The best practices of royal project model
on reducing hot spots and pm 2.5 in northern Thailand

Olaya Shewchenko, Jarunee pilumwong, Kamontip Raorat and Adirek Punyalue
Highland Research and Development Institute (Public Organization) HRDI, Research, Thailand

Introduction

Thailand Royal Project's record clearly demonstrates that it was able to change the highland communities from destitute and narcotic crops-dependent to narcotic crops-free, self-reliant ones, even contributing to the countries overall security and sustainability. The successful of Royal Project Foundation development model (RPF model) with adapted to be used for the development of other highland areas for increase income and reduce smog from conventional agriculture. Smog and PM 2.5 are main problems of northern Thailand, caused from burning residue in agricultural areas.

Objective

1. To study the implementation of best practices in the RPFmodel to reduce smog or hot-spot area
2. determined key factor of farmer change from conventional to best practices agricultural systems in northern Thailand
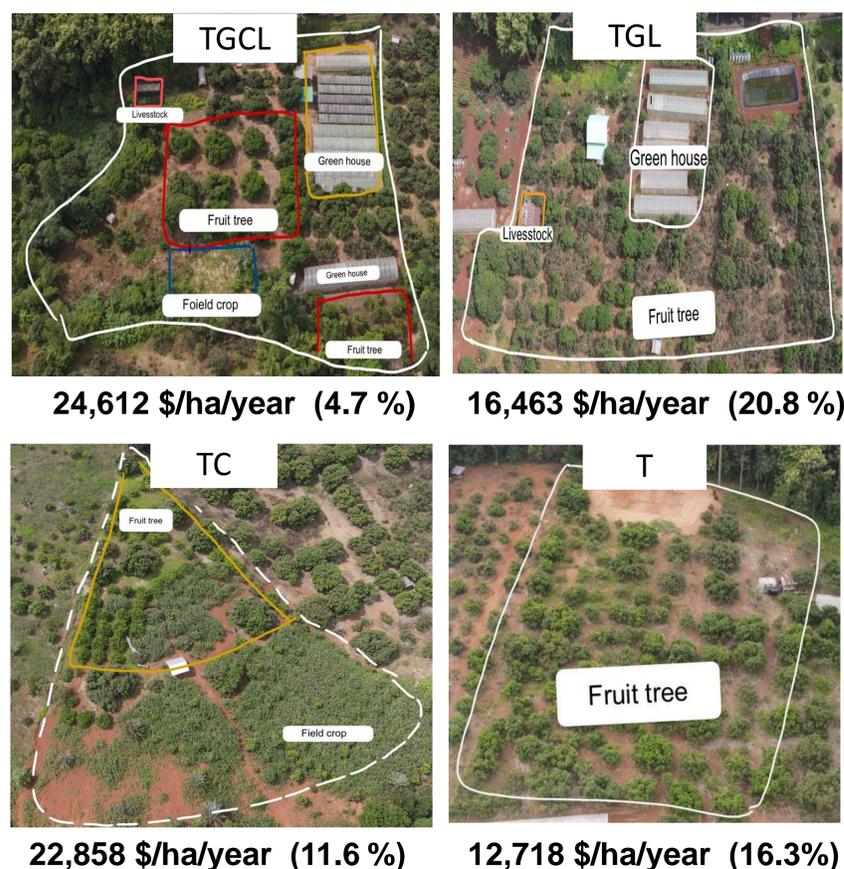
Materials and Methods

- Collected data - questionnaire was employed to collect the relevant primary data.
- Sampling multistage random farming household survey resulted into 66 farmers duration
- Sampling multistage random Pang Dang Nai village, Chiang Dao district, Chiang Mai, Thailand.

Results and Discussion

Past

Male 66.7%

- Income field crops (upland rice and maize) 9,191 $/ha/year.
- Debt Previously 100 % debt.

Present : RPF model

female31.6%

Palaung ethnicity 51-60 years old

- income from adjusting the agricultural system 18,618 $/ha/year
- Debt is currently reduced 89.5 %

Agriculture systems in Pang Dang Nai village Chiang Dao district, Chiang Mai Thailand.

TGCL

24,612 $/ha/year (4.7 %)

TGL

16,463 $/ha/year (20.8 %)

TC

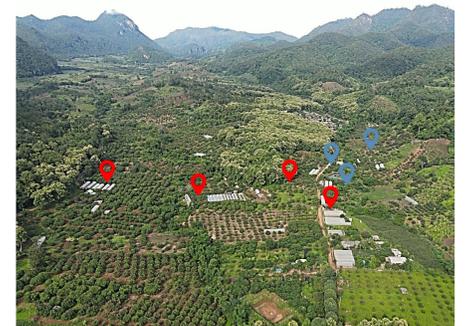22,858 $/ha/year (11.6 %)

T

12,718 $/ha/year (16.3%)

Note TGCL: Fruit tree -Field crop– Green house – Livestock,
    TC: Fruit tree -Field crop,
    TGL: Fruit tree – Green house – Livestock ,
    T: Fruit tree

Change in land use before and after the adjustment of the environmentally-friendly farming system
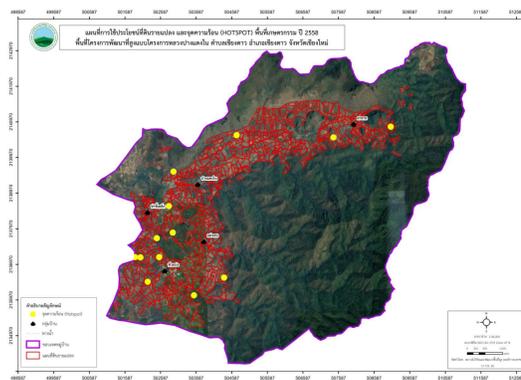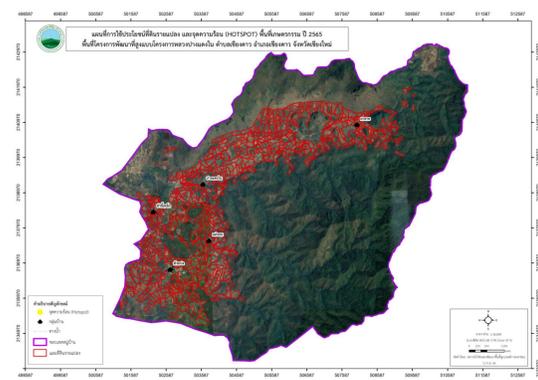

Year 2005 (100 % Field crop)

Year 2023 (present) 100 %
The environmentally-friendly farming system

Hotspots in Pang Dang Nai village Chiang Dao district, Chiang Mai Thailand.
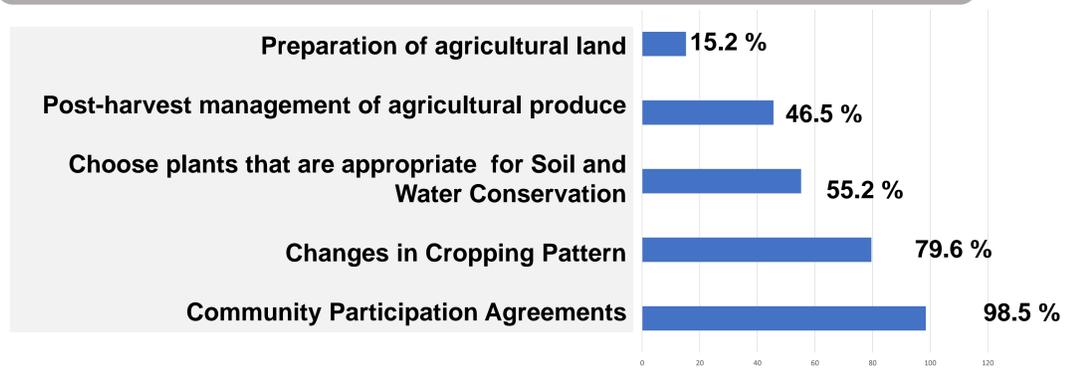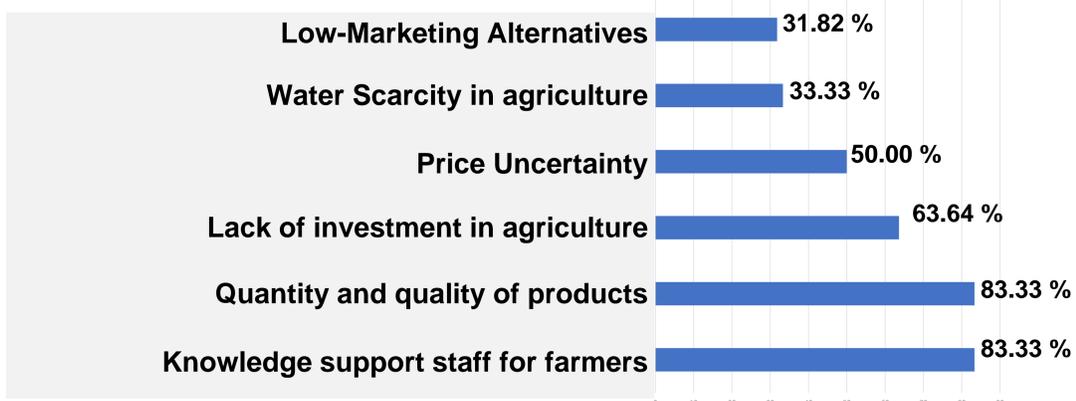

2015 −13 Point

2022 −0 Point

The solving guidelines of smog and burning problems

Preparation of agricultural land	15.2 %
Post-harvest management of agricultural produce	46.5 %
Choose plants that are appropriate for Soil and Water Conservation	55.2 %
Changes in Cropping Pattern	79.6 %
Community Participation Agreements	98.5 %

Factors affecting the change of agricultural land use

Low-Marketing Alternatives	31.82 %
Water Scarcity in agriculture	33.33 %
Price Uncertainty	50.00 %
Lack of investment in agriculture	63.64 %
Quantity and quality of products	83.33 %
Knowledge support staff for farmers	83.33 %

Conclusions and Outlook

The results concludes that the RPF model can be extended and further developed in other areas, which will lead to sustainable development under the preservation of natural resources and the environment. as solving the problem of smog in the area for sustainable agriculture on highland.