Trees and agriculture — Posters

**Analysis of Dynamic Agroforestry Systems and Cocoa Plant**

**Health in in Western Ghana**

ELISA BOSSI1, INGRID FROMM1, CHRISTIAN ANDRES2, MONIKA SCHNEIDER3

1*Bern University of Applied Sciences, School of Agricultural, Forest and Food Sciences,*

*Switzerland*

2*Swiss Federal Institute of Technology (ETH), Dept. of Environmental Systems Science,*

*Switzerland*

3*Research Institute of Organic Agriculture (FiBL), Dept. of International Cooperation,*

*Switzerland*

Agroforestry can help mitigate the numerous negative ecological effects

caused by cocoa production with full-sun monocultures providing at the same

time the diversification of livelihoods through the selling of by-products. Because

the high vulnerability of young cocoa trees represents one of the major

constraint for farmers, this study in Western Ghana compared cocoa health

and field management quality in monoculture and in agroforestry systems

during the field establishment phase. Cocoa mortality rate, vigour, growth

rate and field management quality were assessed on 20 Dynamic Agroforestry

(DAF) and on 9 monoculture fields aged one, two or three years. The results

showed that cocoa mortality rate is lower and the growth rate is higher in DAF

than in monocultures. Cocoa vigour and field management quality do not

particularly differ between the two cultivation systems. However, management

quality strong influences the three plant health parameters. With better

field management, cocoa plant health is higher. Many factors not necessarily

dependent on cultivation system were found to influence cocoa health such as

field planting scheme and accuracy during weeding practices. On the other

hand, shade percentage on the field was not a significant factor for higher

cocoa health in DAFS. The findings highlighted the potential of DAFS and

of good management practices to improve cocoa health during the vulnerable

field establishment phase. For this reason, it is important to encourage

farmers to diversify their livelihood with DAFS but also to sensitise farmers

to improve the management quality to enhance cocoa health during the field

establishment phase.

**Keywords:** Cocoa production, dynamic agroforestry, field establishment of

cocoa, field management, plant health

**Contact Address:** Ingrid Fromm, Bern University of Applied Sciences, School of Agricultural,

Forest and Food Sciences, Laenggasse 85, 3052 Zollikofen, Switzerland, e-mail:

ingrid.fromm@