



**NATIONAL CONFERENCE ON AGRICULTURE
FOR
KHARIF CAMPAIGN– 2015**

at

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Pusa Complex, New Delhi
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BACKGROUND NOTES

For Group Discussions on 7th April, 2015

**Government of India
Ministry of Agriculture
Department of Agriculture & Cooperation
Krishi Bhawan, New Delhi
Website: www.agricoop.nic.in**

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Group-I: Strategy to issue Soil Health Cards in time bound manner

1.1 Central Government provides assistance to State Governments for setting up Soil Testing Laboratories (STLs) and Mobile Soil Testing Laboratories (MSTLs) through National Mission for Sustainable Agriculture. In order to promote soil test based application of fertilizers in respect of all the 14 crore holdings in country and to implement uniform norms in sampling and testing of soil, a new scheme 'Soil Health Card' has been launched.

1.2 Features of Soil Health Card Scheme:

(i) Selection of Districts:

At present there are 1206 Soil Testing Laboratories (STLs) in the country with an analyzing capacity of 1.28 crore samples per annum. To issue Soil Health Cards (SHCs) to all 14 crore holdings in the country, about 2.48 lakh samples are to be analysed in 3 years cycle. This comes to about 83 lakh samples per year. The number of samples per district comes to approximate 13,000 samples per annum.

The State Governments will prepare yearly action plan indicating (i) number of districts to be covered, (ii) number of irrigated holdings and rainfed holdings in the selected districts, (iii) number of soil samples to be drawn from the holdings and (iv) finally total number of samples to be drawn and tested.

(ii) Agencies that may be involved for drawing samples from field

- a) Directly through Agriculture Department staff and soil test laboratories.
- b) By involving Science Colleges and students and its soil test laboratory staff.
- c) By State Agriculture Universities (SAUs) and its soil testing staff.

(iii) Agencies that may be involved in testing

- a) By outsourcing the process of testing & reporting to private agencies through tender.
- b) By outsourcing soil testing laboratories.
- c) By nominating Science Colleges and providing them equipment to test the samples.
- d) Directly through soil testing laboratories.

(iv) Norms of soil sampling

The quality of soil testing and fertilizer recommendation depends upon soil sampling. Following uniform norms are prescribed for sampling.

- i. In the irrigated areas, samples will be drawn in a grid of 2.5 ha.
- ii. In rainfed areas, sampling will be done in a 10 ha. grid.

- iii. In all, 248 lakh samples will be tested to generate 14 crore soil health cards in three years period.

(v) Training for soil analysis

One-week hands-on orientation training to soil chemists, students/JRFs for soil analysis and fertilizer recommendation in the batches of 20 participants will be organized by State Governments.

(vi) Soil Health Card

Soil health card is a report of soil fertility status and provides an advisory on soil test based use of fertilizers and amendments.

(vii) Details in a Soil Health Card

- i. Values on soil parameters such as pH, EC, N, P, K, S, Zn, B, Fe, Mn & Cu.
- ii. Recommendation on appropriate dosage of fertilizer application based on test values and requirement of crop, use of organic manures and soil amendments to acidic/alkaline/sodic soils.

(viii) Financial assistance for package of nutrient recommendations

In the target villages, financial assistance for soil test based nutrient balancing will be provided to farmers. Willing farmers will be registered for application of recommended doses to supplement organic and inorganic nutrients.

(ix) Capacity building

States will be provided assistance for maintenance of Data Base and promotion of ICT tools to map the soil fertility status from time to time. Uniform software will be developed by NIC to input management practices, soil test values and nutrient recommendations. Soil Health Card will be generated from this data base - Annexure-II and III.

(x) Budget

Implementation of this scheme will have direct benefits in terms of avoiding indiscriminate use of fertilizers, improving soil health and thus increasing fertilizer use efficiency. The total budget approved is Rs. 568.54 crore (Rs. 426.41 crore GOI share + Rs. 142.13 crore States share) during 12th Plan period.

**1.3 Component-wise detail under 'Soil Health Card' scheme
(Rs in crore)**

S.No.	Component	Total (for 3 years)
1	Soil Health Cards @ Rs.190/sample 1 st Year – 82.66 lakh 2 nd Year – 82.66 lakh 3 rd Year – 82.66 lakh Total – 248.00 lakh (approx)	471.20
2.	Training for technical staff @ Rs.60,000/- training 1 st Year - 800 trainings 2 nd Year - 500 trainings 3 rd Year - 200 trainings Total – 1500 trainings	9.00
3.	Financial assistance @ Rs.2500/ha 1 st Year - 60000 farmers/ year 2 nd year – 90000 farmers / year 3 rd year – 90000 farmers / year (Total – 240000 farmers)	60.00
4.	Capacity building and use of ICT in states	23.01
5.	Mission Management	5.33
	Grand Total	568.54
	GOI share 75%	426.41
	State share 25%	142.13

1.4 Funds Released during current year (2014-15)

During current financial year (2014-15), recently funds amounting to Rs 23.56 crore have been released to States for sampling, training, awareness and providing of GPS, etc so that preparatory activities for issue of Soil Health Card to farmers are started by States. Statement on State-wise number of soil samples to be analyzed and amount released is given at **Annexure-I**.

Group-II: Promotion of pulses through Inter-cropping in Kharif season

2.1 Pulses are important food crops in India for their nutritive protein content and amino acids, ability to enhance soil fertility by fixing nitrogen, opportunity for crop diversification in monoculture states and livelihood security to farmers particularly living in rainfed regions of the country. Pulse cultivation faces problems such as use of rainfed marginal lands, susceptibility to pest and disease attacks, weather aberrations, lack of genetic breakthrough and diversion of pulse area to more remunerative crops as and when irrigation facilities become available and socio-economic constraints (farmers' preference towards cultivation of fine cereals & commercial crops due to assured returns, risk and instability in yield, short shelf life, low grain yield).

2.2 India has a key place in global pulses production and contributes about 25.50 percent of total pulse basket (2012). During the year 2013-14, the total production of pulses in the country was 19.78 million tonnes from 25.21 million ha area. Out of this total pulse production, kharif pulses alone contributing 30.29 percent cultivated on an area of 10.33 million ha. The major contribution in the total production comes from the rabi pulses particularly due to increase in the area and yield of gram. The major pulse producing states in the country are Madhya Pradesh, Uttar Pradesh, Maharashtra, Rajasthan, Andhra Pradesh and Karnataka which together contribute for 79.96 % of total pulse production in the country; however the kharif pulses are also grown on large area in these states. The declining trend in acreage under pulses is more pronounced in the northern states, i.e. Punjab, Haryana and Western Uttar Pradesh due to increased focus towards wheat and rice as result of expansion in irrigation facilities.

2.3 Once an exporter of pulses, India is presently the largest importer of pulses in the world. About 3.83 million tonnes of pulses was imported during 2013-14 to meet the domestic demand. The shortage of pulses is gradually increasing due to growth in population and introduction of protein based food industries.

2.4 Mixed/ Intercropping Mixed cropping refers to growing of two or more crops simultaneously by mixing seeds while in intercropping, the crops are arranged in definite rows. Intercropping is an improved system of mixed cropping which ensures desired plant stand, ease in cultural operation, spraying of chemicals and harvesting, and higher returns. The major considerations for intercropping are the contrasting maturities, growth rhythm, height and rooting pattern and variable insect pest and disease associated with component crops so that these complement each other rather than compete for the resources and guard against weather adversities. Growing of crops in intercropping systems is found more productive particularly under rainfed conditions. Pulses are intercropped with oilseeds, cereals, coarse grains and commercial crops.

2.5 The pulse crops like pigeonpea, mungbean, urdbean, mothbean etc. are cultivated in different agro-ecological regions during kharif season. They are grown as a sole crop, intercrop, catch crop, relay crop, cover crop and green manure crop etc. Intercropping is commonly practiced to obtain sustainable production even under adverse weather conditions. The development of short duration varieties of mungbean, urdbean and pigeonpea has paved way for crop diversification and intensification in India.

2.6 A large number of improved varieties of different pulses are now available. These varieties being short duration in nature are giving an opportunity for inter-cropping. The pulses grown as intercrop or mixed crop during the kharif season like pigeonpea with sorghum, rice, groundnut, soybean, maize, bajra, moongbean as a inter-crop with sugarcane, cotton, pigeonpea, white mothbean as a inter-crop with bajra, maize etc. The details of states where pulses grown as intercrop is given in **Annexure-II**.

2.7 To meet the domestic demand in the country, there is urgent need to increase the production of pulses including kharif pulses through area expansion and productivity enhancement. The cultivation of pulses may be promoted as a inter-crop or mixed crop with other crops as one of option for horizontal expansion of pulses and adoption of improved varieties embodied with good management practices as vertical expansion of pulses.

2.8 Government of India is promoting kharif pulses as intercrop through implementation of crop development programs National Food Security Mission (NFSM) and Rashtriya Krishi Vikas Yojana (RKVY) in the country for increasing production of the pulses through area expansion and productivity enhancement. The NFSM-pulses is extended to all districts of hill states and north eastern states to promote the cultivation of pulses. The various interventions like cultivation of pulses on rice bunds, demonstration of improved production technologies of pulses as a intercrop are being promoted.

2.9 In addition to special programmes for increasing pulse production in India, the Government announced minimum support prices (MSPs) of pulses each year and NAFED procures pulses in certain areas.

Group-III: Use of ICT in decision support for enhancing Kharif production

3.1 IT Division of Department of Agriculture & Cooperation is monitoring to Plan Schemes viz. (i) National e-Governance Plan in Agriculture (NeGP-A) and (ii) Strengthening / Promoting of Agricultural Information System (Agrisnet).

3.2 The objectives of these schemes are dissemination of information related to various agricultural activities through various ICT enabled delivery channels including SMSs, IVRS, Internet Kiosks, and Farmer's Portal etc to the farming community free of cost. Funds to the State Governments or its implementing agencies are released for implementing of the scheme upto the Block level.

3.3 Brief details of the schemes are indicated below:

(i) Development of Portals

DAC has developed 80 portals, applications and websites (primarily in collaboration with the National Informatics Centre) covering both the headquarters and its field offices/ directorates. The important portals include SEEDNET, DACNET, AGMARKNET (prices and arrivals in Mandis), RKVY (Rashtriya Krishi Vikas Yojana), ATMA, NHM (National Horticulture Mission), INTRADAC, NFSM (National Food Security Mission) and APY (Acreage, Productivity and Yield).

(ii) National e-Governance Plan in Agriculture (NeGP-A):

The Government is implementing a centrally sponsored Mission Mode Project (MMP) National **National e-Governance Plan in Agriculture (NeGP-A)** which was initially launched in seven selected States in the last quarter of 2010-11 have now been extended to cover all the States and UTs in the countries from 2014-15. This scheme has now been subsumed in the National Mission on Agriculture and Information Technology (NMAET) as one of the sub components under the title-Sub Mission on Agriculture Extension. This Scheme aims to achieve rapid development of agriculture in India through the use of ICT for ensuring timely access to agriculture related information for the farmers of the country. Such information is intended to be provided to farmers through multiple delivery channels such as Internet, Government Offices, Touch Screen Kiosks, Krishi Vigyan Kendras, Kisan Call Centres, Agri Clinics, Common Service Centers, Mobile Phones (Broadcast, IVRS, interactive messaging using unstructured Supplementary Service Data and Voice Recognition). Twelve identified clusters of services under the project is under implementation. The services include Information on Pesticides, Fertilizers and Seeds; Soil Health; Information on crops, farm machinery, training and Good Agricultural Practices (GAPs); Weather advisories; Information on prices, arrivals, procurement points, and providing interaction platform; Electronic certification for exports and import; Information on marketing infrastructure;

Monitoring implementation / evaluation of schemes and programmes; Information on fishery inputs; Information on irrigation infrastructure; Drought Relief and Management; Livestock Management.

(iii) Kisan Call Centres (KCC):

KCCs has been launched since 21st January 2004 with the basic aim to provide information to farming community through toll free telephone number (1800 180 1551) on all seven days a week from 06.00 AM to 10.00 PM. Since its inception, it has registered more than 1.85 crore calls till December,2014. Recently, KCCs have been revamped and restructured by consolidation and appointing a new service provider for KCC to set up state of the art KCCs at 14 identified locations. The restructured KCCs are now more professional with the technological innovations like Voice/Media Gateways, Dedicated MPLS leased line network with dedicated bandwidth, Cal barging, Voice mail system for recording farmer's queries during idle time of KCC or during call lines busy, with provision for call back to the caller, Facility of video conferencing of each KCC for interaction of Farm Tele Advisors with the Divisional/Zonal Level Officers of the State Agriculture and allied departments as well as on line monitoring for the working of KCCs.

(iv) Farmers' Portal

This portal aims to serve as a One Stop Shop for all the farmers for accessing information on agricultural activities. Besides giving links to appropriate pages of the 80 portals already developed so far, the Farmers' Portal links the location of the farmer (from his Block) with NARP (National Agricultural Research Project) Zone that he belongs to. Thereafter, all information related to the crops grown in that area (coupled with agro-climatic conditions in that region) is then provided to the farmer using a graphical interface. Farmers can get information about a package of practices; crop and seed varieties; common pests; dealer network for seeds, fertilizers & pesticides; machinery and tools; agro-met advisories, etc. The Portal is operation in beta version.

(v) SMS Portal/mKisan Portal

This Portal subsumes all mobile based initiatives in the field of Agriculture & allied sectors. It brings together SMS (both Push and Pull), Interactive Voice Response System, Unstructured Supplementary Services of Data or USSD (which is essentially Interactive SMS and can facilitate data entry and query on Web Portals without internet), Mobile Apps and Services. Officers, Scientists and Experts from all over the country are using this Portal for disseminating information(giving topical & seasonal advisories and providing services through SMSs to farmers in their local languages) on various agricultural activities to registered farmers, Till date, more than 533 crore SMSs have been sent to farmers by all agencies/organisation/departments in agriculture and allied sectors down to Block level throughout the country since its inception in The content

may include information about the Schemes, Advisories from Experts, Market Prices, Weather Reports, Soil Test Reports etc. The farmers registered for receiving SMS messages have been grouped based on the State, District, Block and the Crops/Activities selected by respective farmers. The SMS Portal provides a platform for integration of service delivery under different sectors viz. Agriculture, Horticulture, Animal Husbandry and Fisheries .

(vi) Strengthening of IT Apparatus in Agriculture and Cooperation in the States and Union Territories (AGRISNET):

The Government is implementing a Central Sector Plan Scheme “Strengthening/Promoting Agricultural Informatics & Communications”, of which one of the components is AGRISNET. The objective of AGRISNET is to provide improved services to the farming community through use of ICT. Under the AGRISNET Scheme, proposals are considered on submission of functional requirement of the concerned State/UT Governments on the basis of specific project proposals submitted by the State/UT Governments, and after consideration of the project proposal by the Approval-cum –Monitoring Committee (headed by the Additional Secretary and with the recommendations of the Committee, funds are released to the State Government concerned for provisioning of software and hardware systems including networking, data digitization, manpower training to ensure computerization upto Block level. 26 States have so far availed of funds released by the Government under AGRISNET. This is a continuing scheme since 2005-06 and have now been integrated under the National Mission on Agriculture and Information Technology(NMAET).

Group-IV: Strategy for availability of vegetables during rainy season

4.1 Out of estimated horticulture production of 280 million MT in 2014-15 (1st estimate), production of vegetables is to the tune of 163 million MT (58%) from an area of about 9 million hectares. When compared to the production level of 51 million MT in 2004-05, there has been a quantum jump in the production of vegetables in the country, leading to increased per capita availability of vegetables. However, seasonally and availability of vegetable production have an important bearing on its price situation and inflatory trends.

4.2 Onion, potato and tomato constitute about 50% of total vegetable production in the country. These vegetables are grown throughout the year covering kharif and rabi seasons. Bihar, Gujarat, Karnataka, Madhya Pradesh, Maharashtra are some of the major onion producing states. Uttar Pradesh, West Bengal, Madhya Pradesh, Gujarat and Bihar are major potato producing states. Andhra Pradesh, Telangana, Karnataka, Madhya Pradesh, Odisha and Maharashtra are major Tomato producing States.

4.3 Vegetable crops like brinjal, beans, gourds, cucumbers, okra etc. are mostly grown during kharif season, which constitute about 30% of vegetable production. Cole crops like cabbage, cauliflower, radish, carrot etc. are mostly grown during the rabi season, mainly in North India.

4.4 Availability of quality seeds of vegetables is an important element for enhancing production and productivity of vegetables. Hence, states need to ensure production and supply of vegetable seeds. Production of vegetable seedlings could help in better germination and productivity.

4.5 Many vegetables like cucumber, tomato capsicum, leafy vegetables are conducive for protected cultivation in green houses and shade net houses, giving high productivity compared to open field cultivation. Moreover, with the help of protected cultivation it is possible to cultivate off season vegetables as well as mitigate impact of climatic variations.

4.6 DAC is implementing the scheme on Mission for Integrated Development of Horticulture (MIDH) with provision for production of seeds / seedlings of vegetables, open field and protected cultivation of vegetables, adoption of INM/IPM measures, organic farming and creation of infrastructure for post harvest management and marketing, which could be availed by the States.

4.7 Creation of cold storage facilities for storing vegetables like potato has helped in meeting the demand during shortage. However, the emphasis is on creating cold chain facilities for connecting production clusters with consumption centres. Nodal Officers have

been identified by the States for assisting National Centre for Cold Chain Development (NCCD).

4.8 Implementation of Vegetable Initiative for Urban Cluster (VIUC) under RKVY since 2011-12 has helped to identify supply-chain issues of vegetables in identified Metro cities. With effect from 2015-16, VIUC is proposed to be covered with MIDH, which has all the elements of vegetable production, starting from seed production to post harvest management.

4.9 Strategy for availability of vegetables during Kharif season will inter-alia include the following:

- Production and distribution of vegetable seeds / seedlings. National Level Agencies like National Horticulture Research & Development Foundation (NHRDF) and National Seeds Corporation (NSC) have been involved, apart from State Horticulture Mission (SHMs).
- Cultivation of vegetables, including cultivation of kharif onion in non traditional areas.
- Cultivation of vegetables under protected cover.
- Promotion of PHM infrastructure including onion storage structures and cold storage units.
- Capacity building of farmers through training.
- Market intelligence through Agmarknet and Small Farmers Agribusiness Consortium (SFAC).
- Operationalization of Kisan Mandis.

State Horticulture Mission (SHMs) could avail the schemes of MIDH / VIUC for adopting above mentioned interventions.

Annexure-I**State-wise number of soil samples to be analysed and amount released**

Sl. No.	State	No. of samples to be analysed	Amount released (in lakh)
1	Andhra Pradesh	304495	124.08
2	Arunachal Pradesh	4367	12.23
3	Assam	108684	50.85
4	Bihar	646913	253.39
5	Chhattisgarh	149688	66.04
6	Goa	2301	11.51
7	Gujarat	189310	80.76
8	Haryana	64618	34.13
9	Himachal Pradesh	38394	24.08
10	Jammu & Kashmir	57909	31.79
11	Jharkhand	108233	50.69
12	Karnataka	312929	127.02
13	Kerala	272918	112.62
14	Madhya Pradesh	354488	142.86
15	Maharashtra	547331	215.96
16	Manipur	6018	12.80
17	Meghalaya	8370	13.62
18	Mizoram	3671	11.98
19	Nagaland	7105	13.18
20	Odisha	186485	80.23
21	Punjab	42054	25.81
22	Rajasthan	275222	113.42
23	Sikkim	2994	11.75
24	Tamil Nadu	324365	131.91
25	Telangana	22040	93.48
26	Tripura	221905	18.38
27	Uttar Pradesh	916123	354.47
28	Uttarakhand	36464	23.40
29	West Bengal	284606	117.14
	Total	5500000	2359.58

The details of states where pulses grown as intercrop

State	Intercropping System
Andhra Pradesh	Pigeonpea+Groundnut/castor, Rice+Mungbean/Urdbean, Tapioca+Mungbean/Urdbean
Bihar	Pigeonpea+Maize/Small millets Rice+Pigeonpea
Gujarat	Pigeonpea+Groundnut, Cotton+Pigeonpea, Pearl millet+Mothbean, Castor+Urdbean/Munhgbean/Cowpea/Horse gram
Karnataka	Pigeonpea+Horse gram/Small millets/Cowpea/Groundnut, Finger millet+Horse Gram, Tapioca+Mungbean/Urdbean
Madhya Pradesh	Pigeonpea +Pearlmillet/Sorghum/Urdbean/Mungbean/Castor/Soybean, Pearl millet+Mungbean/Urdbean, Cotton+Pigeonpea
Maharashtra	Pigeonpea+Sorghum/Maize, Cotton+Pigeonpea/Mungbean/Urdbean, Groundnut+Pigeonpea
Orissa	Pigeonpea+Groundnut, Tapioca+Mungbean/Urdbean
Punjab & Haryana	Sugarcane+Summer Mungbean/Urdbean Pigeonpea+Mungbean/Urdbean, Urdbean+Maize,
Rajasthan	Pearl millet+Urdbean/Mungbean/Cowpea/Mothbean, Sorghum+Mothbean, Clusterbean+Mothbean,
Tamil Nadu	Pigeonpea+Sorghum, Tapioca+Mungbean/Urdbean, Sugarcane+Urdbean
Uttar Pradesh	Pigeonpea+Pearl millet/Sorghum/Castor/Maize/Urdbean/Mungbean, Pearl millet+Urdbean/Mungbean, Sugarcane+ Urdbean/Mungbean
West Bengal	Sunflower+Mungbean, Jute+Urdbean
