

# 412 Effect of Intercultivation on Nitrogen Dynamics in Paddy Field under Submerged Condition



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## Introduction



Weed Management is an important component of crop production.

**Herbicides**

Though popular in developed countries, many farmers in developing countries lack due to economic reasons.



**INTERCULTIVATION**

Incorporation of Weed biomass + **Microbial biomass** into surface soil.

**Blue-green Algae (BGA)???**

Additional nitrogen biomass that can later be mineralized as plant available N forms.

## OBJECTIVES

To study effect of intercultivation on N dynamics in paddy field

## Materials and Methods

### Experiment ①

- A preliminary experiment
- Rice (cv. Sasanishiki) with (30 cm × 15 cm) in 2009.
- Four treatments without replication
- A = 0 times under herbicide,
- B = 0 times without herbicide,
- C = 4 times without herbicide, and
- D = 8 times without herbicide.



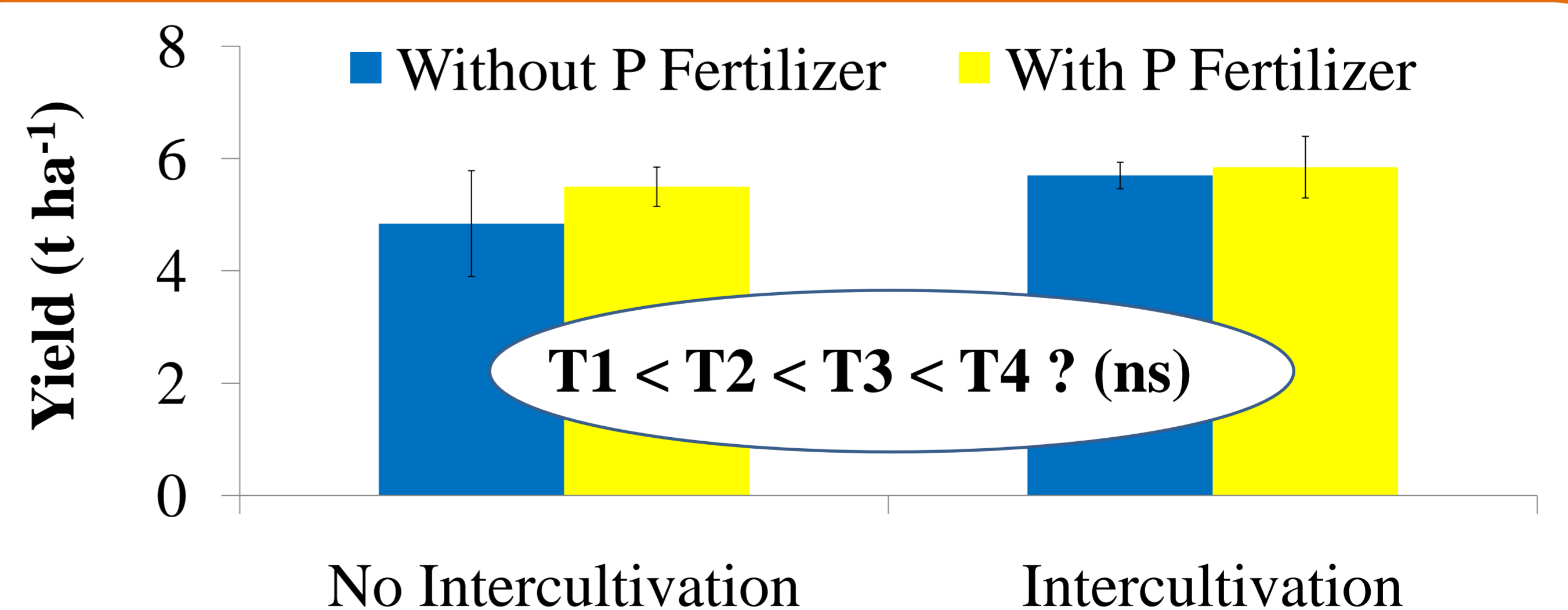
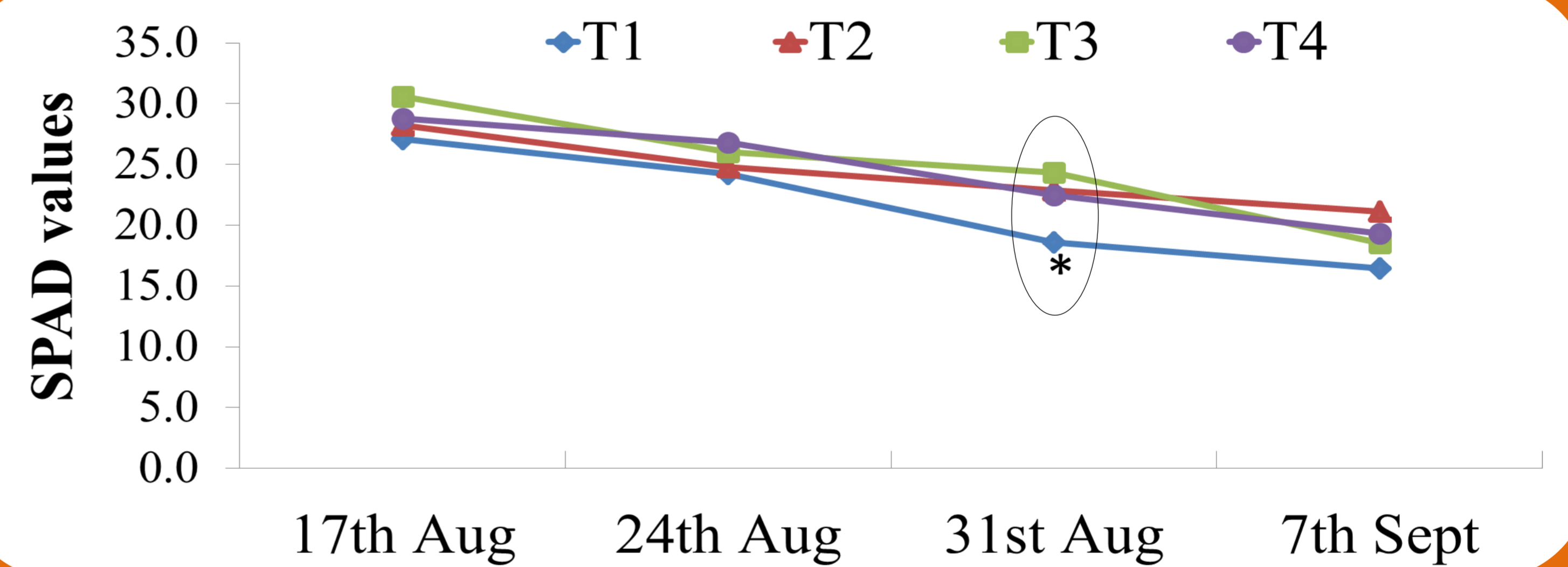
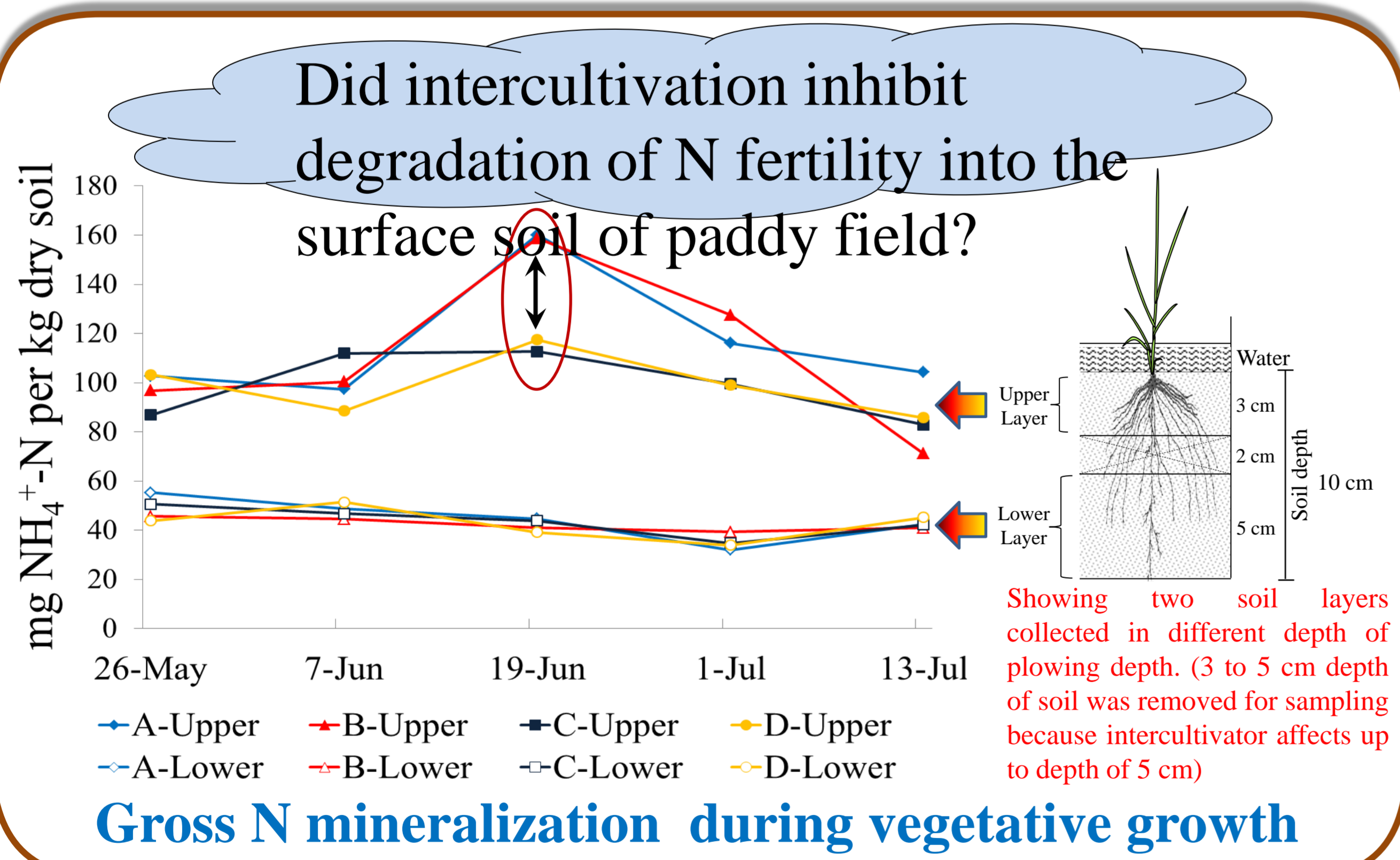
### Experiment ②

- rice (cv. Sasanishiki) with (30 cm × 15 cm) in 2010
- Randomized complete block (RCB) design with 4 replications

**Phosphorus fertilizer**

- The four treatments:
- T1 = Control,
- T2 = P application,
- T3 = Intercultivation, and
- T4 = Intercultivation + P application

## Results and Discussion



- Control was significantly low at 31<sup>st</sup> August in SPAD value but not in accumulated plant N.
- Yield was not significant different.

## Conclusion

The upper thin surface soil layer of paddy field may be important for maintenance of soil fertility.

**Intercultivation and P fertilizer application would have positive effects on soil nitrogen dynamics, and growth and yield of rice.**