## Fusarium Research Option A: Improved quarantine and surveillance measures to avoid spread of Fusarium TR4

<table>
<thead>
<tr>
<th>Countries</th>
<th>29 (11 African countries, 10 Asian countries, 8 LAC countries) where Fusarium is either already present or will very likely spread in the near future if no major intervention occurs.</th>
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</table>
| Cultivar groups considered | 6  
AAA Cavendish, other AAA, EAH AAA, AAB Plantain, other AAB, and ABB in all African, Asian and LAC countries included |
| Current and likely future spread | Although Fusarium TR4 is already present in some countries, we assume that the production area currently affected is zero percent in all countries since there are no reliable figures about the actual spread. The estimation of the likely future spread of the disease was made separately for each cultivar group and country by applying a ‘Foc scale’ that we developed. We assumed that 100% of the banana production area in the included countries is susceptible to Foc. |
| Benefits: |  
- Increase in yield |
- Reduction in postharvest losses |

### Production and other costs

- Production costs: no effect

  Costs of establishing quarantine system: $50/ha in year 5 for countries with high importance to banana and in year 10 for countries with low importance to banana

  Costs of maintaining quarantine system: $5/ha/year prior to Foc arrival, $10/ha/year after Foc arrival

| Adoption ceiling | Given that quarantine and surveillance measures are executed at the national level, we assumed that all farmers “adopt” or benefit from the technology once the country implements the quarantine scheme. This translates into an adoption ceiling of 100% of the (future) area affected by Fusarium across all countries. This translates into 2-51% of the total national production area. |
| Research period | 5 years |
| Technology release | The technology will be available in 8 years in all included countries (5 years of research and 3 more years until technology is released to farmers) |
| Time from first adoption until estimated adoption ceiling will be reached | 10 years |
| Probability of success (up-take of technology) | 80% |
| R&D costs | US$16.24 million |
| Additional country-level costs | US$16.24 million (matched 1:1 with R&D costs) |
| Resource persons | Charles Staver, Miguel Dita, Luis Perez Vicente |
(6a) Fusarium Research Option A: Improved quarantine and surveillance measures to avoid spread of Fusarium TR4

<table>
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<tr>
<th>Country</th>
<th>Production Area ('000 ha)</th>
<th>Area threatened by/susceptible to Foc (% of production area)</th>
<th>Current estimated spread of Foc (% of production area)</th>
<th>Spread of Foc in 25 years (% of threatened area)</th>
<th>Adoption Ceiling (% of area affected in 25 years)</th>
<th>Adoption Ceiling (% of production area)</th>
<th>Years to First Adoption (t)</th>
<th>Years to reach maximum adoption</th>
<th>Yield Increase (%)</th>
<th>Reduction in Post-harvest Losses (%)</th>
<th>Change in Input Costs (%)</th>
<th>Probability of Success (uptake of technology)</th>
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Source: Strategic Assessment of Banana Research Priorities report