

(4a) Breeding resistant EAHB varieties: Release of available improved first- or second-generation EAHB hybrids	
Countries	6 African countries where EAHB are widely grown
Cultivar groups considered	1 Since efforts to develop high-yielding varieties resistant to major pests and diseases (specifically nematodes, weevils, and BLS) are focused on AAA EAH genome, only this cultivar group and corresponding production area are considered.
Current and likely future spread	The biotic constraints addressed through the resistant varieties are very widespread in the target domain, so we assumed that 100% of the EAHB area in the included countries is currently affected by these constraints and will continue to be affected over the next 25 years without major intervention.
Benefits:	
- Increase in yield	40%
- Reduction in postharvest losses	25%
Production costs	40% increase due to more expensive seed
Adoption ceiling	40% of the target domain in all countries 2-31% of the total national production area
Research period	none
Technology release	Adoptable varieties will be available to farmers in 7 years (the existing improved material would be subjected to 4 years of multi-locational testing and 3 subsequent years of on-farm testing)
Time from first adoption until estimated adoption ceiling will be reached	8-12 years depending on the country
Probability of success (up-take of technology)	50-80% The probability of success is high since the improved material is already available and is mainly driven by the extension capacity and infrastructure in the respective country.
R&D costs	\$5 million
Additional country-level costs	\$5 million (matched 1:1 with R&D costs)
Resource persons	Rony Swennen (EAHB, plantain); Frédéric Bakry (plantain, sweet acid), Edson Perito Amorim (sweet acid)

New EAHB breeding program (NEW) and Release of existing 2nd generation EAHB hybrids (RELEASE)

Country	Production Area ('000 ha)	Share of EAHB = Target Domain (% of total area)	Current Spread of Constraint (% of target domain)	Spread of Constraint in 25 Years without Major Intervention (% of target domain)	Adoption Ceiling NEW (% of target domain)	Adoption Ceiling RELEASE (% of target domain)
Burundi	371.05	54.91	100.00	100.00	60	40
Cameroon	184.41	4.22	100.00	100.00	60	40
DRC	391.62	6.89	100.00	100.00	60	40
Rwanda	343.64	67.29	100.00	100.00	60	40
Tanzania	537.68	62.74	100.00	100.00	60	40
Uganda	1,763.98	76.74	100.00	100.00	60	40

Source: Production from FruiTrop (2010); threatened and affected area and adoption ceiling estimates from resource persons.

Release of existing 2nd generation EAHB hybrids (RELEASE)

Country	Adoption Ceiling (% of total area) (At_{max})	Years to First Adoption (t_0)	Years to At_{max}	Yield Increase (%)	Reduction in Postharvest Losses (%)	Change in Input Costs (%)	Probability of Success (%)
Burundi	22	7	10	40	25	40	60
Cameroon	2	7	8	40	25	40	70
DRC	2	7	12	40	25	40	50
Rwanda	27	7	8	40	25	40	80
Tanzania	13	7	10	40	25	40	70
Uganda	31	7	8	40	25	40	80

Source: Expert estimates.