

# LOCAL AGROFORESTRY KNOWLEDGE IN SOUTHERN LAOS

Partnership ACTAE – CIRAD – CPC



# Background and concepts

## Climate change and coffee

- Projection of yield decrease.
- Increase of pest and diseases, especially for Arabica.
- Modification of the agro-ecological zones suitable for coffee.
- ...

→ *Agroforestry is a way to improve sustainable production in the face of the new constraints of climate change.*

## Ecosystem services

- These are the services that ecosystems provide to humanity, positively or negatively (BLANCHARD, 2014).
- Climate regulation, erosion, diseases, biodiversity...

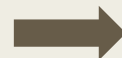
→ *Identification of ecosystem services is important to understand farmers adaptation to their environment.*

## Local knowlegde

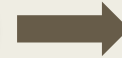
- Local knowledge is the knowledge accumulated over generations (WALKER et al., 1999).
- System performance evaluation over time.

→ *Local knowledge is a way to identify associations and strategies that are effective over time.*

LOCAL  
KNOWLEDGE



ECOSYSTEM  
SERVICES



*Improving coffee smallholders' resilience to climate change through agroforestry.*

# Area of the study



- Bolaven Plateau in Southern Laos.
- 8 Villages according to « soil quality » and altitude.
- 83 households producing organic certified coffee.
- 151 farmers interviewed (61 women and 90 men).

● "Less fertile" soil

● "Fertile" soil

□ Altitude 800-1000 m

△ Altitude 1000-1200 m

# The Bolaven Coffee Producers Coop – CPC

Created in 2007  
100% farmers' owned  
organization

4,297 hectares under organic  
(EU, NOP, IFOAM) and Fairtrade  
certifications

1,093 families from 3  
provinces

*Including 824 families in the organic process*

48 producers' groups

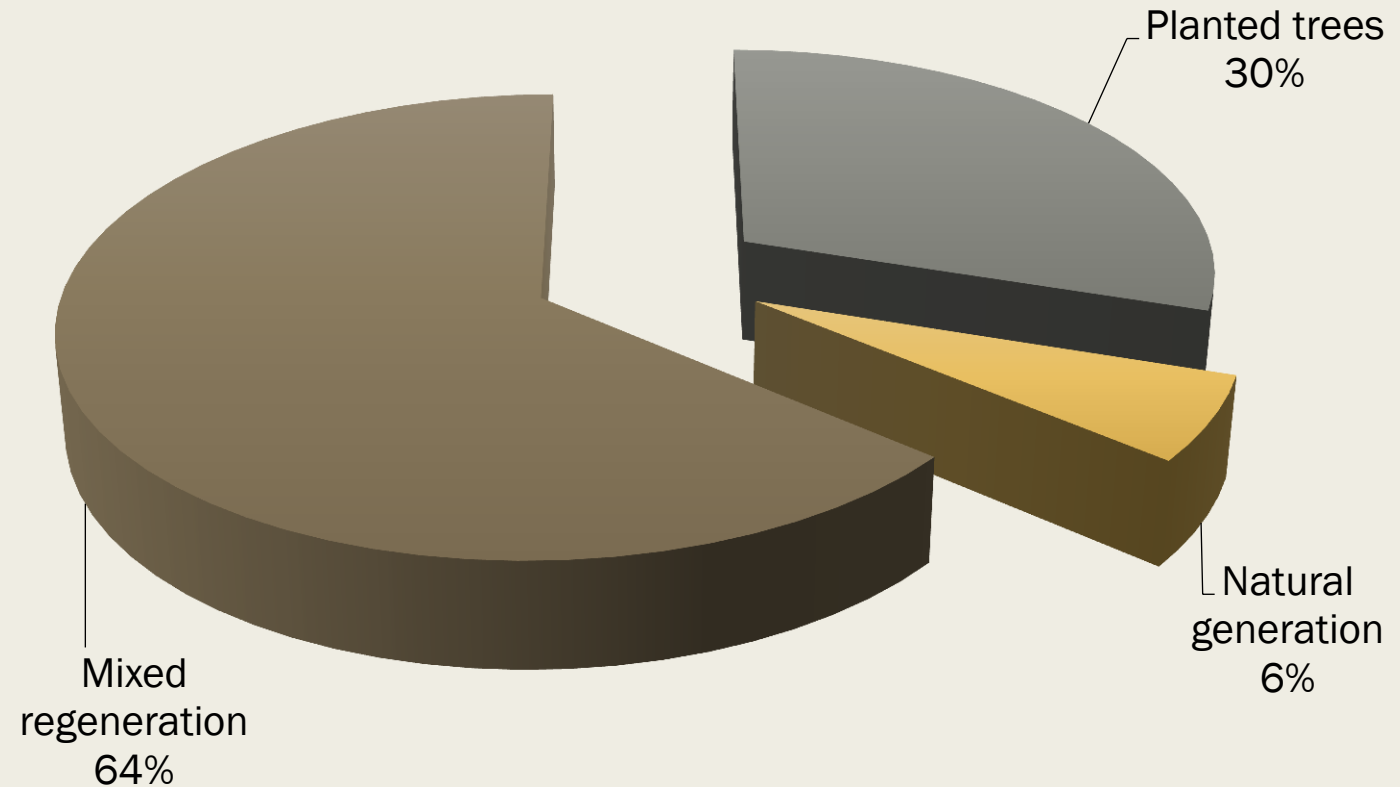
*Including 37 groups in the organic process*

36 wet processing centers and  
1 dry mill

More than 1,000 tons of  
certified coffee exported yearly

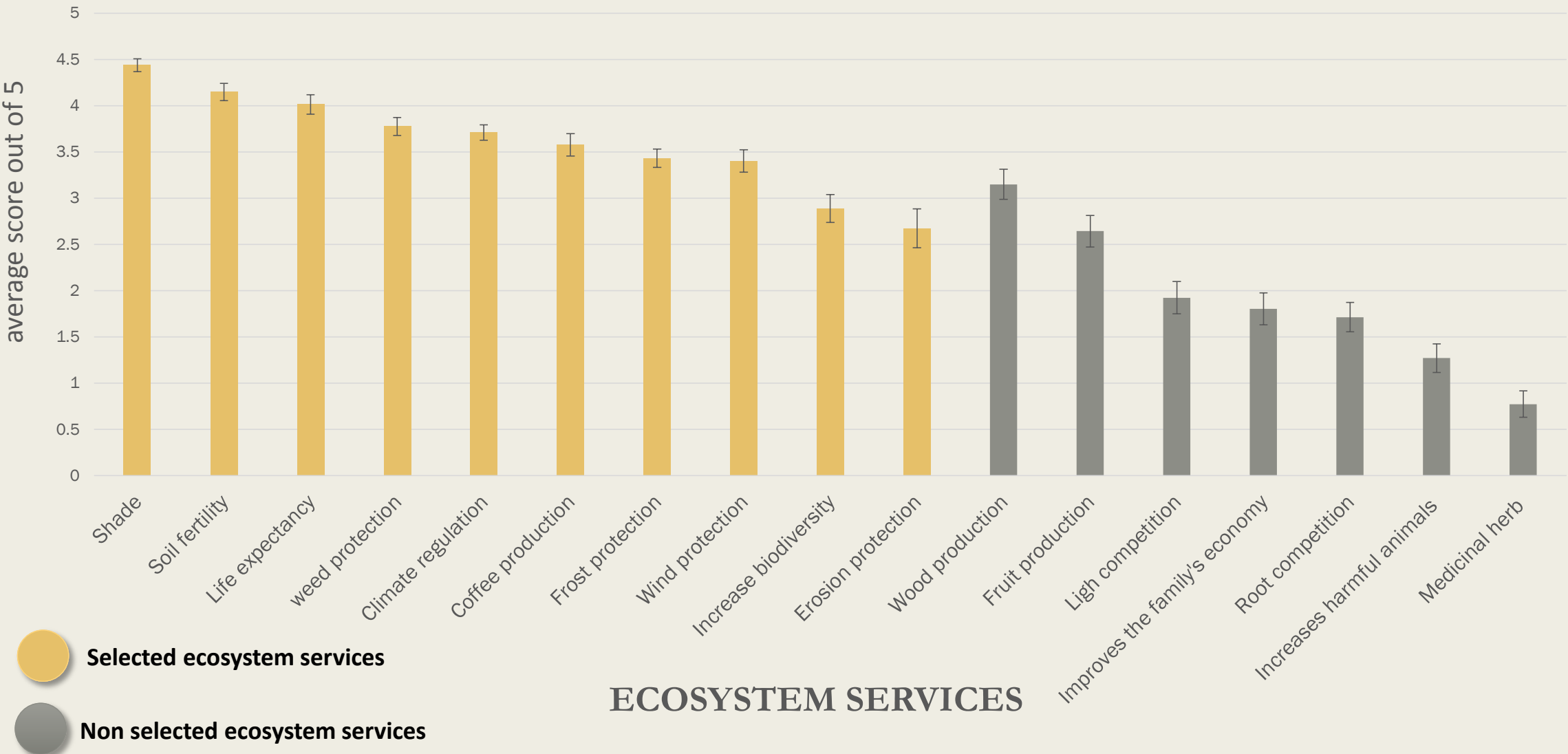
# Generality on agroforestry practices

- Small farms averaging 3,3 plots of 1,2 ha.
- 1 to 21 different species associated with coffee per plot
  - Average on plots close to homes: 8,14
  - Average on plots far from houses: 5,15
- 168 tree species inventoried in 273 Arabica plots

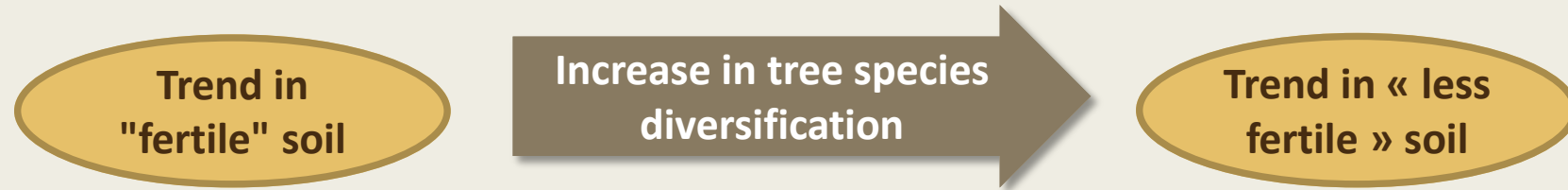


**METHOD OF TREES REGENERATION**

# Selection of ecosystem services



# Soil impact on agroforestry practices (1)

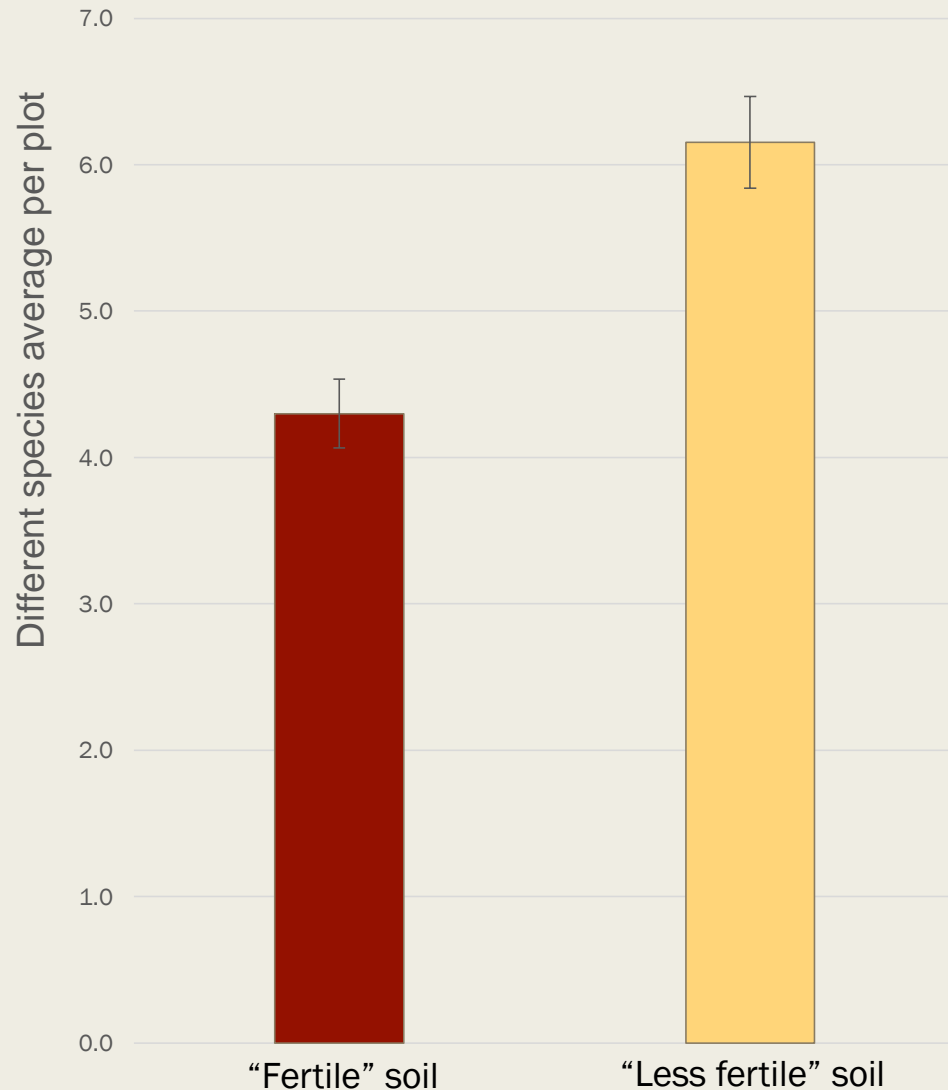


*Coffee in association with legume: Shaded coffee in monoculture.*



*Coffee + mix of tree species with different ecosystem services (Fruit, fuel wood, forest, legume).*

# Soil impact on agroforestry practices (2)



- Tree species diversification
- Selection of associations
- Differences in the plantations management by farmers
- 2 level of intensification in coffee production

➔ LOCAL KNOWLEDGE IN ACCORDANCE WITH THESE MODELS



# Erythrina in agroforestry practices (1)

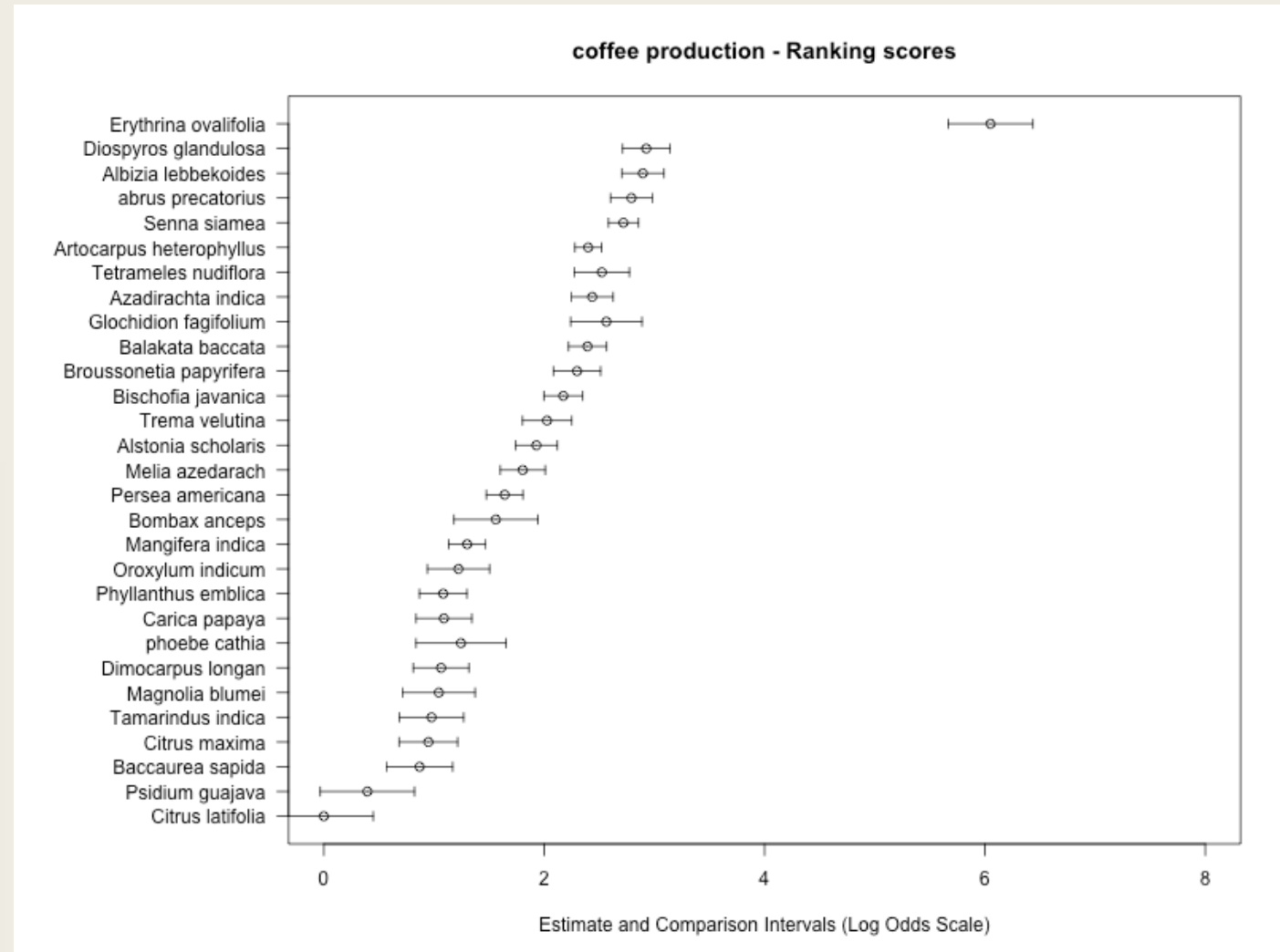
## COFFEE + ERYTHRINA OVALIFOLIA

- Widely promoted by experts and extension workers through development projects since the early 90s
- Most common system adopted by Lao smallholders



# Erythrina in agroforestry practices (2)

- Existing in 84% of the visited farms
- Selected by 90% of farmer for the ranking
- First rank for 7 ecosystem services



# Conclusion

- The impact of the soil
- The impact of extension projects
- The agroforestry practices of the cooperative's members



# THANK YOU FOR YOUR ATTENTION

## **More informations and documents:**

Sayakone Onnaly: [general.manager@cpc-laos.org](mailto:general.manager@cpc-laos.org)

Yannick Lamezec: [technical.adviser@cpc-laos.org](mailto:technical.adviser@cpc-laos.org)

Philippe Vaast: [philippe.vaast@cirad.fr](mailto:philippe.vaast@cirad.fr)

Mathilde Lépine: [m.lepine@istom.fr](mailto:m.lepine@istom.fr)