ICFA

भारतीय कृषि एवं खाद्य परिषद्

INDIAN COUNCIL OF FOOD AND AGRICULTURE

NATIONAL ROUND TABLE OF CEOs ON

FARM SUBSIDIES AND SOIL HEALTH

10th APRIL 2017

INDIA INTERNATIONAL CENTER, NEW DELHI

FARM SUBSIDIES AND SOIL HEALTH

INTRODUCTION

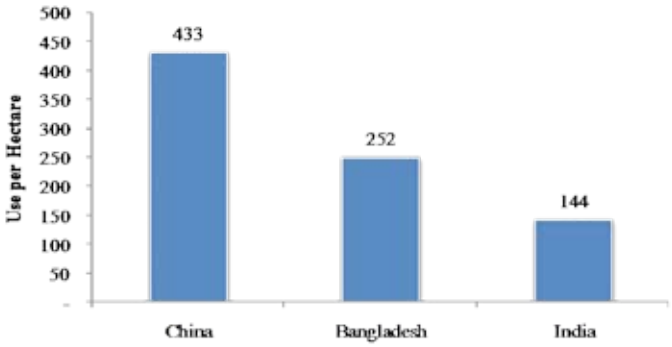
India's population is expected to touch 1.4 billion by 2025. This will lead to an increase in the demand for food grains to about 300 million tons, vegetables, fruits, and animal products. This increase in demand has to be met from the limited arable land available i.e., 141 million ha, out of which 120 million ha is already estimated to be suffering from different forms of degradation.

The existing gap between the current and the potentially achievable crop yields presents huge opportunity to increase the country's food production substantially. Some of the constraints to achieving potential yield include poor soil health & soil degradation, imbalanced use of fertilizers and declining efficiency of fertilizer use. One of the major factors impacting above mentioned constraints is the farm subsidy.

INDIAN FERTILIZER INDUSTRY

India is the world's third largest consumer of fertilizers; the country produced 41 million metric tonne of fertilizer in 2015-16.

Country-Wise Consumption of Fertilizers

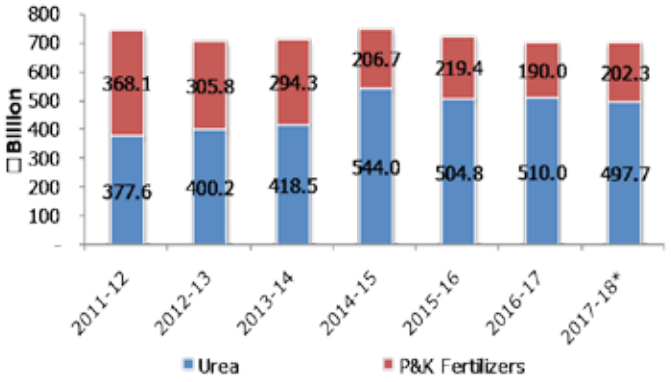


Source: FAI

The Indian fertilizer industry produces about 80% of its Urea fertilizer needs and has the capacity to indigenously meet 50% of the country's phosphatic fertilizers. Despite of such production base, India heavily depends on imports for the raw ingredients for its phosphatic and potassium fertilizers.

The total allocation for fertilizer subsidy in the Union budget for 2017-18 has been kept unchanged at □70,000 Crore even as the domestic industry was demanding

All India Fertilizer Subsidy Released; 2011-17

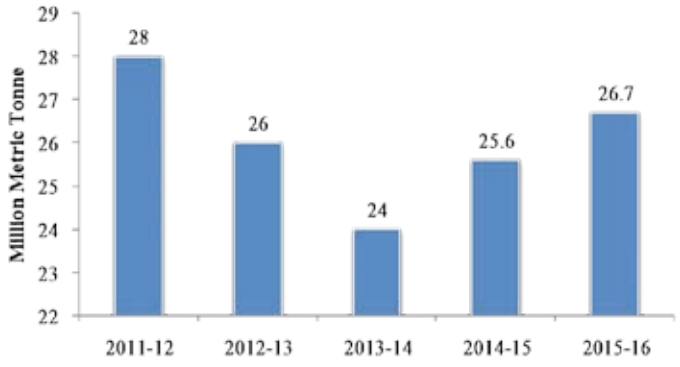


Source: Department of Fertilizers
*Note: * represents the Budget for fertilizers subsidy*

higher allocation to clear subsidy arrears of about ₹35,000 Crore. In fertilizer subsidy, the government has allocated ₹49,768Crore for urea and ₹20,232 Crore for decontrolled phosphoric and potassic (P&K) fertilizers.

Subsidies and low understanding about fertilizers have led to an increase in fertilizer consumption, leading to the imbalanced usage of fertilizers.

All India Fertilizer Nutrient Consumption; 2011-16



Source: Gulf Petroleum and Chemicals Association
Note: 2015-16 is estimated

Imbalance in fertilizer use leads to depletion of particular nutrients in the soil as well as causing environmental degradation. It also substantially increases the cost of cultivation and also lowers its efficiency. Moreover, fertilizer subsidy makes the chemical fertilizers cheaper than organic fertilizer. Thus, farmers have moved away from using organic manure, which is important for preserving good soil health, as organic carbon is the key fuel for keeping the soil microbial activities in an optimum state. The general tendency is to add fertilizers containing only nitrogen-phosphorus-potassium (NPK) as farmers are less aware of secondary and micronutrient deficiencies.

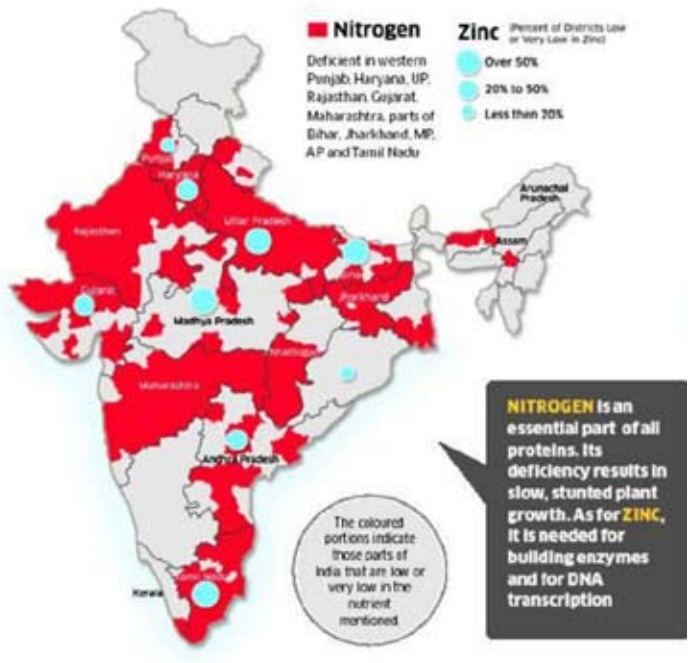
SOIL QUALITY STATUS

The nature and extent of deficiencies of nutrients in soil varies with soil type, crop genotype, management and agro-ecological situations.Soil organic carbon and nitrogen are primary indicators of soil health.

Most of the arable lands across the country show low levels of organic carbon with deficiencies ranging from 11% to 76%.

The deficiency status of nitrogen in the Indian soils along with the degree of deficiency of Zinc in the soils is stated in the following soil map of India.

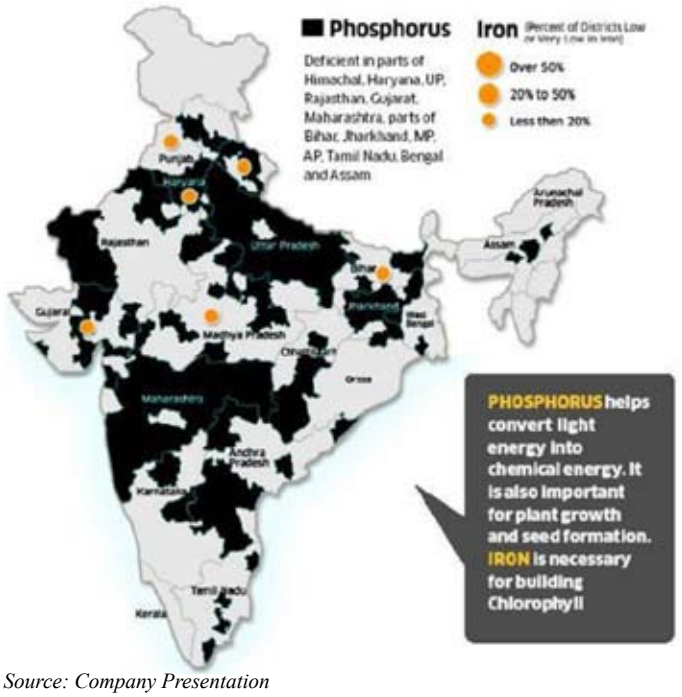
Nitrogen and Zinc Deficient Indian Soils



Source: Company Presentation

The following diagrammatic presentation depicts the deficiency status of phosphorus and the level of deficiency of Iron in the states of India.

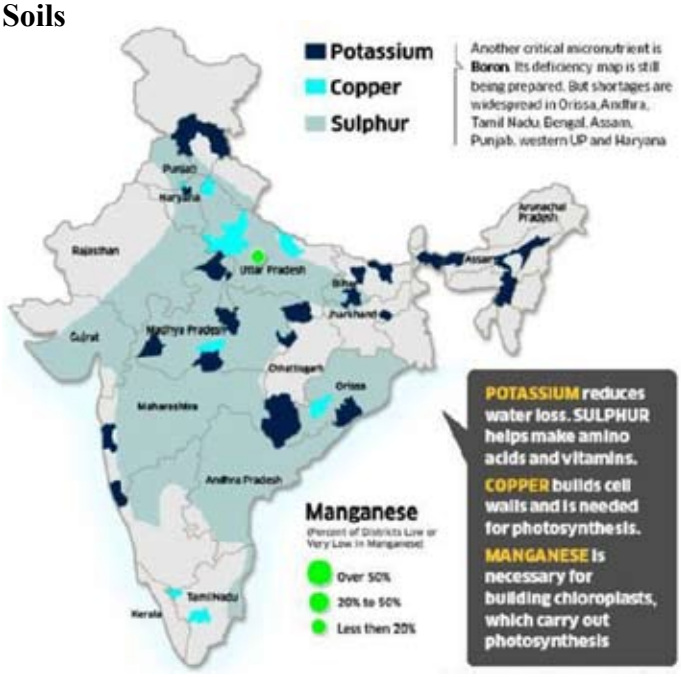
Phosphorus and Iron Deficient Indian Soils



Source: Company Presentation

Potassium is another important nutrient, which is required by the soil for the purpose of the crop cultivation. The following map depicts the deficiency of potassium in the Indian soils along with the some of the deficiency of the micro nutrients such as Sulphur, Copper, Boron and Manganese.

Potassium and Micro-Nutrients Deficient Indian Soils



Source: Company Presentation

SOIL HEALTH INITIATIVES

In order to improve the soil health of the Indian soils, government of India has initiated two major schemes namely,

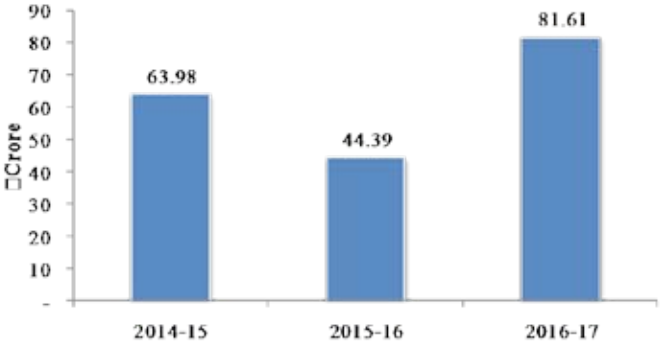
- Soil Health Management Scheme (SHM)
- Soil Health Card Scheme

Soil Health Management Scheme

Soil Health Management (SHM) is one of the most important interventions under NMSA. SHM aims at promoting Integrated Nutrient Management (INM) through:

- Judicious use of chemical fertilizers including secondary and micro nutrients in conjunction with organic manures and bio-fertilizers for improving soil health and its productivity;
- Strengthening of soil and fertilizer testing facilities to provide soil test based recommendations to farmers for improving soil fertility;
- Ensuring quality control requirements of fertilizers, bio-fertilizers and organic fertilizers under fertilizer control order, 1985;
- Up gradation of skill and knowledge of soil testing laboratory staff, extension staff and farmers through training and demonstrations; promoting organic farming practices etc.

Funds Released Under Soil Health Management Scheme; 2014-17

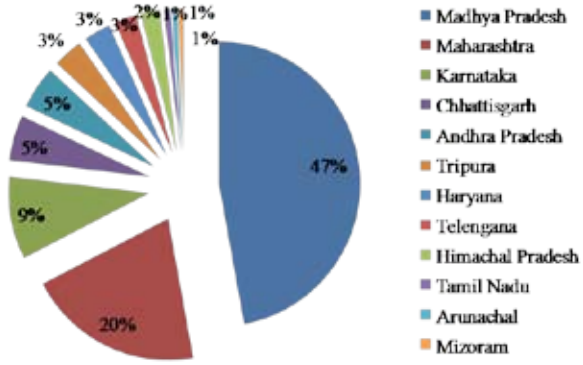


Source: Ministry of Agriculture and Farmer's Welfare
Note: 2016-17 till 30th Jan 2017

This component is implemented by State Government., National Centre of Organic Farming (NCOF), Central Fertilizer Quality Control & Training Institute (CFQC&TI) and is sanctioned by INM division.

In 2016-17, the fund was released to only 12 states as depicted in the following graph.

State-Wise Funds Released Under Soil Health Management Scheme; 2016-17



Source: Ministry of Agriculture and Farmer's Welfare

Soil Health Card Scheme

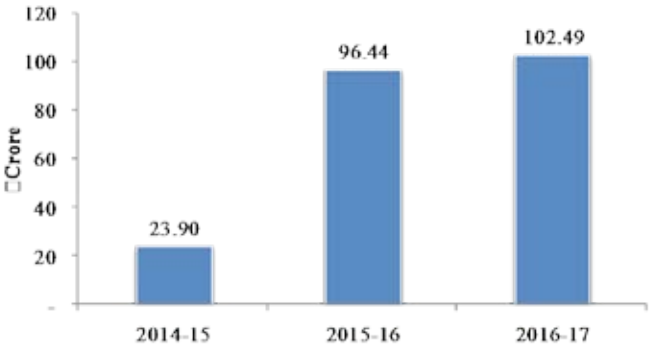
In February 2015, the central government had launched the Soil Health Card Scheme. Under this programme, the government plans to issue soil card to farmers to help them get a good harvest by studying the quality of soil. The major objectives are:

• To issue soil health cards every 3 years, to all farmers of the country, so as to provide a basis to address nutrient deficiencies in fertilization practices.
• To strengthen functioning of Soil Testing Laboratories (STLs) through capacity building, involvement of agriculture students and effective linkage with Indian Council of Agricultural Research (ICAR) / State Agricultural Universities (SAUs).
• To diagnose soil fertility related constraints with standardized procedures for sampling uniformly across states and analysis and design taluqa / block level fertilizer recommendations in targeted districts.
• To develop and promote soil test based nutrient management in the districts for enhancing nutrient use efficiency.
• To build capacities of district and state level staff and of progressive farmers for promotion of nutrient management practices.

The major components of the scheme are:

- Issue of Soil Health Cards
- Training for soil analysis
- Financial assistance for package of nutrient recommendations
- Capacity building and regular monitoring and evaluation
- Constitution of the Project Management Team (PMT)

Funds Released Under Soil Health Card Scheme; 2014-17

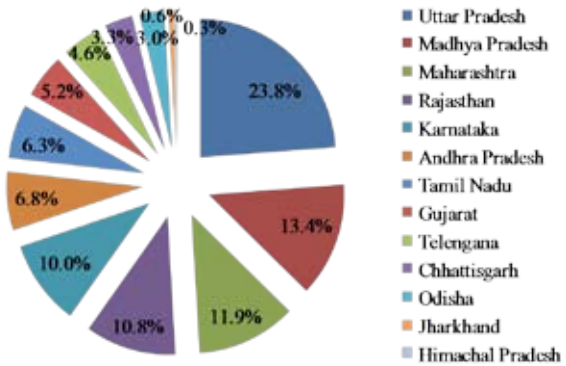


Source: Ministry of Agriculture and Farmer's Welfare

The total fund released by the government of India under the scheme over the years is depicted as follows.

The fund was released to the limited number of states during 2016-17, of which Uttar Pradesh, Madhya Pradesh, Maharashtra, Rajasthan and Karnataka were released maximum funds, which totaled to ₹71.69 Crore, accounting approximately 70% of the funds released.

State-Wise Funds Released Under Soil Health Management Scheme; 2016-17



Source: Ministry of Agriculture and Farmer's Welfare

PERFORMANCE OF SOIL HEALTH CARD SCHEME

The government of India has covered approximately 45 million farmers under this scheme as on 12th May, 2017. The State of Karnataka has issued most number of the soil health cards to the farmers. The government targets to cover all the farmers of the country by 2017. They are providing funds to the states to issue soil health cards to their respective farmers.

The following table depicts the total number of soil health cards printed by each state of India.

State-Wise Soil Health Cards Issued Till 11.05.2017

S. No.	State Name	Number in Lakh			
		No. of Samples Entered	No. of Farmers Covered	Samples Tested	SHC Printed
1	Karnataka	15.09	83.87	11.33	61.45
2	Tamil Nadu	13.64	52.32	11.81	41.64
3	Chhattisgarh	7.47	46.74	6.72	40.99
4	Uttar Pradesh	15.93	45.11	9.87	29.15
5	Maharashtra	12.60	37.56	10.63	25.53
6	Telangana	10.10	28.62	9.56	21.31
7	Andhra Pradesh	14.26	41.07	12.69	16.25
8	Haryana	5.94	15.52	4.75	12.17
9	Odisha	3.68	13.38	2.38	8.20
10	Jammu & Kashmir	1.60	6.80	1.19	4.81
11	Himachal Pradesh	1.16	6.04	0.94	4.74
12	Gujarat	20.45	30.62	15.23	4.71
13	Madhya Pradesh	5.75	11.96	2.88	4.01
14	Kerala	1.92	6.06	1.26	3.30
15	Uttarakhand	1.25	4.71	0.98	3.26
16	Jharkhand	1.08	4.74	0.18	0.69
17	Meghalaya	0.24	0.95	0.20	0.67
18	Tripura	0.20	0.66	0.17	0.61
19	Sikkim	0.12	0.50	0.11	0.45
20	Goa	0.22	0.22	0.19	0.19
21	Assam	0.17	0.62	0.04	0.14
22	West Bengal	0.91	2.38	0.03	0.11
23	Arunachal Pradesh	0.08	0.08	0.08	0.08
24	Nagaland	0.07	0.07	0.07	0.07
25	Puducherry	0.05	0.05	0.04	0.04
26	Andaman & Nicobar Islands	0.07	0.07	0.06	0.03
27	Mizoram	0.08	0.08	0.04	0.03
28	Punjab	0.17	0.18	0.04	0.03
29	Rajasthan	9.02	9.74	8.12	0.00
30	Bihar	-	-	-	-
31	Chandigarh	-	-	-	-
32	Dadra & Nagar Haveli	-	-	-	-
33	Daman And Diu	-	-	-	-
34	Delhi	-	-	-	-
35	Lakshadweep	-	-	-	-
36	Manipur	-	-	-	-
	Total	**143.34**	**450.74**	**111.59**	**284.68**

Source: Soil Health Card Website

CONCLUSION

Over the years, farmers have increased their reliance on chemical fertilizers and have abandoned or reduced the use of organic manure drastically. As mentioned earlier, fertilizer subsidy policy is partly responsible for this. Long-term experiments in different agroecological regions have clearly demonstrated increased sustainability of systems with INM strategies harnessing the biological sources using legumes in crop rotation; using organic manure; and soil test-based inorganic fertilizers for different crops.

Low levels of soil organic matter along with multi-nutrient deficiencies are the major stumbling blocks for bridging yield gap in Indian agriculture. Therefore, large quantities of carbon and other nutrients contained in agricultural and domestic wastes can be recycled to cut the rising costs of chemical fertilizers.

Incentives are required to promote the use of organic manure/fertilizers as well as biological sources like bio-fertilizer in order to encourage farmers to adopt INM approach. For example, options should be provided to the farmers to either avail DBT through cash transfer to their bank account or cash vouchers to buy organic manure from these recognized outlets.

DELIBERATIONS

Farmers form the backbone of the country as more than 50% population is dependent on agriculture for livelihood. Government has been providing financial and other benefits to the farmers to help improve their socio-economic status and share of agriculture in GDP. In India, in last few years the rate of subsidy has evenly increased to 55%-60% on an average. Government of India is providing financial assistance for chemical and non- chemical fertilizers, irrigation and others with specific purpose to enhance soil health for better and sustained productivity.Also, a flagship soil health card scheme was launched nationwide to identify needs of soil. Though, government is making utmost efforts but yet agriculture continues to be an unprofitable venture, in particular for small and marginal farmers.In order to discuss the various challenges and way outs for the same, a national round table on "FARM SUBSIDY AND SOIL HEALTH" was organized by Indian Council of Food and Agriculture (ICFA) on April 10, 2017 at India International Centre, New Delhi. The main purpose was to provide a platform to private players, government officials and heads of research and academic institutions to interact face to face and assess the subsidy pattern to have a balanced genuine requirements for production and productivity while having due regard for the soil health and larger environmental concerns.

The conference was chaired by Ms Rani Kumudini, Joint Secretary - INM Ministry of Agriculture. The event observed the presence of Mr. U.S. Jha, Former CMD, Rashtriya Chemicals, Former Chairman FAI, Mr. Shyam Bang, Chairman, National Board of Accreditation and various other eminent personalities from the relevant field. In all forty fiveesteemed executive members of Government associations,

scientists along with policy makers and corporate heads were present for the brainstorming session.

Dr. M.J. Khan, Chairman, ICFA, welcomed all the participants and expressed gratitude toJoint Secretary, INM for her benign presence in the event and provided a snapshot on the farm subsidy scenario in the country and raised a question on imbalance of soil health and subsidies in India.

Ms. Rani Kumudini, Joint Secretary, INM Ministry of Agriculture, in her opening remarks talked about two major issues, namely input cost and farmer income. She mentioned that due to food security issues in the country, high yielding varieties of crops were promoted. However, now the issue of food qualityhas emerged, which is directly related to the inputs used in the crop production. Cost of inputs form a major proportion of the total cost of crop production hence needs to be addressed. She also drew the attention of the house towards the national portal, which provides the extensive data regarding the soil health in India, though recommendations on its basis are still doubted. She emphasized that this RTC should focus on how to double the farmer's income in accordance with farm subsidies and good soil health.

Mr. U.S. Jha, Former CMD, Rashtriya Chemicals, Former Chairman FAI, discussed the positive role played by fertilizers in the agricultural development of the country.During 1950-51 when fertilizer consumption (N+P+K) used to be 70,000 tonnes foodgrain production was around 50 million tonnes. Now foodgrain production has crossed 270 million tones when fertilizer consumption has crossed 25 million tones. Government adopted positive interventionist policies to promote fertilizer consumption and fertilizer production.Since farmers are the ultimate consumers of fertilizer industry,the companies have been maintaining direct contact with the farmers.All major fertilizer companies have Farmer training centres to impart free training to farmers. They have Soil Testing Labs to give soil health cards and advisories to adopt better farm practices.Industry takes keen interest in sustainable agriculture through organic manures, bio-fertilizers,neem coating,micro nutrients,micro irrigation etc.

However, on policy front there have been two great distortions which have adversely affected the optimum utilization of fertilizers as well as the soil heath leading to fall in agriculture productivity and soil degradation.First in 1992 when in the name of reform,P&K fertilizers were decontrolled and Urea was not only kept under control but price was reduced.It took many years to make some ad-hoc corrections in the policy when NPK ratio(index of fertilizer use efficiency) started coming near the desired level. Again in 2010 P&K were brought under Nutrient Based Subsidy(NBS) scheme but urea continued to be under direct control and highly subsidized leading to overuse of urea ,distortion in NPK ratio leading again to fall in productivity and soil health.This policy asymmetry has to be removed. All fertilizers have to be under one policy.Since P&K fertilizers are already under NBS and that system is working well having reduced subsidy burden of the government,Urea should also be brought under NBS in a gradual manner.

Another reform that is needed is to give fertilizer subsidy directly to the farmers.This will take away too much of regulation. Entire government machinery is engaged in all kinds of certifications,inspections and verifications.They will be relieved to do their normal extension works which is totally missing.Now with the technology it is possible to do that.What is being done in 19 pilot districts for Direct Benefit Transfer(DBT) is again giving subsidy to fertilizer companies with worse kind of regulatory regime.

Dr.RaviPrasad,PresidentAgriBusiness,Coromandel International, mentioned that Nitrogen, Phosphorus and Potassium rule the fertilizer industry but has low efficiency. This needs to be improved by the usage of enhancers, such as neem oil coated Urea, introduced by the Ministry of Agriculture and Fertilizers. He also mentioned about the Swatch Bharat Project, under which compost is promoted in agriculture. In fact, usage of compost helps in the breakage of NPK and improves the soil health by increasing the soil organic carbon. Thus, farmer's income can be increased by promoting the use of compost. Lastly, he opined that by providing compost support and Urea subsidy, farmers can be benefited.

Mr. G.G. Mitra, Director Fertilizer Subsidy, Ministry of Agriculture, emphasized that fertilizer subsidy is different from other industries. This is because fertilizer subsidies are provided to fertilizer companies, who are not the direct beneficiaries. Fertilizer companies use it as input cost, while farmers for whom the subsidy is being provided are consuming less as they do not have money to buy even the subsidized fertilizers in right quantity. Thus, subsidy is provided to lower the overall cost of food.

Mr. Yudhvir Singh, General Secretary, BhartiyaKisan Union, talked about the development during the green revolution and mentioned the increased usage of fertilizers during the period which has resulted in the degradation of soil health over the years, leading to the increased input cost for the production of crops. In his opinion, farmers should have liberty to choose the type of fertilizers he wishes to use and not be bound to use any specific one because of its low cost. He briefly talked about the non-availability of extension services in India and the fertilizer sellers provide the information about the usage of the fertilizer rather than the well informed professionals. He mentioned that one of the ways to increase the income of farmers is by diverting them to other activities like poultry and dairy farming due to decline in the land holding.

Mr. Sanjay Tanwani, Country Head & Director, Greenstar&SPIC, addressed the house about the reforms and rationalization needed to double the income of farmers. According to him, there are two aspects which need to be discussed for this purpose, firstly, increase in the realization of per unit land through various measures such as low cost inputs or enhance productivity and secondly, consolidation of land holding and suggested the adoption of contract farming & generation of alternative avenues for employment generation. He also drew attention towards the elimination of the middle men, which will help increase income to farmers and assist the government to create a balance between the inflation and farmers income.

Mr. N Sambasiva Rao, Managing Director, KRIBHCO, briefly talked about the direct benefit transfers (DBT) to farmers. He opined that subsidies should be directly given to farmers so that they can have access to the benefits directly and can use the subsidy as per their requirements. He also mentioned about the need for efficient use of fertilizers, which could be attained by measures such as micro irrigation, compost and recycling of crop stubble.

Mr. Nitin Shukla, Joint Director Agriculture, Gujarat, talked about the low organic matter in soil and requirement of extension activities for updating the farmers about the appropriate quantity of fertilizers for maintaining the soil health withrequired level of organic matter and the water quality & quantity for crop production. Hefurther pointed out the requirement of post harvest management to double the farmer's income because irrespective of the quantity produced, farmers are unable to fetch high price.

Dr. S.P. Wani, Director, ICRISAT, opined that

indiscriminate and continuous use of fertilizers has led to deteriorated soil health, which is pre-requisite for healthy food. Thus, a farmer needs to know the content and quantity of the fertilizers to be used. For this purpose, soil health cards can be beneficial. But, there are many issues which need to be addressed. One of them is the misuse of fertilizers due to subsidies provided to the farmers. This can be combat by providing the subsidies to the farmer on the particular nutrient to the extent it is required in the soil. He emphasized that farmer income cannot be doubled by increasing the productivity as prices decline as soon as supply of product increases. Therefore, there is a need to decrease the cost of cultivation and also to shift the farmers focus to alternative sources of income such as poultry, dairy and micro enterprises. Government can take initiatives in the same direction such as skill building so as to develop employment opportunities in rural areas. He also mentioned that small farms have high productivity. Thus, there is a need to device the systems and technologies suitable for small farm size as well.

Mr. Mahesh Goel, Country Head, Aries Fertilizers Group, emphasized that there is a subsequent need to shift our focus on application of inputs rather than only restricting to input quality and cost as efficiency will increase when applied in correct manner. He also mentioned that there should be a shift to the approach of high input, high output from low input low output approach. He also suggested that farmers need to produce as per the market demand rather than what he wants to. Lastly, he appreciated the soil health card initiative taken up by the government but identified that there is a need to have proper soil testing mechanism, analysis of the results and most importantly application of the same.

Mr. Anand Gudihal, Director Marketing, Indogulf Fertilizers, suggested a few measures for doubling the farmer's income and up gradation of the soil health. He stated that customized fertilizers provide higher productivity and his company is one of the few companies operating in this segment of the fertilizer industry. He suggested the need for the dissemination of information among farmers along with the aggressive extension services to be set up in the rural areas, which will reduces the input cost and increase

the farmer's income.

Mr. Bijender Singh Dalal, Progressive Farmer, Haryana, felt that farmers lack understanding of soil health and are unaware of the ways to maintain it. He appreciated that Haryana government is taking initiatives to increase the farmer's income and asked for further assistance so as to fulfill the vision of the Prime Minister of doubling the income by 2022 and be the role model for the entire nation.

Mr. Kishan Pal Tomar, General Secretary, AIFWA, underlined the decline in water availability for irrigation purposes. He also pointed out that due to long term use of fertilizers; the crop yield has declined as every year farmer needs to use 5% more fertilizer so as to achieve same yield and another major reason is the low water content in the soil. He suggested analyzingall the commercial data available for all the agro ecological zones and systems &existing models should be used to work in the same direction.

Mr. R.L. Tamak, Executive Director (Sugar), DCM Shriram Ltd., brought to light the 'MeethaSonaProgramme', which is sugar cane centric, covers all the aspects discussed in the conference such as soil health, mechanization, etc. He further suggested that a customized fertilizer is a good experiment which should be undertaken by PSUs as well. Moreover, he laid emphasis on the combination usage of granule application and liquid fertilizers, which needs to be addressed by the scientists for the appropriate proportion to be used by the farmers. He also talked about the grant of land leasing so that farmers can cultivate sugarcane on leased lands if they do not own one. Lastly, he suggested land leveling and deep plowing as some of the practices in order to retain the physical properties of the soil.

Mr. Soumendhu Ghosh, Business Devt – South Asia, Acadian Plant Health, emphasized on the adoption of the holistic approach and brought to the notice that there is a need to have a balanced and sustainable approach to combat various issues already discussed in the conference.

Mr. S. Narayanan, Director Marketing, Greenstar& SPICS, opined that major reason for the degradation of soil health was indiscriminate use of chemical fertilizers while neglecting organic manure. Thus, he suggested subsidies by state governments for compost as well as legal framework for consolidation of land along with some of the facilities to be provided at local level such as storage facilities, market linkages and post harvest management.

Mr. Shyam Bang, Chairman, National Board of Accreditation, threw light on the accreditation process of the soil testing laboratories and support provided by his organization. He further pointed towards the lesser availability of farm labor and quoted mechanization as the only possible way out, hence need to be strengthened. Farm equipments need large capital investment, which is not possible for every farmer. Thus, government should promotecooperatives to manage them and provide assistance to small farm owners. Regarding bio-compost, he favored the promotion and stated that this segment should be minimally regulated as compost can be produced by various ways at small level.

Joint Secretary, INM, Ministry of Agriculture, identified that to increase the farmer's income following should be taken into consideration:

• There is a need to increase the efficiency of the inputs used by the farmers such as efficiency of fertilizers or switching to customized fertilizers and etc.
• Integrated production system such as for horticulture, floriculture and etc., should be encouraged among the farmers.
• Insurance schemes covering production should be introduced so that if there is a slight climatic change and crop yield is affected, farmers need not to suffer adversely.
• E-procurement services such as e-bazaar, e-trading and etc., should be promoted, which have been initiated under the portal e-nam, so that farmers and traders share a common platform.

Regarding the soil health, she mentioned that quality of labs should be improved and decentralization of the mobile labs should be promoted as it helps farmers to get the test results of soil sooner.

While talking about the compost, she mentioned that most schemes of the ministry of agriculture promote the application of compost. However, city compost, which comes under Swatch Bharat Project, is not promoted for agricultural purposes as it is made up of various pollutants, which can harm and degrade the soil health as well as crop production. Moreover, government promote on farm production of compost due to its low shelf life.

Dr. R.P. Singh, Executive Secretary, IAUA,stated some of the facts regarding the subsidy schemes prevailing in the Punjab, signifying the misuse of the subsidies provided by the government and stated that to increase farmers income, they need to be shifted to other income alternatives such as poultry and dairy farming. Regarding the soil health, he mentioned that 50% of the crop residue is left in the farm and burnt, which reduces the fertility and nutrient content of the soil.

Dr. M. Moni, Chairman, ICFA Working Group on ICT, talked about the three components of farm health management, namely, soil health, water quality and crop production. According to him, for deep farm management, there is a need for the data analysis of soil health and come up with Decision Support Systems.

Dr. M.C. Sharma, Ex. Vice Chancellor, SBPUAT, shared the project findings under taken by his organization with ICAR, such as soil health and macro-minerals differ from place to place. He further suggested farmers to simultaneously undertake animal husbandry with the objective to increase production with minimum increase in input cost.

Dr. Kaushik Majumdar, VP Asia, International Plant Institute, talked about the food processing industry and opined it as major source to increase income to farmer because of value addition. Therefore, he suggested that the two work for mutual benefits.

Mr. Tushar Pandey, President, Yes Bank, voiced that private sector can be invited to partner with Government Institutions like KVKs for soil testing labs. Initially, viability gap funding mechanism can be utilized to initiate pilot projects. Further, he added that farmer organizations need to be made an active stakeholder in areas like capacity building, delivery of subsidies and soil testing operations which can ensure effective dissemination of information and resources and also encourage enrollment of more farmers.

Dr. Anil Kumar Rana, Additional Director of Agriculture (Soil & Water Management), Haryana, mentioned that 21.49 lakh Soil Health Cards were distributed to the farmers up to 2014-15 in the State. But the use of Soil Health Cards by the farmers was not popularizing properly. After introduction of Soil Health Card scheme in the State during 2015-16, the awareness is created among the farmers. About 5.00 lakh Soil Health Cards were distributed to the farmers up to December, 2016. A decline of 9.17 % consumption of urea during Kharif 2016-17 and 6.43 % during Rabi, 2016-17 was observed as compared to Kharif and Rabi 2015-16, respectively. Thus, Soil Health Management can play an important role to reduce the cost of inputs as well as for getting higher production. He also mentioned that though most of the farmers are shifting towards mechanized farming and purchasing tractors and other equipments, but simultaneously increase the financial burden or them in the form of loan repayment and maintenance expenditure of the same.

Mr. Sudhir Gupta, Chief Operating Officer, Drishtee, brought to the notice that a startup company has come up with an application, in which large farmers can rent their tractors to small farmers.

In the end, house discussed about promotion of custom rentals for farm equipments and private sector involvement for generating the soil health cards and the extension services.

Conference ended on the happy note.

RECOMMENDATIONS

1. There has to be balance between use of Chemical and organic fertilizers. Applying only chemical fertilizer degrades the soil and hence productivity goes down. Applying only organic fertilizers will not give the yield. Organic fertilizer is needed to improve soil health and is essentially needed for the sustainability of soil.Use of organic fertilizer must be encouraged. At the same time application of chemical fertilizer is needed for yield. In chemical fertilizers also apart from primary nutrients (N,P and K) secondary and micro nutrients must be applied based on the basis of soil test and identified deficiency.Hence, Customized fertilizers have to be encouraged containing all nutrients in right proportion specific to an area and specific to crops.Recognition of customized fertilizers and their inclusion in FCO must be simplified.

2. Among primary nutrients also there has to be balance between nutrients N,P and K through a uniform policy. Today there is policy asymmetry between N,P and K.Policy is in favor of N i.e. Urea.Urea is under direct control and P and K are under Nutrient Based Subsidy (NBS). This is leading to adverse NPK ratio which in turn leads to fall in agricultural productivity. Need of the hour is to bring Urea also under NBS.

3. There is too much of micro management in fertilizer sector. Entire Extension machinery of States is engaged in certification/verification/inspection works. They should do their designated work which is so essential for adoption of good agricultural practices by the farmers. Government thinking of Direct Benefit Transfer (DBT) is a good step.It is being tested in 16 districts as pilot scheme.Unfortunately there also it is proposedto give subsidy to the companies only.That gives no benefit to the companies or to the farmers. Subsidy benefit should go directly to the farmers and use of IT must be leveraged to do that.

4. In the view of building the soil health, chemical fertilizers alone are degrading the soil health of the country. Thus, government should take initiatives to promote compost such as subsidy or market development assistance on compost should be enhanced from ₹1,500 PMT to at least ₹5,000 PMT.

5. Provision of quality extension services using available technologies like ICT through public private partnerships need to be encouraged to benefit the farmers in the areas of soil health analysis etc. Combination of various fertilizers, advanced techniques which can be adopted etc, as per the land size, soil fertility and other topological factors of that region.

6. There is a declining trend towards the interest in manual labor in the individuals. Thus, large proportion of farmers is purchasing farm equipments such as tractors, but it is a cost burden for them. Therefore, customized farm equipment rentals should be promoted by the government and cooperatives should be encouraged for the same.

7. Large database about soil health available need to be made available by putting in the public domain for taking decisions. However, quality parameters for such data need to be standardized using the standard methodologies and the analytical laboratories which are accredited. Thus, it was advised that the data must be analyzed and proper recommendations should be provided by the scientists regarding the proportion of fertilizers and type of fertilizers to be used for a particular land.

8. It is suggested that for soil health card generation scheme government should involve private firms which have the capability and competency in testing and generating the soil health cards of designated area for timely, authentic and better quality results with extended reach to farming community. Soil health mapping initiative of Govt. of India is laudable. However, there is an urgent need to ensure quality standards for soil analysis to be maintained by the laboratories which are undertaking this analysis and they should be accredited.

9. There is a need to devise a mechanism to integrate soil health card scheme and subsidy for fertilizers, to enable farmers to procure required nutrient with financial assistance from government, resulting in better soil health.

LIST OF PARTICIPANTS

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