

Paddy production in northwest Cambodia: agroecological farming?

Pao Srean* & Buntha Eang

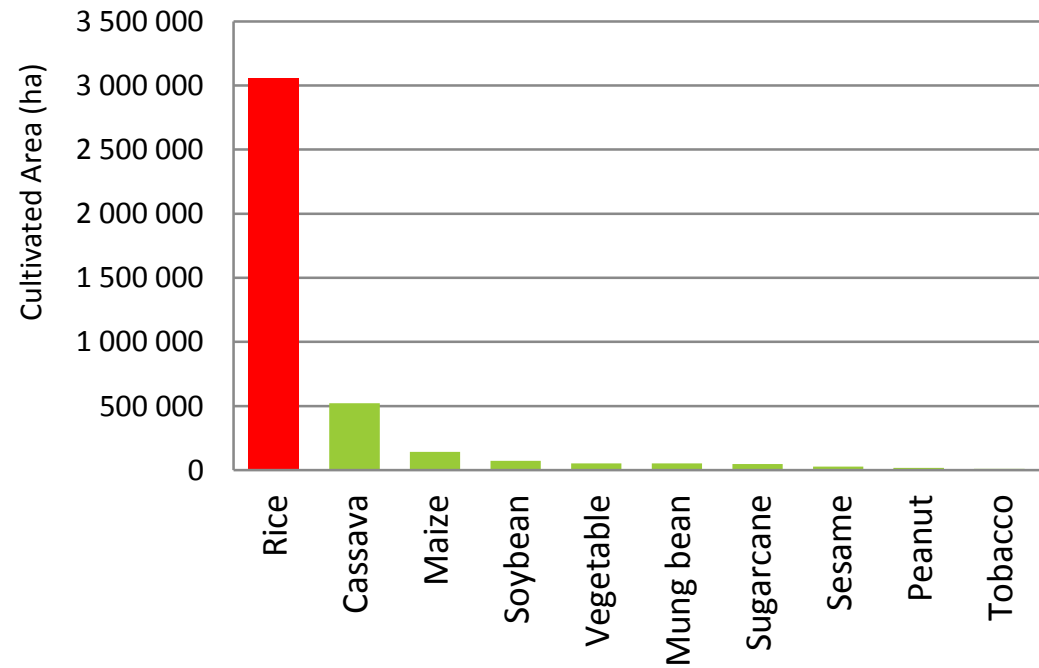
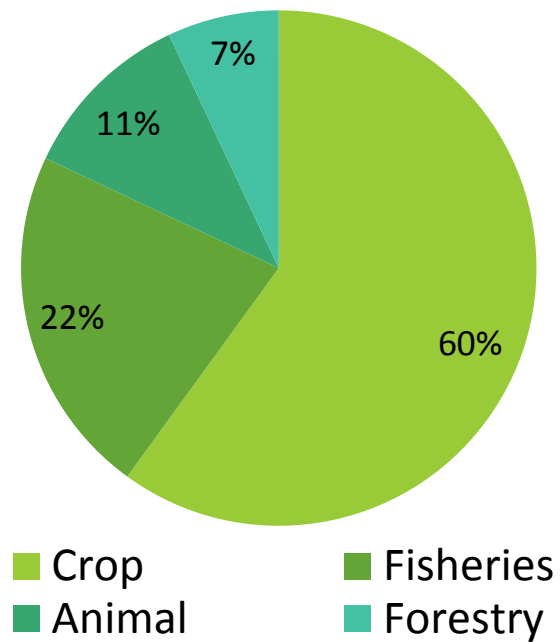
Faculty of Agriculture & Food Processing, University of Battambang, Cambodia

*Email: sreanpao@gmail.com



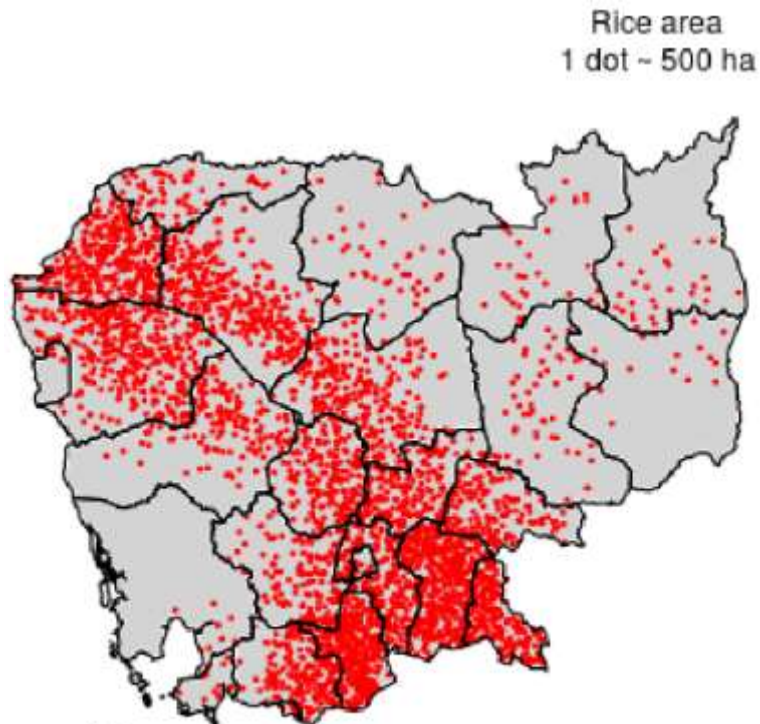
Introduction

Cambodia: Agriculture

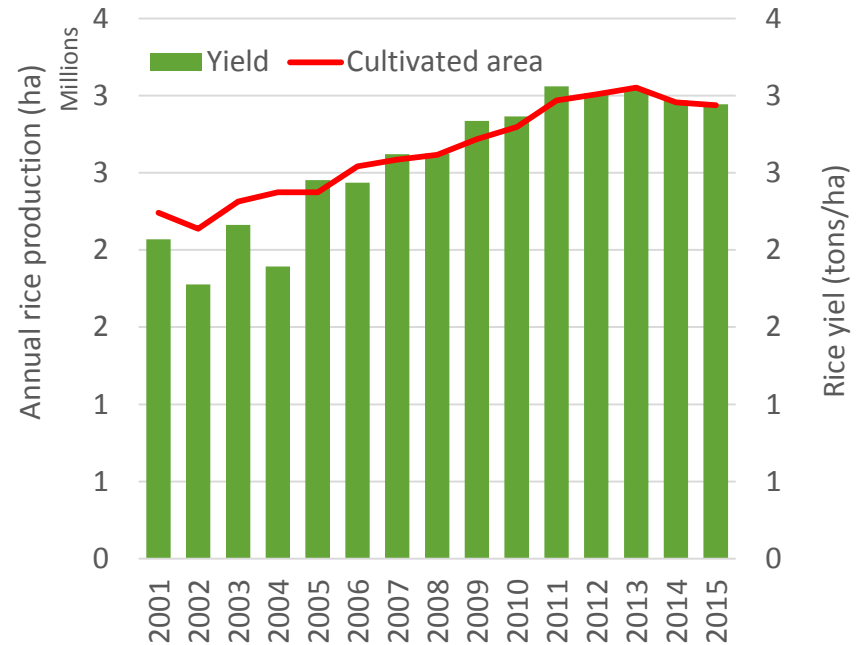


MAFF (2016)

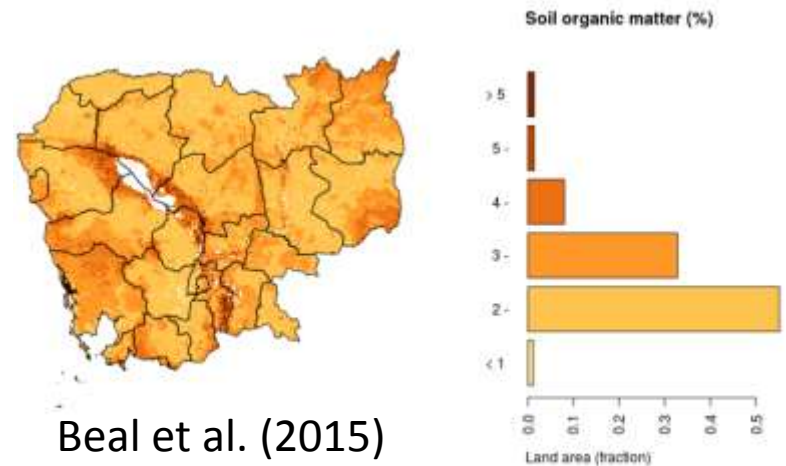
Rice cultivation



Beal et al. (2015)



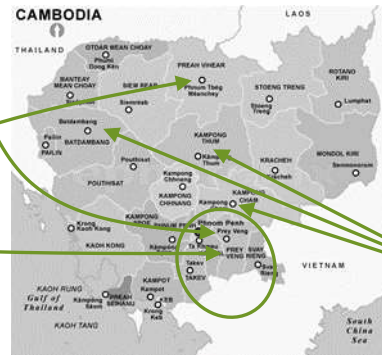
MAFF (2016)



Beal et al. (2015)

Percent of organic matter in soil. Source SoilGrids

CEDAC



Organic rice export

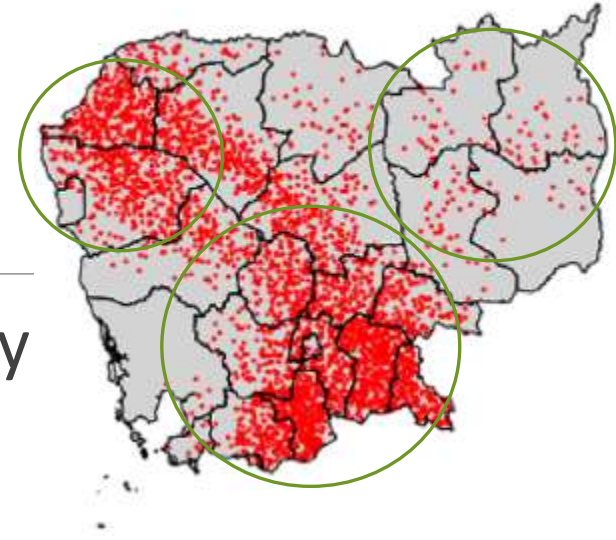


“Rice direct seeded on mulch of Stylosanthes guianensis and Centrosema pascuorum, Stung Chinit, Kampong Thom province, 23/06/2015”

Source: IPERCA

Objectives

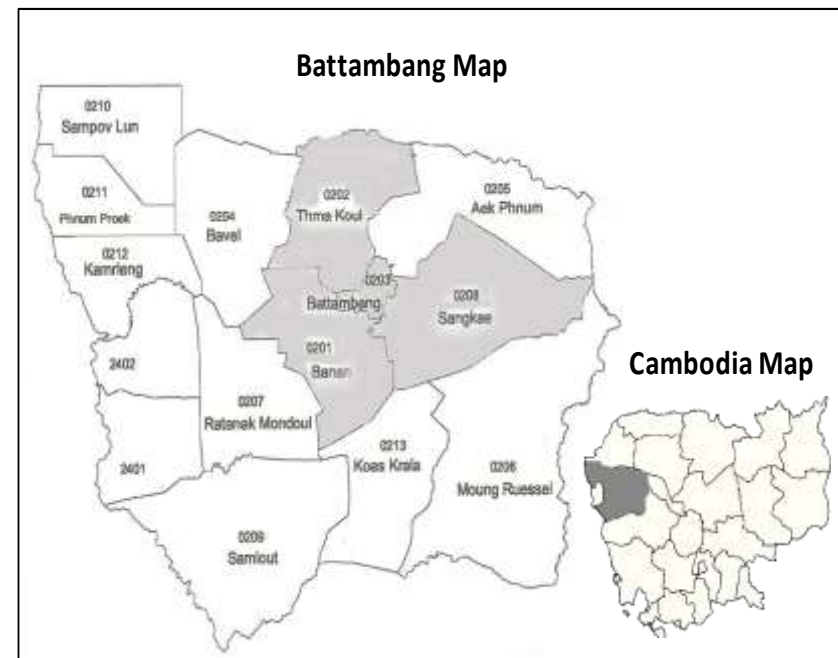
- ❖ Practice of rice farming is variously applied, e.g. inputs, seeding methods
- ❖ To explore rice farming practices and provide preliminary estimates of what are the most important predictors influencing on profitability of rice farming in Battambang province.



Methods

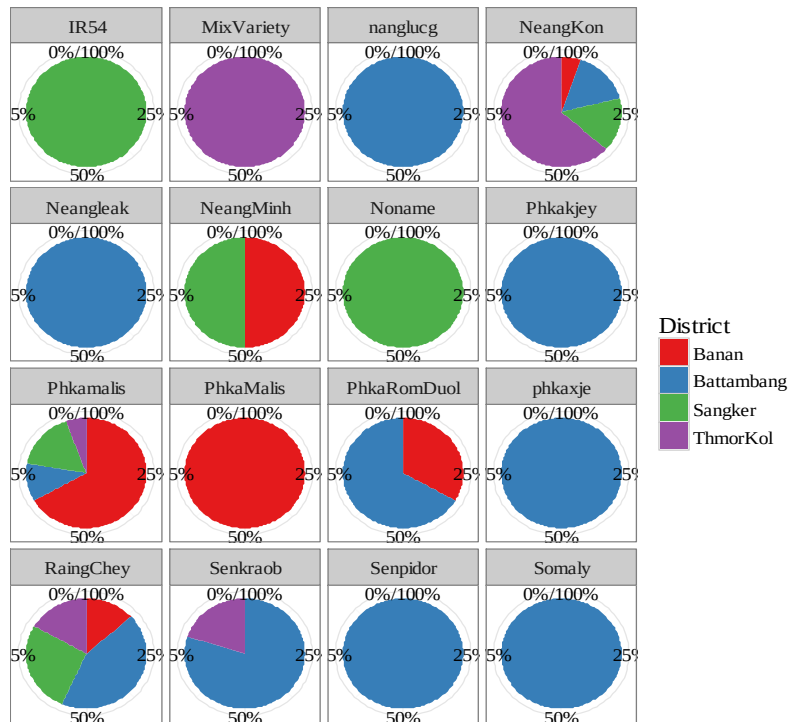
- ❖ 135 rice growers were interviewed
- ❖ 4 districts, i.e. Banan, Battambang, Thma Koul, and Sangkae
- ❖ Rice farming practices and production;
- ❖ Direct cost;
- ❖ Revenue

To estimate cross profit per ha



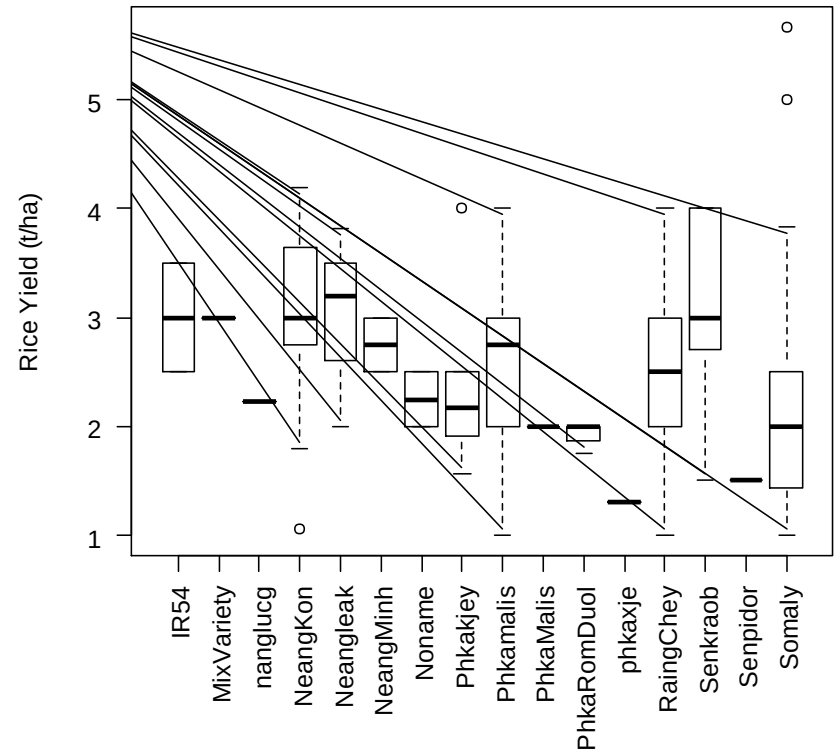
Results

Rice variety vs. location

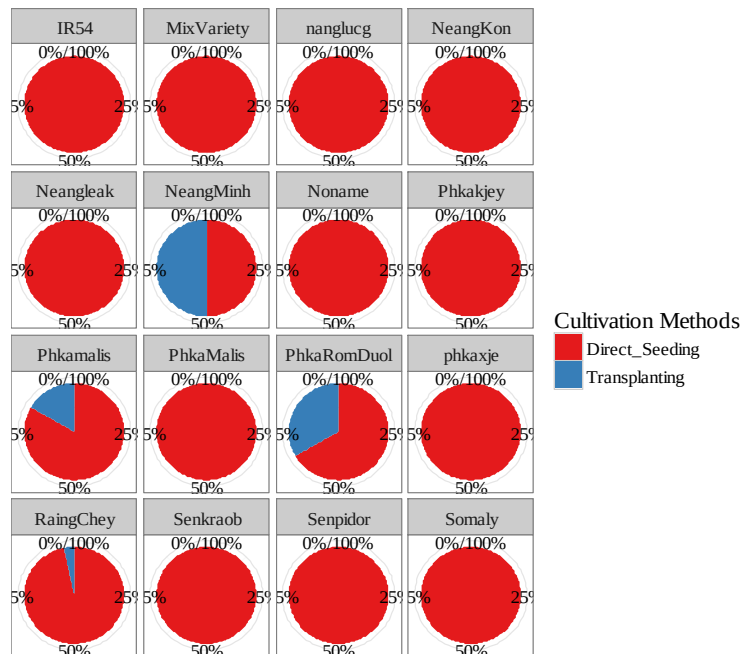


$$\chi^2 = 166.3, df = 45, P < 0.001$$

Rice yield



Cultivation method



Transplanting



Broadcast seeding



- Broadcast seeding method: 96%
- Average seed quantity: 50 – 200 kg/ha

Average cost of rice farming in Khon Kaen in 2009 and Battambang in 2010 (unit: US\$ per ha)

Types of direct cost	Khon Kaen ^(a)	Battambang ^(b)
Seed	42.40	25.53
Fertilizer	54.60	103.17
Pesticide	30.50	11.85
Labor	335.30	88.75
land preparation	n.a	52.00
Irrigation	n.a	6.86
Thrashing	n.a	44.77
Other	32.40	n.a
Total direct cost	495.20	332.93

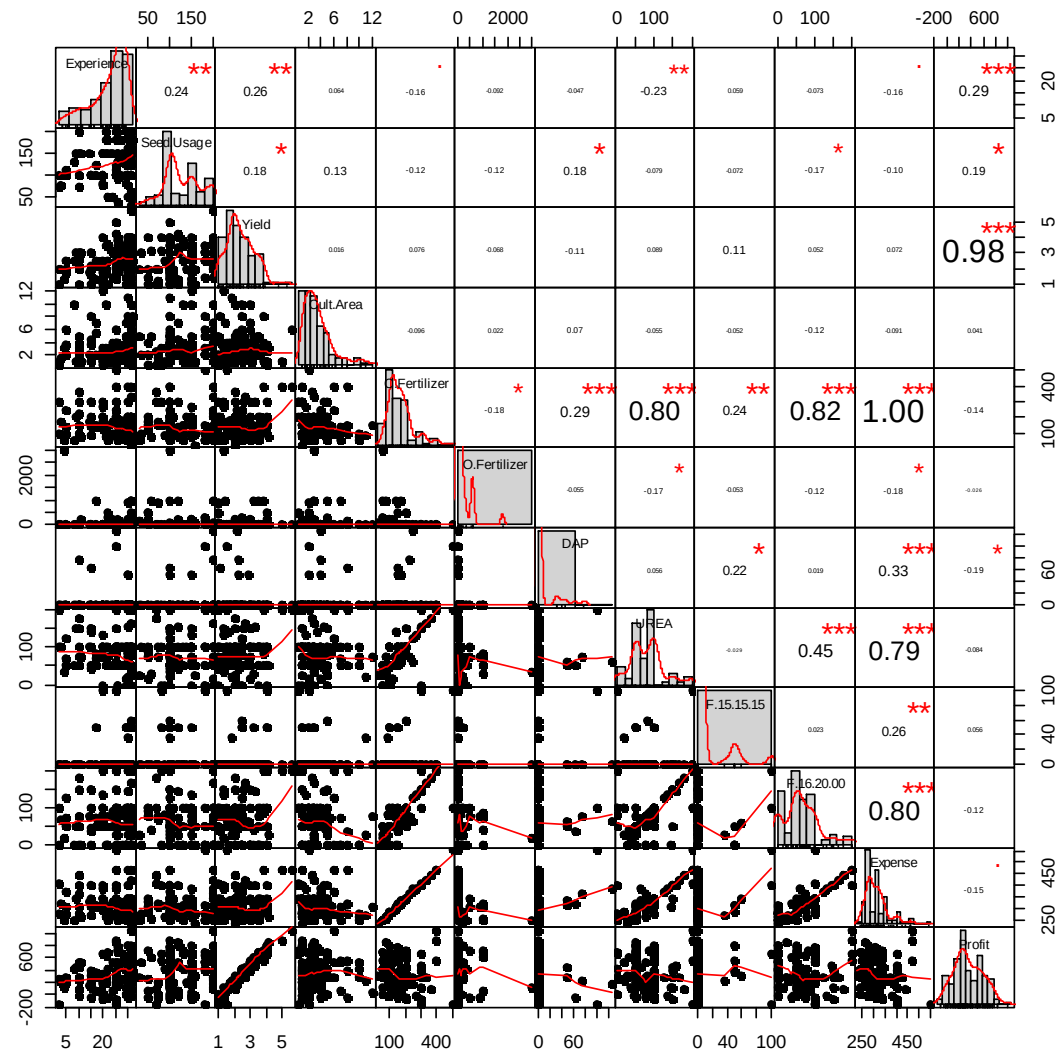
Source: ^(a) Kawasaki and Herath (2011); and ^(b) Survey data in 2011.

Average profitability of rice farming in Khon Kaen in 2009 and Battambang in 2010.

Items	Khon Kaen ^(a)	Battambang ^(b)
1. Rice Yield (tons per ha)	3.79	2.48
2. Rice Price (US\$ per ton)	310.00	270.00
3. Total Revenue (US\$ per ha)	1173.66	669.60
4. Total Direct Cost (US\$ per ha)	495.20	332.93
5. Cross Profit: (3) – (4)	678.46	336.67
6. Benefit-Cost Ratio: (3)/(4)	2.37	2.01

Source: ^(a) Kawasaki and Herath (2011); and ^(b) Survey data in 2011.

Note: C.Fertilizer: chemical fertilizer (kg/ha); Cult_Area: cultivated area (ha); DAP: di-ammonium phosphate (kg/ha); Expense: direct cost per ha (US\$); F.15.15.15: 15:15:15 fertilizer (kg/ha); F.16.20.00: ammonium phosphate (kg/ha); Experience: experience of rice farming (year); O.Fertilizer: organic fertilizer (kg/ha); Profit: profit per ha (US\$); UREA: urea fertilizer (kg/ha); Seed_Usage: amount of rice seed used (kg/ha); and Yield: rice yield (ton/ha).

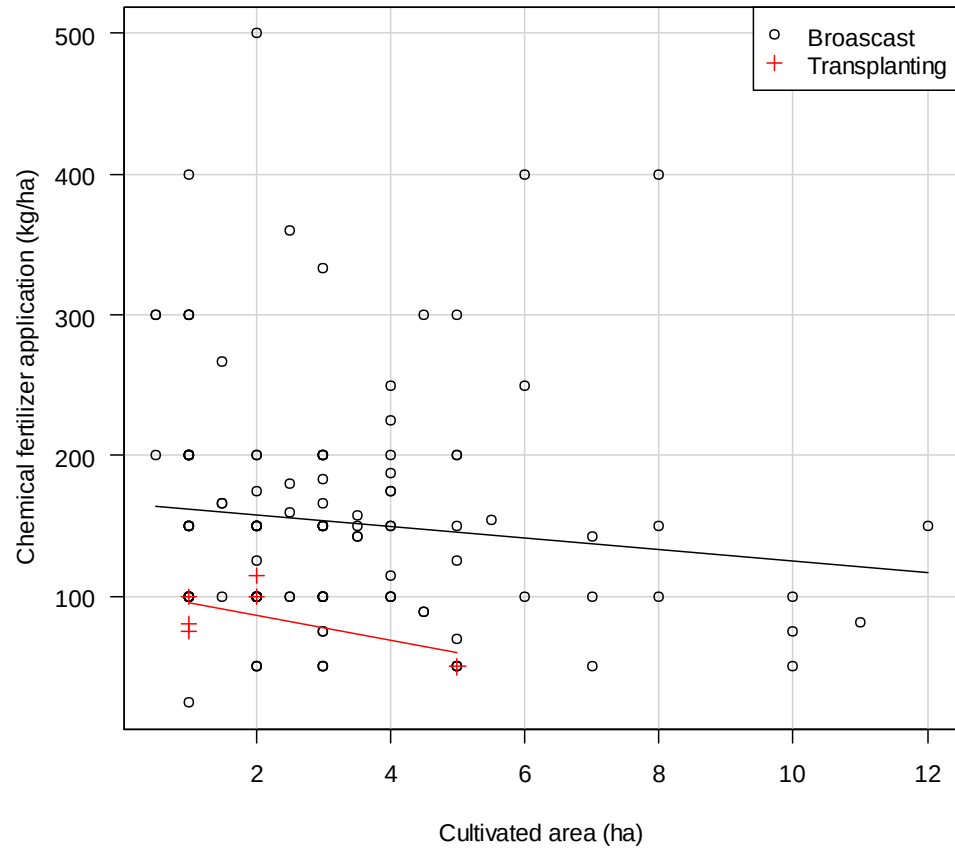




ANCOVA:

$$y_B = -8.75x + 104.17$$

$$y_T = -4.17x + 166.50$$



Relationship between chemical fertilizer application and cultivated area.

Summary

- ❖ More than 10 rice varieties were grown in Northwest Cambodia;
- ❖ Broadcast seeding method is mostly applied;
- ❖ Amount of chemical fertilizer application may reduce when organic fertilizer is available;
- ❖ Amount of chemical fertilizer applied to broadcast seeding more than transplanting method;
- ❖ Organic fertilizer is little applied and concerned by farmers;
- ❖ Agroecological farming is recommended for sustainable agriculture purpose.



Thank you for your attention..!



Dr. Pao SREAN

Faculty of Agriculture & Food Processing,

University of Battambang, CAMBODIA

E-mail: sreanpao@gmail.com

www.paosrean.wordpress.com

<http://ubb.edu.kh/>