

AHERNT: The first commercial release yellow Arabica variety in Indonesia resulted from participatory local selection

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Introduction

Participatory breeding in Indonesian coffee have been done intensively since the first success of commercially release in 2006 due to accommodate and appreciate local (farmers) selection. This method giving the power of faster output compared to designed ones which mostly need decades for desired variety, especially if the target is multiple traits. Our work was the first successfully applied this breeding method obtaining exotic yellow color of cherry with superior yield and higher resistance to Leaf Rust Disease (CLR) and Coffee Berry Borer (CBB) compared to the control. This variety of AHERNT was finally accepted and granted for commercial release in Indonesia since mid of 2022 after two years examined by national council for variety release and three years of agronomic observations.

Materials/Methods

The adaptability and stability of AHERNT was observed by GGE Biplot method for three consecutive years from single farm having three different consecutive planting years, while annual yield capacity was observed from four different farms. Resistance to CLR was following the method of OIRSA (2013) *cit.* de Melo Virginio Filho (2015), and resistance to CBB was according to Romero & Cortina-Guerrero (2004) and Sera et al. (2010) which re-developed by Sumirat (2012). Resistance to root lesion nematode *Pratylenchus coffeae* was according to Wiryadiputra *et al.* (2004) & Hulupi *et al.* (2007) with some modifications. The assessment of cup quality was accordingly to the SCAA system.

Conclusion/Perspectives

This result suggested the promising of participatory method for accelerating release of superior variety with multiple targeted traits. Moreover, impact of climate change to the coffee production should be answered as fast as possible. Distribution of the seeds is expected commencing in next two years mainly in surrounding region where this variety developed.

References:

[1] de Melo Virginio Filho et al. 2015. CATIE, [2] Hulupi et al. 2007. *Pelita Perkebunan*, 23: 1–16, [3] Sumirat. 2012. Thesis, Agrocampus-Ouest France, [4] Wiryadiputra *et al.* 2004. ICCRI.

Location	Environment			Yield potential (kg GB/ha/yr)				
	Soil type	Climate type	Altitude (m dpl)	Shade	Year 1	Year 2	Year 3	Means ^y
Uloh	Latosol	A-B	1392	Pine	1439	1382	1949	1590b
Ade Tia	Andisol	A-B	1450	Open	2465	5626	2381	3491a
Yayat	Andisol	A-B	822	Open	5363	4724	2510	4199a
Rohidin	Latosol	A-B	1395	Shade	1513	2250	---	1881b
Means					2695b	3495a	2280b	2790



Figure 1: Morphological traits of flush, mature leaf & cherries of AHERNT

Variety	Year 1	Year 2	Year 3	Average ^z
AHERNT	1439	1382	1949	1590a
Sigarar Utang	1334	1208	1293	1279b
Means	1387	1295	1621	1434

Note for left & right Table: ^yDifferent letter behind numbers in the same column and row showed significant different based on Tukey on 5% level. ^zNot observed.

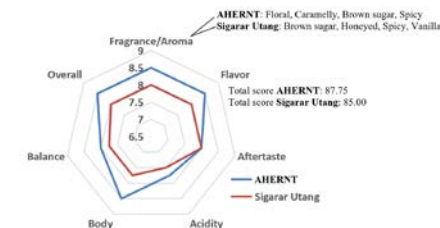


Figure 2: Spider chart of cup attribute on AHERNT and Sigarar Utang

Results/Discussion

The AHERNT was found more adaptive and stable compared to Sigarar Utang as control of Indonesian commercial variety with potential annual yield of 2,79 ton/ha green beans in average. This variety was also more resistant to CLR and CBB, while having the same resistance level to nematode compared to the control. Higher cupping score than control was completing the superior desired traits of this variety.