

Improving cocoa beans quality by mitigating FFA level at farm gate with some farmer groups in Côte d'Ivoire

Marine Marchetti^{1*}, Julie Lestang³, Kam-Rigne Laossi¹, Siaka Koné¹ and Pierre Broun²

1. ofi, Outspan Ivoire SA zone industrielle de Vridi, rue des textiles Abidjan, Côte d'Ivoire

2. NC2, Neom, Saudi Arabia

3. ETH, Zürich, Rämistrasse 101 8092 Zürich Switzerland

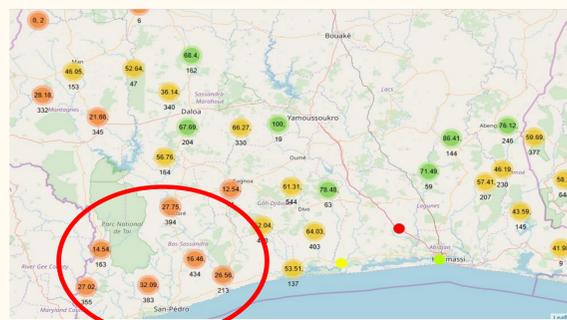


INTRODUCTION

Free fatty acids (FFA) are a degradation product of cocoa butter resulting from the spoilage of beans and derived products (Pontillon, 1998). They are known to be generated in beans of poor quality or stored under poor conditions. High FFA content is a serious quality defect and reduces the technical and economic value of the cocoa beans (Guehi et al., 2008). According to European directive, the limit of Free fatty acids (FFAs) level in cocoa butter must be under 1,75% (EEC, 1973).

A previous study showed that in the South-West of Ivory Coast there are few plantains planted. This investigation, identified 4 main factors impacting FFA levels: inclusion of spoiled beans in fermentation, fermentation methods, low frequency of harvest and poor drying conditions. Beans fermented in heaps on plastic tarp contained significantly higher levels of FFAs than beans fermented on banana leaves (Lestang, 2020).

The current project is carried out to mitigate the FFA level of the cacao beans produced by farmers in Côte d'Ivoire and identify the causes of the FFA formation in beans at farm gate.



Percentage of farm having banana trees

MATERIALS AND METHODS

Based on these findings, the project started with seven farmer groups (3254 farmers) which delivered beans with higher-than-average levels of FFA during the 2019/2020 season and deployed the following approach:

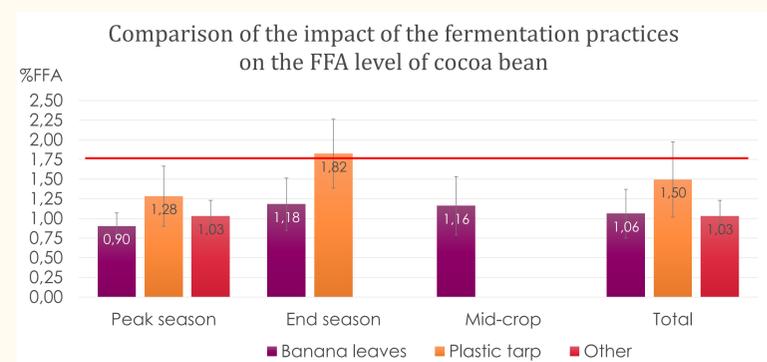
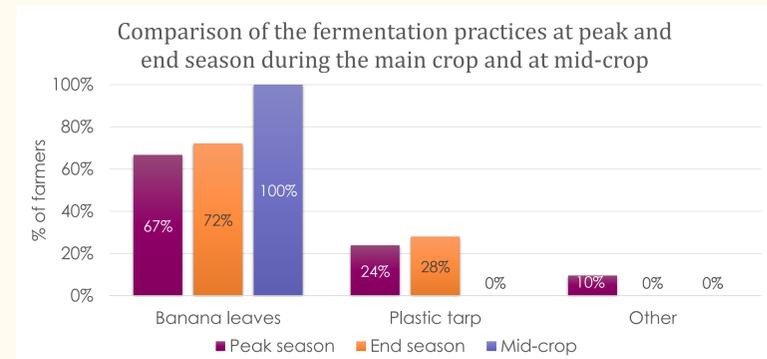
- 1) Distribution of banana suckers to farmers;
- 2) Training of farmers on best harvest and post-harvest practices;
- 3) Regular monitoring of changes in practices (surveys, quality analyses of beans and regular sampling at farmer gates).

We delivered 60750 banana trees to farmers in 2020, for planting close to fermentation areas and provided training to 80% of the farmers on banana upkeep and good harvest and post-harvest practices.

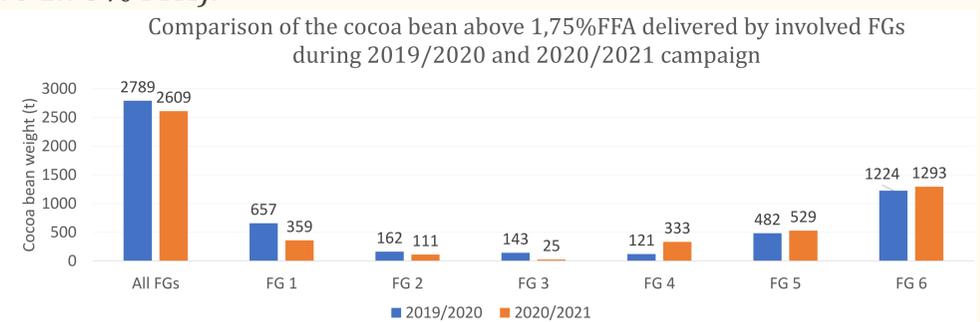


RESULTS

Our survey and sampling results showed more frequent harvesting and increase in banana leaf fermentation technique against plastic tarp fermentation technique during the main crop 20/21.



In the 2020/2021 season, and before banana trees could provide enough leaves for fermentation, a slight decrease was observed in volumes of high FFA beans delivered by the cooperatives involved in the project, as compared to the 2019/2020 season (3% less volume above 1.75% FFA).



CONCLUSION

More frequent harvesting and increase in banana leaf fermentation resulted in less overripe pods and more sorting out of the worst beans. However, other factors could have contributed to the improvement.

Greater impact will require continuous training of farmers, full use of banana leaves and implementation of IPM practices such as pruning that contribute to improving pod and bean health.

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