Rice Varietal Assessment for Climate Change Adaptation from Socioeconomic Point of View: A Study in Myitthar Township

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Abstract

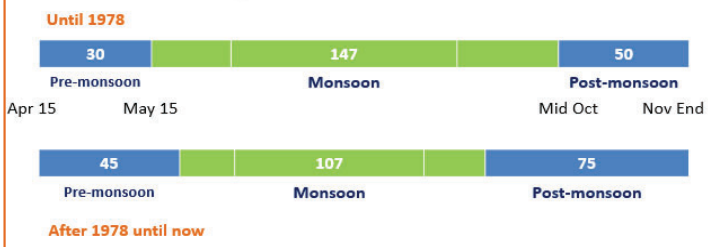
Myanmar is the second most vulnerable country in the world to the effects of climate change. Agriculture is highly vulnerable to climate change. The study was carried out in Myitthar Township, a major rice-growing area in the middle of Myanmar and most of the rice areas are irrigated. Primary data were collected by conducting a socioeconomic survey. Descriptive analysis and cost and benefit analysis were applied. More than 95 percent of the farmers adopted the strategy to use quality seeds. However, changing the sowing time was adapted by 27% of them, only. The most preferred traits of rice variety were high yielding and high marketability. In Monsoon, direct-seeded Ayeyarmin got the highest BCR (1.75) and transplanted Manawthukha variety yielded the highest BCR in Summer (1.70). The study area was irrigated rice-growing area that farmers have not suffered much from climate change impacts in rice production yet, which implies the irrigation facilities are essential for climate change adaptation strategy.

Keywords: farmers' knowledge, climate change adaptation, rice variety, irrigation facilities

Introduction

Small holder farmers are more vulnerable than the others and very difficult to cope with hazards of climate change and variability. Climate change expressed in high temperature, frequent floods, unpredictable onset and retreat of rains and droughts and which posed constraints on agriculture. Adaptation is rapidly becoming one of the policy options to reduce the negative consequences. Rice remains the staple food in Myanmar. Myanmar is the world's sixth-largest rice producing country.

Change in Monsoon Season



Source: Dr. Tun Lwin's Presentation

Objectives

- To find out farmers' knowledge to respond the climate change impacts
- To find out location-specific climate resilient adaptation technologies in rice farming
- To find out the desired characteristics of chosen rice varieties
- To estimate cost and benefits of different rice production systems for chosen varieties

Methodology

This study was conducted in Myitthar Township, Mandalay Division Myanmar. The data used for the study were obtained from both primary and secondary sources. Simple random sampling technique were employed for selecting the respondents. Descriptive analysis and cost and benefit analysis were used to analyze the socioeconomic characteristics of the respondents.

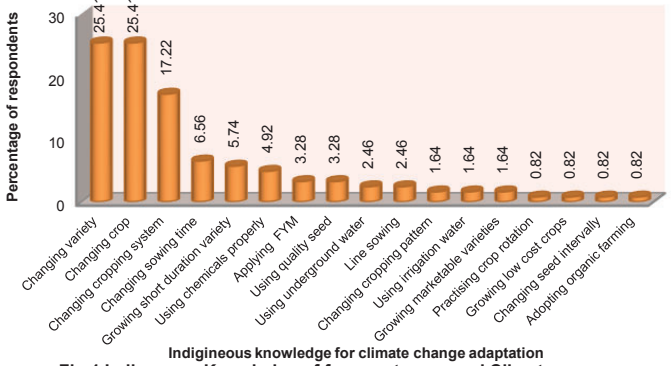


Fig.1 Indigenous Knowledge of farmers to respond Climate Change impacts (n=122)

Table Climate Change Adaptation Strategies Practiced by Farmers in Myitthar Township(n=122)

No.	Adaptation Strategies	Frequency	Percent(%)
1	Using quality seeds	115	95
2	Using fertilizers	108	89
3	Putting Farmyard Manure	98	81
4	Changing crop	98	81
5	Changing varieties	96	79
6	Practicing crop rotation	92	76
7	Changing cultural practices	91	75
8	Using traditional varieties	43	36
9	Using underground water	38	31
10	Changing sowing time	33	27

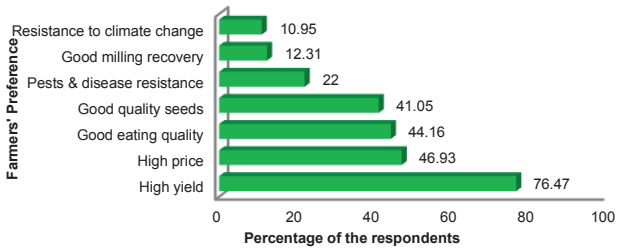


Fig. 2 Farmers' Preference on Rice Variety Traits(n=122)

Cost and Benefit Analysis (BC Ratio) of Monsoon Rice Varieties by Establishment Method

Name of Varieties	Transplanting Method	Direct Seeding Method
Manawthukha	1.37	1.59
Shwe Manaw	1.65	1.72
Ayeyarmin	1.57	1.75

Cost and Benefit Analysis (BC Ratio) of Summer Rice Varieties by Establishment Method

Name of Varieties	Transplanting Method	Direct Seeding Method
Manawthukha	1.70	1.64
Shwe Manaw	1.09	-
GW1	2.16	-
Ayeyarmin	1.44	-

Conclusion & Recommendation

- Highly yielding character is mostly favoured
- In monsoon, the DSR method yielded higher BC ratio for all chosen varieties.
- In summer, farmers did not practice direct seeding method much because they have irrigation water to manage their nursery
- The irrigation facilities are essential for climate change adaptation strategies.