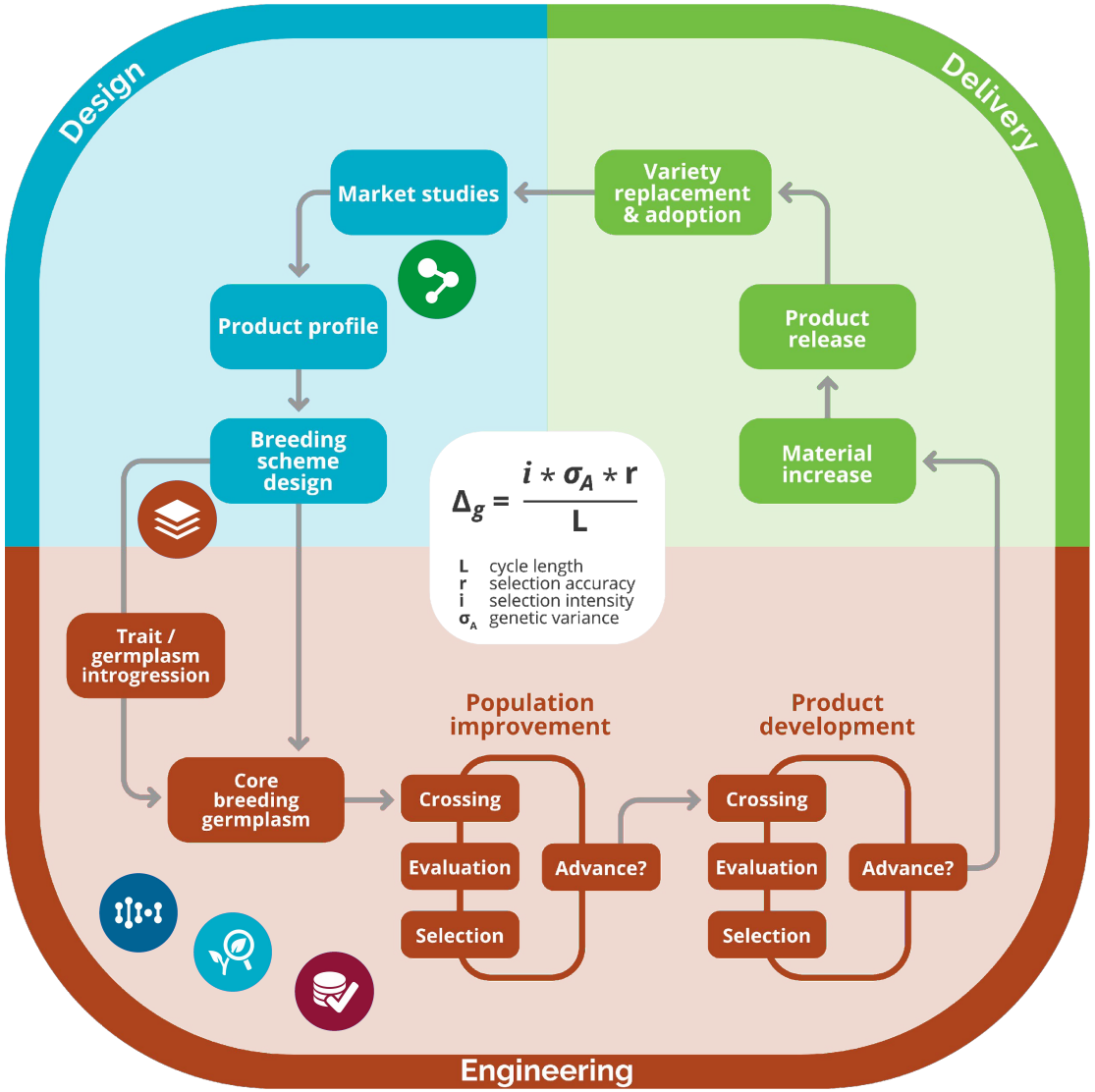
Breeding scheme optimization

Giovanny Covarrubias-Pazaran

Where breeding scheme optimization fits?



- Encourage formalization the breeding process.
- Help formalize breeding schemes.
- Design crossing, evaluation, selection strategies.
- Link to pertinent modules.

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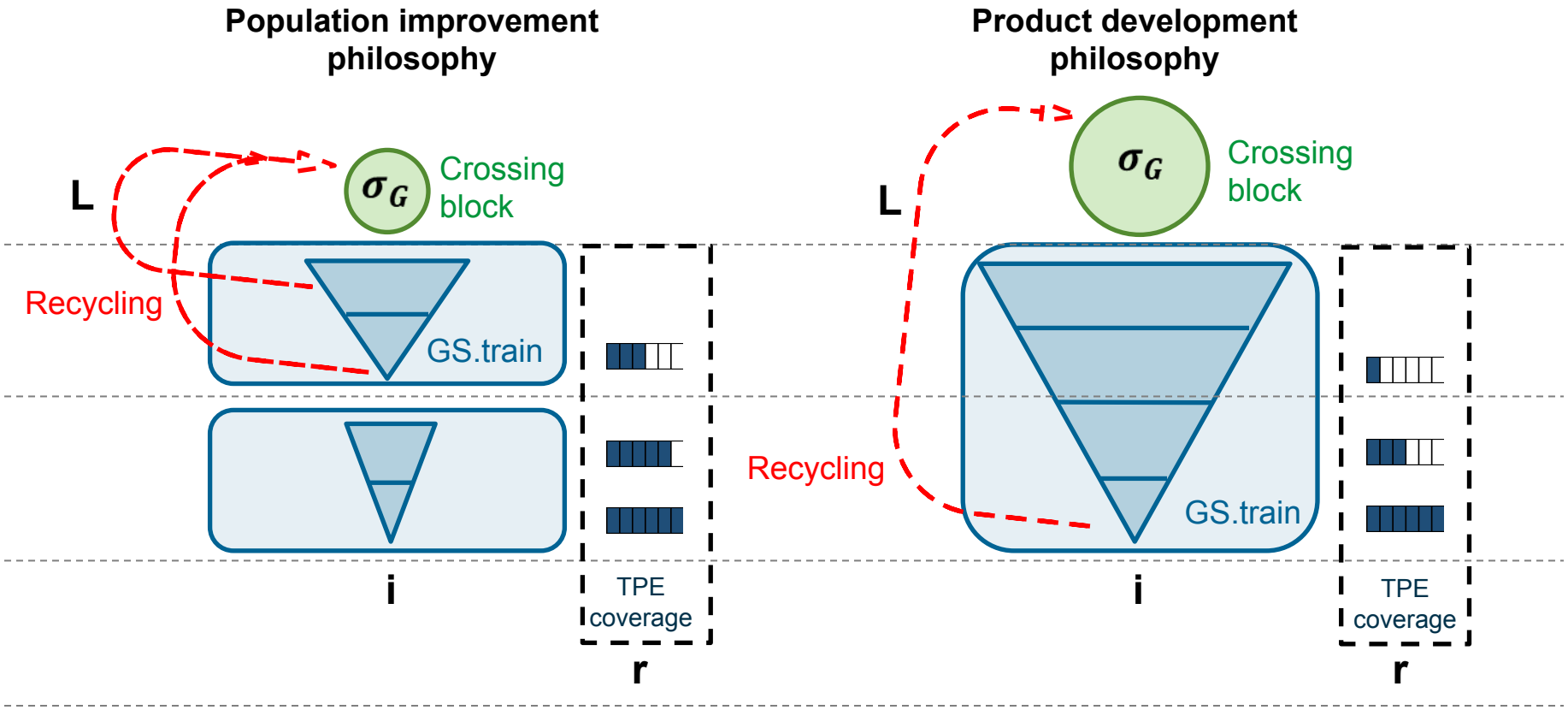
Philosophy of breeding scheme optimization



Features

1. Focus on parent selection as early as possible (L)
2. Products are a spin off
3. Moderate size (i)
4. TPE covered early (r)
5. GS focused in recycling

1. Focus on product selection as accurate as possible (i)
2. Parents are a spin off
3. Big size (i)
4. TPE covered until PD (r)
5. GS focused in skipping stages

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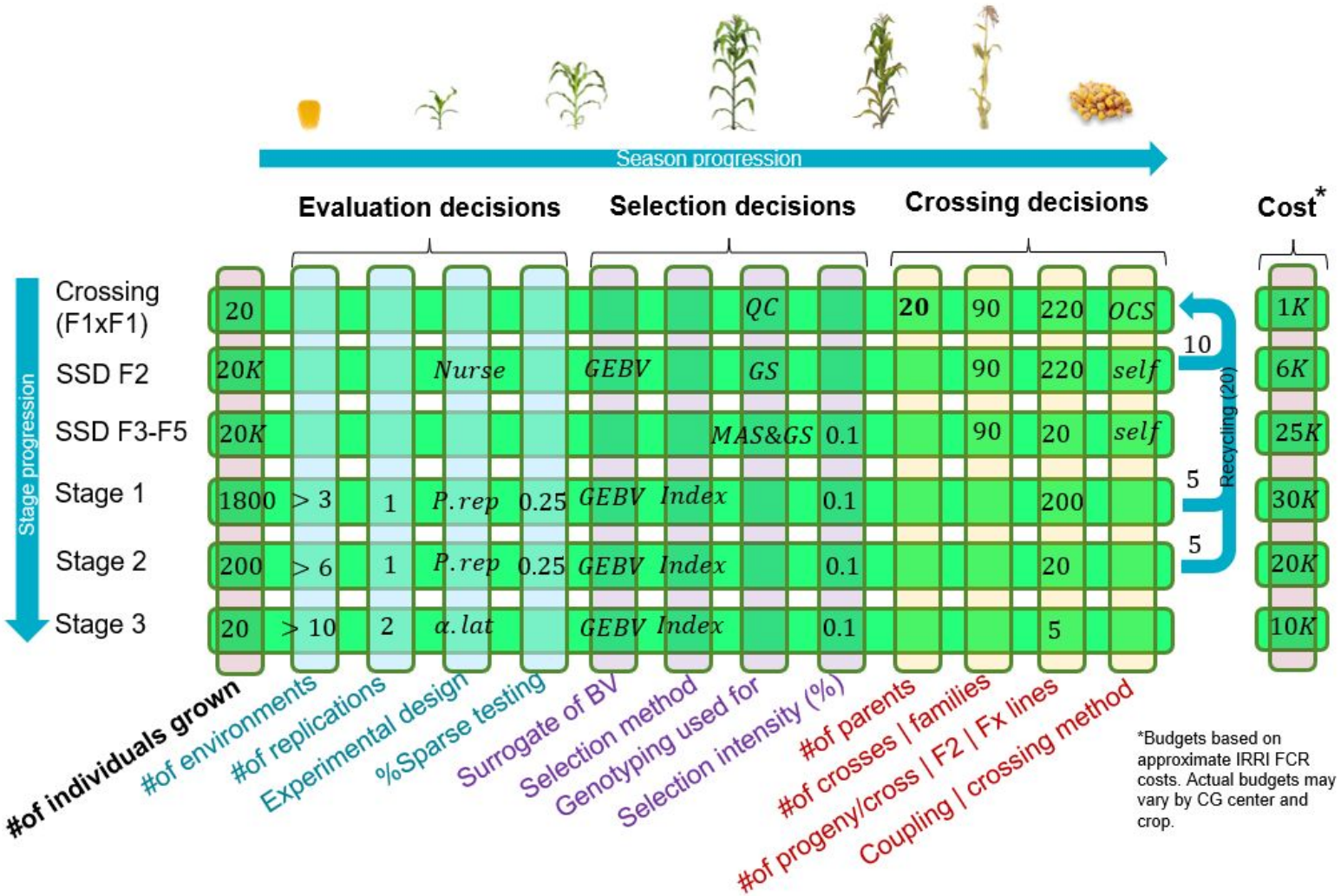
What this module offers partners?

- Direct Support
  - Pipeline formalization
  - Opportunity assessment of strategy
  - Simulation support for proper adoption of technology/strategies
  - Retrospective analyses
- Capacity building
  - Forums for sharing ideas (Community of practice)
  - Workshops/trainings
  - “How to” manuals

Achievements 2020: Direct support



- Formalizing pipelines helps programs addressing structural changes.

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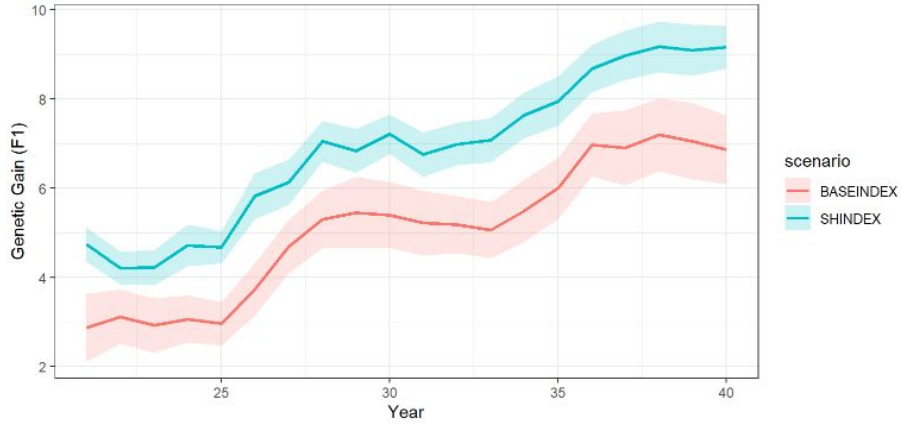
Achievements 2020: Direct support

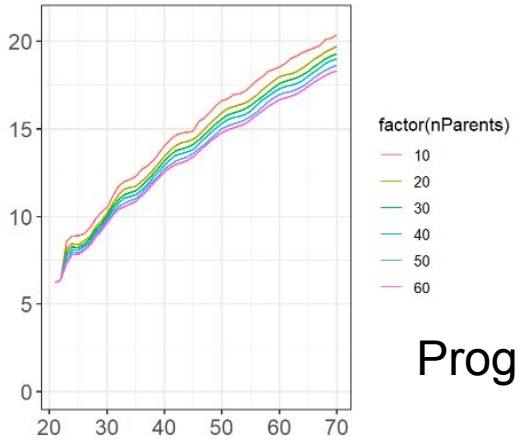
- Simulations help answer important questions.

Etc.

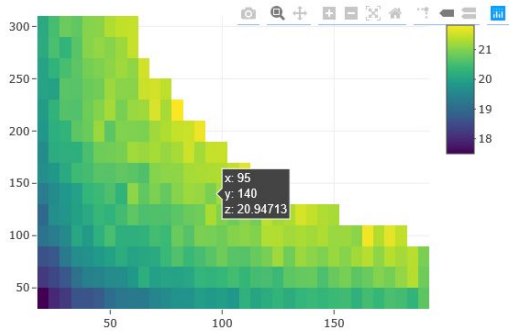
Selection index



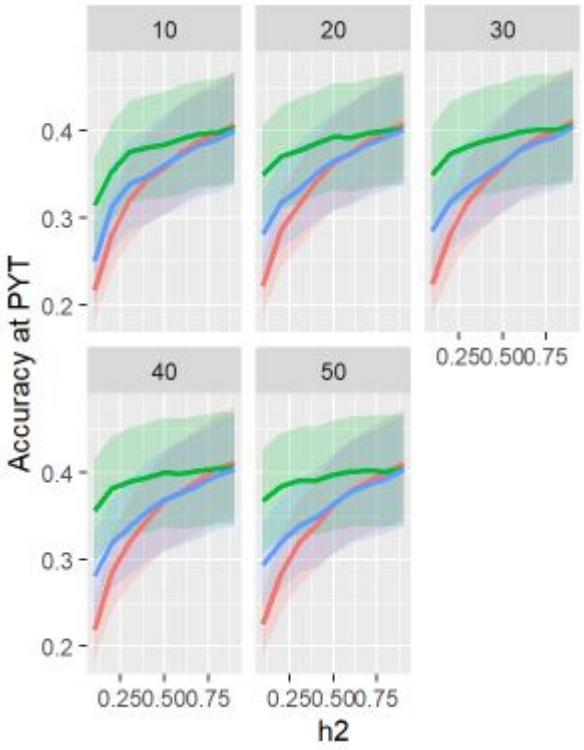
Heterosis



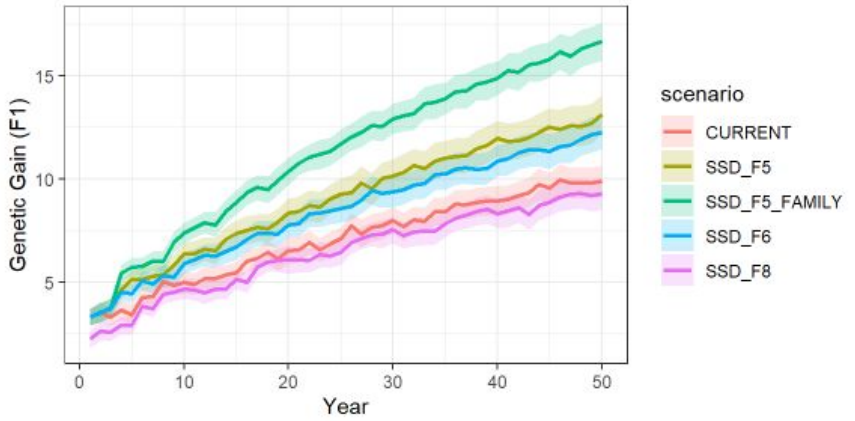
Program size



GS implementation



Recycling strategy



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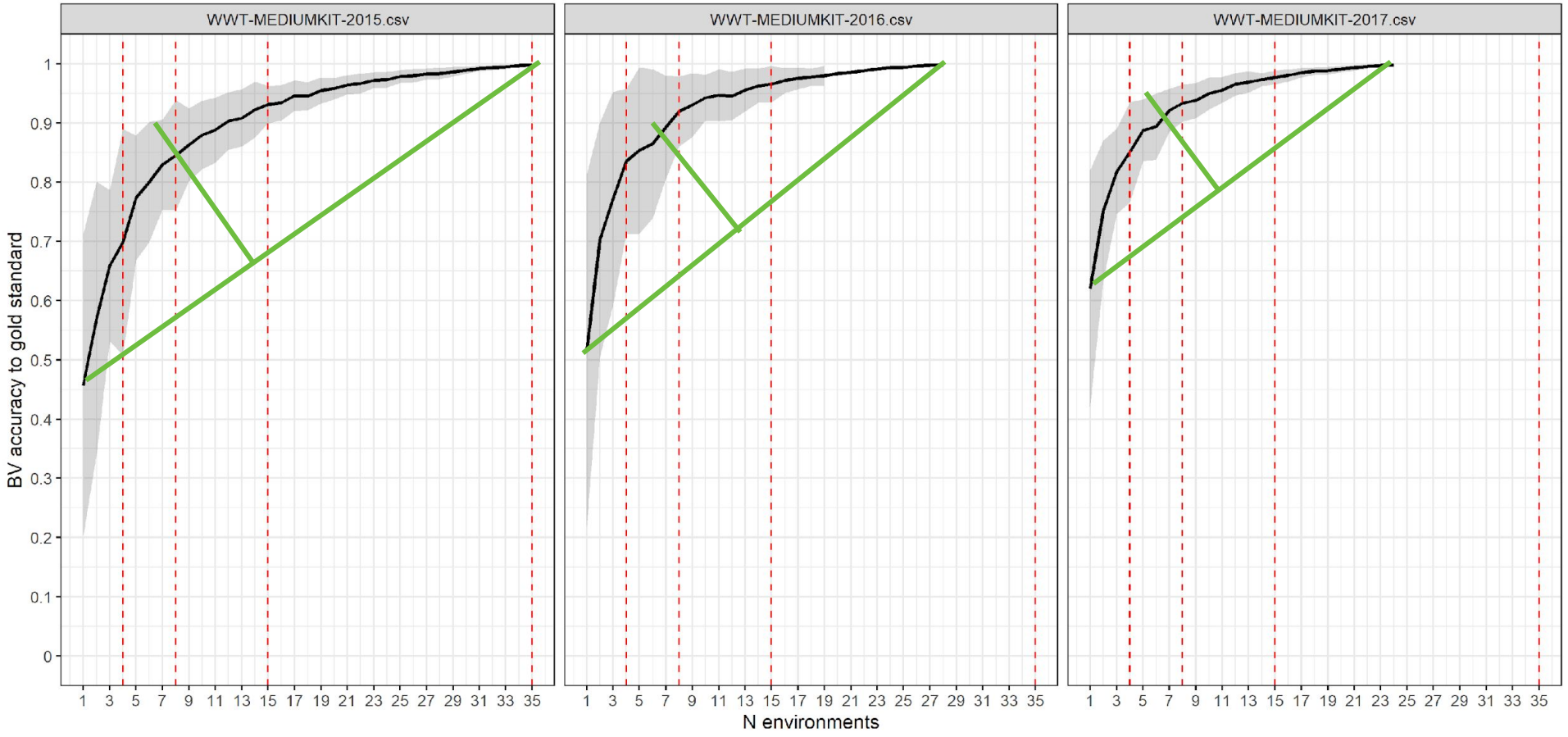
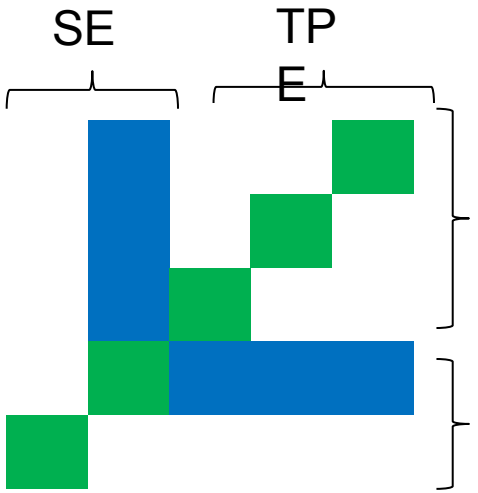
Achievements 2020: Direct support

- Retrospective analysis help improve decision making.





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Achievements 2020: Capacity building

D — **Define** the problem and your objectives

What do we want to do? Why?

M — **Measure** the way we currently work to quantify the problem

What are our inputs and steps? What are our outputs and results?

A — **Analyze** the data to understand the cause of the problem

Why are things happening a certain way? What is at the "root"?

I — **Improve** the way we work: identify, test, plan, and implement solution

What changes will be most effective? How do we act on them?

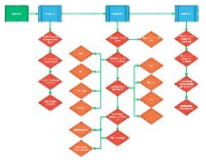
C — **Control** the implementation by monitoring the transition

How are we progressing? Are our changes working?

Project charter

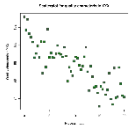
- **Business Case**: where this fits in terms of our overall goals
- **Problem Statement**: the issue we have identified and intend to resolve
- **Goal Statement**: what we hope to achieve
- **Project Scope**: defines the project boundary
- **Project team**: members, descriptions, and roles and responsibilities
- **Milestones**: timelines and key deliverables
- **Benefits**: approximation of what we expect the project will achieve

Process flowchart

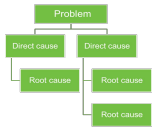


Value stream mapping

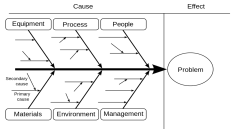
Correlation analysis



Problem tree



Fishbone analysis



Simulation

Improvement plan

Implementation plan

Control plan

- Training on continuous improvement methods applied to breeding scheme design.

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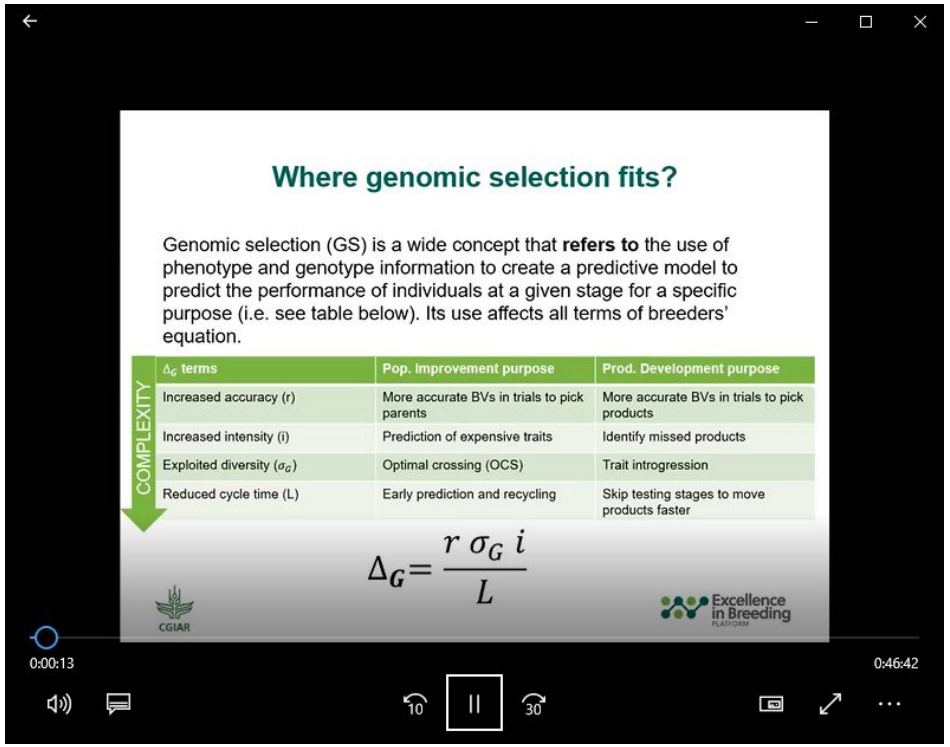
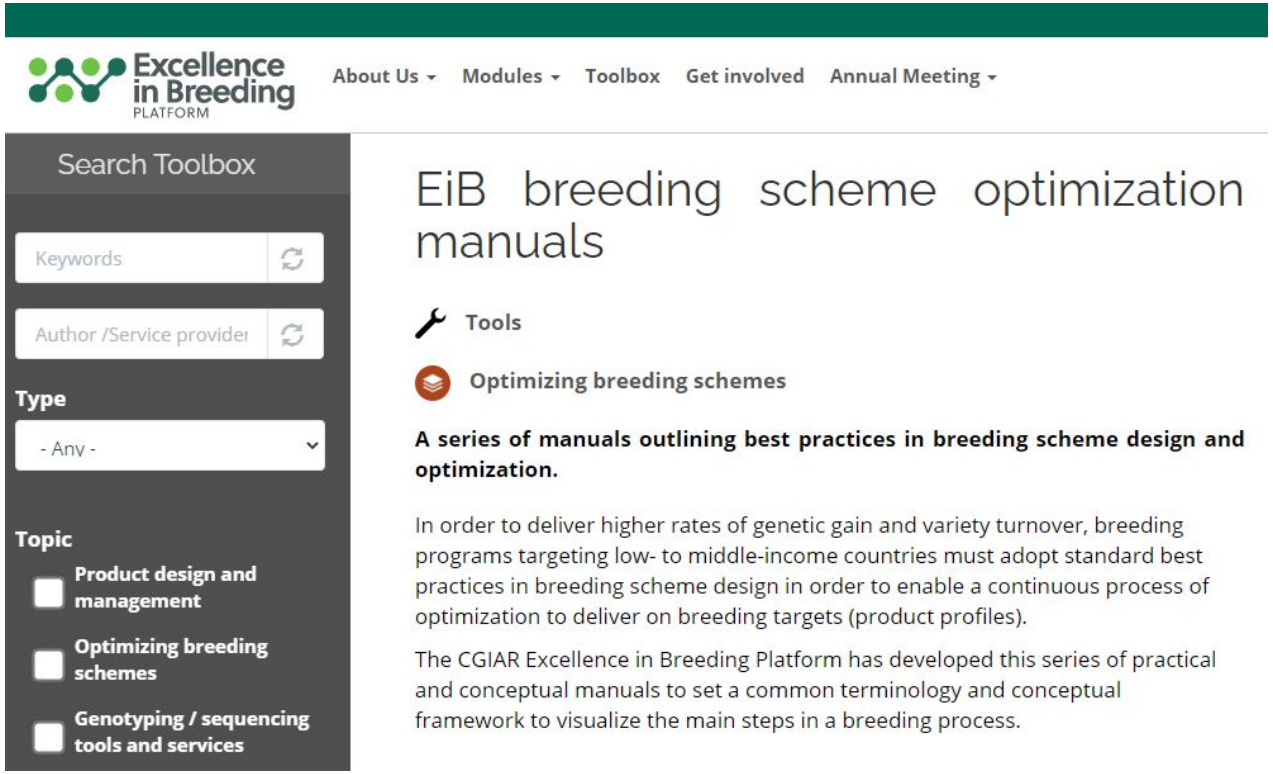
Achievements 2020: Capacity building

- Knowledge transfer motivates adoption.

CoP meetings





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Challenges from 2020

- Critical mass of M2 team to attend the #of pipelines
- Lack of culture of data usage in some programs
- Tradition is difficult to beat
- Population improvement vs product development philosophy
- Definition of market segments and targets in progress

What to expect in 2021?

- Shared services
  - Simulation software, GUIs,
- Direct support:
  - Team expansion for greater 1:1 support
- Capacity building:
  - New trainings (Breeding scheme design)

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