Video Script: Target Domain

When starting to estimate benefits, we need to pay attention to the share of the production area that is affected by the constraint or for which the new technology is suitable i.e. the target domain for our intervention.

This consideration is a little more complex in the case of bananas in comparison to other crops due to the large differences between banana cultivars. These cultivars differ in characteristics such as susceptibility to certain diseases, tolerance to different types of abiotic stress, prevalent and most suited production practises and marketing channels. When thinking about the target domain for a certain banana research intervention, it is thus not enough to know the total banana production area for the countries targeted with the research, but instead a disaggregated view by cultivar group is required. In our elicitation of key constraints as well as the assessment of research options, we disaggregated total banana production into the area planted with the following six cultivar groups:

- Cavendish AAA
- Other AAA, Gros Michel, AA
- East African Highland AAA
- Plantain AAB
- Other AAB, incl. South Pacific plantains
- ABB cooking bananas

We will illustrate how this works in this video. Imagine a country with a total banana production area of this size. This area can be subdivided into different production systems characterized by a specific cultivar group (for example Cavendish, Grand Michel, East African Highland Bananas, AAB Plantains) and crop association (for example mono-culture plantations, mixed cropping systems) that are found in the country.

Now let's assume, that the constraint that we are targeting with our research intervention is a pathogen that can lead to devastating yield reductions. The pathogen, however, is not threatening the whole banana production area in this country. First, two out of six cultivar groups are naturally resistant to the pathogen and thus will not exhibit any negative symptoms. Second, our pathogen doesn't like the cold too much and banana plants of the four remaining cultivar groups that are grown in high altitude regions will not be harmed. As a result, only a share of the total production area (symbolized by the shaded area here) is actually susceptible to the pathogen. This area is our so-called target domain.

If the pathogen in our example has entered the country in the past, some part of this target domain may already be infected at the beginning of our assessment. We now need an estimate of how much the constraint (the pathogen in our example) would spread over the course of the assessment period in the absence of our research intervention. This area is called the *refined target area* and is the basis for computing the benefits of the intervention (or the counterfactual).

Here we go, we have now narrowed down the target domain and refined target domain starting from the total banana production area of a country. We can now con continue with the next section that will explain the meaning and application of an adoption profile.

Target domain

1

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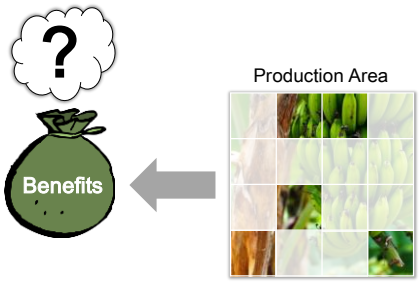

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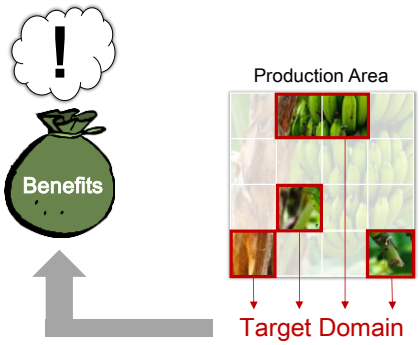

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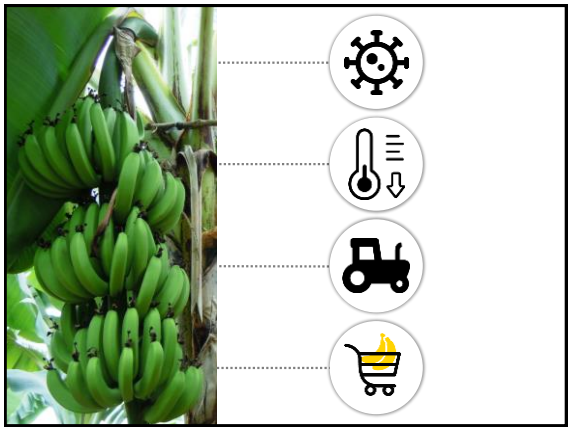
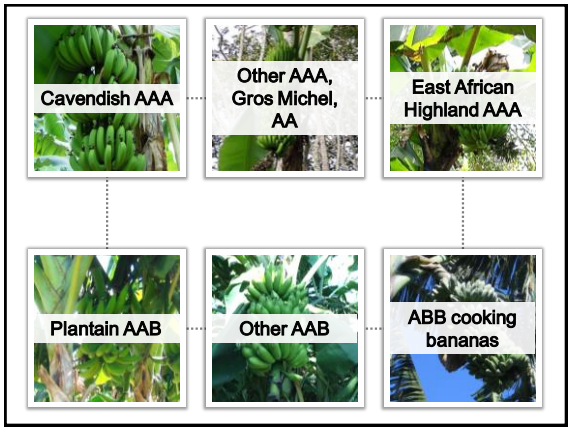
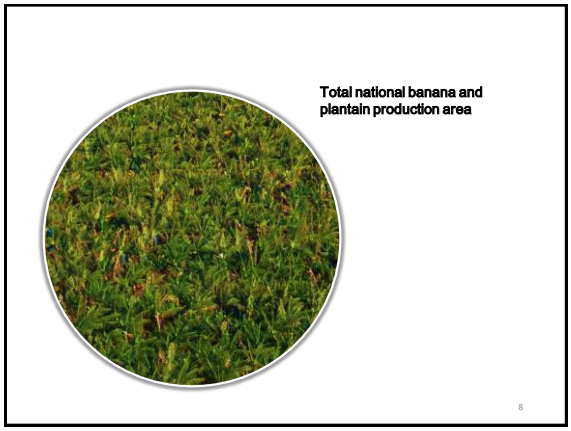
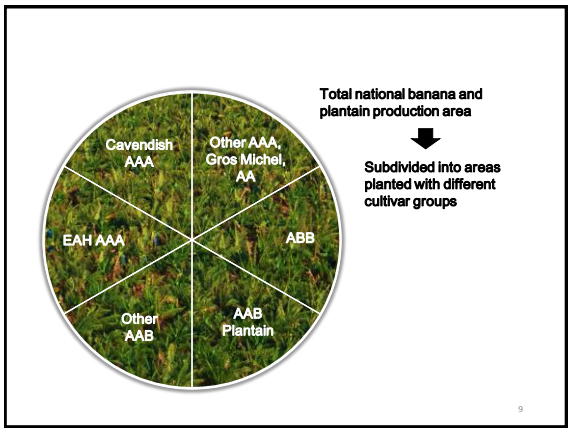
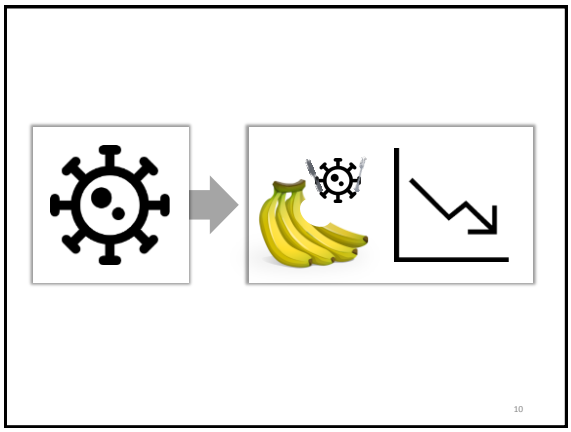



Cavendish AAA
Other AAA, Gros Michel, AA
East African Highland AAA
Plantain AAB
Other AAB
ABB cooking bananas


Total national banana and plantain production area
8


Cavendish AAA
Other AAA, Gros Michel, AA
EAH AAA
ABB
Other AAB
AAB Plantain
Total national banana and plantain production area
Subdivided into areas planted with different cultivar groups
9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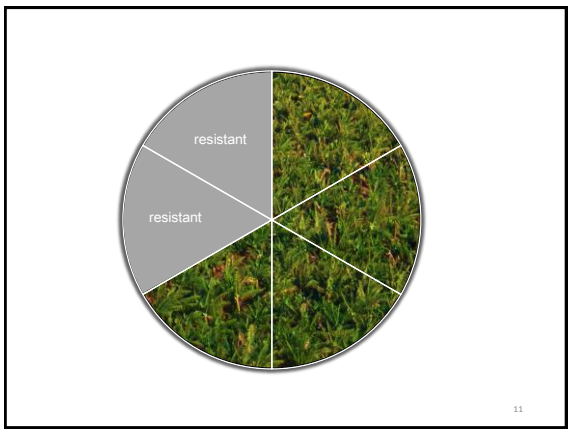
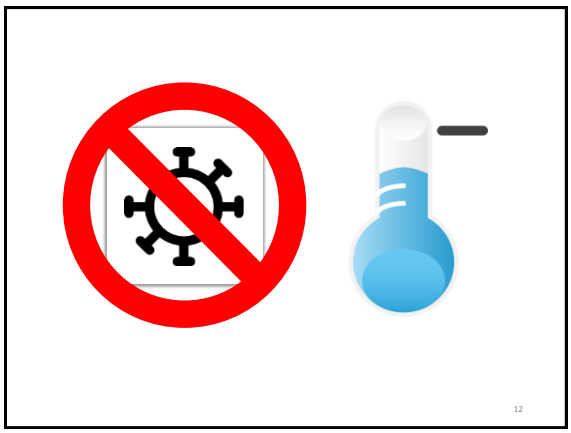

resistant
resistant
11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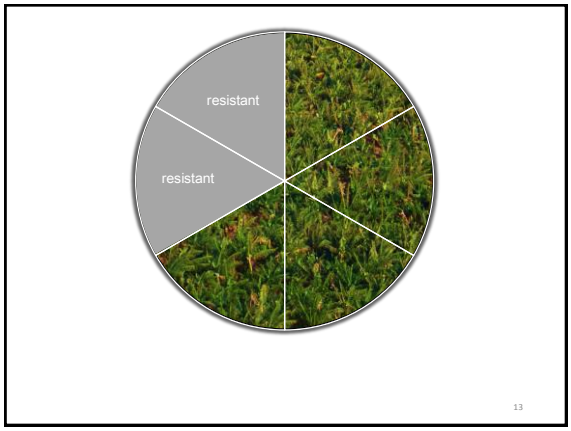
resistant
resistant
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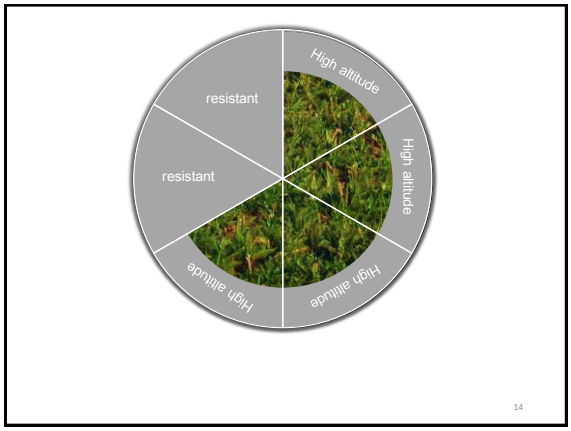
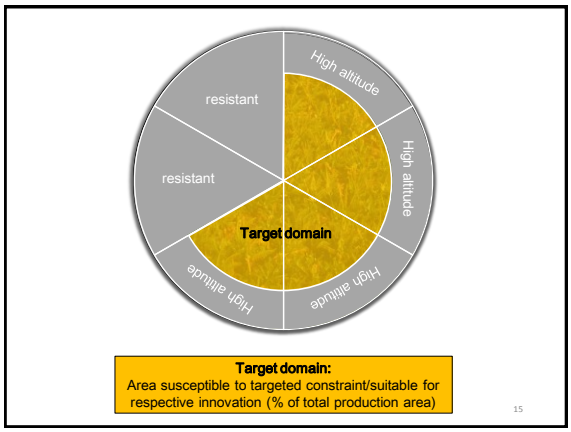
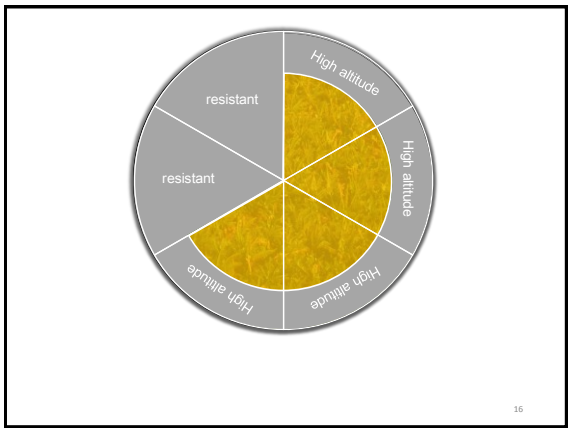
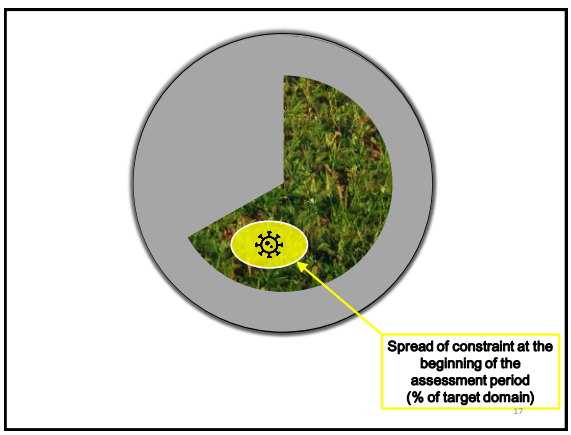
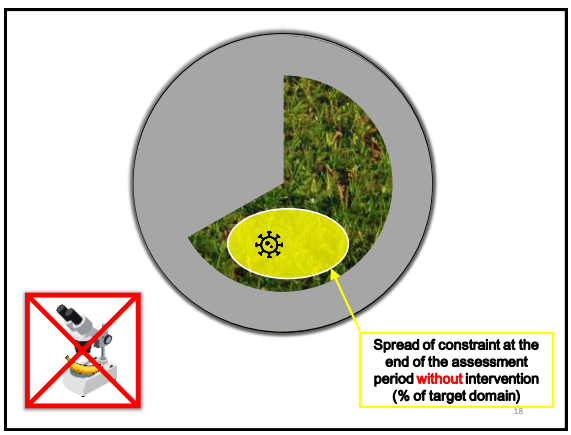
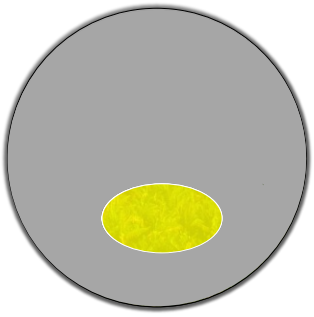

High altitude
resistant
High altitude
resistant
High altitude
14


High altitude
resistant
High altitude
resistant
Target domain
High altitude
High altitude
Target domain:
Area susceptible to targeted constraint/suitable for respective innovation (% of total production area)
15


High altitude
resistant
High altitude
resistant
High altitude
High altitude
16

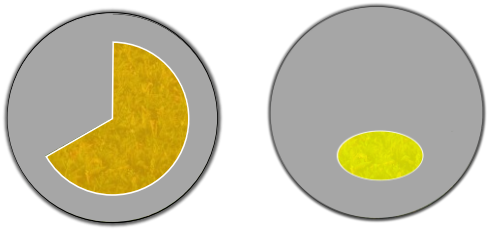

Spread of constraint at the beginning of the assessment period (% of target domain)
17


Spread of constraint at the end of the assessment period without intervention (% of target domain)
18



Refined target domain:
Area affected by the constraint at end of assessment period (in 25 years) without intervention (% of total production area)

19



Target domain

Refined target domain

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Adoption profile

Production and Narration (November 2016):
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