

Indian Fertilizer Industry in Service of Farmers

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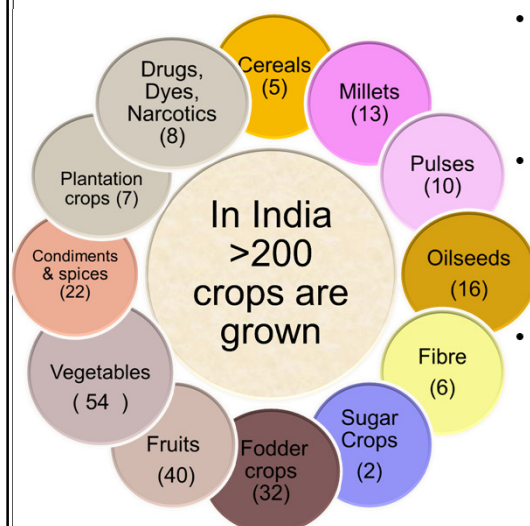


MAJOR CHALLENGES FOR SUSTAINABLE AGRICULTURE

- Shrinking Agri Resources
- Plateauing agricultural production
- Access to agro inputs
- Balanced and integrated nutrient use
- Increasing multi-nutrient deficiency
- Declining crop response to nutrients
- Access to agro technology – **Role of extension agencies**
- Reaching the Unreached



Indian Agriculture - Opportunities



- Follow BMP's for crops as addressed by ICAR institutes / SAU's
- Major focus confined to Rice, Wheat, Cotton, Sugarcane, explore potential of other crops.
- Of late the focus is broadening to horticulture (Fruits and Vegetables), medicinal and aromatic crops and other high value crops.



Farmers' Plight – Some Issues

- Inherited agriculture; Farming practice knowledge transferred through generations
- Marginalization of land holding due to Family system
- Farming is a compulsion for sustenance and not a choice
- Limited literacy prevents access to information; inadequate access to ICT
- Significant contribution of Women in farming; less communication due to traditional barriers

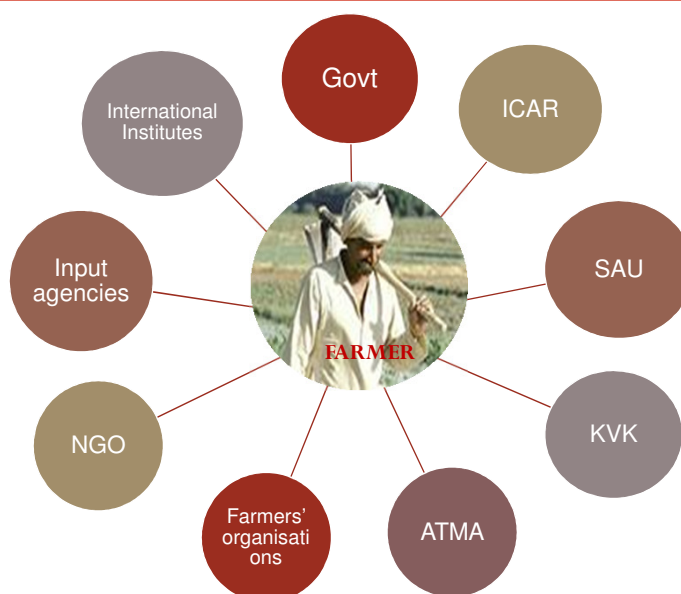


Farmers' Plight – Some Issues

- Un remunerative agriculture resulting in frustration; younger generation are unwilling to participate
- Migration from rural to urban areas for livelihood security
- Facing harsh and uncertain weather conditions
- Access to essential resources (water, energy, agro inputs, farm implements, credit, storage, transport, agro technology etc.)

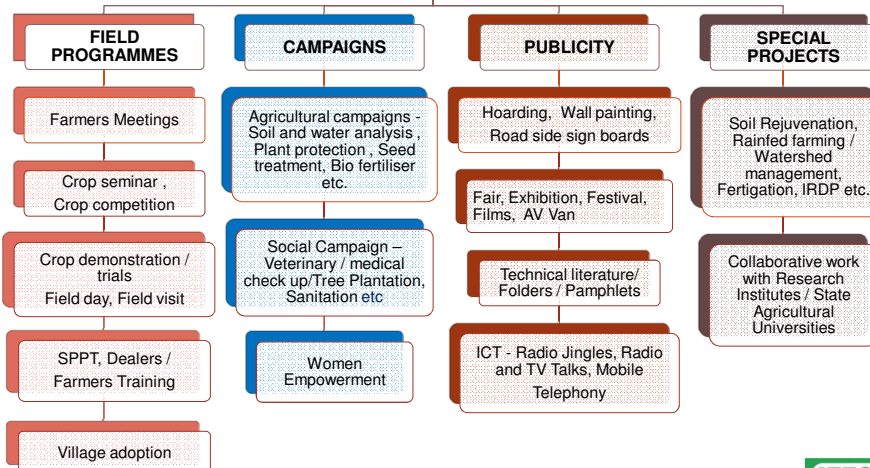


Extension Agencies



- **Fertiliser Industry is not confined to merely promotion of their products; but it takes holistic approach to address the Farmers' concern.**

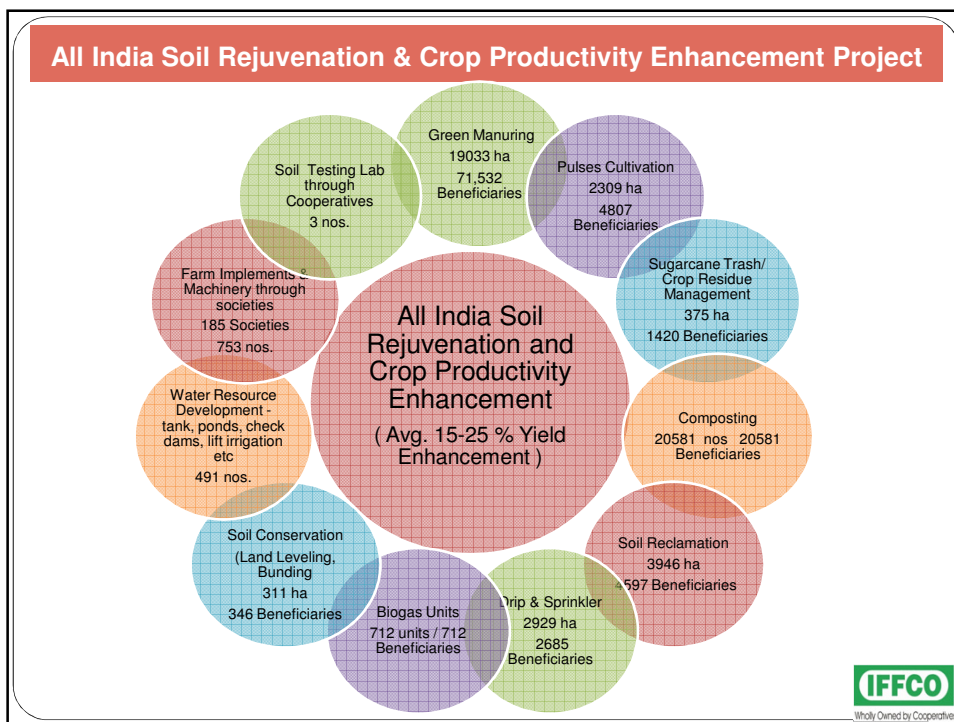
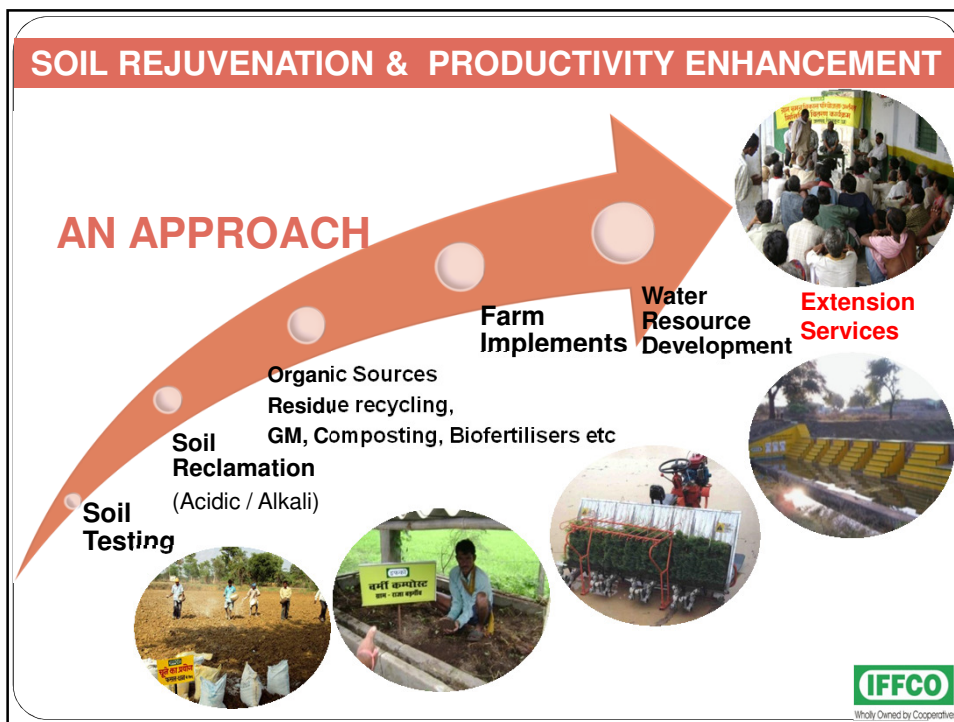
Promotional and Extension Activities by Fertilizer Industry



Glimpses of Fertiliser Industry's Initiatives at Farm Level – IFFCO's Approach (Reaching the Unreached)

SN	Special Project
1)	All India Soil Rejuvenation and Crop Productivity Enhancement Project
2)	Fertigation in Cotton and Vegetable Crops ; Barwani district, Madhya Pradesh
3)	Seed Production and Marketing in Nagaon district, Assam
4)	Vegetable Productivity Enhancement in Nagaon, Assam
5)	Sustainable Sugarcane Initiative, Kolhapur, Maharashtra
6)	Water Resource Development Projects , Ranchi, Hazaribagh, Deoghar and Dhumka , Jharkhand
7)	Water Resource Development Chachond, Agra, Uttar Pradesh
8)	Watershed Development Project, Harpura, Jhansi, Uttar Pradesh
9)	Integrated Rural Development Project, Karaikudi, Tamil Nadu





Fertigation in Cotton and Vegetable Crops Barwani district, Madhya Pradesh



BEFORE



AFTER

Soil conservation and introduction of drip fertigation – Before and After

- Cotton yield increased from 1.5 MT/ha to 3.5 MT/ha (169 % increase) while green chillies yield increased from 20 MT/ha to 62.5 MT/ha (213 % increase)
- Increased area under irrigation from 170.5 ha to 595 ha (250% increase)
- Crop diversification as the farmers are able to take other crops like turmeric, ginger, papaya, maize etc.



Crops Under Drip Fertigation, Barwani district, Madhya Pradesh



Sponge gourd



Bitter Gourd



Water Tank and Drip



Cotton



Gourd



Seed Production and Marketing in Assam

- Collaborators: IFFCO / AAU / Duarbagori Cooperative Society Ltd., District Nagaon
- Project initiation:
 - Mustard: Rabi 2013-14: Variety: TS – 36; Breeder seed procured: 150 kg; Area: 18.67 ha; Foundation seed produced: 198 q (raw seed 202 q); Cooperative society was involved; Value: Rs 8.91 lakhs
 - Mustard: Rabi 2014-15: Area: 89.2 ha (cooperative (18.67 ha) + 3 villages (70.53 ha; Farmers: 43); Expected production of certified seed : 1500 q;
 - Green gram: 2014-15: Variety: Pratap; Breeder seed procured: 50 kg; Area: 2 ha; Expected production of foundation seed : 24 q; Cooperative society was involved;



Seed Production and Marketing in Assam

- Involvement of farmers in transfer of technology process
- Area under seed production will be increased during 2015-16: rice, mustard, green gram and black gram
- Seed processing unit will be operative by May 2015 in collaboration with NABARD and GOI



IFFCOs Field: yield 1500 – 1875 kg / ha



Farmer's Field: yield 450 – 600 kg / ha



Enhancement in Vegetable productivity - Nagaon, Assam

- Village: Lakhanabandha; Project initiation: July 2012; 2.5 acre fallow land was leveled and brought under cultivation; Installed shallow tube well with diesel pump set;
- Initiatives
 - Watermelon was grown during – a) 2012-13 (2.5 acre); b) 2013-14 (5 acre); c) 2014-15 (14 acre); d) 2015-16 (26 acre planned).
 - Poly mulching (capsicum, sugarcane, watermelon, bottle gourd, cucumber, ridge gourd, tomato)
 - Straw mulch (Pointed gourd)
 - Relay cropping and intercropping
 - On farm production of organic manure
 - Productivity of crop increased by over 50% over traditional practices.
- 7 Farmers group are operational in the area
- Linkages with market for direct sale of produce



Watermelon under Poly Mulching



Pre project status: Mid 2012



Water melon: Layout of poly mulch




Water melon under poly mulching




Water melon - Direct marketing




Crops Grown under Poly Mulching




Capsicum




Bottle gourd




Cucumber



Sugarcane



Gerbera



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SUSTAINABLE SUGARCANE INITIATIVE, KOLHAPUR, MAHARASHTRA

Sugarcane Scientists explaining the Technology



Transport of Breeder Seed Cane from NARP Kolhapur to Farmers Field



Tray and coco-pith distribution to Farmers



Cutting of single eye bud using modified eye bud cutting machine



- IFFCO adopted village Karbarwadi, Taluq Karveer, Kolhapur district, Maharashtra
- Collaborators : IFFCO / Shri Bhogawati Cooperative , Sugar Factory / Farmers
- Project initiation: December 2014
- Area 21 ha; 80 farmers
- 42 cavities / tray @ 400 trays / ha
- 4 kg sterile coco-pith / tray
- Germination started 5-6 days after tray filling
- 45 days after old seedlings are ready for transplantation



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SUSTAINABLE SUGARCANE INITIATIVE, KOLHAPUR, MAHARASHTRA



Single eye bud ready for seed treatment



Seed treatment



Seed treatment in progress



Soaking of eye bud after seed treatment



SUSTAINABLE SUGARCANE INITIATIVE, KOLHAPUR, MAHARASHTRA



Tray filling with cocopeat and placement of single bud of seed cane



Tray filling in progress




Germinated eye buds (5-6 days after tray filling)




Trays kept in open field for hardening




SUSTAINABLE SUGARCANE INITIATIVE (SSI) , KOLHAPUR, MAHARASHTRA



Farmers visit to tray nursery of single bud cane seed




Farmers raised tray nursery on the terrace of his home



Single bud cane seedlings ready for transplantation ; Transplanting is in progress




Benefits of SSI

- Less seed requirement
- Wide spacing -Intercropping possible
- Water saving – drip easily installed
- Higher FUE achieved
- Higher productivity
 - Increase in length and weight of individual cane
 - More number of tillers / plant
 - More number of millable canes



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Water Resource Development Projects , Ranchi, Hazaribagh, Deoghar and Dhumka , Jharkhand

Lift irrigation village: PachhiyariKothia, Deoghar ;Tomato and Brinjal Cultivation - Village Manatu


SN	Location	Area (acre)	Beneficiary
1	Manatu - Ranchi	75	70
2	Romi - Hazaribagh	122	170
3	Jeruwadih – Dhumka	132	82
4	PachhiyariKothia - Deoghar	56	51
Total		385	373

Vill : Manatu - Ranchi	
Cropping Intensity	104 to 115 % (increase)
Fertiliser use (kg /ha)	43 to 80 kg / ha
Paddy yield	18 to 40 q/ ha




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Water Resource Development Chachond, Agra




Before



After

- Villages - 8
- Ponds Excavated – 2
- Check dam - 1
- Wells recharged – 16
- Tube well recharged -14
- Area irrigated – 15.25 ha

Watershed Development Project, Harpura, Jhansi (Uttar Pradesh)






Initiatives Undertaken	IFFCO dug a well (10m diameter, 16 m depth) and six sunken ponds (10x3x3 m ³ each) to recharge water in the well
Benefits	<ul style="list-style-type: none"> > Neighbouring four wells recharged > Vegetable area increased from 7 ha to 13 ha > Groundnut area increased from 46 ha to 62 ha. > Fertilizer consumption increased from 86.04 kg NPK / ha to 155.5 kg NPK / ha. > Water of the well is transported through tankers in the adjoining villages.







Integrated Rural Development Project , Karaikudi (Tamil Nadu)




Porkulam kanmoi - Thulavur - before desilting



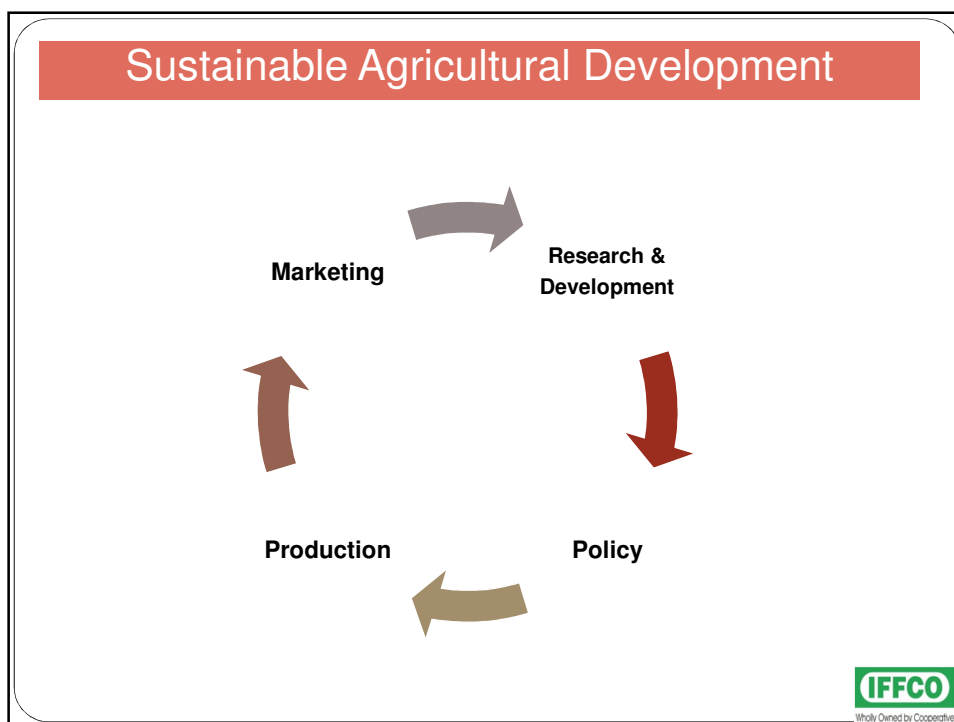
Porkulam kanmoi - Thulavur - after completion

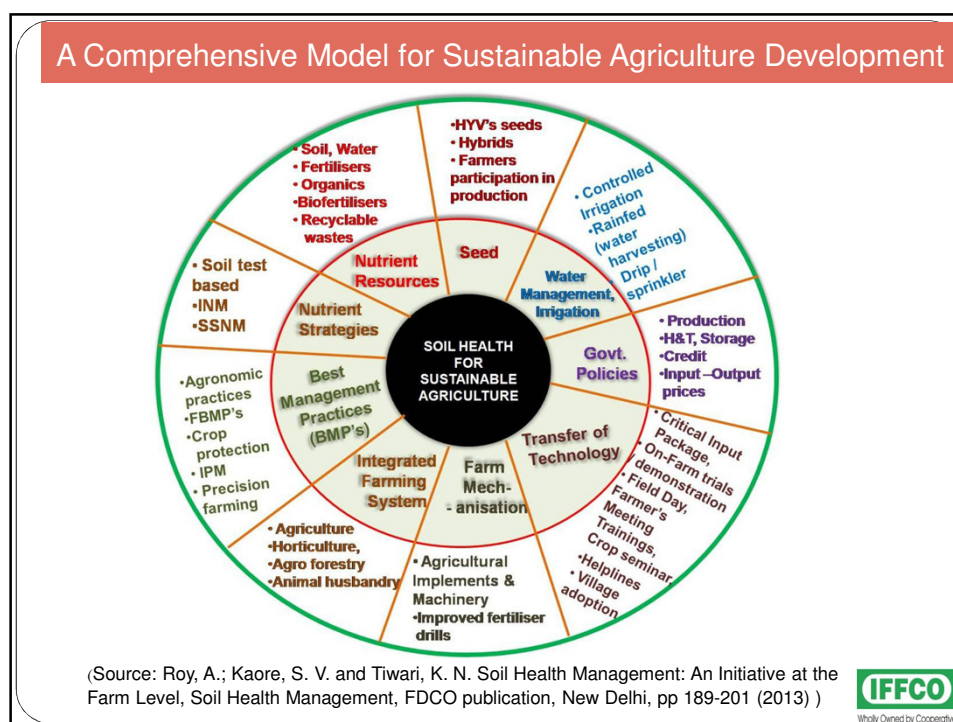
WRD activities	Beneficiary Farmers (Nos.)	Area brought under Irrigation (ha)
Tanks desilted - 158	23343	8287
Bore wells - 2	85	35
4 Farm Ponds and inlet channels renovated	101	2
Total	23529	8324

* Water availability increased to 8 months from 3 months ; * PSNC pits – 164 ; SHG's formed – 116 / 1716 members; Training on income generation activities undertaken



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Road Map – Service to Farmers'

- Efficient management of available natural resources.
- Ensure last mile delivery of agro inputs
- Emphasize productivity enhancement beyond rice, wheat, cotton, sugarcane
- Transfer of technology from Lab to Land on continuum basis
- Rejuvenation of soil health and water resources for sustainable development
- Exploit hidden potential of rainfed agriculture through scientific intervention
- Integration of efforts of like minded organizations in the national interest
- Efforts of fertilizer industry needs to be replicated
- Delivery system has to be revitalized for reaching the outcome of research and policy initiatives to 'Reach the Unreached'

**Thank
You**

