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Introduction

The H2020 BREEDCAFS⁽¹⁾ project aims to test new F1 hybrids of *Coffea arabica* (high yield, high quality and adapted to agroforestry) in coffee producing countries. In 2018, several accessions were planted in a network of on-farm trials in North-West Vietnam. The first results on coffee tree growth and yield are presented here.

Materials/Methods

Accessions: two F1 hybrids - Starmaya and Centroamericano H1⁽²⁻⁴⁾ – were tested against two pure lines – Marsellesa (father of Starmaya) and a local Catimor (used as control).

Trials: 11 trials were set up in smallholder farms in June 2018, in Son La and Dien Bien Provinces. Trials were located along an elevation gradient (600 - 1100 m.a.s.l.) and displayed various agroforestry systems.

Measurements: phenotyping campaigns (height, basal trunk diameter, # plagiotropic branches...) took place in May 2019 and 2020. Yields were measured on 10 trees per trial in Oct-Dec 2020 (1st harvest). Coffee samples were processed, graded and cup tasted in March 2021.

Conclusion/Perspectives

Based on these preliminary results, local stakeholders already show interest in the introduced accessions. Trials will continue being monitored beyond September 2021 (end of the BREEDCAFS project). In particular, tree growth, yield and quality will all be evaluated in 2021 and 2022, and larger areas will be planted to fulfill the requirements of the accreditation process by Vietnamese authorities.

References:

- (1) <http://www.breedcafs.eu>
 (2) Georget *et al.* (2019). *Frontiers Plant Science* 10: 1344. <https://doi.org/10.3389/fpls.2019.01344>
 (3) Marie *et al.* (2020). *Euphytica* 216: 78. <https://doi.org/10.1007/s10681-020-02608-8>
 (4) more information available at: <https://varieties.worldcoffeeresearch.org/>

Figure 1: Stem diameter
 in 2019 and 2020

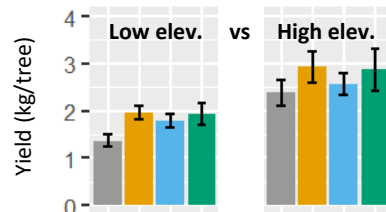
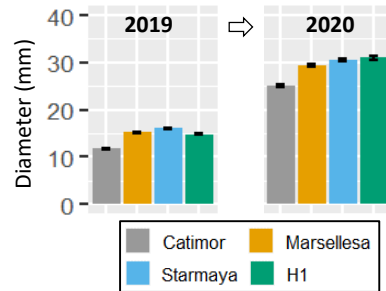


Figure 2: Coffee yield in 2020
 at low vs high elevation



Figure 3: measuring yields in October 2020 (Credit: Thuan Sarzynski)



Results/Discussion

Tree growth: new accessions - Marsellesa, Starmaya, Centroamericano H1 – all had larger stem diameters than local Catimor ($p < 1\%$). The stems of F1 hybrids – Starmaya and Centroamericano H1 – were also higher than the stems of pure lines – Marsellesa and Catimor ($p < 1\%$).

Yield: yields of all accessions were higher at high elevations (> 1000 m.a.s.l.) than at low elevation (< 1000 m.a.s.l.). New accessions yielded more than local Catimor at low elevations ($p = 1\%$). Differences in yield were non significant at high elevations.

Quality: beans from local Catimor had more defects (15%) than beans from new accessions (7-8%). Preliminary cup tastings showed that Coffee from F1 hybrids - Starmaya and Centroamericano H1 – had better flavor, aftertaste and body than coffee from pure lines – Marsellesa and Catimor. More testing and analysis are underway.