Report

On

Field visited to follow up the trial implemented by RUA team

08 June 2023

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I. Introduction

The Cambodian Agricultural Research and Development Institute (CARDI) and the Royal University of Agriculture (RUA) are currently engaged in a series of replicated experiments investigating seasonal soil, water availability for a perennial forage rotation in sand textured soils across a toposequence. Long term experiments were established in two locations: 1) Tramkak district, Takeo province and 2) Samrong Tong district, Kampong Speu province. The investigation is underway in both locations in which Takeo province has a history of forage research and adoption, and from Kompong Speu province, without a background of forage intervention. The involvement of these two contracting communities in the project provided the context for a farmer exchange visit in May 2018. The visit introduced farmers from Samrong Tong, who are newly exposed to forage growing through their participation in the above-mentioned experiments, to forage growers in Takeo who are established and successful, so that those from Samrong Tong could learn from their experience and better understand the potential for forage-growing. In 2019, new sites were added and a second forage variety was included to replace the upland cropping systems that were limited by the constraints of experimental management.

1.1. Objective

The objectives of this field visited in Kampong Speu are

- To follow up the over view of all trial
- To observe any significant in term of with or without lime application on soil pH and farmer practice
- To observe any different on application P and S on the farmer practice
- To observe any stored water in the sand textured soil profiles

1.1.1. Timeframe

- The field visited was conducted on 08 June 2023

1.1.2. Location

The visited was conducted in Samroung Tong district, Kampong Speu province under responsible by RUA team to follow up the forage trials.

1.1.3. Participants in the field visited

A total of 10 participants came from project partners such as

- Australian: 2 persons (Prof Matt and Dr Josh)
- CARDI: 2 persons (Mr Veasna and his colleague)
- RUA: 5 persons (Dr Chanthy and his 4 students)
- LDC: 1 person (Dr Chhay Ty)

1.1.4. The experiment

Three experiments were conducted with the soil pH below 5.7 (pH<5.7) and above 6 (pH>6). The detail of each treatment showed in table below

Table 1: Effect of adding lime and K S on biomass of hybrid Molato II and Paspalum for the soil pH<6		
Experiment	**Basal fertilizer**	**Fertilizer application in each harvest**
Farmer practice	- Cow manure: 6.25t/ha - Chemical fertilizer: 15-15-15: 625kg/ha	Urea: 125kg/ha
Farmer practice + K + S	- Cow manure: 6.25t/ha - Chemical fertilizer: 15-15-15: 625kg/ha	Urea: 125kg/ha K (0-0-60): 51kg/ha S (0-0-17S): 59kg/ha
Farmer practice + Lime	- Cow manure: 6.25t/ha - Chemical fertilizer: 15-15-15: 625kg/ha - Lime: 3t/ha	Urea: 125kg/ha
Farmer practice + Lime + K + S	- Cow manure: 6.25t/ha - Chemical fertilizer: 15-15-15: 625kg/ha - Lime: 3t/ha	Urea: 125kg/ha K (0-0-60): 51kg/ha S (0-0-17S): 59kg/ha

Table 2: Effect of adding K and S to the farmer practice on the biomass of hybrid Molato II and Paspalum for the soil pH>6		
Experiment	**Basal fertilizer**	**Fertilizer application in each harvest**
Farmer practice	- Cow manure: 6.25t/ha - Chemical fertilizer: 15-15-15: 625kg/ha	Urea: 125kg/ha
Farmer practice + S	- Cow manure: 6.25t/ha - Chemical fertilizer: 15-15-15: 625kg/ha	Urea: 125kg/ha K (0-0-60): 51kg/ha S (0-0-17S): 59kg/ha
Farmer practice +K + S	- Cow manure: 6.25t/ha - Chemical fertilizer: 15-15-15: 625kg/ha	Urea: 125kg/ha K (0-0-60): 51kg/ha S (0-0-17S): 59kg/ha

The recommended N is calculated based on fertilizer application rate in the previous toposequce. The application at cutting was urea 160 kg+18-18-13+8S 260 kg)/h that contains N 120 kg kg ha^{-1}. The extra N, K, S treatment increases up to N 150 kg ha^{-1}, while K (0-0-60: 51 kg ha^{-1}) and (0-0-50 +17S: 59 kg ha^{-1}) is used

Table 3: Effect of irrigation and chemical fertilizer on biomass yield of paspalum		
Experiment	**Basal fertilizer**	**Fertilizer application in each harvest**
Optimum water (irrigation be done weekly) + recommended N	- Cow manure: 6.25t/ha - Chemical fertilizer: 15-15-15: 625kg/ha	N 120kg/ha or urea 261kg/ha
Optimum water + N, K, S (high input)	- Cow manure: 6.25t/ha - Chemical fertilizer: 15-15-15: 625kg/ha	N150kg/ha or urea 326kg/ha 0-0-60: 51kg/ha 0-0-50+17S: 59kg/ha
Reduce water + Recommended N (the irrigation be done fortnightly)	- Cow manure: 6.25t/ha - Chemical fertilizer: 15-15-15: 625kg/ha	N 120kg/ha or urea 261kg/ha

Photo 1: Six treatments

Photo 2: Three treatments

1.1.5. Household participants in the trial

A total of 8 household participants in the trial which located in Samrit village, Tang Kroch commune, Samrong Tong district, Kampong Speu province

II. Result from field visit

The experimental in Kampong Speu province which responsible by RUA. Eight household were selected to implement three experiments, in which all plots are similar. From the observation in each treatment showed that the color of forage looks similar and green as the forage got enough water from raining but some plot looks a liter bit nutrient efficiency. Below photos showed the overview of the forage trial on 8 June 2023.

Photo 3: Overview of forage and team visited trial in Kampong Speu province

III. Conclusion

The one-day field visited in Kampong Speu can concluded that the overview of the trial is still look good and the biomass of the forages can be different among treatments based on observation, however, the actual result will tell us exactly which one is better or good yield. Beside the trial, other observation showed that involving of the students in the trial is good option not just only working with the project but they can gain basic knowledge on the research especially on experimental design, type of data collection and analysis, in meantime, they can share knowledge to other farmers on forage production.