(2b) BXW management: GM-resistant varieties	
Countries	**14** African countries where BXW is either already present or will very likely spread in the near future if no major intervention occurs.
Cultivar groups considered	**3** Only "**AAA Cavendish**", "**other AAA**", and "**EAH AAA**" were considered since the efforts to develop GM varieties resistant to BXW currently focus on the AAA genome.
Current and likely future spread	The estimation of the current and likely future spread of the disease was made **separately for each cultivar group and country.**
Benefits: - Increase in yield - Reduction in postharvest losses	 **50%** **No effect**
Production costs	**40%** increase due to more expensive seed
Adoption ceiling	**30-75% of the (future) area affected** by BXW in the target domain given the high yield losses caused by the disease. **3-40% of the total national production area**
Research period	**7 years** (ongoing for the past 8 years already)
Technology release	**First adoption in 8 years** (all countries included)
Time from first adoption until estimated adoption ceiling will be reached	**10 years** for all countries
Probability of success (up-take of technology)	**60-80%** for Kenya, Uganda, Tanzania, and Ethiopia, where changes in the national law are in place or are underway, and thus release of GM varieties seems much more likely. **40%** for all other countries Given the high level of damage resulting from the disease and the low level of complexity of the new technology, the probability of success should be high. However, since at this point the legal status of GM crops is unclear in most countries included in the assessment, we assumed lower success probabilities compared to, for example, the 'BXW management with cultural practices'.
R&D costs	**$2.8 million**
Additional country-level costs	**$2.8 million** (matched 1:1 with R&D costs) Costs incurred at the country level for developing and enacting biosafety regulations or additional costs for licensing in excess of what is covered by the 1:1 matching funds of $2.8 million for all countries are not included in this assessment
Further assumptions	**Consumer preferences are the same** for the new GM varieties and there will be **no price differentials**.
Resource persons	Leena Tripathi, Guy Blomme

(2b) BXW Management - GM-resistant varieties

Country	Production Area ('000 ha)	Share of AAA Cultivar Group = Target Domain (% of total area)	Current Estimated Spread of BXW in Target Domain (%)	Spread of BXW in Target Domain in 25 Years without Major Intervention (%)	Adoption Ceiling (% of area affected in 25 years)
Angola	36.76	49.48	0.00	20.00	30
Burundi	371.05	74.67	30.00	50.00	30
Cameroon	184.41	29.20	0.00	20.00	30
CAR	49.17	42.71	0.00	100.00	30
DRC	391.62	28.71	20.00	100.00	30
Ethiopia	22.89	99.65	10.00	20.00	30
Kenya	80.49	38.96	5.00	10.00	75
Malawi	26.99	29.64	0.00	100.00	30
Mozambique	27.86	53.69	0.00	50.00	30
Rwanda	343.64	75.30	60.00	60.00	30
South Sudan	7.11	100.00	0.00	100.00	30
Tanzania	537.68	67.39	10.00	20.00	30
Uganda	1,763.98	82.48	60.00	65.00	75
Zambia	0.23	93.90	0.00	100.00	30

Source: Production information from FruiTrop (2010); threatened and affected area and adoption ceiling are estimates from resource persons; current and estimated future spread of constraint displayed in table above is weighted average of estimates by cultivar group.

(2b) BXW Management - GM-resistant varieties (continued)

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 (%)
Angola	3	8	10	50	0	40	40
Burundi	11	8	10	50	0	40	40
Cameroon	2	8	10	50	0	40	40
CAR	13	8	10	50	0	40	40
DRC	8	8	10	50	0	40	40
Ethiopia	6	8	10	50	0	40	60
Kenya	3	8	10	50	0	40	80
Malawi	9	8	10	50	0	40	40
Mozambique	8	8	10	50	0	40	40
Rwanda	14	8	10	50	0	40	40
South Sudan	30	8	10	50	0	40	40
Tanzania	4	8	10	50	0	40	60
Uganda	40	8	10	50	0	40	70
Zambia	28	8	10	50	0	40	40

Source: Expert estimates.