



CIMMYT^{MR}

International Maize and Wheat
Improvement Center



“Innovative Methods for Measuring Adoption of Agricultural Technology”

3-4 August 2016

International Maize and Wheat Improvement Center (CIMMYT)
and
ICAR-National Institute of Agricultural Economics and Policy
Research (NIAP)

Scope of the Study

Coverage:

- CIMMYT--11 countries
- CIMMYT--NIAP-11 states, 15 CCC
- Covering more than 85% of the gross cropped area under wheat and maize in India

Crop Area Coverage Under the Study States (2013-14)

Crop	States	Gross Cropped Area (ha)	Area Share (%)
Wheat	Uttar Pradesh	98,39,197	36.06
	Madhya Pradesh	60,79,732	22.28
	Punjab	35,12,000	12.87
	Rajasthan	32,06,604	11.75
	Haryana	24,96,900	9.15
	Bihar	21,48,818	7.88
	Total	2,72,83,251	100
Maize	Karnataka	13,77,268	21.29
	Telangana	9,96,209	15.40
	Maharashtra	9,46,500	14.63
	Rajasthan*	9,16,391	14.16
	Madhya Pradesh	7,71,846	11.93
	Uttar Pradesh	7,66,946	11.85
	Bihar	7,32,339	11.32
	Gujarat**	5,27,300	8.15
	Andhra Pradesh	3,52,115	5.44
	Total	64,70,523	100.00

What Worked What Didn't

Aspect	Worked	Didn't Work
Expert	Researchers at middle level, Experts from KVK, State Agricultural Department and State Seed Corporation	Dominant/National level expert, farmer participants
Composition of expert panel	Mixed group/fare representation from ICAR, Non-ICAR, CGIAR	Over representation by any organization, absence of experts from state department of agriculture
Size of expert panel	12-16 depending on the diversity in the domains	Large panel
Domain	Smaller domains with less layers (no. of agro-climatic zones, seasons, production conditions- eg: wheat in Haryana/Punjab)	Large and Complex Domain (eg: Maize in Uttar Pradesh)

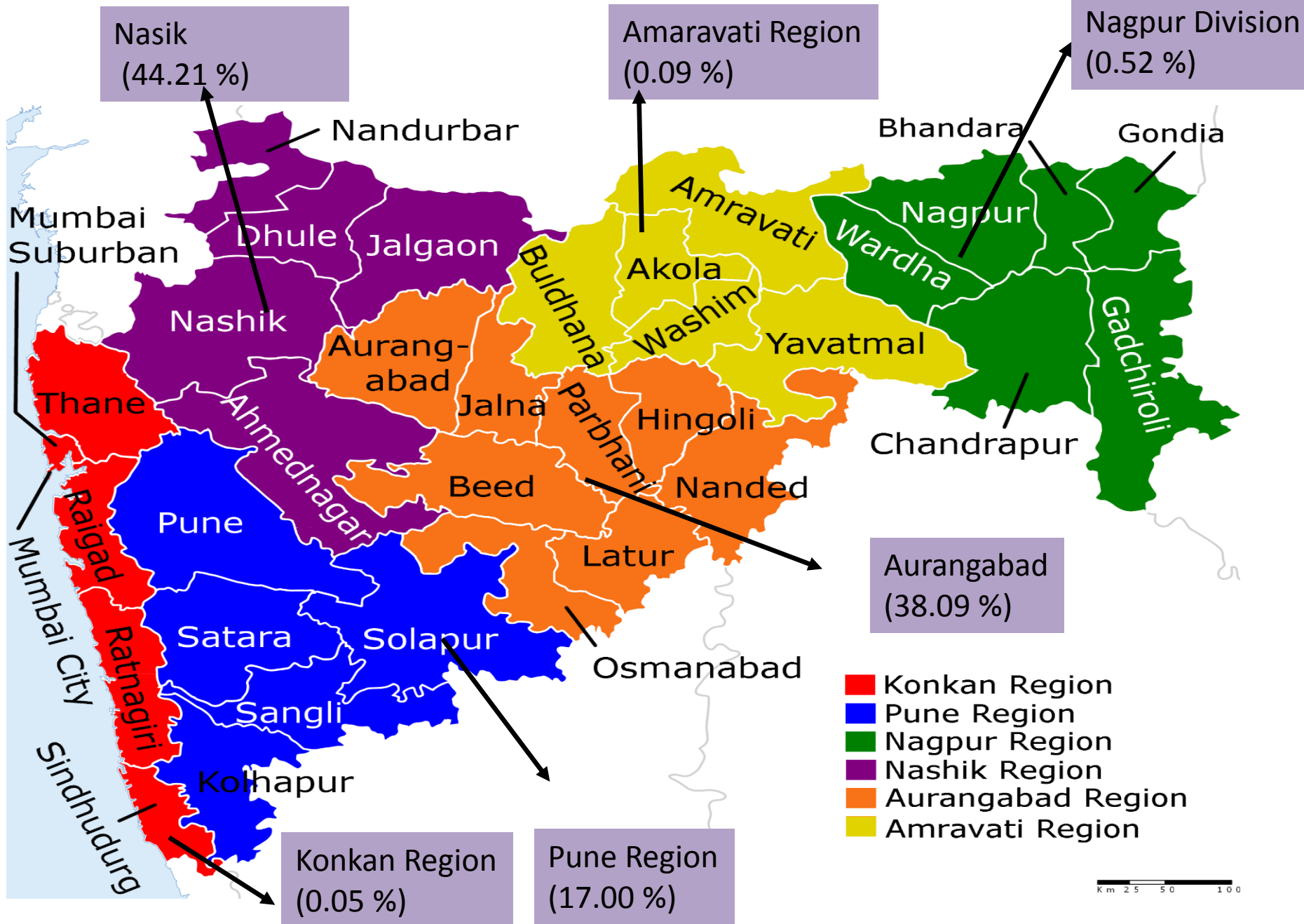
What Worked What Didn't

Aspect	Worked	Didn't Work
Prior information	Helped to flag varietal adoption differences and elicit detailed information	-
EE forms	Bilingual	-
Time and Planning	At least 20 days advance planning, off season of the crop	-
Facilitation of workshop	Participatory and interactive	-
Crop	Better and easier implementation in the case of wheat	Maize- comparatively more challenging
Institutional	Proactive role and constant efforts of the CIMMYT-India in obtaining the required permissions. A well planned budget from the CIMMYT which helped in logistical arrangements	

How the Method was Improvised

- Domain maps: Better visualization of geographical boundaries and clarifying the definition of domain
- Domain level estimates: In general we followed group discussion for obtaining domain level in some cases open discussion method was used Eg: Madhya Pradesh
- In some cases experts were divided into groups based on their expertise and varietal knowledge in particular domains-Eg: Rajasthan

Domain Map: Agro Climatic Zone wise Maize Area in Maharashtra (2009-2011)



Domain Map

Distribution of Rabi Maize in Bihar



How the Method was Improvised

- Shuffling of experts: experts from same institution were allotted in different groups
- Presentation of group level results by one of the participants Ex: Bangladesh

Challenges in Using Expert Elicitation Methodology

- Complex domains (no. of agro-climatic conditions, seasons and production conditions as in the case of Maize)
- Consensus building-in few cases
- Non participation/drop outs
- Dominant expert and deviation of discussion
- Detailed planning and logistics
- Experts' fatigue (larger domains and lengthy discussions)

Winning Points

- Policy formulators were convinced with the methodology
- They expressed their willingness to adopt the methodology to generate varietal adoption estimates (Ex: Bangladesh)
- EE workshops provided a platform for further collaboration among various research organisations and private companies
- Sensitisation of researchers on the importance of varietal adoption estimates and the methodology

Confidence in results

- Yes. High level of confidence.
 - Comparison of results with experts
 - Existing literature
 - Experts' confidence in the estimates and for using the methodology further

Cost vs. benefit

- Definitely, cost effective
- A representative farm survey at state level could have had higher budgetary implications
- More holistic- Incorporates information based on seed sale, informal seed exchanges and farmers' own saved seeds as experts from different institutions are involved

Cost vs. benefit

- Captures adoption differences across the domains
- specific information on the name of the variety unlike farm surveys where a farmer may not be able to provide the 'specific name' of the variety as evident from some of the exiting surveys
- Time saving
- Opportunity for gathering additional qualitative information

Would NARS and CG centers continue using this method beyond SIAC?

- Yes, provided.....
- Institutionalisation
- Streamlining of the methodology
- Coordination among the different stake holders- government research and training system and private sector (as in the case of Maize)
- Training of the trainees

Validation

- Very few farm level surveys on varietal adoption
- Some of the existing surveys are of small scale and provide very less information as compared to the results of the EE
- However, in few cases the previous survey results were comparable with the EE results (eg: Haryana, Bihar). The results of the EE were comparable with the survey results
- Final consensus estimates were comparable with the statistics available with the experts in few states. Experts shared that they are convinced with the estimates

Thank you