



Economic and social issues for fertiliser decisions of smallholder farmers in Myanmar

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Introduction

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- The Australian Centre for International Agricultural Research (ACIAR) has funded a project “Management of nutrients for improved profitability and sustainability of crop production in Central Myanmar”
- Project Areas: 2 sites in Zeyarthiri, Tatkone and Taungoo Township
- Survey Dates: 9–11 March 2017
- 18 workshops were
- Total farmers → 156 (20 females)

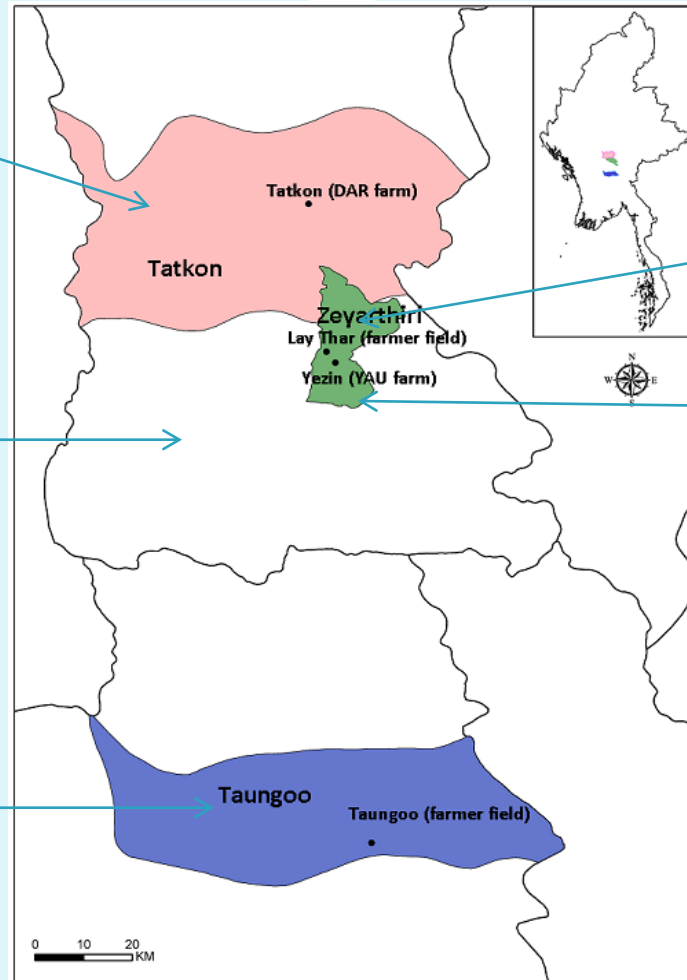
Project Sites

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Tatkon Township

Zeyarthiri Township

Taungoo Township



Yezin

Lathar

Fertilizer Use in Myanmar

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Fertilizer Consumption by Country

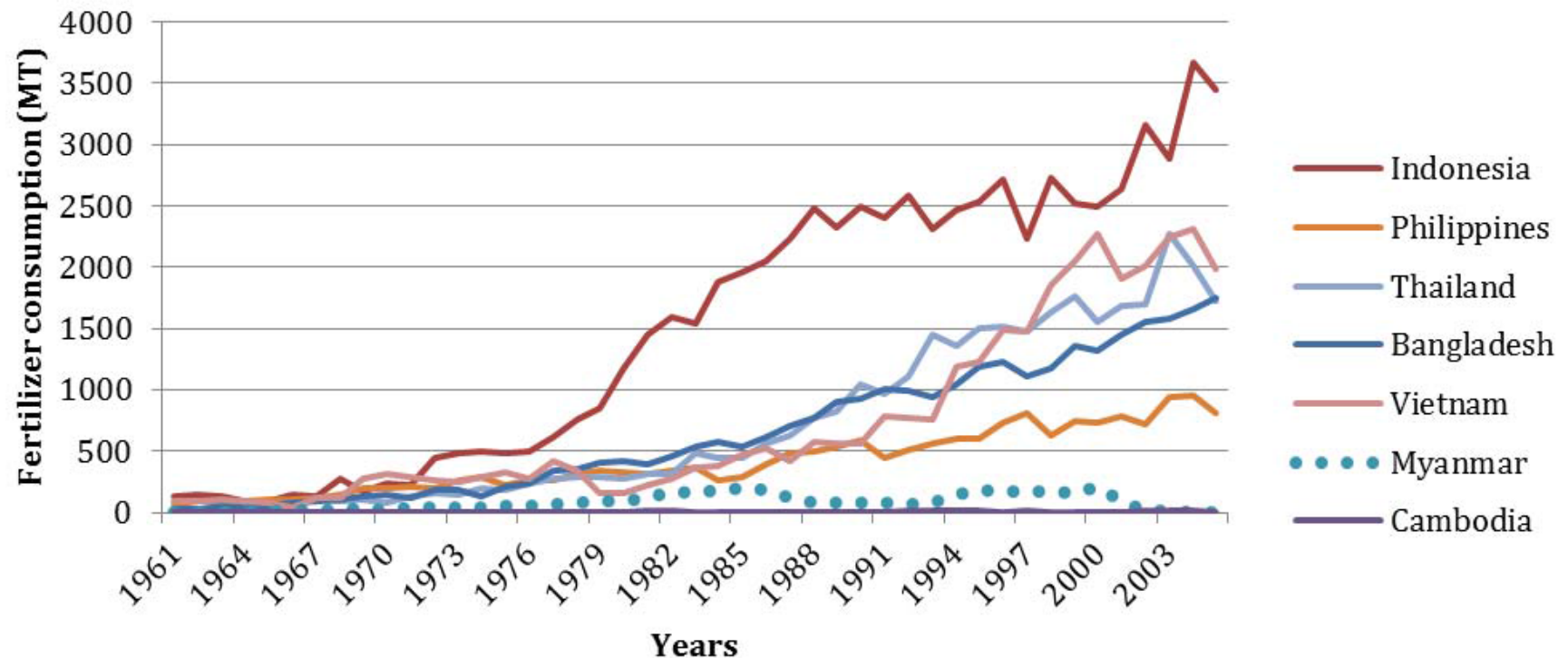


Figure 1. Total fertilizer consumption from chemical sources ('000 MT) by selected country

Source: IRRI World Rice Statistics,

Project objectives

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- Establish the **bio-physical basis for appropriate fertiliser use** for rice and maize crops in central Myanmar;
- Determine and **address economic and policy related constraints** to adoption of improved rice and maize production by fertilisation;
- **Build capacity** for the long-term improved nutrient management at the farm level, through training of Yezin Agricultural University (YAU) staff; and
- Develop **decision support systems** for rice and maize in central Myanmar and for intensive vegetable production in Victoria, Australia, by integration of the results of the bio-physical and socio-economic subprojects.

Socio-Economic Group

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The Socio-Economic (SE) subproject (objective 2)

“What are the economic and social contexts and incentives to appropriately increase fertiliser inputs?”

Research Questions

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- Myanmar smallholder farmers use low amounts of fertiliser
- Have relatively low crop yields
- Expectation → Improved fertility management can increase yield/food security/ farm income/ and reduce poverty.
- Is this simple thinking realistic?
- **What is the economic and social context for farmer crop-fertiliser decisions?**

Socio-Economic activities

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- Two initial activities
- Focus Group Workshops (FGWs) with smallholder farmer groups in villages surrounding the project trial sites
- Conduct a Baseline Survey (BLS) of villages surrounding the trial sites

Focus Group Workshops

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The overall objectives

- To investigate Myanmar smallholder farmer perceptions of their farming systems and family livelihood decisions, and
- To determine their knowledge, understanding and attitudes to crop production and fertiliser use.
- To find out other aspects of their production systems such as the climate, water, crop varieties and labour/mechanisation

Six questions

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- Description of farm – crops (and varieties), livestock, cropping patterns, irrigated or rain-fed
- Important issues with his/her farms and their perceptions
- Information on farm decisions
- Information sources: Other farmers, Government extension officers, Non-Government Organisations (NGO), or retailers/shops for fertiliser and seeds
- Objectives of doing farming and their motivations or priorities
- Farm family members who work off the farm or migrants
- Any remittances
- Opinion on the climate (getting worse or better / drier or wetter / colder or hotter?)
- Crop failure and causes
- Knowledge about fertiliser utilization concepts

Findings from FGDs: Crops Diversity

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- Expected cropping patterns: mainly rice—irrigated rice, or maize—legume
- Field Observation: rice, maize, legumes (lablab, black gram, groundnut, green gram, and chickpea), vegetables (onion, chili, tomato, potato, cabbage, sweet corn, eggplant, and radish), fruits (banana, watermelon) and others (sesame, sugar cane).
- Diversifying out of the traditional crops into more profitable crops.
- Rice is still the major crop in central Myanmar

Important issues

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Overall issues in the economics of agricultural production:

- instability in crop profits –
- price fluctuation (market instability),
- weather fluctuation (crop yields decline) and
- the need for improved technology to increase crop returns.
- Limited capital
- Shortage of irrigation water
- High fertilizer prices
- Low level of farm mechanization

sources of information

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Major Sources of Information:

- Ask each other (Farmer to farmer)
- Seed/fertilizer companies and fertilizer shops
- DOA staff and field days were not mentioned positively, with some farmers stating they did not listen to DOA advice.

Motivations and priorities

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- Profits
- Sustaining livelihoods,
- Family consumption and farming heritage.
- Major off-farm works:
 - farm labourer, casual work, construction,
 - Migrant workers in Singapore, Thailand and Malaysia,
 - Carpentry, mining, driving
 - The young women worked on farms
 - Off-farm: in garment industry, and as maids
 - The daily wage rate → 4,000 – 5,000 (MMK) (1,400 MMK ~ US\$1).
 - Remittance → 100,000 MMK per month (Malaysia) to 200,000 – 300,000 MMK per month (Thailand and Singapore).

Perspectives on Climate Change

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- Irregular weather patterns such as sudden heavy rainfall during harvesting time and drought during cultivation time (Sein Sar Pin)
- Pest and disease outbreaks after rain
- the yield of crops has declined over the last 10 years (Lay Thar and Moon Te Kwin)
- Extreme heat conditions
- Have general knowledge on El Niño having weather patterns with extreme heat and extreme cold conditions.
- (very risky that reluctant to put more inputs → low yield and more debts)

Knowledge about Chemical Fertilizers

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- Highly aware that fertilizer can increase crop yield
- Used Urea, Compound fertilizers (15:15:15), and basal fertilizer. Mostly used fertilizer brands: Armo and Awba, and from China.
- Use more pesticides than fertilizers.
- Some rarely use fertilizer because there is no water, because of climate change or because of market price instability.
- Decision about how use of fertilizer:
 - Depend on plant condition (their experience and knowledge gained from trainings)
 - Recommended by fertilizer company agents tell them how much to use.
 - Purchased fertilizer on credit – no contracts/based on trust.

Results from BLS:

Farm characteristics and cropping patterns



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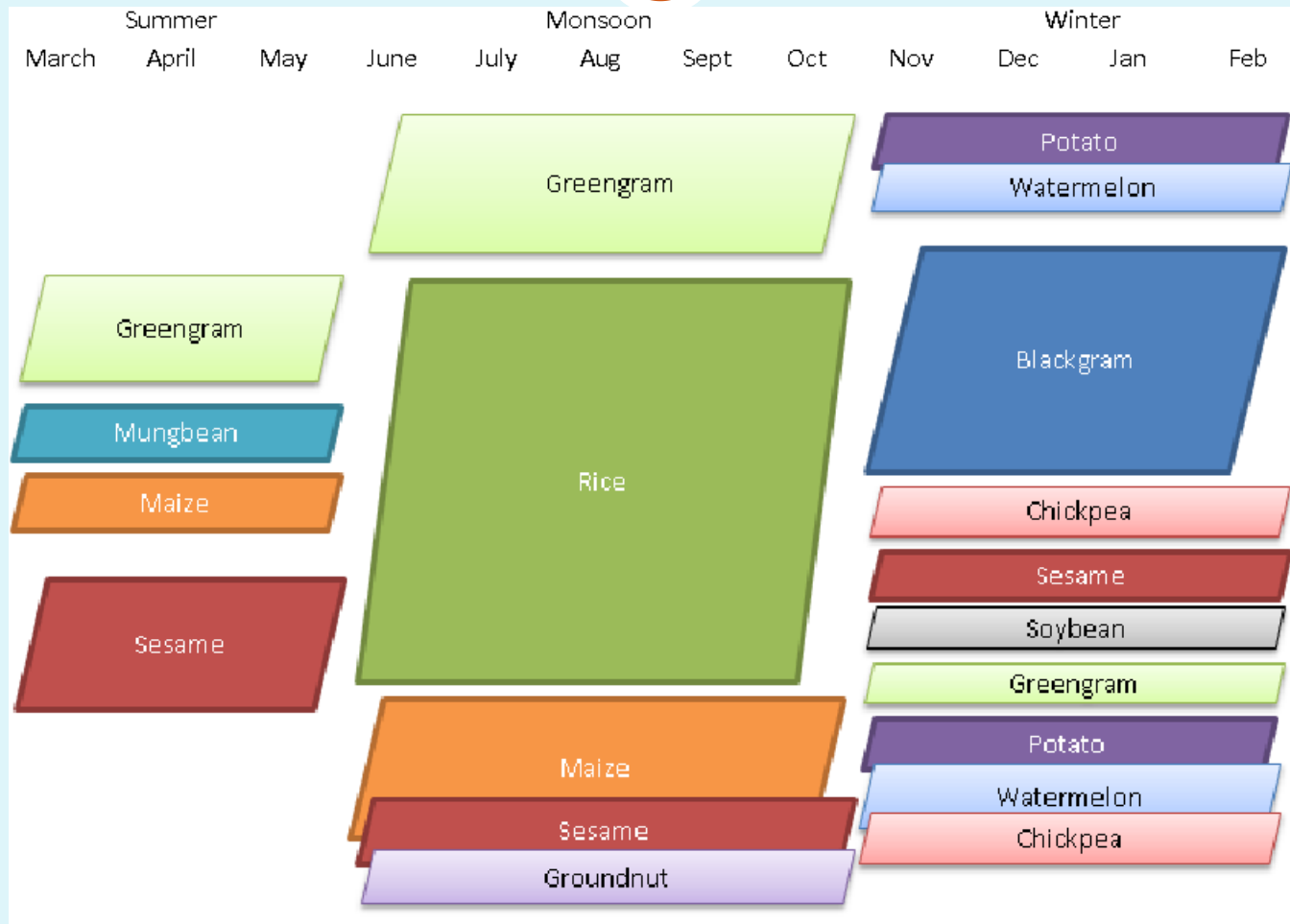
Average Farm Size in each Township

Township	Responses	Size	
		Acres	Hectares
Tatkone	82	7.46	3.02
Taungoo	81	10.13	4.10
Zeyarthiri	72	6.07	2.46



Observed Cropping Patterns in Tatkon Tsp

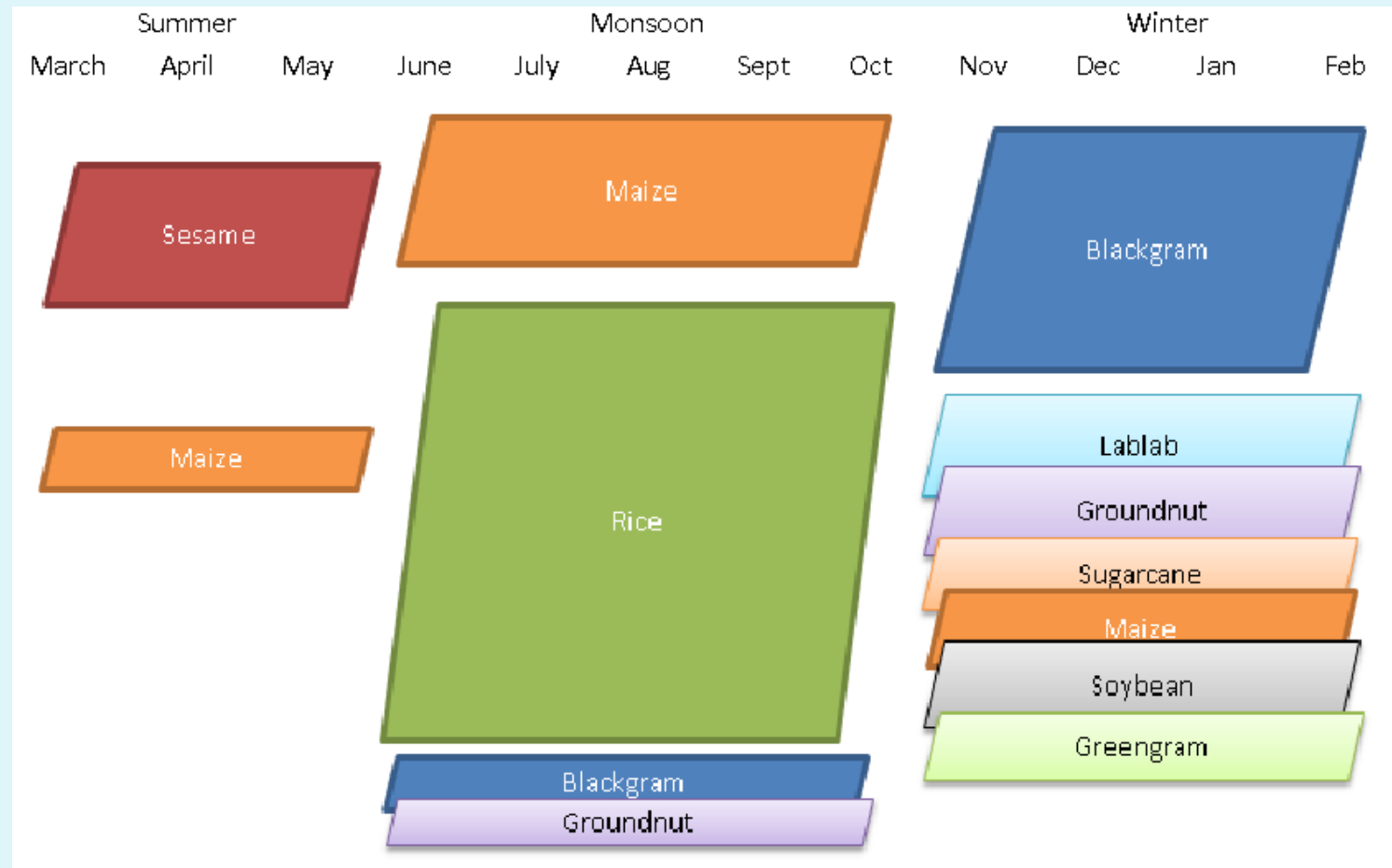
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Observed Cropping Patterns in Zeyar Thiri Tsp

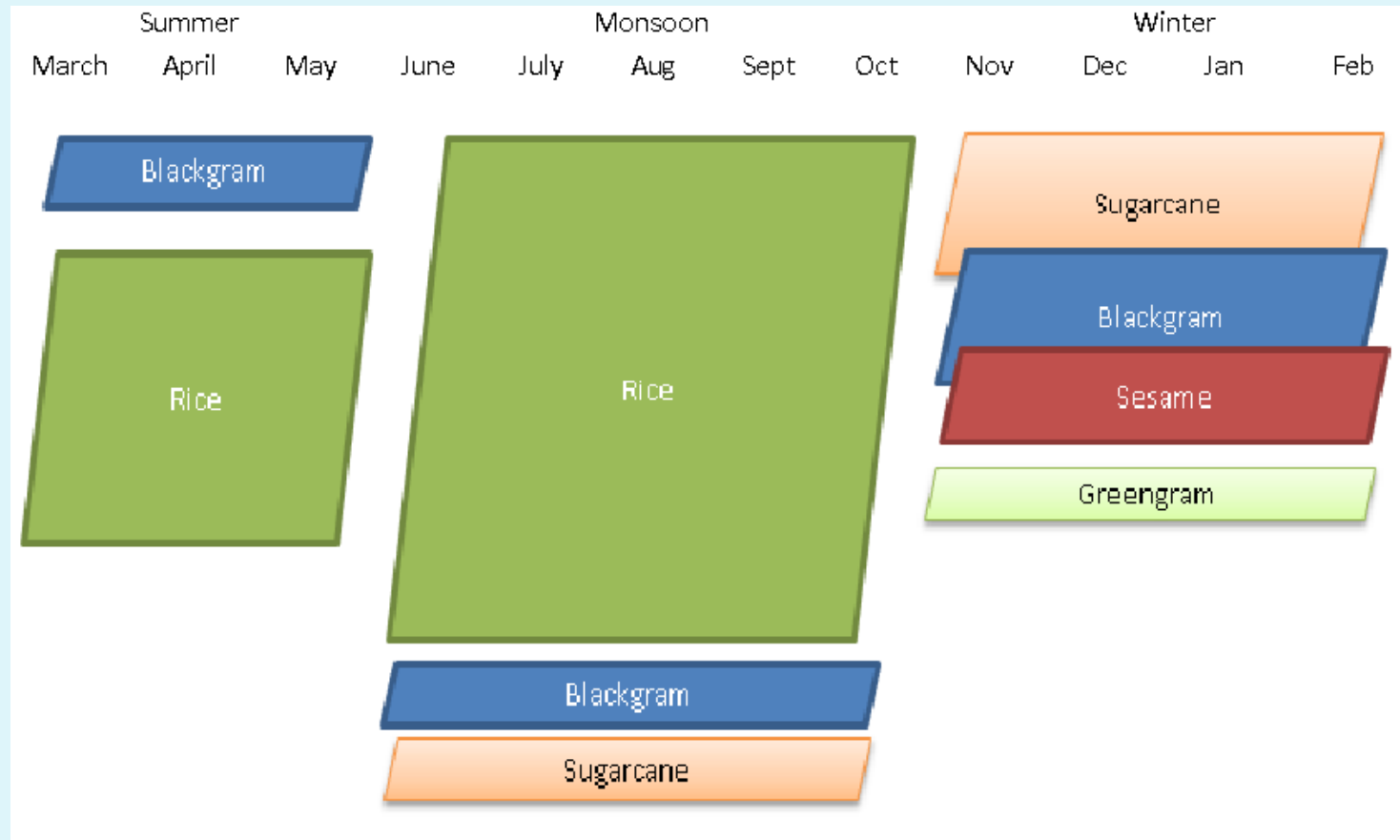
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Observed Cropping Patterns in Taungoo Tsp

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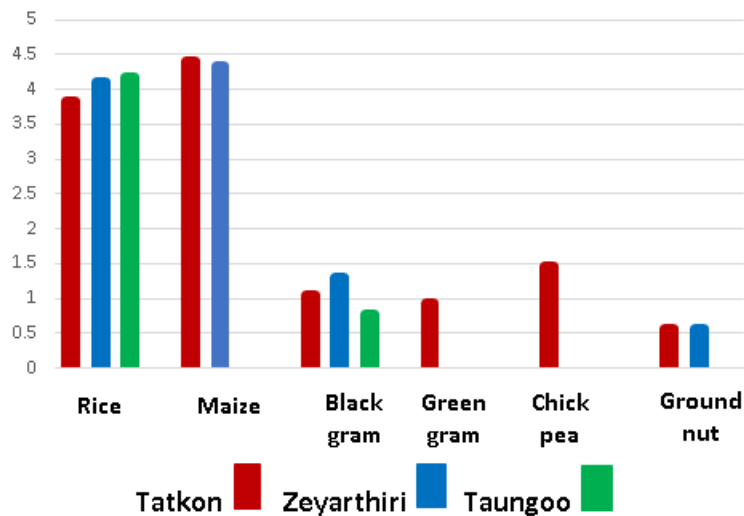


Crop yields and prices received

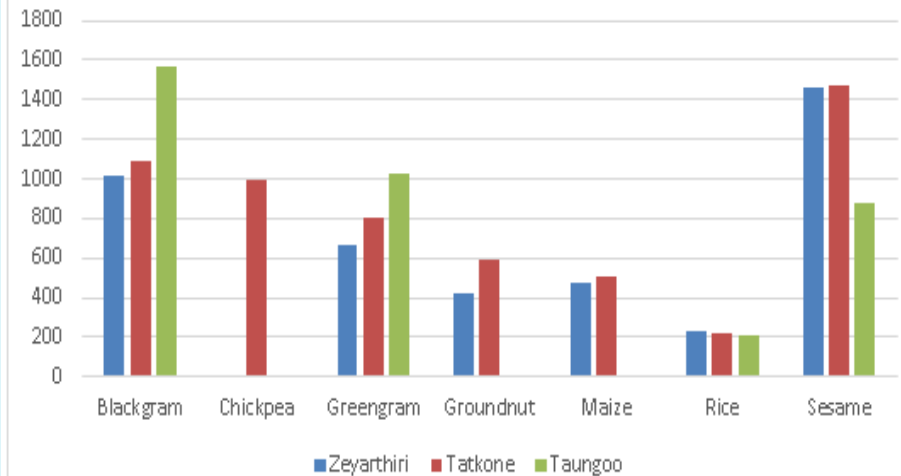


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Crop Yield (t/ha)



Product Price of Crops (AUD/tonne)



Fertilizer use by crop and season

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Crop	Season	Fertilizer type	
		Urea	Compound
		Kg/ha	Kg/ha
Rice	Monsoon	18	11
Maize	Monsoon	16	14
Black Gram	Winter	0	1
Green Gram	Monsoon	1	2
Sesame	Monsoon	2	2
Chickpea	Winter	0	1

Conclusions

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Myanmar smallholder farmers in these townships are very interested in improved cereal crop management.

This interest encompasses soils, agronomy, climate, varieties and economics.

The evidence is that fertilizer applications to cereal crops is not substantial.

Further assessment of these results is warranted.

***THANKS FOR
YOUR ATTENTION!***

