period. Planning Commission has also been requested to provide Rs.550 crore during 2004 – 05) to address these issues. The National Agricultural Technology Project – Phase II (Rs.200 crore as Xth Plan component) – already agreed to in principle by Planning Commission would be costing around Rs.900 crore over the period of five years and other priority project namely Network Project on Microorganisms in relation to Agriculture is projected at Rs.200 crore approximately –

which is at processing stage. In the event of approval of these priority projects, as explained above, the Department will need additional funds over and above to the allocated amount of Rs.5368 crore during Xth Plan period.

COMMENTS OF THE COMMITTEE

2.5 For Comments of the Committee please refer to paragraph No.1.6 of Chapter-I of the Report.

RECOMMENDATION NO.3

Inadequate allocation to DARE in 2004-2005

2.6 The Committee observe that the Department proposed an outlay of Rs. 1,800 crore for 2004-05 but has been allocated only Rs. 1,000 crore. Obviously, the reduced allocation by Rs. 800 crore will hamper the functioning of the Department, particularly in vital research areas. The Department has put up an additional demand of Rs. 5,000 crore for the Tenth Plan and Rs. 550 crore for the Annual Plan 2004-05 to address the research and developmental aspects related to enhancement of productivity, input use, efficiency, modernization of infrastructure and centres of excellence in State Agricultural Universities (SAUs).

The Committee, therefore, strongly recommend that the Planning Commission and the Ministry of Finance need to reconsider the genuine requirement of funds and provide them adequate funds during the remaining period of the Tenth Plan as an additionality over and above Rs. 5,368 crore already allocated for the Tenth Plan. The Committee also recommend that for the year 2004-05, Rs. 550 crore should also be provided at RE stage to the Department in addition to the Rs. 1,000 crore already provided as BE so that the research and educational activities of the Department get a real thrust and impetus in the emerging global agrarian scenario.

REPLY OF THE GOVERNMENT

2.7 The Department has approached the Planning Commission for additional funding of Rs.550 crore during the current financial year 2004-05 and Rs.5000 crore during Xth Plan period for implementing specific schemes of priority areas to be implemented under National Common Minimum Programme (NCMP). The Department has also submitted to the Planning Commission Mid Term Appraisal document of the Xth Plan reflecting a separate Chapter highlighting priority areas of agricultural research & education and seeking additional resources mentioned above.

RECOMMENDATION NO.5

Budgetary Process requires some Reformative Changes

2.8 The Committee are aware that the Department starts its preparation of Budgetary proposals by inviting proposals of Revised Estimates (RE) of the current financial year and Budget Estimates (BE) of the next financial year from various constituent units some time in the second week of August. Subject Matter Divisions (SMDs) are also requested to scrutinize the proposals of RE/BE and send it to Budget section with their recommendations for finalisation. The Plan proposals are required to be sent to Assistant Director-General (ADG), Plan Implementation and Monitoring (PIM) as the Plan allocation is firmed up by ADG in consultation with the SMDs concerned. In the meantime, the Budget Circular is also received from the Ministry of Finance (MOF) in the first and second week of September and as per their requirement, the statement of Budget Estimates (SBE) is sent to them sometime in the month of October. So far as Plan BE for the next year is concerned, the Planning Commission intimates the Allocation Ceilings. After submission of the SBE, a discussion is arranged by the Ministry of Finance, sometime in the month of November between the Financial Advisor

of the concerned Ministry/Department and the Secretary (Expenditure) Ministry of Finance.

The RE/BE allocation is generally received from the Ministry of Finance sometime in the first and second week of January. The Plan allocation (BE) of the next financial year is received from the Planning Commission sometime in the first week of February. Keeping in view the final allocations the SMD-wise/ Institute-wise allocation is decided and communicated to the Institute/NRC/PD concerned by the end of January or first week of February. The Committee observe that there is a greater need and scope of serious scrutiny of entire exercise of Budgetary Process beginning from preparation Budgetary proposals in August by the concerned Department till actually receiving the RE/BE allocation from Ministry of Finance in the second week of January and then onward communication is made by the Department to the concerned Institutes by the first week of February, thus stretching the entire budgetary exercises from August to February. The Committee feel that this entire budgetary process and procedure, involving about 8 months, has actually given birth to the evil of mis-utilisation of funds in a hurried manner by the concerned institutes/schemes of the Department who find themselves under psychological pressure and there is apprehension of losing valuable but scarce financial resources made available to them by Ministry of Finance at the fag end of the Financial year.

The Committee, therefore, express their serious concern over this chronic malady of mis-utilisation and/ or over-utilisation of scarce public money provided by the Government to the concerned Department in the form of grants which could have been better utilized, provided it was made available to the concerned Department sometime in the month of December or a little earlier.

The Committee, therefore, recommend and strongly urge the Department, the Planning Commission and the Ministry of Finance for giving an active consideration through a rigorous and rational scrutiny, for reforming and rescheduling of their present Budgetary procedures and practices so that the final Plan and Non-Plan allocations are conveyed to the concerned Department and to the respective Institutes within the Department by the month of December every year for effective and fruitful utilization of scarce financial resources.

REPLY OF THE GOVERNMENT

2.9 The recommendation of the Parliamentary Standing Committee on Agriculture is valuable. The above recommendation of the Committee was forwarded to Ministry of Finance and Planning Commission. The Ministry of Finance has intimated that they have noted the recommendation and that all efforts will be made by them to comply with the recommendation. The Planning Commission also communicated that the budget allocations for the ongoing schemes / projects are being made on the basis of approved Annual Plan outlays, which allows a degree of certainty about the availability of funds to the Department and its lower formation.

RECOMMENDATION NO.7

Plan Schemes suffer owing to time taken in SFC/EFC/CCEA Approval

2.10 The Committee note that as a follow up of directives of the Government of India, the Department in consultation with Planning Commission applied Zero Base Budgeting (ZBB) scrutiny to all Plan schemes for their continuation in Tenth Plan with the Primary objective of reducing the number of Plan Schemes for expeditious Clearance of Tenth Five Year Plan proposals. In this exercise, original 235 Plan projects, viz. ICAR, Institutes, NRCs, PDs, AICRPs etc. have been brought together/integrated into 72 main

Plan projects. Out of 72 major Plan Schemes, 25 Plan Schemes are approved by the Standing Finance Committee (SFC) and 47 Plan Schemes are approved by the Expenditure Finance Committee (EFC).

As per the instructions issued by the Department of Expenditure, Ministry of Finance, Plan Schemes/projects costing up to Rs.5 crore could be considered for approval by the Department itself, i.e. without referring to SFC/EFC. Schemes costing more than Rs.5 crore and less than Rs.25 crore pertain to SFC, Rs.25 crore and above but less than Rs.100 crore pertain to EFC, Rs.100 crore pertain to main EFC and those Rs.200 crore and above to Public Investment/ main EFC. The respective jurisdiction with respect to SFC/EFC/CCEA is determined on the basis of total cost of the main project schemes including its sub-schemes for the entire five year plan. Any scheme costing Rs.100 crore and above requires approval of Cabinet Committee on Economic Affairs (CCEA).

The Committee also note that till 9 August 2004, the approval of CCEA was pending for four main schemes with sub-committees, namely, (i) Central Agricultural University, Imphal; (ii). Strengthening and Development of Agricultural Education; (iii). Project Directorate on Oilseeds Research, Hyderabad; and (iv) Indian Agricultural Research Institute, New Delhi.

The Committee observe that the primary objective of reducing the number of 235 plan schemes into 72 main schemes for expeditious clearance have been defeated to a large extent as the Department took about 14 months' time, i.e. from April 2002 to May 2003, for preparation of their SFC/EFC/CCEA proposals. In another 10 months, i.e. from May 2003 to March 2004, SFC/EFC clearance was obtained, and even after 29 months period of Tenth Five Year Plan have elapsed, the CCEA approval in 4 main schemes comprising about 27 sub-schemes are still pending.

The Committee, therefore, express their serious concern over such inordinate delays in which about 2 to 3 years' precious time out of total 5 years period has been wasted in getting and providing clearance of the Tenth Five Year Plan which will come to an end on 31 March 2007 viz after another 32 months.

The Committee see no justification in such a situation wherein many schemes/plan projects of the Department have an outlay for a period of 5 years mentioned on paper only but actually cannot be utilised on their major work of planned activities for a period of 2 to 3 years out of a total 5 year Plan period, till the approval of SFC/EFC/CCEA remains pending. The Committee urge the Department as well as the concerned Appraisal Agencies to seriously introspect over the delays which are so detrimental for the progressive functioning of a Department like DARE

The Committee also desire that serious and well contemplated steps should be taken well in time by the Department/Planning Commission/ CCEA to avoid any such recurrences in the forthcoming five year plans and a limited stipulated time frame should be fixed for each step and stage involved in the entire Budgetary exercise for the Department as well as for clearance from the Planning Commission and SFC/EFC/CCEA approval.

REPLY OF THE GOVERNMENT

2.11 The Department noted the recommendation of the Committee and will make efforts to comply with.

RECOMMENDATION NO.10

Vague, Non-Specific and Inconclusive Replies by the Department

2.12 The main function of the Committee are to scrutinize the Demands for Grants of the Department. The task facilitated by obtaining written replies and examination of witnesses.

The Committee observe that the Department has provided very vague, non-specific and inconclusive replies pertaining to about 100 main Schemes/Sub-Schemes of the Department. The Department in its replies has frequently used the terms, “most of the schemes” and “some of the schemes”, etc. The Department was again categorically asked to furnish specific information on the said queries. Further, the Department was again asked to provide the desired information in a Tabular format in which reasons for under-utilisation/over-utilisation of funds during 2003-2004 and reasons for providing higher/lower allocations in 2004-2005 for each and every scheme were to be furnished separately. But the Department failed to provide specific reasons for each and every scheme separately on every occasion as desired by the Committee.

When the issue was raised during oral evidence, the representative of the Department assured the Committee that they will furnish the desired reasons for under-utilisation /over-utilisation etc. for each and every scheme separately.

The Committee deprecate such a tendency of avoiding specific answers. Obviously, they either did not have specific replies as the said schemes were not monitored or an attempt was made to withhold information regarding non -performance or malfunctioning of these schemes.

The Committee hope that the Department would be more cautious in future and ensure that clear, specific, updated and conclusive replies are provided for the consideration of the Committee to dispel any mistrust about the functioning of the various programmes and schemes

REPLY OF THE GOVERNMENT

2.13 The recommendation of the Parliamentary Standing Committee on Agriculture to provide clear, specific, updated and conclusive reply has been noted for future compliance. However, the information has been compiled and furnished in Annexe-2.

CHAPTER III

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

NIL

CHAPTER IV

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

RECOMMENDATION NO.4

Requirement of One-Time Catch Up Grant

4.1 The Committee note that the DARE has a number of institutions/laboratories, which are more than twenty years old. In order to have excellent academic standards of the State Agricultural Universities and to have globally competitive research working environment, the Eighth Plan and Ninth Plan Working Groups had recommended Rs.300 crore and Rs.500 crore, respectively one time catch up grant to meet the critical need for upgrading laboratory equipment, pilot plants, farm and laboratory facilities, class rooms and audio visual facilities.

The Committee also note that during the Eighth Plan Period, Planning Commission did not provide any one time catch up grant. During the Ninth Plan, the Planning Commission had communicated a total outlay of Rs.3,376.95 crore including Externally Aided Projects (EAPs) out of which Rs.400 crore was indicated as one time catch-up grant but no separate allocations were made for catch up grant, though the Department had proposed an allocation of Rs.100 crore, Rs.200 crore, Rs.250 crore and Rs.306.81 crore for the year 1998-99, 1999-2000, 2000-2001 and 2001-02 respectively.

Subsequently, Planning Commission had communicated that the amounts indicated for annual plans also included the amount for one time catch-up grant, i.e., the Department could meet its requirement of catch up grant out of their Annual Plan budgets only. Accordingly, the Department had taken a decision in the year 1999-2000 that the Institutes could spend up to a maximum of 20 per cent of their respective Plan B.E.

(1999-2000); during 2000-2001 this percentage limit was raised to 30 per cent and for 2001-02, it was decided that the Institutes could incur expenditure under one time catch up grant to the extent to which they could spare the money after meeting their other essential research requirements. For State Agricultural Universities, these per centages were 30 per cent for 1999-2000, 40 per cent for 2000-01 and for 2001-02 it was allowed at par with institutes.

The Department again proposed an amount of Rs.1,000 crore during Tenth Five Year Plan but the Planning Commission has not yet made separate allocations specifically for catch up grant through Annual Plans

The Committee, therefore, unanimously opine that unless the Government is actually willing and come forward to support DARE/ICAR with this directly needed One-Time Catch-Up grant to change the obsolete equipments, age old infrastructure including laboratories and other related research facilities, the Scientists and Researchers of ICAR and all their related institutes/SAUs will continue to suffer from want of latest state-of-the-art equipments and research infrastructure/laboratories as this change over from old to new technology requires additional funding.

The Committee are also of the unanimous opinion that the serious problem of brain-drain is practically linked with the situation in which the scientists of the country engaged in the entire spectrum of R&D activities of ICAR are forced to work under poor work/research environment and are left to struggle with obsolete equipments, research tools and laboratories which gradually gives birth to work dissatisfaction and ultimately forces the scientists to seek greener pastures where their creative urge and talent come to foreplay and they get higher pay and other facilities.

The Committee also feel that although the Government and the people have great expectations from our agricultural scientists to achieve major breakthroughs in finding out solutions for problems faced by farmers and people engaged in agrarian and allied sectors apart from bringing total food and fodder security and overall prosperity and growth, yet the fulfillment of these great expectations will not be possible unless the Government provide the much desired and direly needed funds and incentives to ICAR to make it a real apex organization and the hub of the most talented scientists of the nation.

The Committee once again strongly urge the Planning Commission and the Ministry of Finance to provide much needed one time catch up grant of Rs. 1000 crore in Tenth Plan in a phased manner to ICAR given its track record of service to the nation and being privy to agricultural revolution in the country.

REPLY OF THE GOVERNMENT

4.2 The recommendation of PSCA was sent to the Planning Commission which responded that “the catch up grant which was meant for upgrading and updating the research facilities of ICAR’s institutions had already been taken care of while approving the proposals during Tenth Five Year Plan”.

The Xth Plan SFCs / EFCs agreed to a meagre amount, that too in some very specific cases, to meet the urgent need of renovation of age old infrastructure. The National Agricultural Research System comprising a large network of ICAR institutions and SAUs having dilapidated buildings, laboratories, class rooms and other farm and research related facilities as well as outdated / obsolete equipment needing large scale renovation / upgradation / modernization. The Department still requires substantial funds on this count. For this purpose Rs.1000 crore were proposed to the Planning Commission

as part of the Department's Xth Plan proposals, but separate funds for this purpose were not allocated or provided during Xth Plan / Annual Plans, so far.

COMMENTS OF THE COMMITTEE

4.3 For Comments of the Committee please refer to paragraph No. 1.9 of Chapter-I of the Report.

RECOMMENDATION NO.8

Urgent Need for Minimising Huge Post Harvest Losses of Agrarian and Allied Sectors Produces

4.4 The Committee note that the ICAR is having a number of schemes meant for assessing and addressing the issues pertaining to post-harvest losses along with the mandate of R&D in Post-Harvest technology. The two main schemes are (i) the Central Institute on Post Harvest Engineering and Technology (CIPHET) Ludhiana, established in 1989, and (ii) All India Coordinated Research Project (AICRP) on Post Harvest Technology (PHT) established in 1972. The Department has spent Rs.55.62 crore against the total allocation of Rs.57.73 crore provided for these schemes during the last five years.

Despite this the value addition is only 79 per cent and agro processing is only 2 per cent in case of perishable produces. There is a vast scope for value addition to the extent of 35 per cent and processing to the extent of 10 per cent in the next ten years. As regards the data on quantum of post harvest losses and value in term of rupee of such wastage, the Committee are informed that at present, no authoritative estimates of post harvest losses in various agricultural livestock and Fisheries sectors are available. However, on the basis of limited area general Post Harvest loss estimates available with

ICAR, the minimum Post Harvest losses are about Rs.51,500 crore annually. The Committee are surprised as to how ICAR being a national apex organization for agricultural research and education has been performing its role to safeguard the scarce resources without any authoritative estimates of Post Harvest losses. The Committee, therefore, strongly recommend that the ICAR should take immediate steps to collect, compile and analyse data at the earliest at national level in order to have better Planning to stop wastages of such a magnitude. The Committee hope that this would also help the concerned Ministries/Department/Agencies to develop appropriate technologies to prevent the avoidable waste. Unless, this is done, and the desired post harvest technologies developed and implemented to plug the big hole in the basket of agrarian produces, all the efforts made by the ICAR to increase production and productivity of agrarian and allied produces will continue to go down the drain.

REPLY OF THE GOVERNMENT

4.5 The efforts have been made to assess the harvest and post harvest losses of agricultural commodities namely Oil Seeds, Wool, Meat, Eggs & Poultry Meat, Fisheries and Milk at Producer, Consumer and Market levels under the National Agricultural Technology Project (NATP). The details are given in Annexe-1.

COMMENTS OF THE COMMITTEE

4.6 For Comments of the Committee please refer to paragraph No.1.15 of Chapter-I of the Report.

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RECOMMENDATION NO.9

Need to check mal-functioning in Krishi Vigyan Kendras

4.7 The Committee note that a total of 415 Krishi Vigyan Kendras have been sanctioned till date. Out of these, 318 are functional and 50 which were sanctioned during the first two years of Tenth Plan, are partially functional. While 39 Krishi Vigyan Kendras recently sanctioned are in the process of being made functional, the remaining 8 which were non-functional have been closed down. The Committee are informed about some more Krishi Vigyan Kendras in Bihar and Uttar Pradesh in which mal-functioning is going on without any check.

Considering the laudable objectives of Krishi Vigyan Kendras, the Committee recommend that all the remaining 50 partially functional Krishi Vigyan Kendras should be made fully functional on top priority basis within a stipulated period of six months from the date of presentation of this Report to Parliament.

The Committee are also concerned over the reports of complaints of financial irregularities in 6 Krishi Vigyan Kendras. The Committee note that though the Indian Council of Agricultural Research claims that they have a multi-tier monitoring mechanism for periodic and frequent evaluation of all the Krishi Vigyan Kendras, yet the closing down of these 6 Krishi Vigyan Kendras has belied their claim. Apparantely, the ICAR has failed to check financial irregularities in time which allowed the unscrupulous elements to flourish unhindered upto a level that not only proved fatal to the very existence of those 6 Krishi Vigyan Kendras but also Such malpractices, if unchecked, would undermine public confidence in Krishi Vigyan Kendras. The Committee, therefore, desire that the Department should take appropriate steps to reform and strengthen their monitoring system, and bring transparency in the functioning of Krishi

Vigyan Kendras so that Krishi Vigyan Kendras continue to perform their basic function of transfer of technology from Lab to Land and continue to enjoy trust and confidence of the innocent farmers.

REPLY OF THE GOVERNMENT

4.8 Funds have been provided for creation of infrastructural facilities for the Krishi Vigyan Kendras (KVKs) sanctioned during the Xth Plan period. In order to check any financial irregularities, the funds for the current financial year are released strictly after receiving the AUC of the previous year by the respective Zonal Coordinating Unit. The release of funds has also been decentralized at the level of the Zonal Coordinating Unit.

COMMENTS OF THE COMMITTEE

4.9 For Comments of the Committee please refer to paragraph No.1.18 of Chapter-I of the Report.

RECOMMENDATION NO.11

Need to Popularise R&D Support from ICAR to identify Synthetic Milk

4.10 The Committee note that ICAR has spent about Rs.450 crore so far during the last few decades on the Research and Developmental aspects of Milk and training personnel/people engaged in Dairy sector. As a matter of fact ICAR has made significant contributions through their R&D support in ushering White Revolution in the country. They also note that the per capita availability of milk has gone up to 226 gms per day against 127 gms per day during 1979-80. Milk has been the life line of millions of people as it continues to be the most popular and potent source of nutrition and income generation for their survival and prosperity from time immemorial. The

Committee are perturbed to note that unscrupulous elements are supplying synthetic or adulterated milk imperilling the life of consumers, particularly the young children.

The Committee are aware that though the prevention of supply of synthetic milk/adulterated milk is the responsibility of Ministry of Health, prevention of Food Adulteration Department, yet the ICAR equipped with its well-equipped research can come forward by providing their R&D support in detecting the supply of synthetic or adulterated milk.

Once the primary data are collected/compiled and analysed area-wise, the ICAR will be in a better position to formulate strategies to promote and popularize their research and development activities to enhance the production and productivity of Pure Milk and milk products particularly in the areas bedevilled by Synthetic/ adulterated milk.

The ICAR can also help other concerned Ministries/ Departments and law enforcement agencies engaged in promoting public health by providing them with valuable input for detecting synthetic milk.

The Committee also feel that the ICAR can also produce self-help smaller and economy versions of the diagnostic kits they have already produced for identifying 12 common adulterants in milk and make all out efforts to popularize their low priced smaller version of the Diagnostic Kits which can be gainfully used by the common man.

REPLY OF THE GOVERNMENT

The NDRI, Karnal has developed the diagnostic kit to identify the adulterated / synthetic milk which contain urea, starch, glucose, sugar, hydrogen peroxide, pond water, neutralizers (like sodium hydroxide sodium carbonate sodium bicarbonate), sodium chloride, vanaspati in ghee, formalin, malto-dextrin and ammonium compounds. The cost of this kit is Rs.8600/= and can be obtained from NDRI, Karnal. The work on pesticide residue in Indian milk is in progress. However, limited study done on residual level of DDT and BHC in milk in Northern India under NATP Project indicated an average DDT level of 0.028 ug/g fat which is below the permissible MRL

(0.05 ug/g of fat). The average BHC level in 600 milk samples was 0.001 ug/g against the permissible MRL (0.01 ug/g of fat).

If need be, the logistic R&D support would be provided to Ministry of Health, which is the nodal agency, in analyzing the adulterated / synthetic milk samples.

COMMENTS OF THE COMMITTEE

4.12 For Comments of the Committee please refer to paragraph No.1.21 of Chapter-I of the Report.

CHAPTER V

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

RECOMMENDATION NO.6

Urgent Need to fill all the vacancies in ICAR

5.1 The Committee note that there is an acute shortage of manpower as 3,784 posts are lying vacant in ICAR. It is more so, especially in the scientific category, which has a shortfall of about 1,400 posts. This position has aggravated since 2001. As per orders of the Department of Personnel dated 16 May 2001, direct recruitment is to be restricted to 1/3rd of the vacancies arising in a particular year with a further stipulation that the vacancies filled in a year should not exceed one per cent of the total sanctioned strength. In 1999, the Ministry of Finance had imposed a 10 per cent cut on the sanctioned posts of all categories. Though the Department has taken up the matter of seeking exemption for the scientific category with the Ministry of Finance at various levels, yet the final decision is pending.

The Committee are of the considered view that the Department should give top priority to this matter and take up the matter immediately with top officers in the Ministry of Finance and the Department of Personnel for getting exemption from 10 per cent cut on the sanctioned posts and lift restrictions imposed by Department of Personnel on at least scientific and technical categories of posts.

The Committee also urge the Department of Personnel and Ministry of Finance to consider the issue of granting exemption from their respective orders in this regard, expeditiously for recruitment of the scientific and technical categories as the output and efficiency of the ICAR has been suffering owing to shortage of scientific/technical manpower. Moreover, vacancies of scientists have been adversely affecting the scientific

output in terms of basic, strategic, applied and anticipatory research. Since all the R&D activities of the ICAR are meant for bringing overall progress and prosperity to the people engaged in agrarian and allied sectors, the nation as a whole can ill-afford to have such restrictions causing adverse effect on the working of a reputed scientific organization like ICAR.

REPLY OF THE GOVERNMENT

5.2 In the post VII Plan period, the institutes of ICAR have been increased from 75 to 96. However, not a single scientific post has been approved for creation commensurate with the expanding activities and the same are being managed by internal redeployment of the available specialized manpower. Now the organization has been stretched virtually to its limits and the demands on the research system are increasing and options available from within the prevailing system have been totally exhausted. In an effort to minimize the severity of the personnel crunch the ICAR has resorted to curtailing posts from all its other cadres in order to provide the bare minimum personnel required in the cadre of scientists. Regarding the action taken so far by the Department, it is clarified that the Secretary, DARE and DG, ICAR had made a presentation before the Cabinet Secretary on 27th June, 2003 highlighting the following issues:

- (a). The ICAR should be exempted from the application of 10% reduction in manpower, at least in the scientific category.
- (b). Similarly, the restriction imposed by the DOPT O.M. dated 16.05.2001 on direct recruitment vacancies to 1/3rd may not be made applicable to ICAR in so far as scientific staff is concerned.

(C) The ICAR should be permitted to fill up all the posts contained in the approved SFCs/EFCs of Tenth Plan.

As desired by the Cabinet Secretary a detailed proposal was sent on 30.09.2003 and was subsequently followed up at the level of then Hon'ble Agriculture Minister with the then Hon'ble Deputy Prime Minister on 06.01.2004. The response of MOS (Personnel) dated 11.02.2004 was again considered/processed and the matter was taken up by the Hon'ble AM with the Hon'ble Prime Minister and Finance Minister vide a demi-official letter dated 22.07.2004.

In response the Hon'ble Finance Minister has clarified on 15th September, 2004 that so far no Ministry/Department has been exempted from the orders of 10% cut in manpower and filling up of only 1/3rd of vacancies in a particular year. However, it has been clarified that specific proposals received from the Council shall be considered on merits within the ambit of existing instructions. However, looking to the gravity of the situation all possible efforts would continue to be made to mitigate the situation.

COMMENTS OF THE COMMITTEE

5.3 For Comments of the Committee please refer to paragraph No.1.12 of Chapter I of the Report.

NEW DELHI
25 January, 2005
5 Magha, 1926 (Saka)

PROF. RAM GOPAL YADAV
Chairman
Standing Committee on Agriculture

APPENDIX I

MINUTES OF THE ELEVENTH SITTING OF THE STANDING COMMITTEE ON AGRICULTURE HELD ON TUESDAY, THE 25TH JANUARY, 2005 AT 1100 HRS. IN COMMITTEE ROOM 'C', GROUND FLOOR, PARLIAMENT HOUSE ANNEXE, NEW DELHI

The Committee sat from 1100 hrs. to 1240 hrs.

PRESENT

Prof. Ram Gopal Yadav – Chairman

MEMBERS

Lok Sabha

2. Shri Hiten Barman
3. Shri Manoranjan Bhakta
4. Shri G.L. Bhargava
5. Shri Khagen Das
6. Shri Dharmendra
7. Smt. Rupatai D. Patil Nilangekar
8. Shri A. Ravichandran
9. Shri K.J.S.P. Reddy
10. Shri Y.S. Vivekananda Reddy
11. Shri M.P. Veerendra Kumar
12. Shri Mahboob Zahedi

Rajya Sabha

13. Smt. Mohsina Kidwai
14. Shri Harish Rawat
15. Shri Pyarelal Khandelwal
16. Shri Sk. Khabir Uddin Ahmed
17. Shri Bhagwati Singh
18. Shri Bashistha Narain Singh
19. Shri Sharad Anantrao Joshi

SECRETARIAT

- | | | |
|------------------------|---|--------------------|
| 1. Shri Devender Singh | - | Director |
| 2. Shri K.D. Muley | - | Under Secretary |
| 3. Smt. Ratna Bhagwani | - | Assistant Director |

At the outset, the Hon'ble Chairman, welcomed the Members to the sitting of the Committee and requested them to take up memoranda Nos. 2, 3 & 4 containing draft Action Taken Reports on 2nd, 3rd and 4th Reports on Demands for Grants (2004-05) of the Ministry of Agriculture (Department of Agricultural Research and Education); Ministry of Agriculture (Department of Animal Husbandry & Dairying) and Ministry of Food Processing Industries, respectively for consideration and adoption.

2. The Committee then considered and adopted the draft Action Taken Reports with certain additions/modifications as suggested by members of the Committee.

3. The Committee thereafter authorized the Chairman to present the above-mentioned Report to the House on a date and time convenient to him.

The Committee then adjourned.

APPENDIX II

(vide Para 4 of Introduction of the Report)

ANALYSIS OF ACTION TAKEN BY THE GOVERNMENT ON THE 2ND REPORT OF THE STANDING COMMITTEE ON AGRICULTURE (14TH LOK SABHA)

(i)	Total Number of Recommendations	11
(ii)	Recommendations/Observations which have been accepted by the Government Serial Nos. 1, 2, 3, 5, 7 & 10	
	Total	6
	Percentage	54.54 %
(iii)	Recommendations/Observations which the Committee do not desire to pursue in view of the Government's replies Serial Nos. NIL	
	Total	Nil
	Percentage	0 %
(iv)	Recommendations/Observations in respect of which replies of the Government have not been accepted by the Committee Serial No. 4, 8, 9 & 11.	
	Total	4
	Percentage	36.36 %
(v)	Recommendations/Observations in respect of which final replies of the Government are still awaited Serial Nos. 6	
	Total	1
	Percentage	9.09 %

**ASSESSMENT OF HARVEST & POST-HARVEST LOSSES OF SOME
AGRICULTURAL COMMODITIES UNDER NATP**

Commodity: Oilseeds

Data collection was completed at five centers namely Bharatpur, Junagarh, Ferozepur, Akola and Raisen for Rapeseed & mustard, Groundnut, Cottonseed, sunflower and soybean respectively. The salient findings are presented below:

Losses at Farm Level:

(A) Rapeseed & Mustard:

(i) Losses during harvesting: The percentage loss at harvest stage vary between 3.29 to 3.63 by enquiry and 3.48 to 3.69 by observation. Thus, there is less variation within the category and there is insignificant difference between enquiry and observed data. Loss during harvesting is least in case of farmers of medium category. The overall loss is 3.52 % by enquiry and 3.51% by observation.

(ii) Losses at transport from field to threshing floor: The loss during transportation is least in medium category farmer with 3.07% by enquiry and 3.32 % by observation, whereas, maximum in small category farmers with a value of 3.53 % by enquiry and 3.55% by observation. The difference in enquiry and observation is insignificant. The variation in loss within categories is more in data collected by enquiry (3.07 to 3.53%) and less (3.32 to 3.55) in the loss estimated by observation. The overall loss is 3.30 % by enquiry and 3.49% by observation.

(iii) Losses during threshing and cleaning: Loss during threshing takes place as some grains escaped from the stacks, some of the grains are blown by aspirator, some seeds come out with the husk during cleaning. None of the selected farmer used hand operated winnower for cleaning the seed. The seed is passed through the thresher for cleaning. The loss during threshing is less (2.94%) in large category farmers. The percent losses vary between 2.66% to 3.04%. The loss estimated by observation is slightly less than loss estimated by enquiry. Loss during threshing is 3.01% by enquiry and 2.79% by observation.

(iv) Losses during storage at farm level: The overall loss is least (0.233%) in large category farmers, whereas, maximum (0.47%) for small farmers. Total loss is 0.29% for the whole year. No insect and rodent attack was reported by the farmers. No loss due to insect, mold etc. was observed. Foreign matter and mechanically damaged grains were observed in each sample. The losses reported by the farmers are mainly due to foreign matters. This indicates that the cleaning done by the thresher blower is not sufficient and proper cleaning of the seed is required prior to storage of the seed.

(B) Soybean:

(i) Losses during harvesting: Percentage loss by enquiry is 1.37% in small category farmers, whereas, 3.74% in large category farmers. Thus, there is a wide variation in losses between the categories. Estimated percentage loss by observation varies between 6.57 to 8.57 between categories. Hence, there is significant difference in the loss estimated by enquiry and observation. The overall loss by enquiry is 3.33 % and by observation it is 7.05%.

(ii) Losses during transportation from field to threshing floor: Percent loss during transportation is less (0.39%) in small category farmers, whereas, more (0.81%) in large category farmers as obtained by enquiry. The loss obtained by observations varies between 0.77 to 1.39%. So, the loss estimated by observation differ significantly from the loss estimated by enquiry. The overall losses by enquiry is 0.71%, whereas, by observation it is 1.27%.

(iii) Loss during threshing and cleaning: Estimated loss by enquiry varies between 0.83 to 1.01%, whereas, it varies between 1.08 to 1.14% as estimated by observation. There is significant difference within the category in loss estimated by observation. Loss reported by small categories farmers is less than the observed value. Loss during cleaning takes place due to the fact that some grains escape with straw during cleaning. 57% farmers did the cleaning operation after threshing the grain because threshers used by them was not attached with blower. Loss during cleaning varies between 0.06 to 0.17% as reported by farmers, whereas, it varies between 0.08 to 1.27% as estimated by observation. The loss in cleaning is very less (0.08%) in medium category farmers.

It can be observed that overall loss during harvesting is 3.33% followed by 1.01% during threshing as reported by farmers. Loss reported by farmers is least (0.14%) during

cleaning. Estimated loss during harvesting is 7.05% followed by loss during transportation (1.27%). It suggests that the pods of the soybean crop may break easily, if the crop is not harvested at proper time. It also indicates that pods are not strong enough to bound the seeds after maturity of the crop.

(iv) Loss during storage at farm level: Overall loss in this category is 0.023%. In medium category farmers, loss is observed in November and December and mainly due to foreign matter. Overall loss is 0.23%. In large category farmers, loss is reported in November, December, January and July months. Overall loss in the whole year is 0.11%. Attack of insects and weeviled grains were also observed. The percent loss due to weevilisation was 0.13%. Some grains were also damaged by molds and loss of 0.039% was observed. Overall loss was 0.17% in the whole year.

(C) Groundnut:

(i) Losses during Harvesting: The estimated loss by enquiry varies from 3.24 to 3.82% within category. Maximum loss of 3.82% is estimated in large category farmers and least in small category farmers with a value of 3.24. but in case of observation, loss varies from 1.40 to 2.33% and least (1.40%) in large category farmers. Losses estimated by actual observation are lesser than that of enquiry and there is significant difference within the category. The overall loss by enquiry is 3.72%, whereas, in case of observation it is 1.57%.

(ii) Loss during transportation from field to threshing floor: Estimated loss by enquiry varies from 2.21% to 2.49%. But there is no loss during transportation as estimated by observation. This may be due to the reason that farmers have considered the pods left on soil during bundling and stacking as loss but these pods are collected by the farmers during picking. The overall loss by enquiry is 2.44%.

(iii) Loss during threshing: Percent loss estimated by enquiry varies from 2.04% to 2.26% and minimum in large category, whereas, maximum (2.26%) in small farmers category. Loss estimated by observation varies from 0.41 to 0.73% within the category. Loss estimated by observation is significantly lower than that of estimated enquiry. The overall loss estimated by enquiry is 2.08%, whereas, it is 0.47% in case of observation.

(iv) Losses during storage at farm level: The overall loss in the bag storage was 0.59% as compared to 0.43% loss in storage in bulk. Thus loss in bulk storage is lesser than the loss in storage in bags. The main cause of loss in this case is attack by insects and mold. Attack of bruchids was observed in all months. Percent loss due to insect (bruchids) infestation was 0.46%. Losses due to mold growth were 0.67%. Overall loss of 1.08% was estimated in storage at farm level.

(D) Cottonseed:

(i) Loss during picking (harvesting) and transportation: Percent loss varies from 2.99% to 4.53% within the category. But losses estimated by observation are very high as it ranged from 7.39% to 9.54%. This may be due to the reason that some of the cotton bolls remain unplucked during the harvesting. Transportation loss in the cottonseed was estimated by enquiry only. Loss is least (0.1%) in large farmers and maximum (0.64%) in medium category. There is significant difference in estimated losses within the category. The overall loss during picking is 3.76% by enquiry and 9.30% by observation. Thus, there is significant difference in both the methods of estimation. Transport losses are 0.14% estimated by enquiry.

Loss at Intermediary (Market) Level:

Loss at intermediary level takes place mainly due to handling, pilferage, transportation as loss during storage. The loss was estimated by selecting two mandies in each district for each crop. Five traders in each mandi, handling the selected crop were taken randomly for data collection. Estimated losses at intermediary level is described crop wise.

(i) Rapeseed & Mustard: The main causes of the losses are handling, dampness, and rodent, cleaning. Estimated loss due to handling was 0.34%, whereas, loss due to dampness, cleaning and rodent were 0.07%, 0.05% and 0.001% respectively. Overall loss is 0.46% in the whole year. No loss due to weevilisation, insect, mold, etc. was observed in the analysis of samples.

(ii) Soybean: Overall loss due to rodent was 0.026% and 0.12% due to handling (by enquiry). Overall loss was 0.15%. In the samples analysis, the insect damage was observed in the month of October and loss was 0.012%. Overall loss due to weevilisation

was 0.04%. Mold infection was observed in samples and weight loss was 0.25% due to molds. Overall loss was 0.25% and it is more and differs significantly.

(iii) Groundnut: The estimated loss due to handling was 0.83%, which involves weighing, bagging, cleaning, pilferage etc. Overall loss due to insect attack was also high and estimated as 0.61%. The traders did not report the attack of bruchids in October and November months as fresh produce comes in the market at that time. The overall loss was estimated to be 1.86%. No insect damage was observed in the samples drawn in December. Overall loss due to insect (Bruchids) damage was 1.17% and it is higher than the estimated loss by enquiry. Loss due to moldy kernels was very high (1.72%) which is the main cause of quality deterioration. In groundnut overall loss was estimated to be 2.90%.

(iv) Cottonseed: Weight loss mainly contributes to the loss of moisture and overall loss was 0.50%. Loss due to handling is 0.11%. Overall estimated loss was 0.61%. Loss due to mold infection was 0.32%. Loss due to insect damage was 0.035% and overall estimated loss was 0.35%.

Losses at Oil Milling Unit Level:

Losses at this stage are due to handling the seed, pilferage, transportation, and losses in storage of the oil mills. The losses at this stage were estimated only before the seed was going for oil expelling. The losses were estimated by enquiry as well as by laboratory analysis. The estimated losses in different crops are described below:

(i) Rapeseed & Mustard: Losses during handling includes the loss during loading & unloading, pilferage, and loss due to foreign matter. The overall loss due to handling was 0.64%. Weight loss was 0.28% and overall loss was estimated to be 0.92%. No loss due to insect or mold was observed. Foreign matter and mechanically damaged grains were observed in each sample.

(ii) Soybean: Loss due to rodents was 0.05%. Losses due to handling and dampness were also very less i.e. 0.03% and 0.02% respectively. Overall loss was estimated to be 0.10%. Loss due to weevil damage was 0.013%. Moldy grains were also found and loss due to molds was 0.12%. The overall loss in quantity due to weevization was 0.13%, which is higher than the estimated loss by enquiry.

(iii) Groundnut: Losses due to insects were very high (1.44%) followed by damage by rodents (1.07%). The overall loss was 3.93%. This is mainly due to the reason that attack of bruchids cause heavy loss within very short period. Samples drawn from the store of the oil mills were analyzed. The loss due to insect damage was 1.04% and molds was 1.33%. Overall loss due to these was 2.37%. This shows that the insect damage cause severe loss in the storage.

(iv) Cottonseed: The main causes of losses as reported by the mill owners are weight loss due to moisture, pilferage and handling. The estimated loss by enquiry was 0.52% due to weight loss from moisture evaporation of the seed. Losses due to pilferage and handling were very less and 0.015% and 0.04% respectively. Overall loss in the whole year was 0.58%.

Loss in Ginning Mills:

Estimated weight loss is 0.36% and loss due to handling was 0.34%. Overall loss in the whole year is estimated to be 0.74%. None of the mill owners have reported any loss of seed going out with ginning mill waste. All ginning mill owners informed that the wastage is 2% of the total stock used for ginning. Samples were drawn from the waste of the ginning mills and analysed in the laboratory. The overall loss 0.062% was estimated in the waste of the mill. There is wide variation in the losses in different months.

Loss in Godown/CWC Godown/State Warehousing Corporation Godown

In rapeseed & mustard, no loss is observed. But the manager of the godown informed that if normal conditions prevail then the overall losses of 0.5% may take place in the whole year. In the soybean crop, loss of 0.4% was observed in October, 0.04% in November and 0.02% in March, due to transportation from market to warehouse. No loss due to other reasons was reported. In case of groundnut, no loss is reported in any month in the godown. In cottonseed, losses due to rodent and dampness were observed. Estimated loss was 0.13% due to rodents and 0.02% due to dampness. Overall loss of 0.14% was estimated in the storage of cottonseed at godown.

Commodity: Wool

The losses of useful fibres at three levels i.e. shepherd, trader and processor (Spinner) were assessed.

Losses at Shepherd Level i.e. Production level

The useful fibre loss at this level is mainly because of traditional hand shearing method among which the faulty practices viz. shearing on dirty ground, use of blunt scissors, incomplete shearing or partial shearing, double cuts and admixture of foreign matters are found. The parts of the fleece stained by animal excretions are usually removed when fleece is skirted. The total loss varies between 1 to 1.3% and the main loss is at the primary skirting level.

Losses at Trader Level i.e. Market level

The total loss is below 1%.

Losses at Processor Level i.e. Post Production level

The wool losses were more at processor level in comparison to shepherd and trader level. The useful wool fibre loss was maximum at carding stage. The total loss was around 4%. With respect to quality of wool fibres obtained as useful fibre loss during processing, length more than 25 mm is reusable and therefore second card dropping may be reused for production of woollen yarn.

Commodity: Meat

The pilot-study for estimation of harvest (pre-slaughter and slaughter) and post-harvest (post-slaughter) losses in three sectors of meat – buffalo meat, sheep & goat meat and pig meat – revealed the following findings:-

(i) Buffalo Meat Sector

- She buffaloes were more prone to pre-slaughter losses than he buffaloes. Losses mainly occurred due to injuries and deaths during transport by truck.
- Overall percentage condemnation of meat at the level of buffalo meat traders and buffalo meat stalls was 0.04 and 0.05 respectively.

- Overall percentage post-slaughter losses in meat, regular offals and other offals were 0.09, 1.41 and 3.74 respectively.
- In general, losses were minimum during rabi season.

(ii) Sheep and Goat Meat Sector

- Pre-slaughter losses mainly occurred due to illnesses during holding period and due to deaths during transport by truck and holding period.
- Overall slaughter losses due to carcass condemnation was 0.3%.
- Overall percentage post-slaughter losses due to unsold meat and unsold offals were 3.01 and 2.57 respectively.

(iii) Pig Meat Sector

- Overall percentage slaughter losses due to condemnation of meat at the level of pig meat traders and retail pork stall owners were 0.53 and 0.09 respectively.

(iv) Meat Consumers Sector

- Overall losses at the level of rural and urban meat consumers were 6.33% and 7.82%, respectively.
- At the level of hotels and restaurants, losses due to condemnation of fresh meat were highest in pork (0.23%), while losses due to trimmings were highest in buffalo meat (2.46%).

Commodity: Eggs & Poultry Meat

- A pilot study for assessment of the quantitative losses of eggs and poultry meat at harvest (production) and post-harvest (post production) levels was carried out in and around Bareilly district and at other sampling locations.

(i) Losses in Egg Sector

- The magnitude of the total losses of table (infertile) eggs at layer farms, wholesalers, retailers, cold store, egg processing unit and household level was found to be 0.98%, 1.39%, 3.26%, 2.11%, 1.24% and 3.24% respectively which together constituted an overall annual loss of 12.22% eggs between farm and kitchen in the survey area.

- The overall loss of table eggs from poultry farms(producers) to household consumers via wholesalers and retailers worked out to be 8.87% in the survey area.
- Losses of table eggs were found to be more in small layer farms (1.94%) than in medium (1.11%) or large farms (0.95%).
- The bulk of egg damage at farm level was in the form of straight crack (35.2%) followed by star crack (16.4%), smashed/leakers (15.2%), soft –shell (14.3%), holes (9.8%), shell-less eggs (8.9%) and spoiled (rotten) eggs (0.1%).
- The losses were comparatively more in summer (1.31%) than in rainy(0.88%) or winter(0.75%) season during production of eggs at the farms. Similar trend of seasonal variation in losses of table eggs was observed at market (wholesale/retail) and consumer (household) levels.
- The bulk of egg damage occurred at poultry farms during collection stage i.e gathering of eggs, whereas, the same was maximum during packing and transport at market and household consumer level, and during mechanical washing operation at egg processing plants.
- The total loss of combined layer and broiler type hatching eggs was found to be 1.79% and the seasonal trend in losses of combined layer and broiler type hatching eggs was similar to that of table eggs. However, the loss was found to be much less in layer type hatching eggs (1.01%) than in broiler type hatching eggs (4.53%). The bulk of damage of hatching eggs was characterized by straight/star crack(43.8%) followed by shell-less(membranous)/soft-shell eggs(21.1%), leakers (13.1%), hole (8.0%), and defective eggs viz. extra small (7.8%) and extra large (6.2%)from hatchability viewpoint. About $\frac{3}{4}$ th of the loss of hatching eggs occurred during collection stage at the poultry breeding farms (Table 6).
- Possible causes of loss : Poor quality poultry feed, summer stress and resultant poor egg shell quality, defective cage design, rough handling, defective packaging and transport hazard attributed as the major causes of losses of eggs by the respondents.

(ii) Losses in Poultry Meat Sector

- The losses of poultry viz. chicken broilers at marketable age (5-7 weeks) were found to be more at retail level (2.14%) than at broiler farms (1.08%) or wholesale level (0.61%). This together constituted an overall 3.83% loss of broilers mainly due to mortality between farm and retail market. And about 0.44% loss was found at household level was on account of discard of less desirable skin/giblets by the consumers during pre-cooking stage. The loss of poultry meat at poultry processing unit in the form of condemned carcass or their parts due to bruises/blisters was practically negligible (0.25%).
- Loss of market-ready broilers between 5 and 7 weeks of age was higher in small (1.40%) than in medium (0.80%) or large size (0.64%) farms.
- Seasonal analysis revealed that the loss of broilers was more in summer (1.72%) than in rainy (0.85%) or winter (0.66%) season at the farms. Similar trends in season-wise losses of broilers were also found at both wholesale and retail market levels.
- The bulk of loss of market-ready broilers aged 5 to 7 weeks at farm level was accounted for by the mortality(77.8%) followed by illness(17.7%) and negligible due to physical injury (4.4%). Mortality also appeared to be the major cause of loss of broilers at wholesale (64.4%) or retail (54.06%) market (Table 7).
- Possible causes of loss: Diseases and heat stress were major causative factors for the loss of market-ready broilers at the farms whereas transport stress, high crate density and heat stress were mainly responsible for market level losses.

Commodity: Marine Fisheries

Harvest losses occur within the craft/gear and also after unloading from the craft/gear. Within the craft/gear the loss has been estimated for traditional, motorized and mechanized sector and it has been observed that loss for traditional sector is 4.13%, motorized sector 3.61%, mechanized sector 14.48% and 21.41% for larger trawlers. Large-scale discard of non-target low value fish and juveniles have been observed during harvest in the mechanized sector.

I Within craft/gear

1.1 Traditional fisheries

For traditional sector the loss was assessed as 4.13% with percentage standard error of 9.52. The losses were 4.18% in pre-monsoon, 4.69% in post-monsoon and 3.65% in the monsoon season with percentage standard errors of 14.14, 19.61 and 13.03 respectively. Loss with respect to the trawl ban was 4.70% in before, 3.90% during and 3.39% after the trawl ban seasons with percentage standard errors of 14.43, 26.55 and 9.10 respectively.

The main reasons for loss in traditional fishing are the retention of catch in the craft and gear, handling losses during unloading, use of fish as bait in hook and line fishing, attack by larger species, discard of juveniles in heavy quantities especially during pelagic trawling and spoilage due to improper icing. With reference to seasons and ban period for trawling not much variation was observed in the loss estimates. These losses could be reduced by implementing the responsible fishing methods.

1.2 Motorized sector

The percentage of loss for motorized sector was 3.61% with percentage standard error of 9.98. The seasonal losses reported were 7.83% for pre-monsoon, 2.25% for monsoon and 2.15% for post-monsoon periods with percentage standard errors of 16.13, 9.10 and 21.22 respectively. With reference to monsoon trawl ban the percentage of loss was 4.79% for pre-trawl ban period, 1.41% for trawl ban period and 2.96% for post-trawl ban period with percentage standard errors of 13.38, 19.53 and 16.21 respectively.

The motorized sector reported higher loss during pre-monsoon period that coincided with pre trawl ban period. Heavy landings of oil sardine were reported and large quantities of the species were dried for conversion into livestock feed. A major portion of this material after drying was transported out of the district to other states including Karnataka, Andhra Pradesh and Gujarat. In the motorized sector the losses observed were due to similar causes as in the case of traditional fishing. Porpoises that damage fishing nets were kept off bay by feeding them the fish harvested. From March to August good catch has resulted in discard of low value species. Rough seas during the monsoon season also resulted in the physical loss of the harvest due to inability to bring to the shore.

The fishermen reported loss of fishing days during the period under study due to inclement weather conditions and inter-sectoral conflicts. One of the important observations made in motorized fishing was the new innovation in pelagic trawling which lead to mortality of small pelagic fish. Use of banned nets such as huge small meshed ring seine and pelagic trawl also led to loss due to catch of juveniles.

The main gear operated by the non-mechanized sector were ring seine, drift net, gill nets, cast nets etc. and the major species landed in the sector were sardine, mackerel, prawns, anchovy, trevally (*vattapara*), glassy perchlet (*nandan*), pony fish (*mullan*), pomfret, tuna etc.

1.3 Mechanized sector (small and medium)

Loss at mechanized sector was estimated at 14.48% for the year under study with percentage standard errors of 5.21. The seasonal losses reported were 12.23%, 13.96% and 16.83% for pre-monsoon, monsoon and post-monsoon periods with percentage standard errors of 7.16, 8.10 and 9.74 respectively. With reference to monsoon trawl ban the percentage of losses were 14.26% for pre-trawl ban and 22.06% for post-trawl ban with percentage standard errors of 7.95 and 6.77 respectively. Since the operation of mechanized crafts during the trawl ban period is banned, no loss was reported.

In the mechanized fisheries sector, the types of crafts operated include gill netter, gill netter-cum-hook and line, purse seiners and trawlers. Gill netters set out for fishing early in morning and returned in the evening while trawlers set out for fishing in the after noon and returned in the early morning. Purse seine operated only when a good catch was ensured.

1.4 Large trawlers

Vessels, which also operate at deep sea reported a loss of 21.41% for the period under study with percentage standard errors of 6.89. The losses for pre-monsoon, monsoon and post-monsoon periods were 19.91%, 20.95% and 23.12% with percentage standard errors of 10.10, 14.65 and 6.96 respectively. Pre-trawl ban period reported a loss of 20.37% and post-trawl ban period 25.56% with percentage standard errors of 6.39 and 10.82 respectively.

Multi-day fishing reported maximum loss due to capture of juveniles and their discard in the sea. A loss of about 1000 – 2000 kg due to discard of low value fish was reported during a fishing cruise of 3 – 5 days. Low market price of the varieties caught and the limitation in the fish hold capacity onboard were the main reasons for discard of such fish. Shrimp, cuttle fish and squid were the most valuable species. Trawlers carrying out multi-day fishing carried with them about 15 types of nets on board for catching different species. The mesh size of cod end was less than 30 mm. Gill net boats operated for a period of 15 – 20 days continuously. These boats also used hook and line for capture of shark, ray, sail fish, tuna etc. Small fish was used as bait in the hook and line, which is also reported to be a reason for loss. It was also observed that physical damage occurred in the gill net boats due to limited storage capacity and over filling of fish holds. Major catch landed by purse seiners were mackerel, pomfret and oil sardine. During the period of study huge loss of oil sardine was reported from purse seine boats due to low price. Losses were also observed due to fish entangling in the net. Loss of fishing nets in the fishing grounds was also an important reason for fish loss in the marine sector.

II Losses after unloading from craft/gear

2.1 Traditional sector

Losses in the traditional sector was 4.30% for the year with a standard error of 5.73. During pre-monsoon the percentage of loss was 4.29, monsoon 4.53 and post-monsoon 4.02 with percentage standard errors of 13.86, 9.39 and 6.38 respectively. With regard to trawl ban the estimate of loss was 4.10% during pre-trawl ban, 3.42% during trawl ban and 5.04% during post trawl ban period with percentage standard errors of 8.30, 16.72 and 9.02 respectively. The higher values for pre-trawl ban and post-trawl ban can be explained as there increase in the total fish catch as all types of fishing crafts operate in the sea during this period.

Loss at traditional sector was mainly due to landing of low value fish and juveniles of oil sardine which was used for livestock feed. Major portion of these catches moved out of the district to other states including Karnataka, Andhra Pradesh and Gujarat.

2.2 Motorized sector

The percentage of loss for motorized sector was 5.16 with percentage standard error of 7.09. The seasonal losses were 6.03%, 2.60% and 7.71% for pre-monsoon, monsoon and post-monsoon periods with percentage standard errors of 9.44, 16.53 and 11.12 respectively. The percentage of loss with respect to ban on trawling was 7.33, 2.24 and 3.36 for pre-trawl ban, trawl ban and post-trawl ban period with percentage standard errors of 8.23, 13.46 and 17.93 respectively.

Losses occurred mainly due to discard of juveniles in heavy quantities especially during pelagic trawling and spoilage due to improper icing in the traditional sector. From March to August good catch has resulted in discard of low value species. Heavy landings of oil sardine were reported and large quantities of the species were dried for conversion into livestock feed. Higher losses occurred in ring seine and choodavala while unloading. The major species landed in the sector were sardine, mackerel, prawns, anchovy, vattapara, nandan, mullan, pomfret, tuna, akvli, thalayan etc.

2.3 Mechanized sector (small and medium)

Based on the data collected from small and medium sector the mechanized sector loss reported for the year under study was 0.41% with percentage standard error of 7.97. The seasonal losses were 0.69% for pre-monsoon, 0.14% for monsoon and 0.54% for post-monsoon periods with percentage standard errors of 15.58, 12.5 and 12.5 respectively. The loss with respect to trawl ban was 0.68% and 0.23 % respectively for pre and post-trawl ban with percentage standard errors of 10.16 and 14.10 respectively.

The major reasons for loss in the mechanized sector are physical damage during fishing, loss and damage of fishing nets, handling loss and throwback of low value species and juveniles, loss due to spoilage as a result of improper icing, taken away by birds.

2.4 Larger vessels

Larger vessels, which also operate in the deep sea reported a loss of 0.18% during the period under study with percentage standard error of 22.41. The seasonal losses reported were 0.32% for pre-monsoon, 0.12% for monsoon and 0.14% for post-monsoon periods. Loss at pre-trawl ban period was 0.22% and post-trawl ban period was 0.13%.

The reasons for loss are similar to the ones observed for the mechanized sector. Losses occurred due to lack of infra-structural facilities and poor handling of the fish landed. The fish landed are usually of high value which has a ready market.

The major species landed were threadfin bream (*Kilimeen*), lizard fish, prawns, whip tail sting ray (*thirandi*), anchovy, trevally (*vattapara*), glassy perchlet (*nandan*), crab, (*manthal*), squid, octopus, cuttlefish, pony fish (*mullan*), pomfret, tuna, russel's scad (*thiriyen*), spotted butter fish (*nachara*), blank king fish (*kadalvaral*), seer fish etc.

III Pre-Processing sector

Losses in the pre-processing sector have been observed for fresh and frozen fish. The overall loss percentage was 0.26% for fresh fish and 0.14% for frozen fish.

3.1 Loss at pre-processing sector (fresh fish)

An overall loss of 0.26% with percentage standard error of 26.34 was reported at pre-processing stage. The losses were 0.45% at pre-monsoon, 0.26% at monsoon and 0.12% at post-monsoon periods. Pre-trawl ban period reported a loss of 0.25%, trawl ban period 0.37% and post-trawl ban period 0.21%.

3.2 Loss at pre-processing sector (frozen fish)

For frozen fish the overall loss percentage was 0.14 with percentage standard error of 11.68. The seasonal loss was 0.21%, 0.12% and 0.10% respectively for pre-monsoon, monsoon and post-monsoon periods. With respect to the trawl ban there was not much variation in the extent of losses, the percentages being 0.15, 0.15 and 0.11 before, during and after the ban period respectively.

In the pre-processing centres loss occurred due to faulty handling and discard of small size fish. Both fresh and iced shrimp, squid and cuttlefish were the main species processed in these centres. Loss also occurs in the shrimp meat while grading and packing. Loss of meat while washing is also observed. The pre-processing centres handled shrimp from different places outside the state and in such stock black spot and discoloured ones are frequently observed, the spoilage occurring due to improper icing and exposure to ambient temperatures while transportation in flower tail prawns (*poovalan*), brown shrimp (*kazhanthan*) and deep sea prawns. In *karrikkadi* (kiddi prawn), discolouration and white patches were observed. Small size fish found in these

consignments are thrown out along with the shrimp shell. This is observed in the raw material received from the non-mechanized fishing sector. Tiny deep sea lobsters that are supplied along with deep sea shrimp are also discarded. Losses occurred during unloading, re-icing, weighing and speedy and hasty operation by the workers.

IV Processing sector

Like in the pre-processing sector losses in the processing sector were also studied for both fresh fish processing and frozen fish processing. Losses were very small in this sector with processing of fresh fish recording a loss of 0.15% and frozen fish 0.03%.

4.1 Loss at processing sector (fresh fish)

The processing recorded a loss of 0.15 % with percentage standard error of 23.32. The seasonal losses were of 0.31%, 0.08% and 0.10% respectively for pre-monsoon, monsoon and post-monsoon seasons. With respect to ban on monsoon trawling the loss percentage recorded were 0.22% for pre-trawl ban, 0.14% for trawl ban and 0.04% for post-trawl ban periods.

4.2 Loss at processing sector (frozen fish)

In the case of frozen fish loss recorded were of very low order of less than 0.5%. The percentage loss was 0.03 for the year under study with seasonal variation of 0.05%, 0.02% and 0.02% respectively for pre-monsoon, monsoon and post monsoon seasons. With respect to ban on monsoon trawling the loss percentage recorded were 0.04% for pre-trawl ban, 0.02% for trawl ban and 0.02% for post trawl ban periods.

In the processing sector losses occurred due to discolouration, black spot, broken tentacles and wings. During glazing also loss occurred in the meat portion. Clean shrimp meat while moving through conveyor in the processing plants is subjected to loss due to spillage. Damage to certain species like cuttle fish and octopus while removing the raw material from the freezer takes place when tentacles break. There was no significant seasonal impact on the losses in the processing sector. The sector is export oriented and the production system is tuned towards minimizing of the losses. In the export sector rejection of consignment due to food safety problem was reported in which case the importing country rejected and destroyed the entire consignment in the receiving point. This channel was not subjected to detailed study.

V Loss in fish drying

Survey was conducted in two districts namely Alappuzha and Calicut for estimation of percentage loss at drying units. At Alappuzha a loss of 58.07% was reported for the period of study with seasonal loss of 38.16%, 80.86%, and 44.52% during pre-monsoon, monsoon and post-monsoon respectively. With respect to ban on monsoon trawling the loss percentage reported were 33.65%, 61.37% and 93.05% for pre-trawl ban, trawl ban and post trawl ban respectively. At Calicut the loss was 19.36% with season loss of 16.67%, 19.17% and 21.61% during pre-monsoon, monsoon and post monsoon respectively. With respect to ban on monsoon trawling the loss was 15.02%, 4.95% and 33.08% for pre-trawl ban, trawl ban and post trawl ban respectively.

Drying units were of two types namely drying for human consumption and for livestock feed. Huge quantities of oil sardine were found to be dried along the entire coast line from Chellanam in Ernakulam District to Punnapra in Alappuzha which was meant for livestock feed and extraction of fish oil during October to January. Insect infestation and attack by birds and animals also result in loss.

VI Losses in markets

The markets studied were wholesale markets, major and minor retail markets and roadside markets. Besides another major marketing channel of the vendors was also studied. Details of the losses in this area are presented below.

6.1 Wholesale market (fresh fish)

The losses reported for the year for fresh fish in the wholesale market was 2.17% with percentage standard error of 25.23. The seasonal loss ie. pre-monsoon, monsoon and post monsoon was 2.69%, 1.74% and 2.31% respectively. Loss at wholesale market for pre-trawl ban, trawl ban and post-trawl ban periods were 2.76%, 1.03% and 2.69% respectively.

The major reasons for loss in wholesale markets are handling losses and losses due to spoilage. Improper icing and exposure to ambient temperatures were the main causes for spoilage. Handling losses are also observed during loading and unloading.

6.2 Wholesale market (dry fish)

Loss percentage of dry fish in the wholesale market was 8.28 for the year with seasonal loss of 10.37, 7.02 and 8.30 respectively for pre-monsoon, monsoon and post-monsoon periods. With reference to the ban on monsoon trawling pre-trawl ban period accounted for 9.27%, ban period 7.56% and post-trawl period 7.17

The major reasons for loss were the same as in fresh fish market. Besides increase in humidity leading to spoilage and insect infestation as far as dry fish products are concerned.

6.3 Major retail market (fresh fish)

Major retail market reported loss of fresh fish as 0.16% with percentage standard error of 35.03. Seasonal variations reported were 0.14% for pre-monsoon, 0.14% for monsoon and 0.19% for post-monsoon periods. During pre-trawl ban a loss of 0.15%, trawl ban period 0.14% and post-trawl ban period 0.17% was reported.

6.4 Major retail market (dry fish)

A loss of 2.40% was reported over the year for dry fish in the major retail market. Pre-monsoon period reported a loss of 1.72%, monsoon 3.09% and post-monsoon 2.05%. With reference to trawl ban the loss was 2.03% during pre-trawl ban 6.85% during ban and 0.72% during post-trawl ban period.

6.5 Minor retail market (fresh fish)

Minor retail market reported fresh fish loss of 1.89% with percentage standard error of 13.77. Seasonal variation of 2.78% during pre-monsoon, 1.77% during monsoon and 1.36% during post-monsoon was reported. The loss with reference to trawl ban was 2.11% for pre-trawl ban, 1.64% for trawl ban and 1.69% for post-trawl ban periods.

6.6 Minor retail market (dry fish)

Minor retail market reported a loss of 6.43% for the year while pre-monsoon, monsoon and post-monsoon losses were reported at 8.54%, 6.89% and 4.27% respectively. During pre-trawl ban period the percentage of loss of 5.97, during trawl ban 7.85 and during post-trawl ban 6.41.

Physical damage due to improper handling, discard of fish due to lack of demand and low prices are the major reasons for loss at the retail level. The problems for dry fish are

similar to that in other channels and are a result of spoilage during periods of high humidity and due to infestation of spoilage organisms and insects.

Besides in minor retail markets there is lack of proper storage facilities and improper icing leading to spoilage and discard of fish. Animals in the markets are also fed some of the fish.

6.7 Roadside market (fresh fish)

Roadside market reported a loss of 2.348% in fresh fish with percentage standard error of 15.63. The seasonal losses were 2.70% for pre-monsoon, 3.0% for monsoon and 1.27% for post-monsoon periods. A loss of 2.0% was reported during pre-trawl ban, 2.06% during trawl ban and 3.02% for post-trawl ban periods.

6.8 Roadside market (dry fish)

A loss percentage of 5.86 was reported for dry fish in roadside market with percentage standard error of 28.89. The seasonal losses were 5.19 for pre-monsoon, 6.38 for monsoon and 5.73 for post-monsoon period. The pre-trawl ban loss was 5.28%, trawl ban loss 6.73% and post-trawl ban loss 6.30%.

The volume of fish traded in roadside markets is rather small and as such the losses are also minimal. If fish is left unsold it is usually dried. Loss occurs in case of damaged and spoiled fish. Feeding of animals is observed in these markets also. In the roadside market losses were observed in oil sardine due to belly bursting and physical damage.

6.9 Loss at vendor level

In door to door vending of fresh fish a loss of 9.73% was reported with percentage standard error of 21.76. Seasonal variation of 16.85% during pre-monsoon, 6.05% during monsoon and 8.98% in monsoon was reported. The loss in pre-trawl ban period was 13.07%, trawl ban period 5.43% and post-trawl ban period 6.86% .

Loss at the level of vendors occurs due to discard of damaged and discoloured fish. Lack of demand for smaller varieties in some months also results in loss. The fish unsold and that cannot be used is also thrown away.

VII Loss at household consumer level

Urban and rural households were observed to study the losses at the consumers level. Households in general are careful in the use of food items, including fish and as such losses are less. Major reasons being spoilage due to lack of refrigeration facilities and feeding of pet animals. The details are presented below.

7.1 Urban household

The consumer loss at households was 1.93% with percentage standard error of 15.58. Seasonal loss of 1.99% for pre-monsoon, 1.33% for monsoon and 2.65% for post-monsoon period was recorded. With reference to trawl ban the losses were 2.50%, 1.14% and 1.49% for pre-trawl ban, trawl ban and post-trawl ban respectively.

7.2 Rural household

Consumer level loss for rural households was 4.95% with percentage standard error of 3.60. Seasonal loss was 5.23%, 4.45% and 5.37% respectively for pre-monsoon, monsoon and post-monsoon seasons. Loss reported during pre-trawl ban period was 5.32% during trawl ban 3.34% and during post trawl ban 5.20%.

Fish loss in urban households was higher for pre-trawl ban and post monsoon seasons, whereas, in rural households the loss was high in all the seasons ranging from 3.2 to 5.3 percentage. A household bought small quantities of less priced fish such as oil sardine, mackerel etc. up to 1 kg daily depending upon the number of family members. It is assumed that easy availability of low value fish in the coastal villages and lack of storage facility at household level led to such losses.

Commodity: Inland Fisheries

I Losses at harvest level

1.1 Losses at freshwater aquaculture ponds

Percentage losses at fresh water aquaculture ponds in different seasons vary from 0.76 to 6.23 %. The overall loss is estimated as 2.40%. At harvesting or packing or loading stage, the losses are physical losses due to faulty handling practices and discarding of uneconomical sized, spoiled or bruised species. Here sometimes, spoilage occurs due to delay in timing from harvest to packing/ loading.

1.2 Losses at brackish water aquaculture ponds

The percentage losses over the seasons vary from 0.13 to 2.79. The overall loss percentage is 1.86. The two stage random sampling design was followed to collect the data from sampling units. BW aquaculture is a seasonal activity with a duration of four months a crop. Hence there was no activity / no crop in the already selected sample units for rest of the year. The causes of loss are same as in the case of fresh water aquaculture ponds.

1.3 Losses at landing centres in reservoirs

The causes of loss at harvest level in reservoir fisheries are, spoilage due to adverse weather conditions, inordinate delay in harvesting timing and insufficient icing and physical losses or bruises due to faulty handling practices and types of fishing gears used. The percentage of loss during harvesting of fish in the Hirakud Reservoir is found to be high when the long line hook nets/ gill nets are used.

The percentage losses at Yerrakalva, a small reservoir in West Godavari District in Andhra Pradesh, vary from 7.72 to 10.30. The overall loss estimated to be 8.89% with the percentage standard error of 21.11.

At Wyra, medium reservoir in Khammam District in Andhra Pradesh, the percentage losses are 1.90, 4.15 and 0.47 during pre-monsoon, monsoon and post-monsoon seasons respectively.

At Hirakud reservoir, the major reservoir selected for this study, the percentage losses vary from 5.08 to 8.85 over the seasons with the overall loss of 6.52 with the percentage standard error of 25.79.

1.4 Losses at landing centres in lake

The proportion of loss varies from 0.38 % to 4.48 % over the seasons. The overall loss could not be calculated as the data for one of the three landing centres selected (Penchilimaru) were not available due to no landing activity during the months of December 2002 to February 2003. For those three months, data could be collected only from the remaining two landing centres viz., Vaddalagadithippa and Akiveedu.

The major causes of loss are, spoilage due to adverse weather conditions, delay in harvesting timing and insufficient icing and physical losses or bruises due to faulty handling practices and eaten/ bitten by 'Kolleti cat', a species prevalent in Kolleru lake area.

1.5 Losses at landing centres in riverine fisheries

The loss is high during monsoon season at both the landing centres (12.12% and 14.66% at Kovvur and Dowleswaram landing centres). The overall loss percentage was 8.56 at Kovvur and 13.94 at Dowleswaram with the percentage standard errors of 6.14 and 6.20 respectively. The volume of catch handled at Dowleswaram landing centre is high since the catches from other landing centres too are brought here for redistribution.

The causes of loss are, spoilage due to adverse weather conditions, delay in harvesting timing and insufficient icing and physical losses or bruises due to faulty handling practices and types of fishing gears used.

1.6 Losses at landing centres in estuarine fisheries

It is almost equal (around 6%) over the seasons. The overall loss is estimated to be 6.32% with the percentage standard error of 11.74. The major cause of loss is spoilage due to adverse weather conditions, delay in harvesting timing and insufficient icing. The other types are, physical losses or bruises due to faulty handling practices and discarding due to uneconomical sizes or lack of demand.

II Losses at post harvest level

2.1 Losses at packaging centres

Season does not play a major role as the loss percentage is almost same over the three seasons and the overall loss percentage is very minimum as 0.29 with the percentage standard error of 10.77.

The causes of losses are physical losses due to faulty handling practices at loading/unloading/packing stage, spoilage due to delay in transportation at raw material receiving stage and spoilage due to insufficient icing at storage stage.

2.2 Losses at pre-processing units

The loss percentage at the units in West Godavari District is negligible (0.19) with percentage standard error of 11.27. In East Godavari it varies from 0.84 to 2.17 over the seasons and the overall loss percentage is 1.57 with the percentage standard error of 15.03.

The causes of losses are spoilage due to delay in transportation/ insufficient icing at raw material receiving stage and discarding of little edible portions due to faulty handling practices at peeling stage.

2.3 Losses at processing units

The percentage loss at the units in West Godavari district is 0.15 with the percentage standard error of 16.92 and in East Godavari District it is 0.54 with 18.13 as percentage standard error. The percentage loss does not vary significantly over the seasons in both the Districts. Spoilage due to delay in transportation/ insufficient icing at raw material receiving stage is the only cause of loss identified.

2.4 Losses at wholesale markets

The overall loss percentage is minimum (1.42) at Eluru, followed by 3.10 in Akiveedu, 4.88 in Kakinada and high (10.98) at Rajahmundry with percentage standard errors of 9.22, 11.89, 7.03 and 3.82 respectively.

At Akiveedu, it varies from 2.00 to 3.71 over the seasons, 1.05 to 1.76 in Eluru, 3.26 to 5.85 in Kakinada and 6.45 to 13.40 in Rajahmundry. It is because of the poor infrastructure facilities, and huge volume of arrivals from far away landing centres of Godavari River, the percentage loss is high at Rajahmundry Wholesale market.

Four major causes of loss have been identified as, firstly, spoilage due to improper packing/ inefficient containers, delay in transportation and unreliable transportation at transportation stage. Secondly, it is spoilage due to lack of storage facilities, insufficient icing and adverse weather conditions during storage. Thirdly, it is physical loss/ bruises due to faulty handling practices at loading/unloading/packaging stage. Lastly, it is discarding due to un-economical sizes or lack of demand at marketing stage.

2.5 Losses at retail markets

The percentage loss at retail market is as less as 0.26 and 0.11 during pre-monsoon and post-monsoon seasons. It is high (5.73) during monsoon seasons. The overall loss is 2.96 with the percentage standard error of 16.58. The causes of loss are spoilage due to improper packing/ insufficient icing, delay in transportation and unreliable transportation at transportation stage, spoilage due to lack of storage facilities, insufficient icing and adverse weather conditions during storage stage, physical loss/ bruises due to faulty handling practices at loading/ unloading / packaging stage and lastly, it is discarding due to uneconomical sizes or lack of demand and spoilage due to adverse weather conditions at marketing stage.

2.6 Losses at the level of small-scale vendors

In East Godavari District, the percentage loss is 3.29 during pre-monsoon, 5.53 during post-monsoon and maximum of 6.63 during monsoon season. The overall loss is 5.52 with the percentage standard error of 29.92. In West Godavari, it is 3.12, 4.33 and 4.47 during pre-monsoon, post-monsoon and monsoon seasons. The overall percentage loss is 4.10 with the percentage standard error of 27.36.

Since the inland fishes have to come from far away places (West Godavari and Kolleru lake area) and the distance traveled is more, the loss percentage is comparatively more at East Godavari than West Godavari.

The causes of loss are, discarding/ spoilage due to lack of demand, adverse weather conditions, in-efficient containers used/ insufficient icing and delay in selling at marketing stage, and spoilage due to lack of storage facilities, adverse weather conditions, in-efficient containers used/ insufficient icing at storage stage.

2.7 Losses at live fish transportation centres

The proportion of loss is 2.22, 1.71 and 3.23 during pre-monsoon, monsoon and post-monsoon seasons. The overall loss percentage is 2.22 with the percentage standard error of 19.76. The loss at destination, which would have been very high, was not studied since the destinations are, East and West Bengal, which are far away. The causes are, discarding due to small size at unloading stage, mortality due to faulty handling practices at unloading/ packaging stage and mortality due to lack of proper storage facility/ inefficient containers at storage stage.

III Losses at consumer level

3.1 Losses at household level in urban locations

Proportion of loss of fish (in percentage) at consumer level, households in urban locations is almost equal at both the locations viz., Eluru (4.41) and Rajahmundry (4.52) with percentage standard errors of 13.64 and 15.37 respectively.

The major cause of the loss is discarding of spoiled/ bruised/ some part of edible portions at cleaning stage.

3.2 Losses at household level in rural areas

Proportion of loss of fish (in percentage) is 1.28, 5.41 and 3.68 during pre-monsoon, monsoon and post-monsoon stages. The overall loss is 3.94 with the percentage standard error of 26.53. The major cause of the loss is discarding of spoiled/ bruised/ some part of edible portions at cleaning stage. Spoiled fish are difficult to be identified at the time of purchase. At cleaning stage, some spoiled portions as well as little edible portions are discarded. In rural areas, the percentage of discarding is less when compared to urban areas, since they get fresh fish in rural areas.

Commodity: Milk

Milk Losses at Milk Producers Level

(i) Milk Producers

- Milk production 8.75 litres; total loss of 4.31% , during production 2.56%, storage 0.62%, kitchen 0.61% and consumption 0.61%.
- Losses- winter (3.19%), rainy (4.16%) summer (4.16%) .
- Losses of 6.04, 3.55 and 3.66%. for small, medium and large category.

(ii) Rural Dairies

- herd size 16-17 milch animals.

- Milk production 103.50 litres, loss 1.87%; seasonal loss 3.76% winter, 1.27% summer, 1.24% rainy.
- causes of losses - calf suckling, teat infection, kicking.
- small, medium and large category losses - 2.06, 1.56 and 2.53%, respectively.
- Curdling losses highest (1.33%) on large farm.

(iii) Urban Dairies

- herd size of 14 to 15 animals, production 85 litres, 3.05% loss due to mastitis (1.59%), calf suckling (0.61%) and animal kicking (0.21%) and sale (0.25%).
- Small, medium and large categories losses - 2.53, 0.38 and 3.74% respectively.
- losses - teat infection (2.74%) for large, calf suckling (0.79%), teat infection (0.71%) for small farms.

Milk Losses at Market Levels

(i) Milk Procurment

Milk Collection Centre

- Milk collection 296 litres, losses 0.28% during testing (0.12%), collection (0.09%), dispatch 0.05%.
- Losses - winter 0.31% , summer 0.28% and rainy 0.14% respectively .
- Losses for small, medium and large categories, 0.59, 0.42 and 0.16% respectively.

(ii) Milk Producers Co-operative Societies

- The co-operative societies collected 110 litres per day with 0.35% loss.
- This loss was mainly during testing and milk collection.
- Losses in rainy season were 0.24, in summer 0.27 and in winter 0.44% respectively.

- Scale had inverse effect on losses.

(iii) Raw Milk Can Transportation

- total loss of 1.18% from supply points to chilling centres.
- In summer, losses during transportation were highest 0.65 out of total loss (1.49%).
- small category, medium and large ones losses 1.55, 0.56 and 1.15% respectively.

(iv) Bulk Milk Transportation

- Total loss 0.33%.
- Rail tankers' losses were 0.56% by transporting 43724 litres per trip.
- Losses were 1.46% for small category.

(v) Chilling Centres

- losses 0.59% for 4734 litres milk handling.
- Losses during reception were highest (0.18%).
- This reception dock loss was 0.48% .
- In winter, milk loss 0.95% for 4000 litres milk handled.

(vi) Milk Vendors

- They handled 84 litres milk per day with 1.32% loss.
- Losses during tumbling (0.50%), measurement (0.47%), milk handling (0.10%).
- high losses, transportation (0.59%), milk collection (0.33%) and distribution (0.25%).
- Losses in summer (1.83%) mainly during transportation (0.86%), tumbling (0.84%)
with quantities picked up from 60 to 216 litres, losses decreased - 1.66% to 0.76%.

Milk Processing

(i) Creameries

- Their losses were 0.59% mainly during retail sale (0.29%), cream separation (0.22%), curdling 0.06(%) by handling 592 litres/day.
- Losses in summer were highest (1.10%) caused mainly during separation (0.52%), retail sale (0.35%) and due to curdling (0.18%).
- Small vendors using 221 litres milk incurred losses mostly due to high losses during milk separation (0.65%), retail sale (0.5%) and curdling (0.24%).

(ii) Halwaies

- Halwaies' losses were 1.20% by utilising 50 litres milk/day.
- Sourage/ curdling caused 0.50% loss in summer, it went down to 0.35% in rainy and zero in winter with their respective total loss percentage of 1.35, 1.45 and 0.78% respectively.
- Small vendor's losses were 1.57% for 32 litres milk, medium's 0.82% with 78 litres and the large lost 0.70% by handling 189 litres.

(iii) Milk Plants

- When data was collected for previous day once in a month their losses were 0.99% by handling 3.35 lakh litres milk/day/plant.
- Then 0.99% losses were caused during milk reception (0.12%), quality control (0.03%), milk processing (0.58%) with processes, packaging, pasteurising and storage dispatch (0.08%) and utilization of returned milk (0.16%).

Market Milk Transportation.

(i) Pouche Milk Transportation In Insulated Vans

- Vans transported 2561 litres per day with loss of 0.11%
- Losses in summer were highest (0.14%). These losses were mainly due to transportation, unloading and loading.
- Losses incurred by their large category were 0.12% being the highest of that of all other groups.

(ii) Market Bulk Milk Tankers

- They carried daily 8716 litres/trip with 0.35% loss.
- Their major losses were in transportation (0.13%), flushing (0.10%), distribution (0.07%) and loading (0.06%).
- Their losses in all seasons and also for categories were around 0.35%.

Milk Sales and Distribution

(i) Milk Booths/Departmental Stores

- Their losses were 0.12% by selling 513 litres per day/booth or departmental store.
- Milk pouches leakage was the major reason for loss during all seasons and for all categories.
- Losses for small category were highest (0.32%) as compared to other groups.
- Losses in winter season were also highest (0.16%).

(ii) Pouches Home Delivery Vendors

- They sold 104 litres/day with loss of 0.31%.
- Losses were mainly during transportation (0.19%) and distribution (0.12%).
- These total losses were highest (0.49%) in summer and also for retailers small category (0.56%).

(iii) Automatic Milk Vending Machines

- Their milk losses were 0.02% by sale of 935 litres/day.
- The losses percentage remained the same throughout season.
- In small, medium and large category, these were 0.03, 0.31 and 0.01% respectively.
- All losses were due to flushing. Milk dripping/overflow losses while vending milk in customers' container belonged to the customers and not to the milk vending booths.

(iv) Mobile Vending Machines

- They sold 190.14 ± 7.34 litres milk per day with loss of 0.41%.
- Losses in all seasons were around 0.40%.
- These were mainly during transportation (0.18%), distribution (0.12%) and collection (0.08%).
- Loss percentage for small category was highest (0.56%) and least for large (0.33%).

Milk Losses at Consumer Level

(i) Milk consumers in rural area

- Average consumption 1.28 litres per day with loss of 6.26%.
- These were highest during storage (2.71%), boiling overflow (0.80%), stickage/vessel transfer loss (about 1%).
- Overall losses were around 5.50%. Average consumption of milk in case of small, medium and large categories was 1.118, 3.597 and 10.00 litres per day with respective losses of 6.62, 3.78 and 0.70%.
- Overall sourage/curdling losses were 1.27%.

(ii) Milk Consumers in Karnal

- Average consumption per day was 2.09 litres with 3.58% loss.
- Cats and dogs caused milk loss (1.07%). Undrunk/leftover losses were 1.08%.
- Losses in kitchen were 1.45%. Losses in summer were 4.43% being higher as compared to other seasons i.e. winter 3.30% and rainy 3.02%. On an average, curdling/souring losses were 0.55%.
- Average consumption in case of small and medium categories was 1.47 and 2.8 litres/day with respective loss as 4.87 and 2.75%.
- No large category existed in sample size that consumed more than 5 litres milk per day.

(iii) Milk Consumers in Nissing

- Milk consumers in Nissing consumed 1.52 litres with loss of 5.79% per day.
- Souring/curdling losses were 2.00%. Boiling overflow caused 0.63%.
- Consumption losses by family members were 1.31%. Sourage/curdling losses were highest in rainy 3.5% and 3.0% in summer.
- Small and medium categories used 1.36 and 3.66 litres/day with loss of 6.20 and 3.68%.

(iv) Consumers In Delhi

- Average consumption per day was about 2.8 litres with losses of 2.94% per day.

(v) Producers As Consumers

- Their consumption was about 4.77 litres/day with overall loss of 3.12%.

(vi) Extra Large Producers As Consumers

- They consumed 18.39 litres milk per day with overall losses 1.089% .

- Average no. of family members were 10.
- Market purchases were nil.