Cocoa plant health, a comparison between Dynamic Agroforestry System and full-sun System in Ghana

Objectives

- Comparison of cocoa plant health in Dynamic Agroforestry System (DAFS) and in full-sun monocultures during the establishment phase
- Assessment of influence of field management on young cocoa plant health

Material and methods

Data collection in Western Ghana April-July 2019

- 20 DAFS and 9 full-sun plots established between 2016 and 2018
- Interviews with 23 farmers

Analysed parameters:

- Cocoa growth rate
- Cocoa mortality rate
- Cocoa vigour
- Field management

Results

**Cocoa planting scheme**

DAFS: in lines

Full-sun: random

In full-sun is more likely to cut accidentally cocoa seedlings because hidden in the high vegetation and the position is not known

**Plant density in 25m x 25m plot**

DAFS: 72 cocoa and 184 other tree species. Total: 256 permanent trees

Full-sun: Various. Mean of 103 cocoa trees

**Mean mortality rate**

In DAFS: 38.2%

In full-sun: 54.8%

**Other results**

Growth rate higher in DAFS

Plant vigour does not differ between the two systems

Conclusions

- DAFS positively influences cocoa health during establishment phase
- Plant health is also strongly influenced by management practices that do not necessarily depend on cultivation system, such as weeding precision and planting scheme