**Research option:**
Recovery of smallholder banana production in areas affected by banana bunchy top disease

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**Research for development in the following areas will lead to 2 research outcomes:**
- Diagnostic tools
- Genetic resource evaluation for mechanisms of tolerance and susceptibility and expression of symptoms
- Strategies for supplying clean planting material
- Epidemiology of BBTV and aphids
- Piloting integrated approaches to the recovery of BBTD affected areas

**Research outcome 1:**
Recovery of smallholder banana production in BBTV affected areas through TC supply chains:

Targeted towards areas of AAA banana production in Africa and Asia:

After 5 years: pilot approaches based on existing information and technologies and on research in the components above - (70% chance of success)
After 10 years: improved pilot approaches incorporating lessons and research results from first five years (chance of success 100%)
15 years: based on scaling out strategies developed in previous phases large scale use of outputs (100%)

Likely gains from research outcome 1:
Yield prior to BBTD spread – 15 t/ha/yr
Yield if BBTD is unchecked – 0 t/ha/yr
Yield with clean seed alone – 13 t/ha/yr
Yield with clean seed and cropping system intensification - 30 t/ha/yr
Research outcome 2:
Recovery of smallholder banana production in BBTV affected areas through local macro-propagation

Primarily applicable in East African highland banana areas and other areas of high diversity in Southern Africa and in Congo basin and West Africa

After 5 years: pilot approaches based on existing information and technologies and on research in the components above - (70% chance of success)
After 10 years: improved pilot approaches incorporating lessons and research results from first five years (chance of success 100%)
15 years: based on scaling out strategies developed in previous phases large scale use of outputs (100%)

East African Highland systems
Likely gains from research outcome 2:
Yield prior to BBTD spread – 8 t/ha/yr
Yield if BBTD is unchecked – 0 t/ha/yr
Yield with clean seed alone – 6 t/ha/yr
Yield with clean seed and cropping system intensification - 15 t/ha/yr

Congo y West Africa plantains mixed with other cultivars systems
Likely gains from research outcome 2:
Yield prior to BBTD spread – 7 t/ha/yr
Yield if BBTD is unchecked – 0 t/ha/yr
Yield with clean seed alone – 5 t/ha/yr
Yield with clean seed and cropping system intensification - 12 t/ha/yr