Farmers’ perceptions of trees’ effects on yields: a lesson for agroforestry systems design

Elsa SANIAL, May 2021

SWEET SUSTAINABILITY
COCOA AGROFORESTRY ADVANTAGES

Session: Yields in Cocoa Agroforestry
The agroforestry contradiction

**THEORY**

- Positive impact of trees (deep nutrient uptake)
- Soil moisture
- Shade
- Soil fertility
- Pollinators...

**RESEARCH/PRACTICES**

- Moisture and shade = black pod
- Short term low yields
- Roddents

Trade-off at 30% of shade (Blaser et al., 2018)

and yet.... **agroforestry adoption by farmers**... how can we understand this contradiction?
Most farmers are (re)introducing trees

- 70% of trees are less than 20 years old
- 35% less than 10 years old
- 67% of farmers are committed into reintroducing trees without any support

Why?
Farmers (especially small ones) are looking for agronomic services.

- Lessen the impact of droughts
- Increase farm resilience

**Agroforestry =**

*a risk-reduction strategy rather than a yield – increase strategy*

Agroforestry adoption correlated to risk aversion

Risk aversion correlated to farm area and land scarcity
At short term... this means:

**Avoiding big workload** (replacing dead cocoa trees)

At long term... this means:

**Maintaining production**

→ This ends up in having better yields
Will we end up with a trade-off anyway?

- 213 different species
- 20% of forest species
- Degraded habitats
- No rare and threatened species
- Twice less carbon than in natural forests but twice more than in monocultures

"Neque porro quisquam est qui dolorem ipsum quia dolor sit.."
CONCLUSION

→ Particular design of agroforestry systems
  - Evergreen species (*Morinda lucida, ..*)
  - Species maintaining soil moisture (*Ficus capensis, ..*)
  - Species with water exsudation from leaves (*Milicia excelsa, Morinda lucida, ..*)

**Farmers’ knowledge:**

- Understand better agroforestry-friendly farmers’ rationality
- Take into account risk and workload when promoting agroforestry rather than yields alone
- Draw our attention on certain species related to risk reduction
- Better design research projects and agroforestry systems

But what really happens?? We still lack knowledge...