



GENDER ANALYSIS ON SYSTEM OF RICE INTENSIFICATION (SRI) PRACTICES PARTICIPATION IN KANO STATE, NIGERIA

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ABSTRACT

The study examined gender analysis on system of rice intensification (SRI) practices participation in Kano State, Nigeria. Multi-stage sampling procedure was used in selecting 400 respondents. Data were collected using structured questionnaire and analysed using both descriptive and inferential statistics. The results revealed that, seed bed preparation (87.1%), seed selection (85.3%) and marketing (78.3%) were the major activities participated by the male farmers. However, the results also shows that 85.1% and 84.2% of the female farmers participated in seed selection and seed bed preparation, respectively. The results also indicated that 32.8% of the male farmer's sourced their seed from previous harvest; 20.8% from family members, 20.0% from fellow farmers (20.0%), while 34.5% the of the female farmers sourced their seeds from previous harvests. The result further revealed that majority (66.4%) of the male and (71.9%) of the female farmers practiced nursery transplanting. More than half (55.2%) of the male and a reasonable proportion (47.4%) of the female farmers used both organic and inorganic fertilizers. Furthermore, transplanting younger seedlings, transplanting single seedling and transplanting in wider spacing had high participation with 79.02%, 79.37% and 99.65% among the male farmers and 70.18%, 74.56% and 100.00% among the female farmers, respectively. The results of factors militating against farmer's participation in SRI practices revealed that Kaiser-Meyer-Olkin (KMO) sampling adequacy test mediocre of 0.50. Similarly, Bartlett's Test of Sphericity (BTS) which is significant ($p < 0.01$) revealed that there had been a relationship among the variables. Five factors with eigenvalue greater than one were identified as constraints to participation in SRI practices using Kaiser Criterion. The study concluded that there are gender differences and similarities in participation in System of Rice Intensification (SRI) practices in the study area with both male and female farmers actively involved in key stages such as seed bed preparation, seed selection, and transplanting. The study recommended improving access to high-quality certified seeds and strengthening gender-sensitive extension services with practical training on best practices.

Keywords: Female, Male. Participation, Practices and Rice.

INTRODUCTION

Rice (*Oryzasativa*) is a globally significant economic and staple food crop, providing nutrition and calories for over half of the world's population (Assaye *et al.*, 2023). In developing countries like Nigeria, rice plays a critical role in food security and economic livelihoods. It supports employment and income generation for more than 80% of the population through activities along its value chain, from input supply to consumption (Atere *et al.*, 2022). Although Nigeria has about 6 million hectares of arable land available for rice cultivation, only 3.2 million hectares are utilized, producing approximately 3.7 million tons of rice annually. Familusi and Oranu (2021) report that Nigeria's aggregate demand for rice is projected to reach 20 million tons



by 2030, while aggregate supply is estimated at 9 million tons, indicating a significant supply deficit that needs to be addressed.

Modern improved rice technologies, including the System of Rice Intensification (SRI), offer promising solutions to address this challenge. These technologies aim to enhance rice productivity through improved techniques and practices (Rehman *et al.*, 2016). SRI represents an innovative approach to rice cultivation that increases yields by 50-100%, using less water, fewer inputs, and lower costs of production. The six principles of SRI involve transplanting seedlings at a young age (8-12 days), planting single seedlings per hole, wider spacing in a square pattern, increased use of organic manure, alternate wetting and drying of fields instead of continuous flooding, and the use of a rotary weeder for weed control (Abu, 2018). This method harmonizes soil, water, light, and plant interactions, allowing rice plants to reach their full potential while requiring only 4-10 kg of seeds per hectare compared to 100 kg in conventional broadcasting methods (Toungos, 2018).

SRI practices not only boost yields but also provide economic benefits, enabling farmers to earn more income with reduced inputs. Despite its advantages, the adoption of SRI practices remains limited in many regions, underscoring the need for greater awareness and extension services to promote its use among farmers. Gender plays a significant role in the adoption of agricultural technologies, including SRI. Men and women farmers often have distinct roles and responsibilities in agricultural production systems, including rice farming, which influence their capacity and willingness to adopt new practices (Matilda *et al.*, 2020). Male farmers in particular often assume leadership roles in decision-making processes, including selecting suitable rice varieties and managing farm operations (Monica *et al.*, 2016).

Understanding the gender dynamics in SRI adoption is essential for improving rice production in Kano State, Nigeria. This study investigates the participation of men and women in SRI practices, focusing on the factors influencing adoption and the roles each gender plays. Despite the recognized importance of technology adoption in enhancing productivity among cereal farmers, limited research exists on the gender dimensions of SRI adoption in Kano State. Addressing this gap, the study aims to analyze gender-specific participation in SRI practices and provide insights into strategies for enhancing adoption among male and female rice farmers in the study area. Specifically,

- i. describe the activities participated by the respondents
- ii. identify the sources of seed for planting among the respondents
- iii. describe the components of SRI practices adopted by the respondents
- iv. identify the constraints to participation in SRI Practices among the respondents

MATERIALS AND METHODS

The Study Area

This study was conducted in Kano State, Nigeria. Kano State is located in Northern Nigeria and is one of the 36 States in the country. It lies within Latitude 10.25°N and 13.53°N and Longitude 7.4°E and 10.53°E. Kano State shares border with Katsina and Jigawa States to the North West and North East respectively, Kaduna and Bauchi States to the South. The State has a projected population of 15,462,200 people (NPC, 2024). The State has a total land area of 20,760 square kilometers (Tanko and Darma, 2022). Kano State has a total of 44 Local Government Areas (LGAs). Kano State experiences a semi-arid climate with distinct wet and dry seasons. The dry season typically lasts from November to March, characterized by hot days and cool nights. During

this period, harmattan winds, which are dry and dusty, blow across the region. The wet season spans from April to October, with rainfall peaking between June and September. Average annual rainfall in Kano state ranges from about 500 to 800 millimeters (Manpower, 2023). Kano State falls within the Sudan savannah ecological zone, which is characterized by grassland interspersed with scattered trees.

Sampling Procedure and Sample Size

Multi-stage sampling procedure was used in the selection of respondents for this study. In the first stage, three (3) LGAs were purposively selected for the field study due to the high number of systems of rice intensification farmers, namely; Gabasawa, Makoda and Warawa. In the second stage, two (2) wards were purposively selected from each of the L.G.A selected namely: Zakirai and Garundanga, Wailare and Babbanriga and Token A and Token B in Gabasawa, Makoda and Warawa LGAs, respectively, thereby making a sample of 6 wards. In the third stage, two villages were randomly selected from each of the 6 wards, namely; Joda, and Larabawa in Zakirai ward; Karmami and Kumbo in GarunDanga ward; Satame and Galoru in Babbanriga ward; Rimi and Wailare in Wailare ward; Laraban Gadon Sarki and Litau in Token A ward and Tsallaken Arewa and Molin in Token B ward, thereby making a sample of 12 villages. In the fourth stage, random selection of 5% of the sample frame from each village was used to select the sample size of 340 respondents. The sample size for each Local Government Area was determined by a mathematical formula given by Onyemmaet *al.* (2020) as;

$$n = \frac{N}{1+N(\alpha)^2} \quad \dots(1)$$

Where:

N = Sample frame for the twelve villages

n= Sample size

α = Margin of error (fixed at 5%)

$$n = \frac{N}{1+N(\alpha)^2} \quad n = \frac{6,210}{1+6,210(0.05)^2} \quad n = \frac{6,210}{1+6,210 \times 0.0025} \quad n = \frac{6,210}{6,211 \times 0.0025} \quad n = \frac{6,210}{15.52}$$

$$n = 400$$

Table 1: Sample Size Selection Plan

L.G.A.	Wards	Villages	Sample Frame	Sample Size
Gabasawa	Zakirai	Joda	1,050	67
		Larabawa	749	48
	GarinDanga	Karmami	561	36
		Kumbo	639	41
Makoda	BabbanRuga	Satame	726	46
		Galoru	549	35
	Wailare	Rimi	526	33
		Wailare	359	23
Warawa	Token A	Laraban G/Sarki	361	23
		Litau	230	14
	Token B	TsallakenArewa	310	19
		Molin	240	15
			6,210	400

Source: Author's computation

Method of Data Collection and Analysis

Data were collected using structured questionnaire. Data collected were analysed using descriptive and inferential statistics. Descriptive statistics such as mean, frequency distribution, percentage and ranking were used to achieve objective i, ii, and iii. The inferential statistics used factor analysis to achieve objective iv.

Factor Analysis Model

The model is specified is specified as:

$$Y_i = \beta_{i0} + \beta_{i1} F_1 + \beta_{i2} F_2 + \beta_{i3} F_3 \quad \dots(2)$$

Where:

Y_i = Standardized Variable

β_{i0} = Constant

β_i = factor loading. They tell us the correlation coefficient between each factor and the observed variables

$f_1 - f_n$ = factor score. They are values of each observation on the factor

RESULTS AND DISCUSSION

Activities participated by the respondents

The results in Table 2 revealed the various activities participated by the male and female respondents in the rice production, indicating their involvement in various stages of farming operations. Seed bed preparation (87.1%), seed selection (85.3%) and marketing (78.3%) were the major activities participated by the male respondents. This high percentage suggests that male farmers play a significant role in preparing the land for cultivation, which is a crucial step for ensuring healthy crop growth. The importance of selecting high-quality seeds is well recognized among the male farmers, which indicates their commitment to optimizing crop yields and maintaining quality standards. This high engagement in marketing highlights the role of male farmers not only in production but also in the economic aspects of farming, ensuring that their products reach markets for income generation. Leveling (73.8%) and ploughing (70.3%) were also common activities participated, indicating that men are actively involved in physically demanding tasks that prepare the soil for planting. This is followed by water management and the application of pesticides constituting 68.2% and 66.1% of the male respondents, respectively. Similarly, activities like harvesting (66.8%) and pest management (65.0%) reflect the roles of the male farmers throughout the crop cycle, from planting to harvest. The engagement in compost preparation and fertilizer application were further participated by the majority (63.6% and 59.1%) of the male respondents.

Meanwhile, threshing and drying were participated by less than half (46.5% and 42.3%) of the male respondents, respectively. Indicating that the male farmers were more involved in post-harvest operations, essential for preparing crops for storage or sale. This is consistent with the report from Oladele and Wakatsuki (2017) who reported that male farmers often dominate tasks related to land preparation and marketing due to their physical strength and control over financial resources. Their substantial involvement in water management and pesticide application also aligns with the research by Khondoker *et al.* (2018) and Akinnagbe and Ayibiowu (2020) which found that men are more likely to engage in activities that require physical labor and access to capital for purchasing inputs. Furthermore, the results revealed a high participation of seed selection and seed bed preparation by most (85.1% and 84.2%) of the female respondents. This indicates that women are equally knowledgeable about the importance of selecting quality seeds

to ensure successful crop growth. Leveling and ploughing activities were also participated by 76.3% and 75.4%, respectively, among the female respondents. Marketing was also a common activity among majority (75.4%) of the female farmers. Also, 66.7%, 68.4% and 72.8% participated in application of fertilizers, pesticides and pest management. While 71.9%, 69.3% and 66.7% of the female respondents also participated in compost management, water management and harvesting activities, respectively. Activities like threshing (98.2%) and drying (92.9%) had higher participation rates among the female compared to other activities while marketing was the least (21.9%) activity participated among the female respondents in the study area.

Table 2: Distribution of Respondents According to Activities Participated (n=400)

Activities	Male (n=286)		Female (n=114)	
	Frequency	Percentage	Frequency	Percentage
Seed selection	244	85.3	97	85.1
Seed bed preparation	249	87.1	96	84.2
Leveling	211	73.8	87	76.3
Ploughing	201	70.3	86	75.4
Sowing seed in nursery	136	47.6	49	43.0
Transplanting	125	43.7	37	32.5
Application of Fertilizer	169	59.1	76	66.7
Compost preparation	182	63.6	82	71.9
Water management	195	68.2	79	69.3
Application of pesticides	189	66.1	78	68.4
Pest management	186	65.0	83	72.8
Harvesting	191	66.8	76	66.7
Threshing	133	46.5	112	98.2
Drying	121	42.3	109	92.9
Marketing	224	78.3	25	21.9

Source: Field Survey, 2024

*Multiple response

Moreover, the low participation of the female respondents in marketing activities disagreed with Afolabi *et al.* (2023), who reported that women were actively involved in selling agricultural produce in Oyo State. The active participation of both male and female farmers across various agricultural activities suggests that both genders are integral to farming operations and that their roles are complementary. This involvement across multiple stages of crop production, from seed selection to marketing, indicates a strong potential for adopting improved farming practices, such as the System of Rice Intensification. The engagement in critical tasks like seed bed preparation, pest management, and water management, are core components of SRI, highlights the capability and readiness of farmers to implement these practices. However, while male and female farmers participate in similar activities, there is high participation in threshing and drying by the female respondents.

Sources of seed for planting among the respondents

The results in Table 3 indicated the different sources of seeds of the male and female respondents for planting. For the male respondents, the common source of seeds was from their previous harvest, with 32.8% of males relying on seeds saved from earlier seasons. This practice suggests a tendency toward self-reliance and continuity in using familiar seed varieties that have performed well in the past. The reliance on seeds from previous harvests is consistent with findings from Adeoti and Adeyemo (2014), which indicate that farmers often prefer to use saved seeds due to their availability and cost-effectiveness, despite the potential drawbacks related to seed quality and reduced crop yields. The next most common sources were family members (20.8%) and fellow farmers (20.0%). This reliance on informal networks highlights the importance of social

connections and trust in the agricultural community when it comes to seed sourcing. The sharing of seeds among family and fellow farmers can enhance social bonds and knowledge exchange but may limit the introduction of improved or high-yielding seed varieties that are critical for boosting productivity. Similarly, seeds sourced from the open market, friends and purchased from seed companies accounted for 12.0%, 9.8%, and 4.8% of the male respondents, respectively in the study area. The low percentage for seed companies indicated limited access or preference for certified seeds, which could be due to cost, lack of awareness, or distrust in formal seed systems.

Among the female respondents, the most common source of seeds was also from previous harvests, with 34.5% relying on it. This aligns with the findings of Mvumi *et al.* (2018), which suggest that women in rural farming communities often prioritize using saved seeds due to economic constraints and the need to ensure a steady supply for future planting seasons. This practice, while economical, might limit exposure to improved seed varieties that could enhance productivity and resistance to pests and diseases. Seeds sourced from fellow farmers were the second most common choice among the female respondents, accounting for 22.8%. Similarly, 20.3%, 10.5%, and 9.3% of the female respondents sourced seed from family members, open market, and friends while only 2.8% sourced seed from seed companies indicating a lower access of women to seed companies. The findings indicated a reliance on informal seed systems among both male and female respondents, with a preference for seeds saved from previous harvests and those acquired from family, friends, and fellow farmers. This trend is in line with studies by Afolabi *et al.* (2023) and Asfaw and Admassie (2017), which highlighted the role of informal seed systems in developing countries due to their accessibility, low cost, and the strong social networks that facilitate seed sharing. However, this reliance on informal sources may pose challenges for the adoption of improved seed varieties, such as those promoted under the System of Rice Intensification (SRI), which often require high-quality, certified seeds for optimal results.

Table 3: Distribution of Respondents according to Sources of Seed for Planting

Variables	Male (n=286)		Female (n=114)	
	Frequency	Percentage	Frequency	Percentage
Source of seed				
Open market	48	12.0	42	10.5
From previous harvest	131	32.8	138	34.5
From friends	39	9.8	37	9.3
From family members	83	20.8	81	20.3
Seed company	19	4.8	11	2.8
Fellow farmers	80	20.0	91	22.8
Source of labour				
Family labour	75	18.8	68	17.0
Hired labour	262	65.5	265	66.3
Communal labour	10	2.5	10	2.5
Group labour	53	13.3	57	14.3

Source: Field Survey, 2024

*Multiple response

The results in Table 3 further revealed the distribution of respondents according to sources of labour. The results revealed that majority (65.5%) of the male respondents relied on hired labor for their farming activities. This high reliance on hired labor suggests that the male farmers might manage larger farm sizes or require more intensive labour than what family labor can provide. This finding aligns with Jibrin *et al.* (2021), who noted that hired labor is often preferred for tasks needing physical strength and expertise. The use of hired labor also implies that the male farmers may have sufficient financial resources or access to credit facilities, indicating potential economic

stability within their farming operations. Family and group were also other sources utilized by 18.8% and 13.3%, while only 2.5% of the male respondents used communal labour respectively.

Similarly, majority (66.3%) of the female respondents also depended on hired labour, indicating that women, like men, require additional help beyond family members for their farming tasks. This agreed with Njuki *et al.* (2019), who reported that women often hire labor due to their dual roles in farm and household activities. Family labor was utilized by 17% of the female respondents, slightly less than their male counterparts. Group labour was used by 14.3% of the female respondents, indicating a relatively higher inclination towards community cooperation compared to males. This preference for group labor may provide social and emotional support, essential for female farmers balancing multiple roles. Communal labour was also the least common among the female respondents, used by only 2.5%, showing a decline in traditional labour-sharing practices and a shift towards more independent and efficient farming methods. These findings revealed that both male and female farmers predominantly rely on hired labor, highlighting the commercialization and scale of agricultural activities.

Respondents' type of planting and fertilizer used

Table 4 revealed that majority (66.4%) of the male respondents practiced nursery transplanting as their primary planting method. This preference suggests that male farmers favor techniques that could enhance seedling survival rates and optimize land use efficiency, potentially leading to higher crop yields. Nursery transplanting is generally associated with better crop management, which could result in improved productivity. This finding aligns with studies by Rahman and Adedoyin (2020), who reported that nursery transplanting, is often preferred for crops that require careful handling and protection during the early stages of growth. Direct planting was adopted by 21.3% of the male respondents. Only 12.3% of the male respondents utilized both transplanting and direct methods, indicating flexibility and adaptability in their farming practices to optimize different conditions and crop types. Meanwhile, majority (71.9%) of the female respondents also practiced nursery transplanting which allows for better control over the early growth stages of crops, which is crucial for women farmers who often juggle multiple responsibilities. Direct planting was adopted by 17.5% of the female respondents, followed by 10.6% who utilized both methods.

Regarding the fertilizer usage, more than half (55.2%) of the male respondents utilized both organic and inorganic fertilizers. This mixed approach indicates an effort to balance the benefits of organic fertilizers, such as improved soil structure, with the faster nutrient release of inorganic options. The combined use suggests a strategic approach to maximizing crop yields while maintaining soil fertility. This is supported by the report of Umar and Haruna (2021), which highlighted the effectiveness of integrated nutrient management practices.

Table 4: Distribution of Respondents According to Type of Planting and Fertilizer Used

Variable	Male (n=286)		Female (n=114)	
	Frequency	Percentage	Frequency	Percentage
Type of planting used				
Direct planting	61	21.3	20	17.5
Nursery transplanting	190	66.4	82	71.9
Both	35	12.3	12	10.6
Type of fertilizer used				
Organic fertilizer	107	37.5	48	42.1
Inorganic	21	7.3	12	10.5
Both	158	55.2	54	47.4

Source: Field Survey, 2024

Organic fertilizer was used by 37.5% of the male respondents, reflecting an increasing awareness of sustainable farming practices. Inorganic fertilizer was used by only 7.3% of the male respondents.

Similarly, a reasonable proportion 47.4% of the female respondents used both organic and inorganic fertilizers, which demonstrates an understanding of the benefits of integrating organic and inorganic inputs for sustainable crop production. Organic fertilizer was used by 42.1% and 10.5% relied solely on inorganic fertilizers.

Components of SRI practices adopted by the respondents

The results in Table 5 revealed the distribution of respondents according to components of SRI practices adopted among the male and female rice farmers in the study area. The results revealed that plant management practices which comprise of transplanting younger seedlings, transplanting single seedling and transplanting in wider spacing had high adoption level with 79.02%, 79.37% and 99.65% among the male farmers and 70.18%, 74.56% and 100.00% among the female farmers, respectively. Similarly, soil management practices which comprise use of organic fertilizer and rotary weeding had low adoption level with 37.41% and 27.97% among the male farmers and 42.10% and 28.94% among the female farmers, respectively. The results further showed that the component of water management practice i.e alternate wetting and drying had high adoption level among the male (94.76%) and (75.44%) among the female farmers, respectively. The adoption of plant and water management practices highlights a positive trend towards optimizing rice yield in SRI. The results is in line with the findings of Ibrahim (2023) on the study of potential adoption of SRI among farmer-field school participants in Bakalori irrigation scheme in Zamfara State who reported that majority of the SRI practices recorded high adoption rate

Table 5: Distribution of Respondents According to Components of SRI Practices Adopted

Variables	Male (n=286)			Female (n=114)		
	Freq.	%	Remark	Freq.	%	Remark
Plant management						
Transplanting younger seedling	226	79.02	High	80	70.18	High
Transplanting single seedling	227	79.37	High	85	74.56	High
Transplanting in wider spacing	285	99.65	High	114	100.00	High
Soil management						
Use of organic fertilizer	107	37.41	Medium	48	42.10	Medium
Rotary weeding	80	27.97	Low	33	28.94	Low
Water Management						
Alternate wetting and drying	271	94.76	High	86	75.44	High

Source: Field survey, 2024

*Multiple response

Constraints to participation of SRI Practices among the respondents

The results presented in Table 6 revealed the factors militating against respondent's participation in SRI practices. Sixteen perceived constraints were identified. The Kaiser-Meyer-Olkin (KMO) sampling adequacy test resulted in a mediocre 0.50. Similarly, Bartlett's Test of Sphericity (BTS) which is significant ($p < 0.01$) revealed that the correlation matrix was not an identity matrix, indicating that there had been a relationship among the variables. Five factors with

eigenvalue greater than one were identified as constraints to participation in SRI practices using Kaiser Criterion. The explainable five components explained 67.3% of the overall variance. Any factor with value of the loading less than 0.3 was not loaded.

The first factor which is labeled socio-economic constraint with variance of 3.82 percent was loaded with three challenges namely; age, sex and marital status. This finding indicated that older farmers might face barrier to the adoption of SRI practices. Sex and marital status were also significant constraints indicating that gender-specific issues and family responsibilities might limit women's ability to engage and adopt SRI practices. The second factor labeled economic constraint with variance of 3.58 percent was loaded with three challenges as well, high cost of labour, poor output price and low net gain. This finding agreed with Onubogu (2023) who reported that economic constraints are the major hurdles for smallholder farmers. The third factor which is the environmental constraint with variance of 3.33 percent was loaded with four challenges; unreliable water supply, plant diseases, salinity and weed infestation. This advocated for more trained extension services and research into better ways to deal with weed infestation and plant diseases.

The fourth factor which is labeled technical constraint with an explained variance of 2.91 percent was loaded with four challenges; incompatibility with existing practices, inadequate maintenance of machine, difficulty in transplanting young seedlings and difficulty in machine operation. The fifth factor labeled institutional constraint with variance of 2.36 percent was loaded with two challenges, namely; poor marketing channel and poor information services. The result corroborates the findings of Abdulaziz *et al.* (2021) who found out that poor marketing channel was a major constraint affecting rice farmers in Kano river irrigation.

Table 6: Factors Militating the Respondents' Participation in SRI Practices

Constraints	Socio-economic	Economic	Environmental	Technical	Institutional
Age	0.43				
Sex	0.42				
Marital status	0.42				
High cost of labour		0.44			
Poor output price		0.42			
Low net gain		0.42			
Unreliable water supply			0.53		
Plant diseases			0.52		
Salinity			0.49		
Weed infestation			0.43		
Incompatibility with existing practice				0.49	
Inadequate maintenance of machine				0.48	
Difficulty in transplanting young seedlings				0.43	
Difficulty in machine operation				0.44	
Poor marketing channel					0.42
Poor information services					0.42
Eigenvalue	2.57	2.41	2.24	1.96	1.59
Percent of variance	3.82	3.58	3.33	2.91	2.36
Kaiser-Meyer-Olkin Test	0.50				
Bartlett's Test of Sphericity	658.6***				

Source: Field Survey, 2024. ***Mean significant at 1 percent probability level



CONCLUSION AND RECOMMENDATIONS

The study concluded that there are significant gender differences and similarities in participation in System of Rice Intensification (SRI) practices among the respondents in the study area. Both the male and female farmers actively participate in critical stages of rice farming, with notable contributions to seed bed preparation, seed selection, and transplanting, while men dominate physically demanding and economically strategic roles like marketing and ploughing. However, constraints such as limited access to certified seeds, reliance on informal seed systems, and labour challenges hinder optimal adoption of SRI practices. The study recommended that;

- i. Efforts should focus on improving access to high-quality, certified seeds for both male and female farmers. This can be achieved through targeted subsidies, local seed distribution centres, and awareness campaigns about the benefits of improved seed varieties for better yields and resistance to pests and diseases.
- ii. Gender-sensitive extension services should be strengthened to address specific needs and roles of male and female farmers in SRI practices. Training programmes should include practical demonstrations of best practices in seed selection, transplanting, and fertilizer application to enhance adoption rates.
- iii. Providing affordable mechanization services and labour-saving technologies can alleviate the reliance on hired labour, particularly for tasks requiring physical strength.
- iv. Informal seed systems play a vital role in seed sourcing but should be supported by quality assurance mechanisms. Introducing community-based seed production and certification programs can improve the quality of seeds circulated within these networks, thereby supporting better crop performance under SRI practices.

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