



*Panel discussion:
How to change the behavior of farmers in developing countries for
wider adoption of FBMPs*

Preliminary synthesis of farmers' attitude and preferences towards nutrient application in China and India

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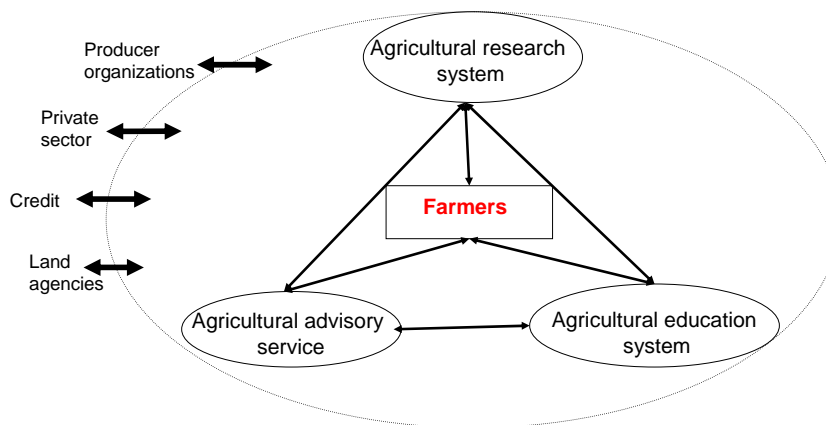
What are we looking for?

- We 'can not understand' why farmers in developing countries do not adopt best scientific knowledge
- So we try to "*Change the behavior of farmers in developing countries for wider adoption of FBMPs.....*" (this is the title of our panel)
- Instead, we should be looking for effective approaches and paths to deliver Agricultural Knowledge, and in particular, FBMP.

7/5/2002



**Agriculture Knowledge and Information system:
The triangle concept – equal partners to serve the farmer**



How to finance?; How to increase efficiency?; How to increase effectiveness or impact – in particular with regard to the poor?; How to deliver?

Figure adapted from Birner et al., IFPRI, 2006, after Rivera et al., 2006

Contribution to Total Factor Productivity (TFP) growth in India by source (partial list)

	1956 - 66	1967 - 77	1978 - 87	1956 - 87
Extension	<i>0.420</i>	<i>0.290</i>	<i>0.322</i>	<i>0.331</i>
Public research	<i>0.321</i>	<i>0.190</i>	<i>0.267</i>	<i>0.258</i>
Domestic private R+D	<i>0.069</i>	<i>0.234</i>	<i>0</i>	<i>0.145</i>
Foreign private R+D	<i>0.410</i>	<i>0.182</i>	<i>0.245</i>	<i>0.261</i>

Adapted from Rosegrant and Evenson, 1995.



LCC adoption by farmers in Indonesia (as part of a large ICM technology project)

	Garut (n=25)		Sragen (n=24)		Bantul (n=24)	
	Before	After	Before	After	Before	After
	-----%-----					
Adoption of LCC	0	24	0	4	0	8
Farmers' practice	100	76	100	96	100	92

Adapted from Djatiharti *et al.*, 2006



Are Chinese farmers willing to adopt SSNM or MSSNM?

Province and number of villages	No. of farmers	Farmers willing to adopt SSNM or MSSNM	
		SSNM (%)	MSSNM (%)
Guangdong (n=5)	133	7-25	72-86
Hunan (n=5)	162	21-52	44-79
Jiangsu (n=2)	110	18-27	71-82
Hubei (n=2)	109	24-25	70-76



Adapted from Hu *et al.*, In press in *Agricultural Systems*



In order to improve the dissemination of 'Balanced Fertilization' IPI has conducted farmers' survey (2004-2007) in India and China



Locations of questionnaires In India

State	Locations of survey
Haryana	Gurgaon, Rewari
Uttar Pradesh	Meerut, Sahjahanpur
Uttarakhand	Pantnagar
Madhya Pradesh	Indore
Punjab	Gurdaspur
Jammu & Kashmir	Jammu
Kerala	Kottayam
Maharashtra	Kolhapur

Total 374 farmers in 8 locations



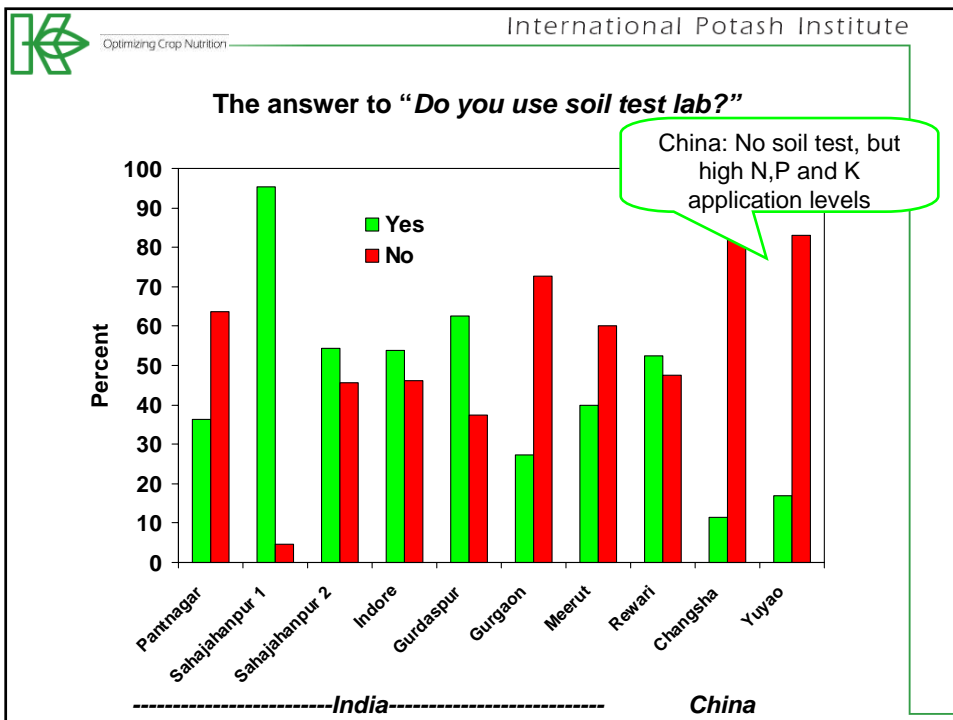
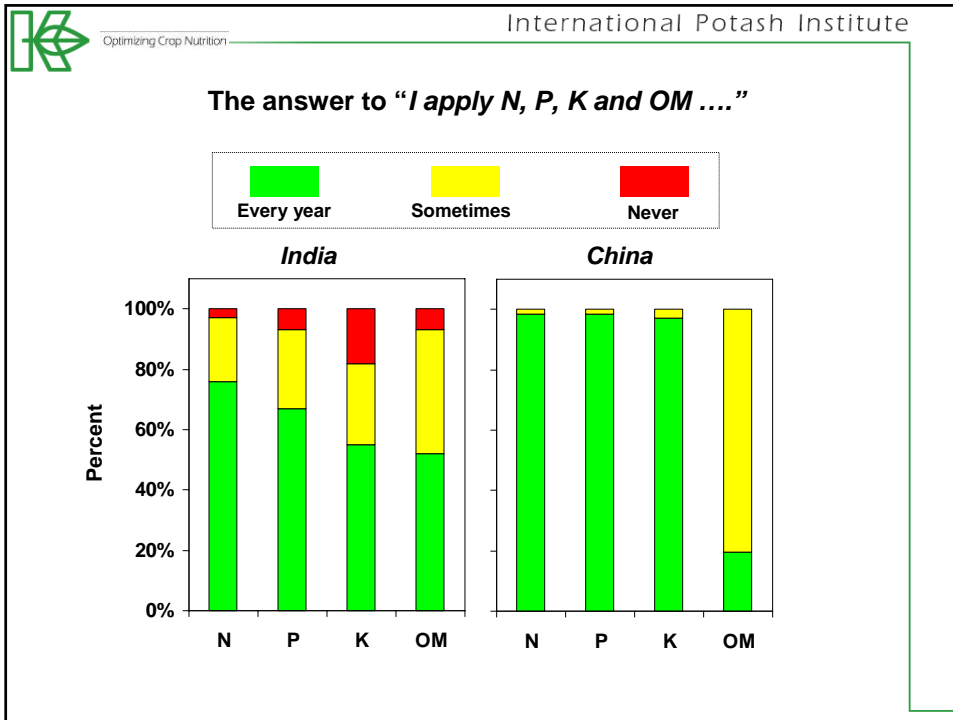


Optimizing Crop Nutrition

International Potash Institute

Main crops (>70% of land) grown in the survey plots in India and China

Location	The three major crops grown in the survey locations							
	Wheat	Rice	Veget.	Soybean	Maize	P. millet	Peanut	Tea
INDIA								
Pantnagar (n=30)	1	2						
Sahajahanpur-1 (n=23)	1	2	3					
Sahajahanpur-2 (n=22)	1	2	3					
Indore (n=94)	1			2	3			
Gurdaspur (n=40)	1	2						
Gurgaon (n=41)	1					2		
Meerut (n=52)	1	2						
Rewari (n=72)	1					2		
CHINA								
Changsha (n=95)		1	3	2				
Yuyao (n=30)			3				1	2



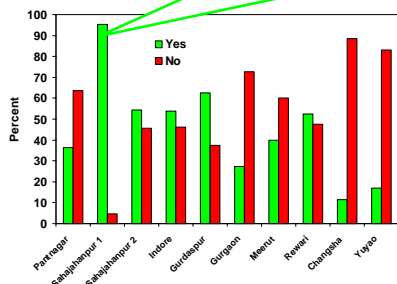


The answer to "Do you use soil test lab?"



Why farmers in Sahajahanpur are so **positive** about the use soil test lab?

The sampling area is at the vicinity of Shriram's sugar mill Haryali Bazar (a shopping mall for farmers needs set by Shriram fertilizers) that has been more active in promoting the orderly systematic use of soil tests

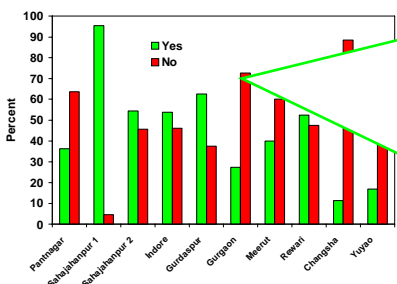


The answer to "Do you use soil test lab?"



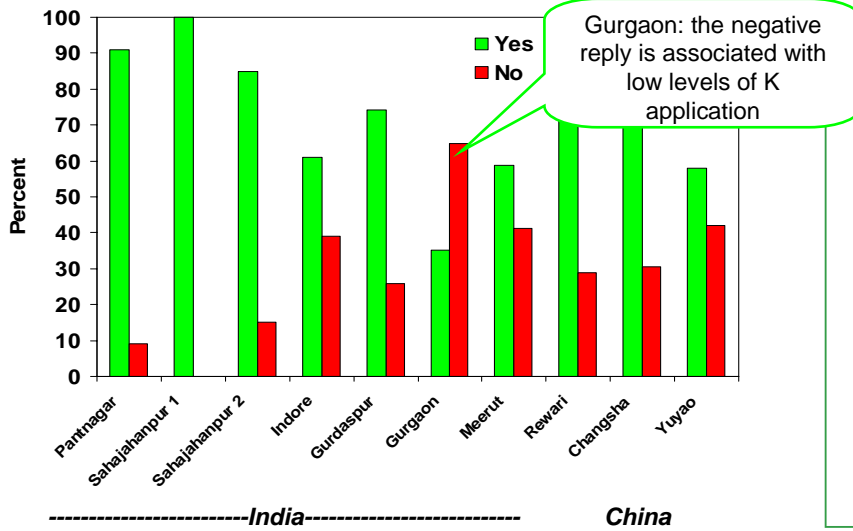
Why farmers in Gurgaon are so **negative** about the use soil test lab?

Rain-fed, low yields, farmers tend to apply little fertilizers. Social structure of the region: Large portion of the population is uneducated, number of children per family is very high, and 40% women suffer from skin diseases as conditions are unhygienic. Drop out of children from school after 5th class is almost 90% though GOI provides free education with meals to attract the children.





The answer to “Do you have regular contacts with extension and private sector?”



The answer to “How do you rank the knowledge of your fertilizer dealer?”

Location	Ranking the knowledge of the fertilizer dealer				
	Poor	Low	Medium	Good	Very good
.....(%).....					
India					
Pantnagar	0	0	21	10	69
Sahajahanpur 1	0	5	37	10	48
Sahajahanpur 2	42	33	17	0	8
Indore	35	29	14	13	9
Gurdaspur	50	0	34	8	8
Gurgaon	60	0	40	0	0
Meerut	40	7	27	3	23
Rewari	18	40	24	0	18
China					
Changsha	0	6	7	75	12
Yuyao	0	0	30	44	26



The answer to “How do you prefer to receive professional agricultural information?”

Location	Preference for receiving agricultural information						
	Information sheet	Workshops & Meetings	TV	Radio	Experimental demo plots	Dealers	Successful neighbour
<u>India</u>							
Pantnagar	High	High	Low	Low	Medium	High	Low
Sahajahan pur 1	Low	Very high	Medium	Medium	Medium	Medium	Medium
Sahajahan pur 2	Medium	High	Low	Medium	Low	Low	High
Indore	Medium	Medium	High	Low	Medium	Low	High
Gurdaspur	Medium	Medium	High	Medium	Low	Low	Medium
Gurgaon	Medium	Medium	High	High	Medium	Low	Medium
Meerut	Medium	High	Medium	Medium	Medium	Medium	Low
Rewari	Medium	High	High	High	Medium	Low	Medium
<u>China</u>							
Changsha	Low	Very high	High	Low	Very high	Medium	Low
Yuyao	High	Medium	High	Low	Medium	High	Medium



Q & A fertilizer dealers

Location / issue	Jammu (n=33)	Kolhapur (n=43)	Kottayam (n=29)
Dealer's most urgent problem is (%):			
Reliable supply	42	34	38
Own storage capacity	6	16	0
Cash flow / financial arrangements with suppliers	21	32	31
Not enough customers	6	5	16
Too limited variety of products	25	13	15
What is your attitude towards extension workers (%):			
Friend / advisor	79	81	89
Controller / invader	7	5	4
Neutral	14	14	7

conclusions

- Chinese farmers appear to be more devoted to application of N, P, K and OM
- Application of potash is positively correlated to practicing soil tests, and negatively correlated to socio economic development
- Dealers can be integrated into the “Agricultural Knowledge Information System”, but that requires analysis of their abilities and status
- Farmers prefer ‘Workshops & Meetings’ and TV as the channel for agricultural knowledge; leaflets are ranked medium
- In general, we found a large variation in the replies to the questions among different regions, which indicates the need for Site Specific Knowledge Dissemination.

Thank you



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