

Original Article

Association Between Adoption of Selected Innovations and Gender Roles Among Paddy Farmers in Mkindo and Dakawa Irrigation Schemes

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Received: 10 December 2022

Revised: 18 January 2023

Accepted: 30 January 2023

Published: 10 February 2023

Abstract - Adoption of innovations has the potential to change the gender roles of farmers in paddy production as well as processing. This paper assessed the association between the adoption of selected innovations and the change in gender roles among paddy farmers in Mkindo and Dakawa irrigation schemes in the Mvomero District. Specifically, it examined the gender division of labour in paddy production and determined gender roles among non-adopters and adopters of innovations. The study involved 299 farmers who were selected using a simple random sampling technique. Quantitative data were collected using a semi-structured questionnaire. Qualitative information related to gender roles were collected through in-depth interviews, key informant interview and focus group discussions. Quantitative data were analyzed using IBM Statistical Package for Social Sciences (SPSS) Statistics 20 software by computing descriptive statistics, including frequencies and percentages. A chi-square test was conducted to test the associations between the adoption of each innovation and gender roles. Qualitative data were analyzed using content analysis. Gender division of labour indicated that male adults (MaA), female adults (FeA), male children (MaC) and female children (FeC) perform different activities in paddy production. There is an association between the adoption of innovations and the gender roles of paddy farmers ($p < 0.001$). The study found that female farmers performed burdened, tiresome activities, including transplanting, harvesting and winnowing, mostly performed in a bowing approach. Adoption of innovations shifted the paddy production role, labour provision role and financial management role from being male-dominated to being shared roles by both men and women. Extension officers and other agricultural development practitioners must create and raise awareness of the gender division of labour in the paddy farming community. It is recommended that extension agents should stress more the adoption of innovations in the area of study because it empowers women in paddy farming.

Keywords - Adoption, Innovation, Paddy, Gender roles, Farmer.

1. Introduction

Adoption of agricultural innovation is the situation whereby an individual accepts, practices and continues using a new idea, agricultural practice or tool in production. In this study, non-adoption of innovations means farmers apply conventional practices, tools and machines in paddy production and processing. Gender-aware innovation development can enhance its efficiency and performance in paddy farming; otherwise, it can lead to non-adoption. According to Rogers (2003), there are five attributes of innovations for successful adoption: relative advantage, compatibility, complexity, trialability, and observability. Adoption of innovations may depend on the availability of required resources, how local women and men view the perceived benefits, the way information is shared and other socio-cultural constraints. The adoption of innovations has the potential to improve the livelihood of poor farmers and consumers in Tanzania. Even when women have access to innovations, they face more constraints than men in accessing complementary resources for success (Morris and Doss, 1999; World Bank *et al.*, 2009). This realization calls for increased attention to be directed to the adoption process, which involves first knowledge of innovation, forming an

attitude, making a decision to adopt or reject, implementing, and confirming the decision. Suppose male and female farmers are not adopting innovations or are adopting them at lower rates. In that case, there is a need to determine how best participatory development and dissemination of innovations can be done to benefit both males and females (Morris and Doss, 1999). The adoption of paddy innovations has the potential to reduce inefficiencies in paddy production and processing. In doing so, they can change how production and processing activities are conducted and by whom. Therefore, the adoption of paddy innovations affects men and women differently, whereby work burden, time and energy may be reduced or vice versa. The differential impact of innovation adoption may result in men and women performing different roles in paddy production.

Gender division of labour is crucial because it helps to understand men's and women's socio-economic opportunities, constraints and incentives. Lack of gender awareness at different levels of social constructs reinforces traditional divisions of labour based on gender and neglects the fact that women and men have different needs. Paddy is grown in Mvomero District by smallholder male and



female farmers as a food and cash crop. Socio-economic and socio-cultural aspects, especially lack of access to and control over resources, limit women from exercising their potential in paddy farming. For instance, in rural areas, women often have access, but not ownership, to productive resources such as land and innovations due to the high costs attached to these resources. So, women are compelled to use conventional innovations due to limited control over innovations. This situation limits women's productivity potential in paddy farming. However, women play significant roles in paddy farming because they perform most activities. Women's labour contributions in rice farming vary from region to region, even within regions where they offer their labour to other farms or non-farm activities for wages or hire. Yet, women face several constraints in performing these roles in paddy farming because they lack access to technical knowledge and innovations, which can reduce their drudgery and provide additional income. World Bank *et al.* (2009) argue that all tasks performed in relation to agricultural cycles, processing and domestic chores consume most of women's time and energy, leaving them overburdened. Therefore, adopting innovations can help reduce women's time and drudgery (Paris *et al.*, 2011).

Paddy innovations have the potential to affect paddy farmers' socio-economic standpoint. Adoption of paddy innovations results in such changes as increased production and productivity, farmers' income, participation in particular activities, including paid labour or particular work sectors and knowledge attainment. Adoption of paddy innovations would also bring about social changes, including institutional labour arrangements whereby more or less labour and increased or reduced labour in number may be demanded. This labour requirement may result in females' or males' displacement in performing certain paddy production and processing operations. Each innovation affects gender roles according to its mode of development. An innovation which affects the demand for labour will automatically impact men and women differently.

Adopting paddy production and processing innovations has been valuable to respective farmers worldwide. For instance, in Ndop, Cameroon's adoption of new production practices provided both social and economic benefits that went beyond the purview of women's empowerment (Fonjong and Athanasia, 2007). Adoption of power tillers and rice threshers in Bangladesh enhanced the labour productivity of smallholder paddy farmers (Mottaleb *et al.*, 2016). In the Philippines, the adoption of commercial rice mills reduced drudgery and labour for female farmers, which displaced women's work because processing operations were females' work (Paris, 1998). The study on which this paper is based adds to the body of knowledge on "who does what" between male adults (MaA), female adults (FeA), male children (MaC) and female children (FeC) with regards to paddy farming in the study area. Also, the study generated empirical evidence about the association between the adoption of

innovations and gender roles within the paddy farming community in the Mvomero District. The specific gender roles considered in this study are production role, labour offering to on- and/or off-farm activities, financial management and reproductive role. Moreover, the study findings will inform policymakers on how imported paddy innovations may have an association with gender role distribution.

The Government of Tanzania (GoT) and the private sector have been taking measures to promote the rice sector by assuring farmers' access to and use of innovations. This is achieved through developing and implementing different policies, programmes and strategies (Rice Sector Strategy, 2009). Despite the efforts to improve farmers' livelihoods, poor farmers, especially women, still experience excessive workloads and are overburdened (Paris *et al.*, 2011; World Bank *et al.*, 2009; Rice Sector Strategy, 2009). As compared to men, most women still struggle in farm operations using traditional technologies that are labour-intensive and time and energy-consuming (World Bank *et al.*, 2009). Studies on adopting innovations in the Mvomero District show that different paddy innovations were introduced (Makundi, 2017; Katambara *et al.*, 2013). However, no information is readily available on the association between paddy farmers' adoption of different innovations and gender roles, particularly; System of Rice Intensification (SRI), Power Tillers (PTs), Wooden Threshers (WTs), and Combine Rice Mills (CRMs) innovations in the study area. Selection of the SRI, PTs, WTs and CRMs was made because little information is available about these innovations, especially in relation to the topic under study. PTs and WTs are tools, while CRMs are machines.

Adoption of the introduced innovations in the study area means the owners and hirers use them in paddy operations. It is anticipated that the adoption of paddy innovations in the study area will gradually transform farmers' gender roles to benefit men and women equitably in the context of reducing their workload and saving time and energy. Therefore, the study assessed the association between the adoption of selected innovations and gender roles among paddy farmers in the study area. Specifically, it examined the gender division of labour in paddy production and determined gender roles among adopters and non-adopters of SRI, PTs, WTs and CRMs in the study area. It was hypothesized that there is no association between the adoption of innovations and changes in gender roles.

2. Methodology

The study was conducted in Morogoro Region in Mvomero District from two paddy irrigation schemes, Mkindo and Dakawa. Selection of the schemes was based on the fact that it is an area where SRI, PTs, WTs and CRMs were introduced among smallholder paddy irrigation schemes in Tanzania. A cross-sectional research design was adopted. The sample size of 299 farmers participating in two schemes was estimated using the

Yamane formula (Yamane, 1973). This formula assumed a 95% confidence level and precision of 0.05; $n = N/[1+Ne^2]$ where: n is the sample size, N is the population size, and e is the level of precision, whereby farmers constituted the population for the study. Farmers were sampled using a simple random sampling technique. Proportionate samples of 96 and 203 farmers were obtained from Mkindo and Dakawa, respectively, for fair representation of farmers in each scheme to constitute the study sample. This is disaggregated such that 96 farmers from the Mkindo scheme involved 73 males and 23 females, while out of the 203 farmers in the Dakawa scheme, there were 127 males and 76 females.

One key informant (KI), who is the Principal of the Mkindo farmer's training centre, was purposively selected and interviewed using a checklist of questions. Moreover, three Focus Group Discussions (FGDs), each composed of six to twelve participants, were held to generate qualitative information on the gender-based division of labour and gender roles among paddy farmers. An FGD guide was used to gather information during FGDs. A semi-structured questionnaire was administered to 299 farmers to gather quantitative information related to the gender division of labour and gender roles. Information on "who does what" for every production and post-harvest activity was designed in multiple responses format whereby these activities included bands construction/repair, land preparation, nursery bed preparation, seeds preparation, raising seeds in the nursery, uprooting of seedlings, transplanting seedlings, irrigation, fertilization, weeding, birds scaring, farm security, harvesting, threshing, winnowing, spraying chemicals, storage, transporting to millers, packaging and transporting to market places. Division of labour in paddy farming involved male adults, female adults, male children and female children. Regarding collecting information on gender roles, each respondent had to choose whether male, female or both performed the identified gender role.

The gender division of labour was analyzed descriptively using frequencies and percentages. Descriptive and inferential statistics were involved in determining gender roles among adopters and non-adopters for each innovation through crosstabulation using SPSS version 20. A chi-square test was conducted to determine the associations between gender roles and the adoption of selected innovations in the study area. Qualitative data were analyzed using content analysis.

3. Results and Discussion

3.1 Gender Division of Labour

Division of labour varies with crop type and so for paddy production. Men and women are engaged in various paddy production activities. The results indicated that female adults (FeA) were responsible for performing activities that mainly take longer in the field. Usually, they perform these activities while stooping instead of standing, leading to drudgery. The activities include uprooting young seedlings ready for transplanting (76.5%) and transplanting

seedlings (91.5%), weeding (82.6%), birds scaring (80.8%), harvesting (93.9%), threshing (89.0%) and winnowing (97.6%) (Table 1).

On the other hand, the majority of the respondents showed that male adults (MaA) performed the rest of the paddy production activities not performed by FeA. Male children (MaC) were involved in bird scaring, farm security and threshing, while the main tasks performed by female children (FeC) were transplanting, bird scaring, farm security, harvesting, threshing and winnowing. It was also found that seeds preparation, raising seeds in the nurseries and harvesting were done jointly by male adults and female adults. However, farm security was exclusively carried out by male adults assisted by MaC, and threshing of paddy was performed by female adults assisted by FeC (Table 1). This means that every gender category (FeA, MaA, MaC and FeC) plays an important part in paddy production though the parts differ. Female farmers performed burdensome and tiresome activities leading to drudgery. These activities take longer to perform without resting, attached with petty tasks within a piece of activity, involve moving materials and products from one point to another and are usually performed in a bowing way. This implies that the nature of women's activities impairs paddy productivity. This is because women are energetically weak, leading to reduced effectiveness and efficiency in performance along with low final output due to the fact that the majority of them are poor farmers. The hardship environment involves women working in muddy (transplanting), with no use of protective gears (Uprooting of seedlings, harvesting), sunny (birds scaring, harvesting, threshing and winnowing) and bending throughout the respective operation (Uprooting of seedlings transplanting, weeding, harvesting, threshing and winnowing). Also, MaC and FeC accomplish activities to assist women with the implication that children do non-technical production and post-harvest activities. Iwuchukwu and Udegbumam (2017) reported a similar finding in their study about productivity and gender/intra-household roles in rice production in Awka North Local Government Area, Anambra State, Nigeria. They stated that females play the majority of activities related to paddy production. In Africa, women undertake much of the work in rice production systems, including sowing, transplanting, weeding, and crop processing which is normally tedious (Chowdhury, 2014).

3.2. Gender Roles Among Adopters and Non-Adopters of Rice Intensification (SRI)

Changing gender roles is associated with many factors and changes over time. The adoption of innovations is among such factors. The findings from this study, as presented in Table 2, reveal that the associations between the adoption of SRI and paddy production role were statistically significant ($\chi^2 = 18.47$, $df = 2$, $p < 0.001$). Therefore, this result confirms an association between adopting SRI practices and gendered paddy production. The significant association between the two variables means that the adoption of SRI practices

influences the participation of male and female farmers in paddy production. For instance, the technical requirement in SRI transplanting operation (that is, 8-15 day transplants and 25x25 spacing) makes it more likely for men's involvement than women.

This study's findings further showed that the role of paddy production for non-adopters of SRI was mainly performed by male farmers, whereas, for adopters, the role was generally performed by both men and women (Table 2). This means that women are increasingly taking up the paddy production role upon adoption of this innovation in the area of study. This implies that the relative advantage of adopting SRI to conventional practices attracted more women to paddy production.

Female farmers in the study area, like any other poor rural farmers who would love to get out of poverty, were attracted to engage in the rewarding adoption of SRI practices in paddy farming. Fonjong and Athanasia (2007), who researched rice innovations and their implications for gender roles in Ndop, Cameroon, found similar results that the introduction of modern rice cultivation benefited women, and hence more was involved in rice production.

During Focus Group Discussions (FGDs) in the study area, it was revealed that there was a gradual increase in women's engagement in paddy production due to adopting SRI. Below is a confirmatory assertion from FGDs:

"... the adoption of SRI practices has encouraged women's participation due to its superiority in generating income, and much of the practices are carried out by women" (FGD at Mkindo village, 04th May 2016).

This finding from FGDs implies that previously paddy production was recognized as a men's role. However, women are always involved in paddy production and processing alongside men, but due to benefits derived from applying SRI practices, more women were involved in paddy production.

The financial management role explored in this study included financial planning, acquisition and proper allocation of funds, and promoting and mobilizing savings. The findings in Table 2 show a significant association between the adoption of SRI practices and financial management roles ($\chi^2 = 13.17$, $df = 2$, $p < 0.01$). This suggests that farmers' participation in innovation adoption helps them be aware of their rights and potentials in paddy production, including financial management at different levels. Moreover, the findings in Table 2 show that 17.9% of all the responses for the case of non-adopters indicated that financial management was a joint role between men and women, while for adopters of SRI, 36.5% of all the responses reflected this role to be performed jointly by men and women.

This means that there was an increase in responses from non-adopters to adopters of SRI that the "financial management role" was shared by both men and women.

This suggests that adopting SRI builds joint financial management as a way of life between men and women by displacing men from being the only players in the said gender role.

Precisely, women's involvement in paddy production as a result of the adoption of SRI means that they form part in the decision-making and control of paddy production resources, including accrued farm income. Increased involvement of women in paddy production enhances ownership of production resources and decision-making power concerning the management of earned income. Therefore, women constitute part of paddy production and are consequently recognized as producers, decision-makers and beneficiaries of farm resources equal to men. This situation triggers women's financial management after the adoption of SRI. Similar to this study finding about financial management, Johnson (2014) found that there was a continuum of strategies which ranged from separate to shared management of income. However, a similar argument was provided by Jeckoniah *et al.* (2012) that the participation of women in agricultural production increases their ability to take control over material assets, including control of income.

In addition, during an interview with a key informant (KI) in Mkindo village, it was found that adopting SRI improved women's financial status due to additional income obtained from selling paddy and/or rice. The key informant gave the following statement:

"... the adoption of SRI practices has attracted more women to engage in paddy farming in Mkindo village. Adoption of SRI increased women's power financially" (KII at Mkindo village, 19th March 2016).

Increased involvement of women in paddy production implies that they realized relative benefits from adopting SRI practices. The benefits include high yields in paddy and improved income. This, in turn, improved their economic and social positions in terms of increased purchasing power, self-esteem and decision-making in their society. Other researchers like Fonjong and Athanasia (2007) have reported similar findings that adopting new cultivation practices in rice enhanced women's participation in production and hence acquired more income.

3.3. Gender Roles Among Adopters and Non-Adopters of Power Tillers (PTs)

The adoption of PTs implies the roles played by men as well as women in paddy production. This study found that male farmers dominated (50.3%) the role of paddy production for non-adopters of PTs but for the adopters of the same innovation, paddy production is a shared venture between males and females (50.7%). The association between the adoption of PTs and production role was significant ($\chi^2 = 16.86$, $df = 2$, $p < 0.001$) (Table 2). This association means that the adoption of PTs motivated more females to be involved in paddy production due to its

ability to simplify land preparation. This result implies that adopting PTs eliminates the traditional notion that men are the only paddy producers, but both male and female farmers can perform it. Due to the efficiency of PTs in performing land preparation operations, the adoption of PTs for women is imperative to solve the challenges of high workload as women perform triple roles they play, especially time constraints.

During a Focus Group Discussion (FGDs), it was revealed that the adoption of PTs simplifies land preparation operations, as indicated in the quote below:

"...land preparation using a PT reduces labour requirement and saves time compared when it is done by human beings. So for, women who adopt PTs are granted the opportunity to fulfil other roles such as the reproductive one" (FGD at Dakawa village, 13th June 2016).

This finding from FGD implies that adopting PTs reduced work burden and saved time and labour, allowing female farmers to participate in other activities such as entrepreneurship and the domestic sphere. Women who adopt PTs accomplish land preparation within a short time of a day. Yet, they are not tired and are more likely to participate in other income-generating activities, community roles, and reproductive role, which is crucial to their welfare. This study's argument is similar to Manfre *et al.* (2017), who documented that physical technologies like tractors and Mini-tillers allow farmers to use less labour to prepare the land, thereby reducing the workload.

3.3. Offering Labour Between Adopters and Non-Adopters of Sri, Pts and Wooden Threshers (WTs)

Like men counterparts, women also tend to offer their labour to make money. This study's findings showed that there was an increase in responses from 7.9%, 7.5% and 10.6% for non-adopters of SRI, PTs and WTs, respectively, to 15.5%, 16.4% and 31.2% for adopters, of SRI, PTs and WTs respectively based on the information that "women offer labour to on- and/or off-farm activities (Table 2). However, there was a decrease in responses that "male offer labour to other activities" for adopters compared to non-adopters of the said innovations (Table 2). The associations between offering labour as a gender role and adoption of SRI, PTs and WTs were statistically significant ($\chi^2 = 15.40$, $df = 2$, $p < 0.001$), ($\chi^2 = 11.03$, $df = 2$, $p < 0.01$) and ($\chi^2 = 6.54$, $df = 2$, $p < 0.05$) respectively. This suggests that female farmers are increasingly offering their labour to on- and off-farm activities seeking additional income to afford production costs in own operated farms as well as their livelihood in general. This

is due to the fact that the adoption of PTs and WTs reduces the amount of time women use on land preparation and threshing tasks, potentially allowing them to shift to other on- and off-farm activities.

Additionally, SRI requires more labour to accomplish its practices. Therefore, rural female farmers who adopt it are obliged to offer their labour to other farms or off-farm activities to seek money to afford production costs. Similarly, Fonjong and Athanasia (2007) argued that the introduction of modern rice cultivation helped women to participate in the cultivation of cash crops and other income-generating activities, through which some became major breadwinners. Also, a similar finding has been reported by Jeckoniah *et al.* (2013) in their study about the mapping of gender roles and relations along onion value chain in Northern Tanzania, who reported that a shift in gender roles and participation in some activities is caused by less support from male partners and inability to afford high labour costs related to production activities.

4. Conclusion and Recommendations

With reference to the gender division of labour, female farmers accomplish non-technical, long-lasting, tedious production and post-harvest activities with little or no rest. These activities are usually performed in a bowing manner instead of standing. This situation makes women overburdened and tired, which reduces their productivity. Non-adopter females are unlikely to offer labour and engage in paddy production and financial management. However, upon adoption of innovations, the respective roles are being performed jointly by both male and female farmers. Hence, the innovation adoption in the study area ignored the traditional notion that females are not producers; rather, both males and females are potential paddy producers. The adoption of innovations in the area of study has brought a new status to women of being valued as producers in paddy farming. Therefore, this circumstance improved women's position economically and socially in paddy farming communities.

Agricultural development practitioners, especially in relation to paddy production and processing, should create and raise awareness of the gender division of labour in paddy farming communities. Extension agents should further emphasize more adoption of innovations because it empowers women socially and economically in paddy farming. This can be achieved by delivering training on paddy production and processing whenever innovations are introduced to their areas.

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Appendices

Table 1. Multiple responses results on the gender division of labour in paddy farming (n=299)

Production/post-harvest activity	Responses (n)	Gender of the farmer							
		Male Adults		Female Adults		Male children		Female children	
		n	%	n	%	n	%	n	%
Bands construction/repair	202	183	90.6	37	18.3	8	4.0	6	3.0
Land preparation	167	149	89.2	39	23.4	5	3.0	0	0.0
Nursery bed preparation	248	206	83.1	116	46.8	8	3.2	10	4.0
Seeds preparation	262	185	70.6	154	58.8	3	1.1	9	3.4
Raising seeds in nursery	259	194	74.9	143	55.2	7	2.7	9	3.5
Uprooting of seedlings	200	109	54.5	153	76.5	3	1.5	7	3.5
Transplanting	294	119	40.5	269	91.5	43	14.6	45	15.3
Irrigation	222	177	79.7	72	32.4	7	3.2	7	3.2
Fertilizer application	207	167	80.7	94	45.4	5	2.4	5	2.4
Weeding	207	122	58.9	171	82.6	11	5.3	17	8.2
Birds scaring	297	136	45.8	240	80.8	192	64.6	86	29.0
Farm Security	299	255	85.3	61	20.4	204	68.2	53	17.7
Harvesting	297	225	75.8	279	93.9	75	25.3	71	23.9
Threshing	299	130	43.5	266	89.0	140	46.8	253	84.6
Winnowing	295	86	29.2	288	97.6	2	0.7	93	31.5
Spraying chemicals	298	295	99.0	16	5.4	5	1.7	0	0.0
Storage	299	299	100.0	53	17.7	3	1.0	2	0.7
Transporting to millers	299	299	100.0	34	11.4	4	1.3	3	1.0
Packaging	108	88	81.5	32	29.6	4	3.7	4	3.7
Transporting to marketplaces	114	93	81.6	31	27.2	2	1.8	1	0.9

Source: Field Survey (2016)

Table 2. Gender Roles among Adopters and Non-Adopters of Each Innovation

Innovation	Gender roles	Adoption category of farmers													
SRI		Non-adopters (n=151)						Adopters (n=148)						χ^2 value	p-values
		Males		Females		Both		Males		Female s		Both			
		n	%	n	%	N	%	n	%	n	%	n	%		
	Paddy production	76	50.3	35	23.2	40	26.5	50	33.8	23	15.5	75	50.7		
	Working as labourers	122	80.8	12	7.9	17	11.3	89	60.1	23	15.5	36	24.3	15.401***	0.000
	Financial management	89	58.9	35	23.2	27	17.9	69	46.6	25	16.9	54	36.5	13.140**	0.001
	Reproductive role (social) ^{ns}	8	5.3	136	90.1	7	4.6	3	2.0	131	88.5	14	9.5	4.670	0.097
PT		Non-adopters (n=159)						Adopters (n=140)							
	Paddy production	80	50.3	35	22.0	44	27.7	46	32.9	23	16.4	71	50.7	16.857***	0.000
	Working as labourers	125	78.6	12	7.5	22	13.8	86	61.4	23	16.4	31	22.1	11.031**	0.004
	Financial management ^{ns}	85	53.5	35	22.0	39	24.5	73	52.1	25	17.9	42	30.0	1.488	0.475
	Reproductive role (social) ^{ns}	3	1.9	148	93.1	8	5.0	8	5.7	119	85.0	13	9.3	5.428	0.066
WT		Non-adopters (n=283)						Adopters (n=16)							
	Paddy production ^{ns}	119	42.0	53	18.7	111	39.2	7	43.8	5	31.2	4	25.0	2.031	0.362
	Working as labourers	203	71.7	30	10.6	50	17.7	8	50.0	5	31.2	3	18.8	6.540*	0.038
	Financial management ^{ns}	150	53.0	56	19.8	77	27.2	8	50.0	4	25.0	4	25.0	0.258	0.879
	Reproductive role (social) ^{ns}	11	3.9	252	89.0	20	7.1	0	0.0	15	93.8	1	6.2	0.674	0.714
CRM		Non-adopters (n=246)						Adopters (n=53)							
	Paddy production ^{ns}	104	42.3	48	19.5	94	38.2	22	41.5	10	18.9	21	39.6	0.038	0.981
	Working as labourers ^{ns}	174	70.7	27	11.0	45	18.3	37	69.8	8	15.1	8	15.1	0.889	0.641
	Financial management ^{ns}	126	51.2	48	19.5	72	29.3	32	60.4	12	22.6	9	17.0	3.335	0.189
	Reproductive role (social) ^{ns}	9	3.7	221	89.8	16	6.5	2	3.8	46	86.8	5	9.4	0.580	0.748

Note: *** significant at $P < 0.001$, ** significant at $P < 0.01$, *significant at $P < 0.05$, ns non-significant

SRI=System of rice intensification, PT=Power tiller, WT=Wooden thresher, CRM=Combine rice mills

Source: Field Survey (2016)