

Guidelines for the Central Sector Scheme Monitoring of Pesticide residue at National Level

The Department of Agriculture and Cooperation, Ministry of Agriculture is regularly monitoring the presence and levels of pesticide residues in food commodities and environmental samples under the central sector scheme, “Monitoring of Pesticide Residues at National Level”. The scheme was initiated during 2005-06 and is being implemented through Indian Agricultural Research Institute, New Delhi and has **23 participating laboratories (Annexure-I)** from the Ministry of Agriculture, Indian Council of Agriculture Research, Ministry of Health and Family Welfare, Ministry of Environment and Forest, Council of Scientific and Industrial Research, Ministry of Chemical and Fertilizers, Ministry of Commerce and State Agricultural Universities.

1. Objectives and Targets

- (i) To test residues of pesticides, their metabolites and other related contaminants in food commodities and environmental samples like soil and water across the country.
- (ii) To identify crops and regions in the country having preponderance of pesticide residue contamination in order to focus extension efforts for Integrated Pest Management (IPM) and Good Agriculture Practices (GAP) aimed at judicious use of pesticides.
- (iii) To strengthen infrastructure at Plant Quarantine Stations to assess the contamination of pesticide residues in imported food commodities.
- (iv) To check and certify presence of pesticide residues in food for export.

The projected targets for the scheme for XII Plan (2012-2017) are at **Annexure-II**

Pesticides residue data generated under the scheme are shared with State Governments and concerned Ministries/Organizations to initiate corrective actions and awareness building among farmers.

The Scheme is monitored by two Committees viz. Steering Committee and Technical Committee. The policy decisions related to the scheme are under the purview of the Steering Committee headed by the Joint Secretary (Plant Protection), Department of Agriculture & Cooperation (DAC) while the Technical Committee headed by the Assistant Director General (Plant Protection), Indian Council of Agriculture Research (ICAR) takes care of the technical issues related to the scheme including purchase of equipments, assessment/identification of laboratories and technical work plan. The Project Coordinating Cell of All India Network Project (AINP) on pesticide residues is the nodal centre for implementation of the scheme. The Network Coordinator, AINP, IARI, New Delhi is the Member -Secretary of the Committee and is the nodal person for the day to day implementation of the scheme related to financial and technical matters and submission of periodical reports, annual report and need based information to the DAC.

Participating laboratories are provided with highly sophisticated analytical equipments like, Gas Chromatograph(GC), High Performance Liquid Chromatograph (HPLC), Gas Chromatograph-Mass Spectrometer(GC-MS) and Liquid Chromatograph-Mass Spectrometer(LC-MS).

Participating laboratories collect samples of various food commodities such as vegetables, fruits, cereals, spices, pulses, milk, butter, irrigated water, fish, meat, tea etc. from across the supply chain such as Agriculture Produce

Marketing Committee (APMC) markets, retail points and Public Distribution System outlets (PDS). Irrigated water and soil samples are also collected from agricultural fields across the country. The samples are then analyzed for the presence of pesticides residues.

During the period (October, 2006 to March, 2013) out of the 84,486 samples of various food commodities such as vegetables, fruits, cereals, spices, pulses, milk, butter, fish, meat, tea, honey etc. and environmental samples like soil and water that were collected and analyzed, 1487 (1.76%) samples were found to contain pesticide residues above MRL.

During 2012-13, a total of 16,494 samples of food commodities including water have been analyzed, of which 436 (2.6%) samples were found to contain residues above MRL. Status of Pesticide Residues in Various Food Commodities and environmental samples is at **Annexure-III**.

The laboratories involved in the scheme have been chosen from the existing network of laboratories under various ministries, departments and institutes on the basis of their technical expertise in the area of pesticide residues analysis and their geographical location in order to represent different agricultural zones in the country. The commodities to be monitored by each laboratory are location specific with special emphasis on those widely consumed there. It is proposed to associate private laboratories accredited by the National Accreditation Board for Testing and Calibration Laboratories (NABL) and certain other laboratories functioning under Government Departments in the scheme to increase the coverage of monitoring of pesticides residues crop-wise, region wise and pesticide-wise.

Total financial outlay required to meet the expenditure for this scheme during XII Plan period (2012-2017) is Rs. 5009.37 lakhs and year-wise budget allocation is as under.
(Rs. in lakhs)

	2012-13	2013-14	2014-15	2015-16	2016-17	Total
Non-recurring	100.00	300.00	300.00	400.00	400.00	1500.00
Recurring	676.474	694.474	699.474	734.474	704.474	3509.37
Total	776.474	994.474	999.474	1134.474	1104.474	5009.37

It is pertinent to mention that no land is needed. No construction of building is envisaged in this scheme.

The cost estimate provided include 10-15% escalation in cost owing to variable factors viz. purchase of equipments , travelling costs , wage bills, cost of consumable like chemicals, glassware, training component, miscellaneous and incidental expenses of intermittent nature. However, new equipments like Gas chromatography-mass spectrometry (GC-MS)/ Liquid chromatography-mass spectrometry (LC-MS)/ Gas chromatography (GC)/ High performance liquid chromatography (HPLC), Uninterruptible power supply (UPS)/ Generator, homogenizer, rotary evaporator, air compressor is proposed to be procured at a cost of Rs. 1500 lakhs. A sum of Rs 2032.62 lakh is proposed for engagement of contractual manpower in the scheme. The year-wise outlay is given in **Annexures –IV, IV (a) & IV(b)**

There is no proposal to create new posts. However, contractual manpower for residue analysis will be hired on the ICAR pattern after the approval of Steering Committee.

A sum total of Rs 2032.62 lakhs is proposed for engagement of contractual manpower in the scheme. Rs. 337.62 lakhs is proposed as cost towards salary for contractual services engaged in NPQS, Rangpuri and RPQs, Mumbai & Chennai and Rs. 1695.0 is proposed under Grants-in-aid towards salary for contractual services .

Annexure-I

List of the participating laboratories under the central sector scheme, “monitoring of pesticide residues at national level”

1. Project Coordinating Cell, All India Network Project on Pesticide Residues, LBS Building, Indian Agricultural Research Institute, New Delhi
2. Dept. of Entomology, Punjab Agricultural University, Ludhiana, Punjab
3. ICAR Unit No.-9, BTRS Building, Anand Agricultural University, Anand
4. Dept. of Entomology, Mahatma Phule Krishi Vidyapeeth, Rahuri, Maharashtra
5. Dept. of Entomology, College of Agriculture, Kerala Agricultural University, Vellayani, Kerala
6. Division of Soil Sci. & Agril. Chemistry, Indian Institute of Horticulture Research, Hesaraghatta Lake Post, Bangalore, Karnataka
7. Dept. of Entomology, Rajasthan Agricultural University, Research Station, Durgapura, Jaipur
8. Acharya N.G. Ranga Agricultural University, E.E.I. Premises, Rajendranagar, Hyderabad, Andhra Pradesh
9. Dept. of Agricultural Entomology, Tamil Nadu Agricultural University, Coimbatore, Tamil Nadu
10. Institute of Pesticide Formulation Technology, Sector-20, UdyogVihar, Gurgaon, Haryana
11. National Institute of Occupational Health, P. B. No. 2031, Meghani Nagar, Ahmedabad, Gujarat
12. Western Region Referral Laboratory, Department of Veterinary Public Health, Bombay Veterinary College, Parel, Mumbai, Maharashtra
13. MPEDA, MPEDA House, Panampilly Avenue, Kochi, Kerala

14. Pesticide Toxicology Laboratory, Indian Institute of Toxicology Research, Mahatma Gandhi Marg, Lucknow, Uttar Pradesh
15. Trace Organic Laboratory, Central Pollution Control Board, Parivesh Bhawan, East Arjun Nagar, Delhi
16. National Environmental Engineering Research Institute, Nehru Marg, Nagpur, Maharashtra
17. Regional Plant Quarantine Station, Haji Bunder Road, Sewri, Mumbai, Maharashtra
18. Regional Plant Quarantine Station, G.S.T. Road, Meenambakkam, Chennai, Tamil Nadu
19. AINP on Pesticide Residues, Directorate of Research, Research Complex Building, Kalyani, Nadia, West Bengal
20. Dept. of Entomology, Dr. Y.S.P. Univ. of Horticulture & Forestry, Nauni, Solan, Himachal Pradesh
21. National Plant Quarantine Station, New Delhi
22. National Institute of Plant Health Management (NIPHM), Pesticide Management Division, Rajendranagar, Hyderabad
23. Central Agriculture Research Institute (CARI), Port Blair, Andaman and Nicobar

Annexure-II

TECHNICAL PROGRAMME (2012-2017)

Projected samples to be analyzed

S.No.	Commodity	2012-13	2013-14	2014-15	2015-16	2016-17	Total
1.	Vegetables	6000	7200	7800	8100	8100	37200
2.	Fruits	2000	2800	3000	3100	3100	14000
3.	Rice	1000	1100	1200	1400	1400	6100
4.	Water	4000	4200	4400	4500	4500	21600
5.	Fish/crustacean/ meat/eggs	1600	1725	1725	1800	1800	8650
6.	Wheat	800	825	800	900	1000	4325
7.	Milk	650	650	650	700	700	3350
8.	Butter	650	650	650	650	650	3250
9.	Spices	550	550	550	550	550	2750
10.	Tea	300	300	300	300	300	1500
Total		17550	20,000	21075	22000	22100	102725
Private NABL accredited laboratory							
Pesticides/aflatoxin/heavy metal/antibiotics in food commodities & environmental samples		1900	2000	2100	2200	2200	10400
						Total	113125

Annexure-III

Status of Pesticide Residues in Various Food Commodities and environmental samples:

During the period April 2010 to March 2013, commodities which have frequently showed the presence of pesticides residues above MRL are given below:

Commodity	Samples analyzed	Samples above MRL	Pesticides which are found Above MRL	Commonly detected Non approved Pesticides
Vegetables	18,704	540 (2.9%)	Chlorpyriphos, Cypermethrin, Phorate and Ethion	Acephate, Profenophos, Quinalphos, Imidacloprid and Triazophos
Fruits	6,263	54 (0.86%)	Chlorpyriphos	Quinalphos, Profenophos and Cypermethrin
Spices	1,433	158 (11%)	Quinalphos and Cypermethrin	Dithiocarbamates, Profenophos, Chlorpyriphos and acetamiprid
Tea	566	7 (1.2%)	Ethion, Dicofol	Cypermethrin
Rice	2,422	61 (2.5%)	Chlorpyriphos and Quinalphos	Acephate and Cypermethrin
Wheat	2,107	42 (2%)	Cypermethrin	Parathion methyl and Quinalphos
Pulses	2,171	3 (0.14%)	Cypermethrin	Chlorpyriphos and Malathion

**XII Plan Year-wise Budget Outlay for the Scheme
“Monitoring of Pesticide Residues at National Level”**

Consolidated (2012-2017)

(Rs. in lakh)

Code & sub-code	2012-13	2013-14	2014-15	2015-16	2016-17	Total
Computer Code-2401- Crop Husbandry						
107-Plant Protection 12-MONITORING OF PESTICIDE RESIDUES AT NATIONAL LEVEL						
01.12.12 – Foreign Travel Expenses	3.5	3.5	3.5	3.5	3.5	17.50
13 – Office Expenses	17.00	20.00	25.00	25.00	25.00	112.00
16 - Publication	0.20	0.20	0.20	0.20	0.20	1.00
20 – Other Administrative Expenses	1.25	1.25	1.25	1.25	1.25	6.25
21 – Supply & Material	20.00	20.00	20.00	25.00	25.00	110.00
28 – Professional Services	0	0	0	30.00	0	30.00
30 – Contractual Services	67.524	67.524	67.524	67.524	67.524	337.62
31 – Grants-in-Aid	649.00	864.00	864.00	964.00	964.00	4305.00
52 – Machinery & Equipment	15.00	15.00	15.00	15.00	15.00	75.00
Travel Expenses (T.E.)	3.00	3.00	3.00	3.00	3.00	15.00
Total	776.474	994.474	999.474	1134.474	1104.474	5009.37

