

Farm record keeping- a tool to understand gender differentiated roles and decision power



Munmun Rai
CIMMYT India

Background

Farmers are encountering one or other climate related challenges in every cropping season either in form of excess/untimely rainfall, drought, flood, terminal heat, new pest and disease outburst etc.

To overcome these challenges scientists have come up with new climate smart agriculture practices (CSAPs) that helps to build resilience and at the same time have potential to increase profitability and productivity.

Adoption of CSAPs cannot be achieved until gender dimension is addressed to ensure better informed decision with effective use of conservation interventions

To integrate gender in household decision making in adopting CSAPs, farmers of climate smart villages (CSVs) were acquainted with Farm *Lekha Jokha* (farm budgeting) book.

Accounting and farm budgeting tool: Allows farmers to understand, evaluate and better compare difference between various farming practices.



Objective



To assess over all adoption pattern of CSAPs among farmers and role of record keeping in increasing farm income.



Role of record keeping in socio economic conditions of household with special emphasis on empowerment of farm women and youth via increasing their decision making capability,



To assess the impact of CSAPs in climate related risk.



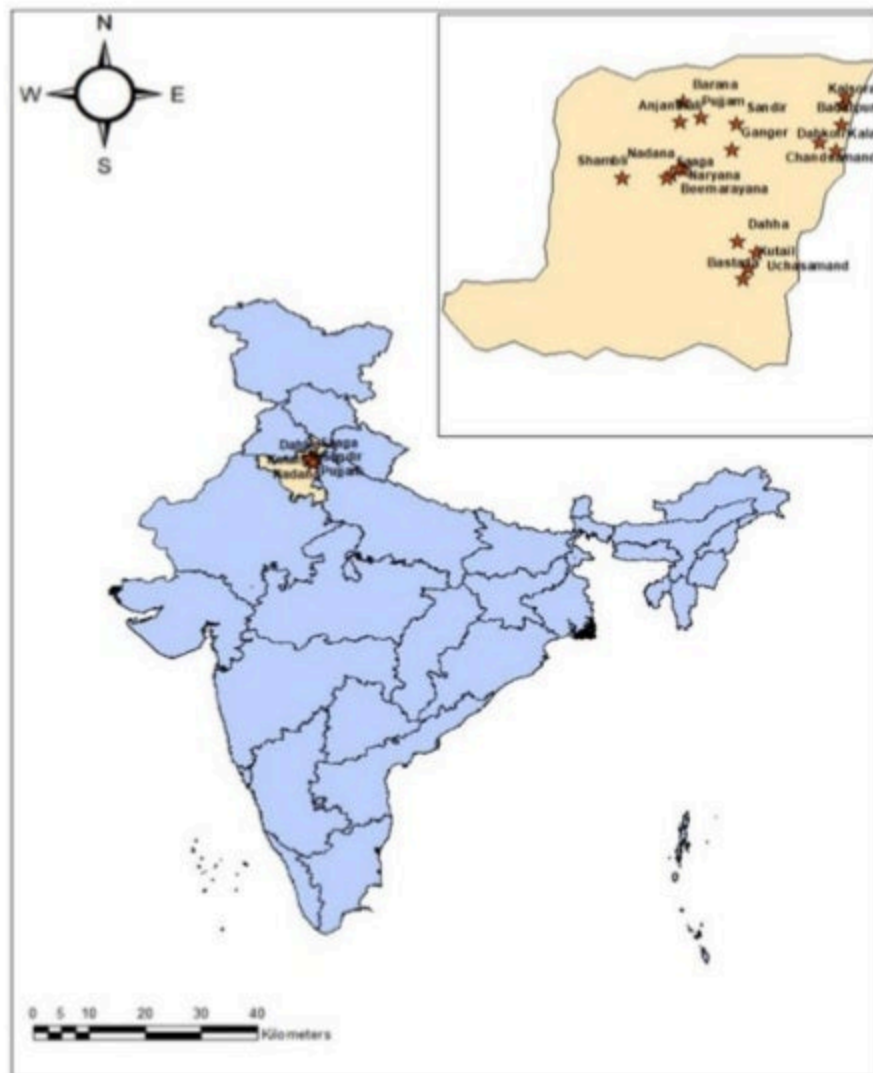
Study Area

Haryana, an agriculturally progressive state of India lies between $27^{\circ} 3'$ to $31^{\circ} 9'$ north latitude and $74^{\circ} 5'$ to $77^{\circ} 6'$ east longitude.

The area receives about 756 mm annual rainfall, 80 per cent of which occurs during the months of June to September (mean of 1981 to 2016).

It ranks 30th in the country which shows demographic scenario is heavily loaded in favour of males.

Accordingly, the agriculture especially the decision making for farming are also dominated by men.



Methodology

CGIAR in collaboration with national and local research (ICAR, SAUs) and development (State Department of Agriculture, Govt. of Haryana) partners launched CCAFS's climate smart village (CSV) program in Haryana in 2012.

This program has been working to enhance farmer's ability to adapt climate change, manage climate risks and build resilience through climate smart villages (CSVs).

As an activity of climate smart village 200 booklets were distributed in 28 CSVs to respondents including men and women of different households.

Total 108 households filled *the booklet*

Season wise data was collected for period 2014-15 and 2015-16 for Rabi and Kharif seasons.

Analysis are done in STATA 14. Besides, correlation and regression analysis was also carried out using MS-Excel and R software.



Results

Adoption pattern of *lekha jokha* (Farm record)

Overall adoption percentage of *lekha jokha* was 57.5% in which 55.6% were female record keepers and 44.4% were male record keepers.

Overall CSAPs adoption and its impact

The results highlight less yield penalty on using Turbo Happy seeder (THS) technology for wheat planting in Rabi 2014-15 when there was untimely extreme rainfall experienced at grain filling stage in the region.

The favorable outputs of THS influenced increased adoption of the technology for wheat sowing at same increase in area by female (from 54.8 ha in 2014-15 to 94.4 ha in 2015-16) than male record keepers (from 9.2 ha in 2014-15 to 48.8 ha).

Also detrimental practice of broadcasting wheat sowing observed great quit by women from 28.2 ha to 2 ha and men by from 40 ha to 2.4 ha.

It was also seen that nutrient management practices significantly decreased urea consumption with increase in DAP consumption indicating balance use of fertilizer in Rabi and Kharif season



Regression analysis of DSR use with cost of cultivation, sowing cost and net returns, showed that DSR technology significantly decreases sowing cost.

But the cost of weed management could not compensate the reduction in total cost of cultivation and hence net returns were less than the conventional technique which was the main reason of unacceptance of this technology which has a huge potential from the view point of scarcity of labour, particularly in the state of Haryana.

However, area under TPR+NE and TPR+ GS technology increased by 163 per cent and 156 per cent respectively

Effect of record keeping was also seen by increased household farm net income from crop cultivation.

On comparing Rabi 2014-15 and 15-16 it was observed that farm income increased by 32% and 18% respectively among men and women record keepers were as in Kharif 2015 and 2016 an increase of 10.4% and 16.9% was observed among men and women record keepers respectively.



Role of youth in technology adoption

Record keepers less than 40 years of age increased more area under THS.

Area under conventional till was reduced by 96% and 90% by farmers below and 40 years respectively

Younger farmers are more interested in doing nutrient management practises with puddled transplanted rice compared to DSR and simple puddled transplanted rice.

Season	Crop	Technology	Total area under technology (Ha)		Area under technology (Ha)			
			2014-15	2015-16	<40 (14-15)	<40 (15-16)	>40 (14-15)	>40 (15-16)
Rabi	Wheat	Turbo	64	143.2	33.8	76.2	30.2	67
	Wheat	Conventional	69	4.4	48.8	2.4	20.2	2
Kharif	Rice	DSR	37.2	13.4	24.4	8.2	12.8	5.2
	Rice	Conventional	209.7	146.5	125	70.4	84.7	76.1
	Rice	Nutrient Expert	15.6	41.2	9.2	27.4	6.4	13.8
	Rice	Green Seeker	39.4	101	25.4	52.6	14	48.4

Role of women in *lekha jokha* adoption

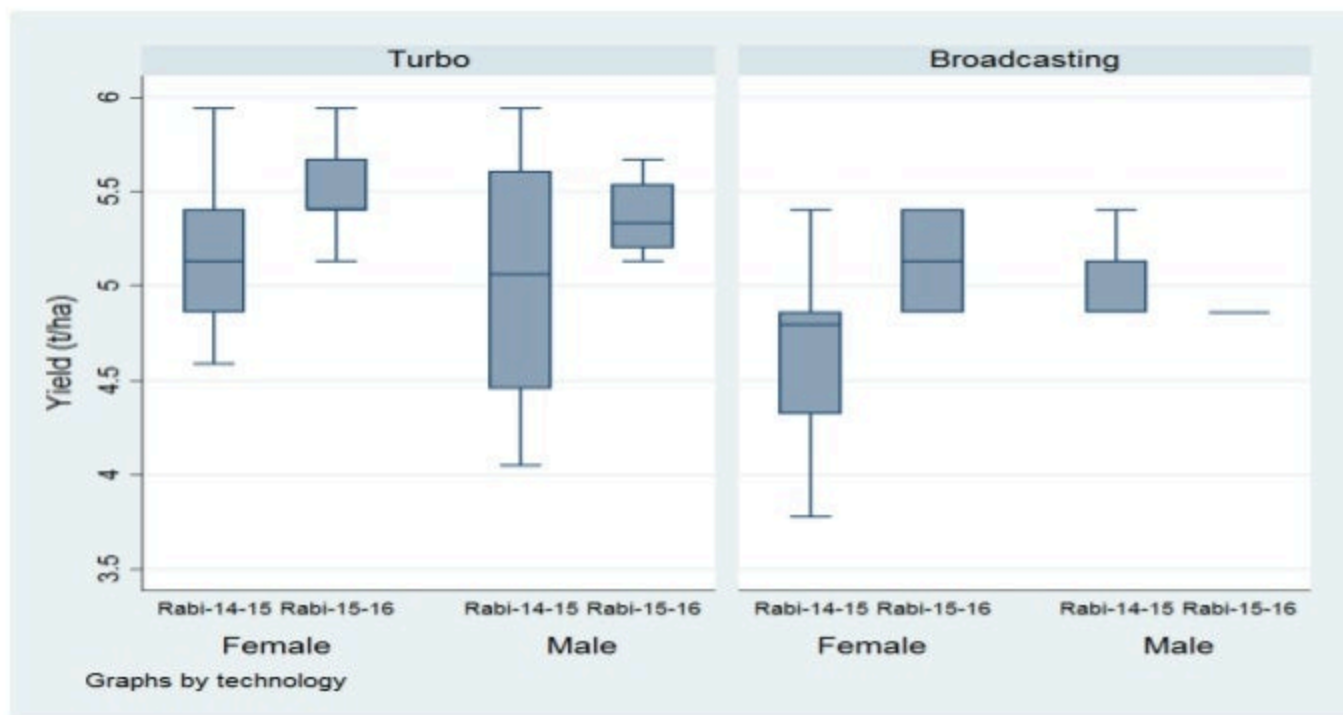
With the *Lekha Jokha* intervention women showed spectacular interest in the tool with adopting it by 55.6 percent against 44 percent by men farmers



Role of women in technology adoption and risk management

Considering Rabi 2014-15 as a bad year for wheat production it was observed that women record keepers who adopted THS experienced less yield penalty and increased their wheat yield by 13% in 2014-15 compared to CT wheat sowing. Men record keepers (adopter) increased their yield by 3 % compared to who opted for CT wheat sowing

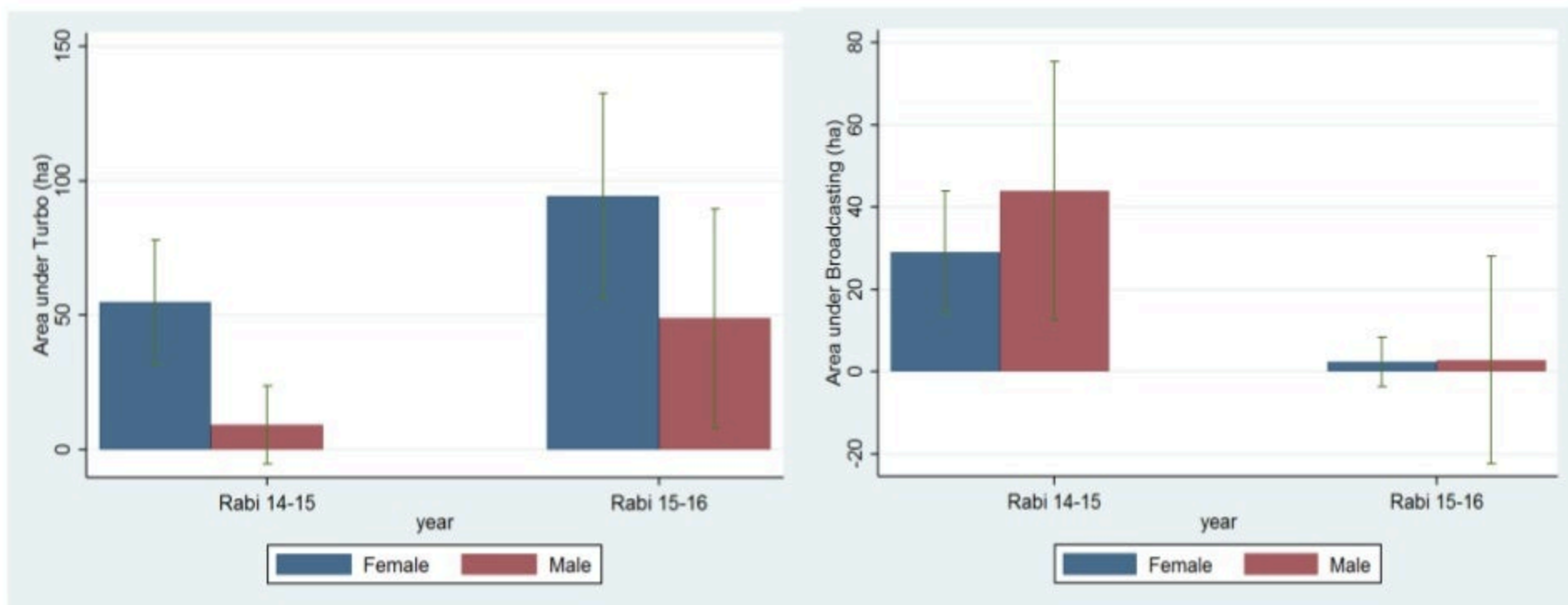
In 2015-16 which was a normal year, the yield gap between turbo adopters' and non-adopter was 5.8 % for women farmers and 9 % for men adopters and non-adopters



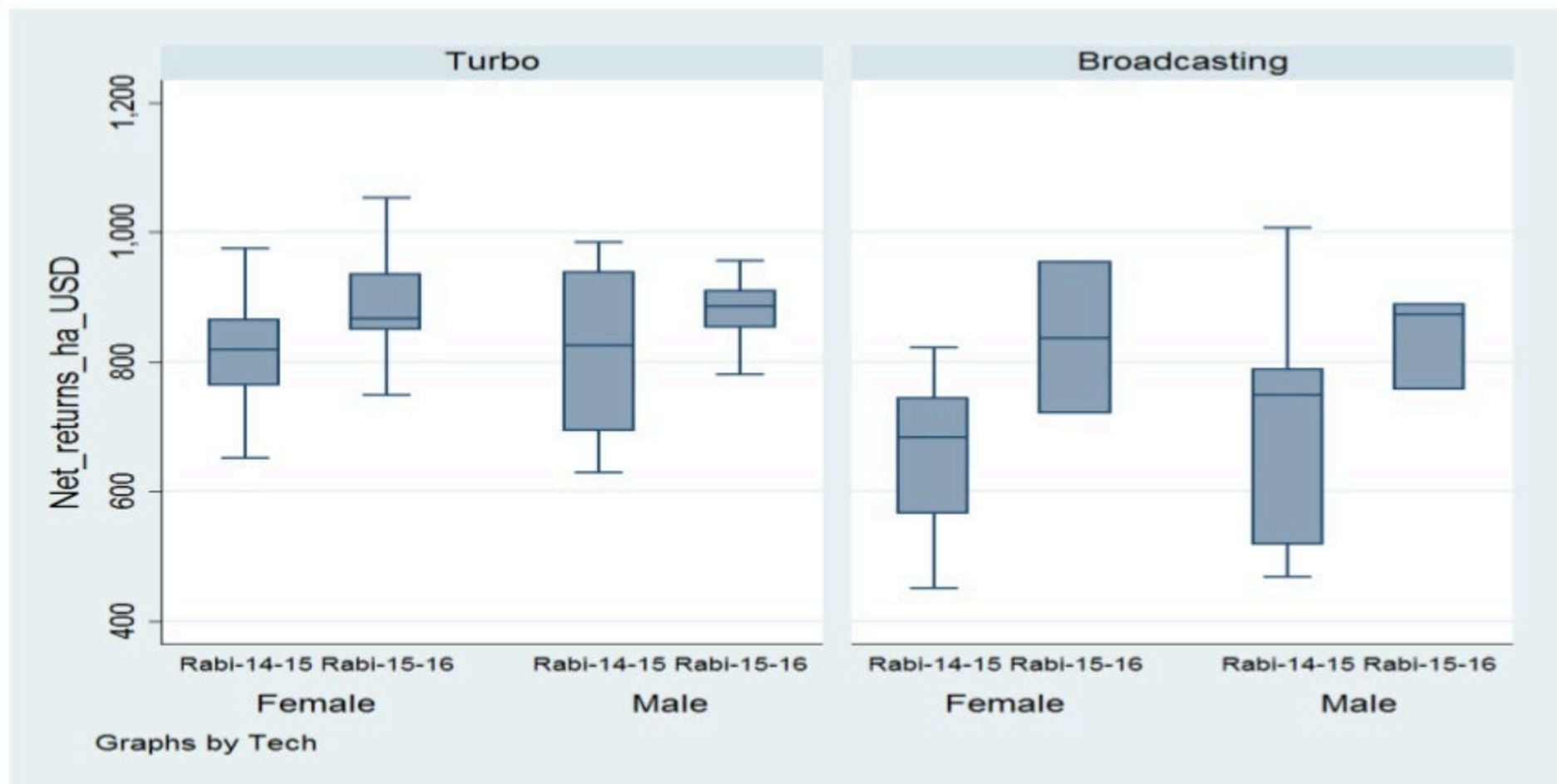
The favourable outputs of THS in 2014-15 influenced increased adoption of the technology for wheat sowing

Female record keepers increased area under TSH from 55 ha in 2014-15 to 94.2 ha in 2015-16 and male record keepers increased area under TSH from 9 ha in 2014-15 to 49 ha.

Also detrimental practice of broadcasting wheat sowing observed great quit by women from 28.2 ha to 2 ha and men by from 40 ha to 2.4 ha.



Women record keepers who adopted THS for wheat sowing increased their net returns by 9% while men record keepers increased their returns by 8% while comparing net returns of both the years



CONCLUSIONS AND POLICY IMPLICATION



Although this tool was rolled as pilot activity in CSVs of Haryana, it demonstrated high impact on increased awareness among farming community.



The booklet highlighted the significance of budgeting among rural youth for persuading them with socio- economic environmental benefits of CSAPs



The response rate of tool and followed adoption of profitable technologies have compelled Government of Haryana to scale the adoption of farm budgeting tool in its project on addressing climate change through mainstreaming CSAPs and CSVs



The followed results will further be used by policy makers in developing models of social inclusive development



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for your
interest!**