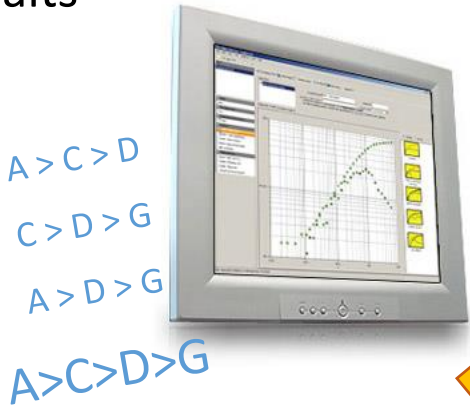# Farmers' generated data for climate adaptation: experiences from three continents

Bioversity International, Information Services and Seed Supplies

The cycle of tricot research

5. Data are used to evaluate varieties and to detect demand for new varieties and traits
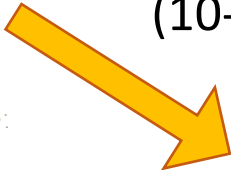
A > C > D

C > D > G

A > D > G

A>C>D>G

1. A broad set of varieties (10-25) is evaluated

2. Each farmer gets a combination of 3 varieties

6. Farmers receive variety recommendations and can order seeds

4. Project managers collect farmers' observations by phone

3. Farmer plants a trial and makes observations

Paso 1. A 30 días de la siembra
Fecha: _____

El mejor follaje   A B C   El peor follaje   A B C

Mejor altura   A B C   Peor altura   A B C

van Etten et al. (2016) *Expl. Agric.*
Beza et al. (2017) *PloS ONE* **12**(5):e0175700
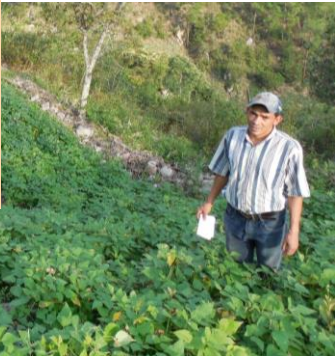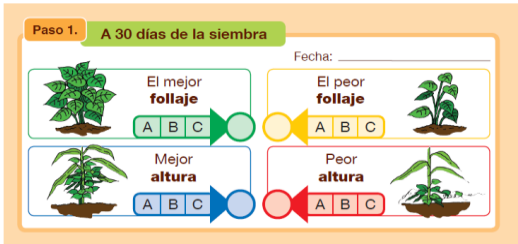
> 22k on-farm trails

> 170 varieties

3 continents

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What we learned

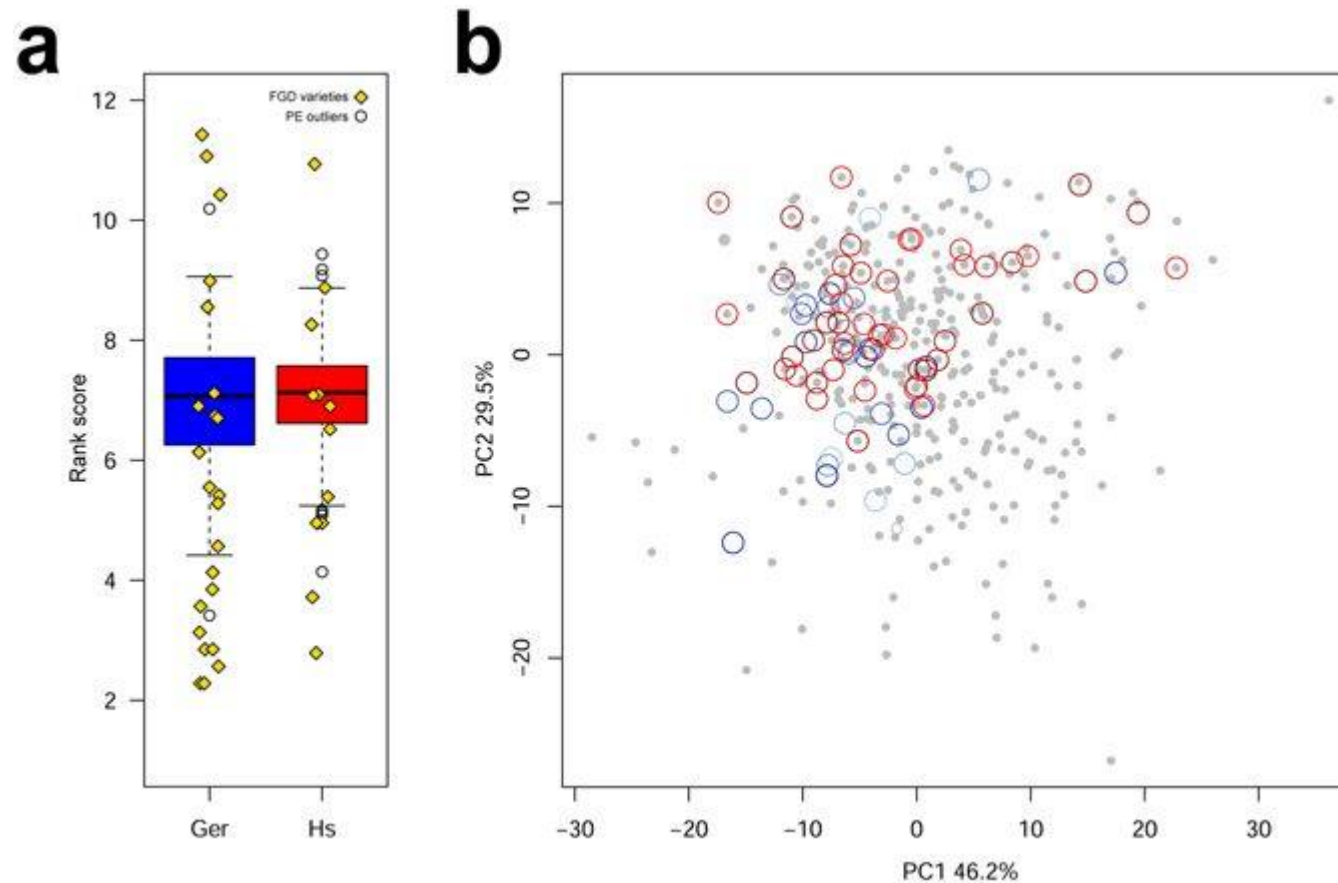# Farmers' generated data are reliable

Plant vigor — Disease resistance

Discriminative ability
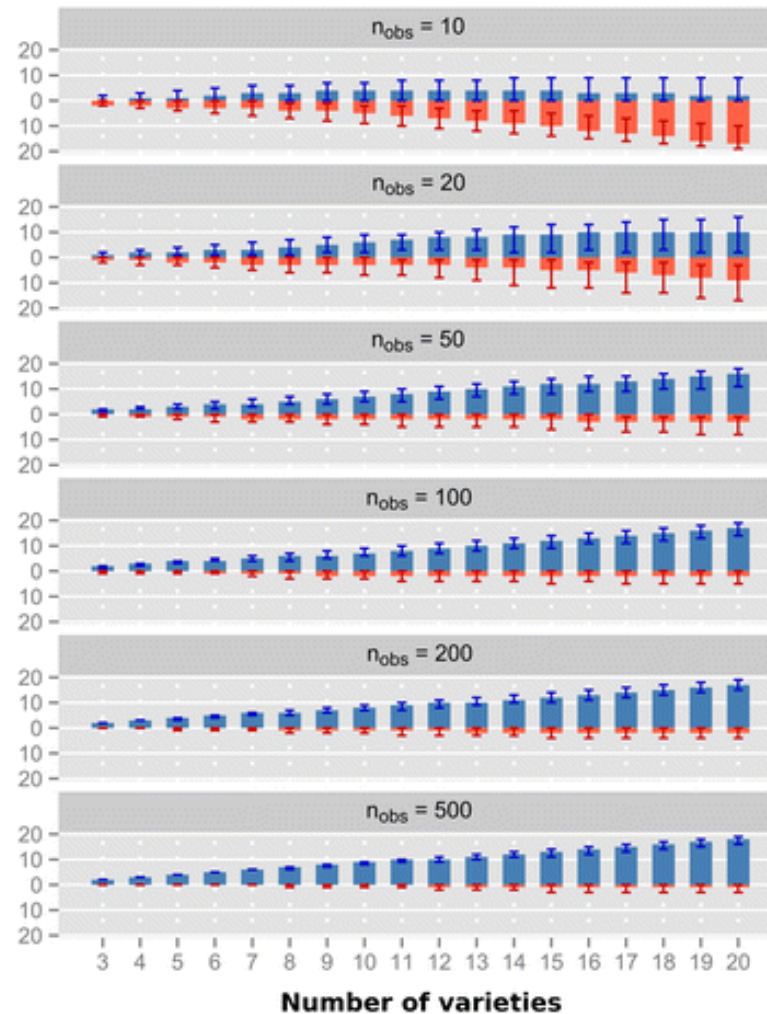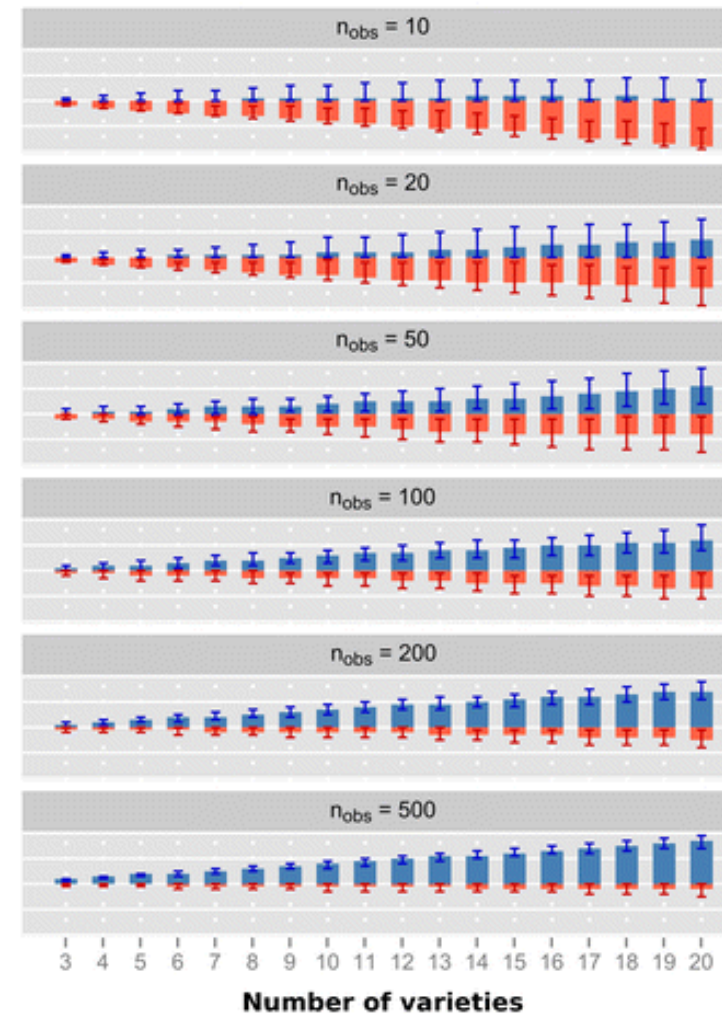
Varieties distinguishable from best
Varieties **not** distinguishable from best

Number of varieties

Steinke et al. (2017) *Agron. Sustain. Dev*. (2017)37:32

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Farmers supports plant breeding initiatives

Mancini et al. (2017) *Sci. Rep.* 7: 9120

Register the effects of climate on crop performance

van Etten et al. (2019) PNAS **116**(10):4194-4199
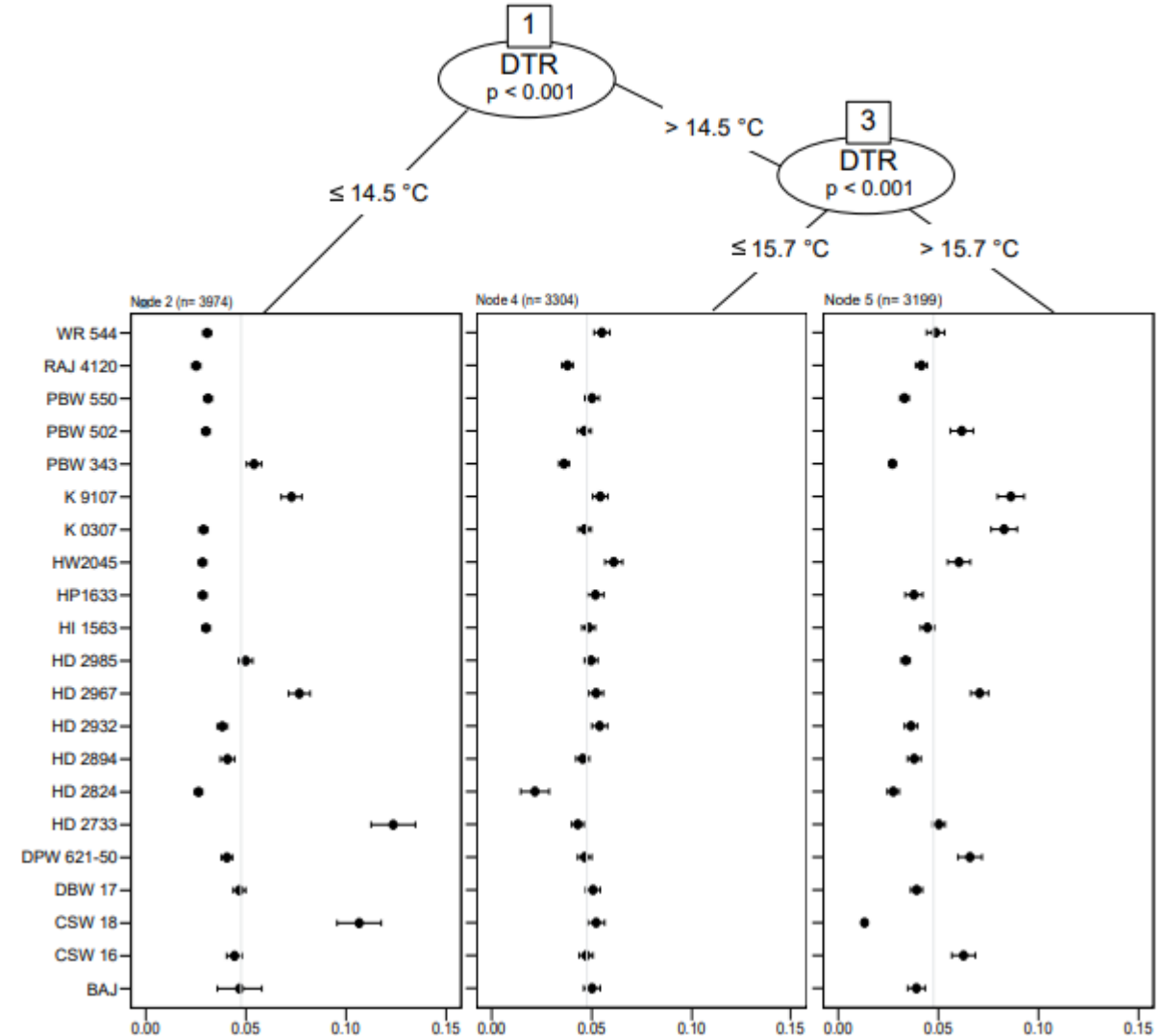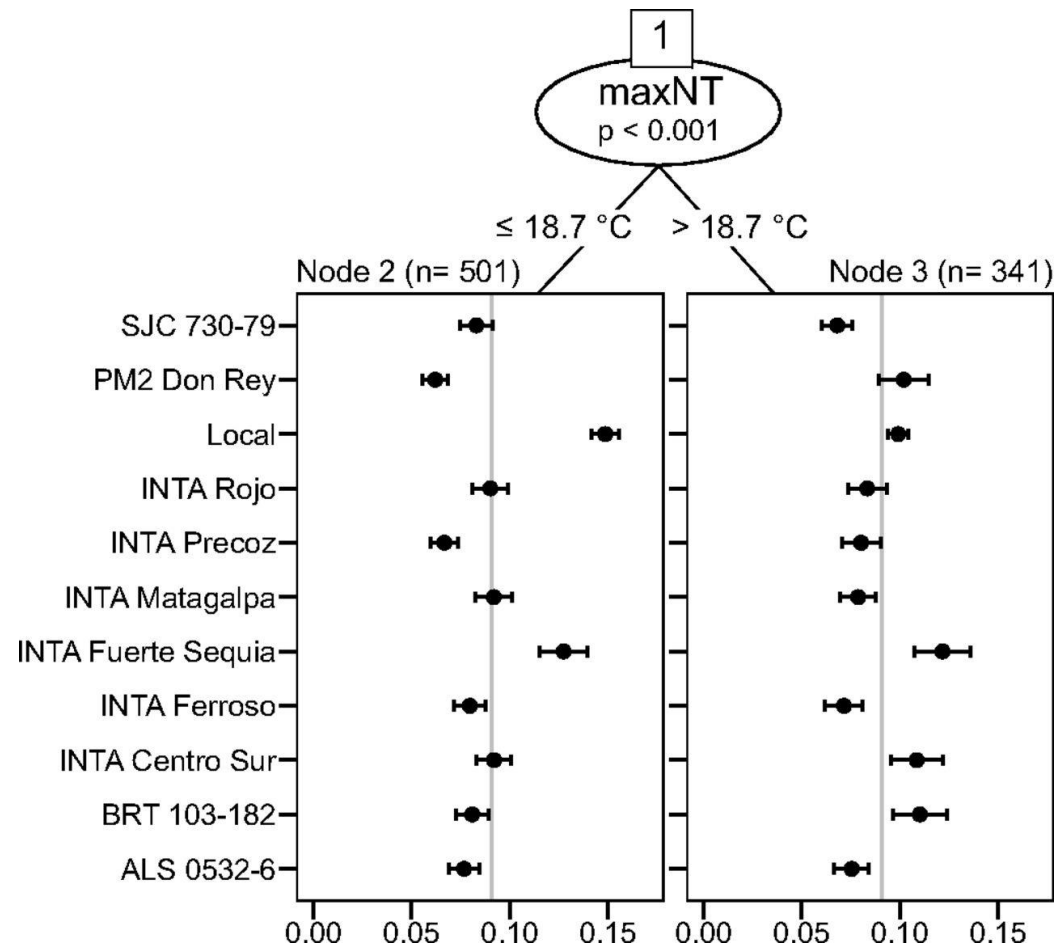
Variety replacement for climate adaptation

van Etten et al. (2019) PNAS **116**(10):4194-4199
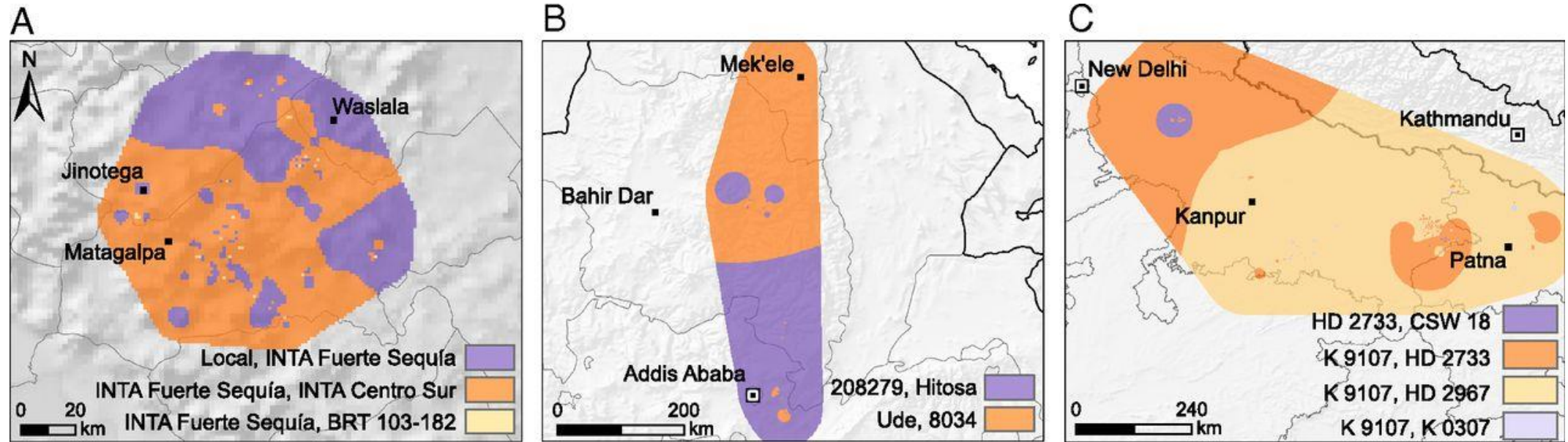
Farmers keep crop diversity

Vaishali (486 farmers)

- Gotra Bidhan 1
- Pusa Sugandh 5
- IR 64
- Sarju 52
- Sahabhagi dhan
- Prabhat
- MTU1010
- Malaviya dhan 2

Samastipur (250 farmers)

- Gotra bidhan1
- Sahbhagi dhan
- Pusa sugandh5
- Annada
- Malviya dhan-2
- Sarju-52
- MTU-1010
- IR-64
- Prabhat
- Rajshree
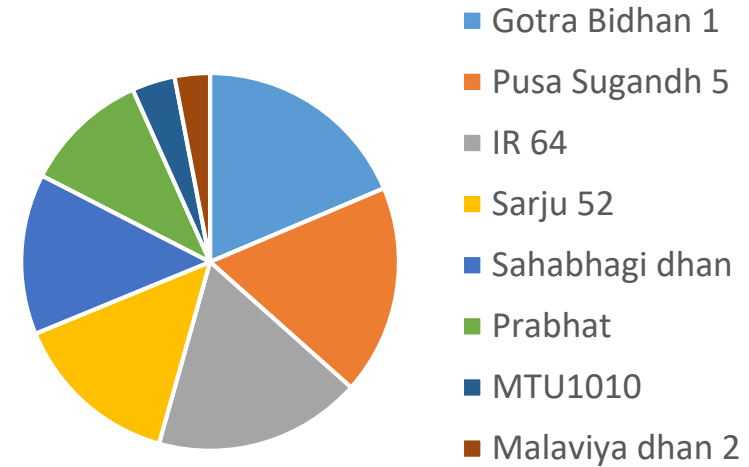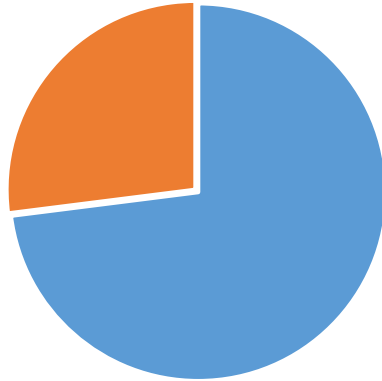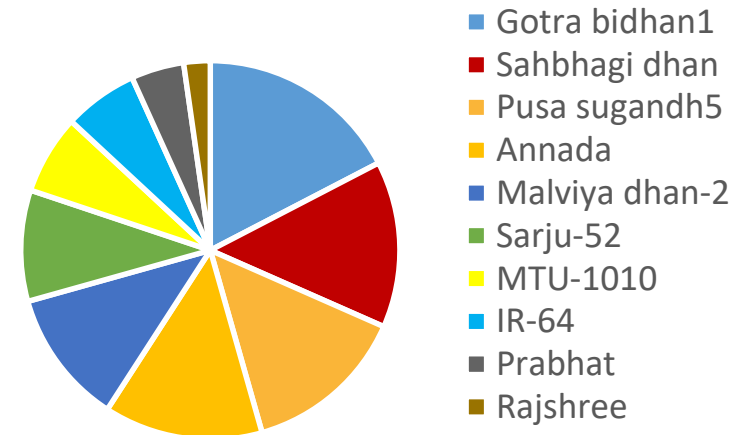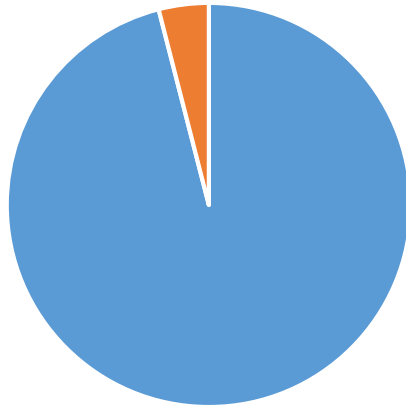
■ Want to save seeds   ■ Don't want to save seeds

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Effects: Up-scaled diverse seed production in Honduras

- Many more farmers want to participate in crowdsourcing

  - Local NGO sells tricot packages as "diversity test kits"

  - "Local farmer research committees" now produce seed of many varieties commercially

- National seed law recently changed – CIAL-produced seed can be sold

- First official release of common bean variety after multiple seasons of tricot trialling

Is a cost-effective approach
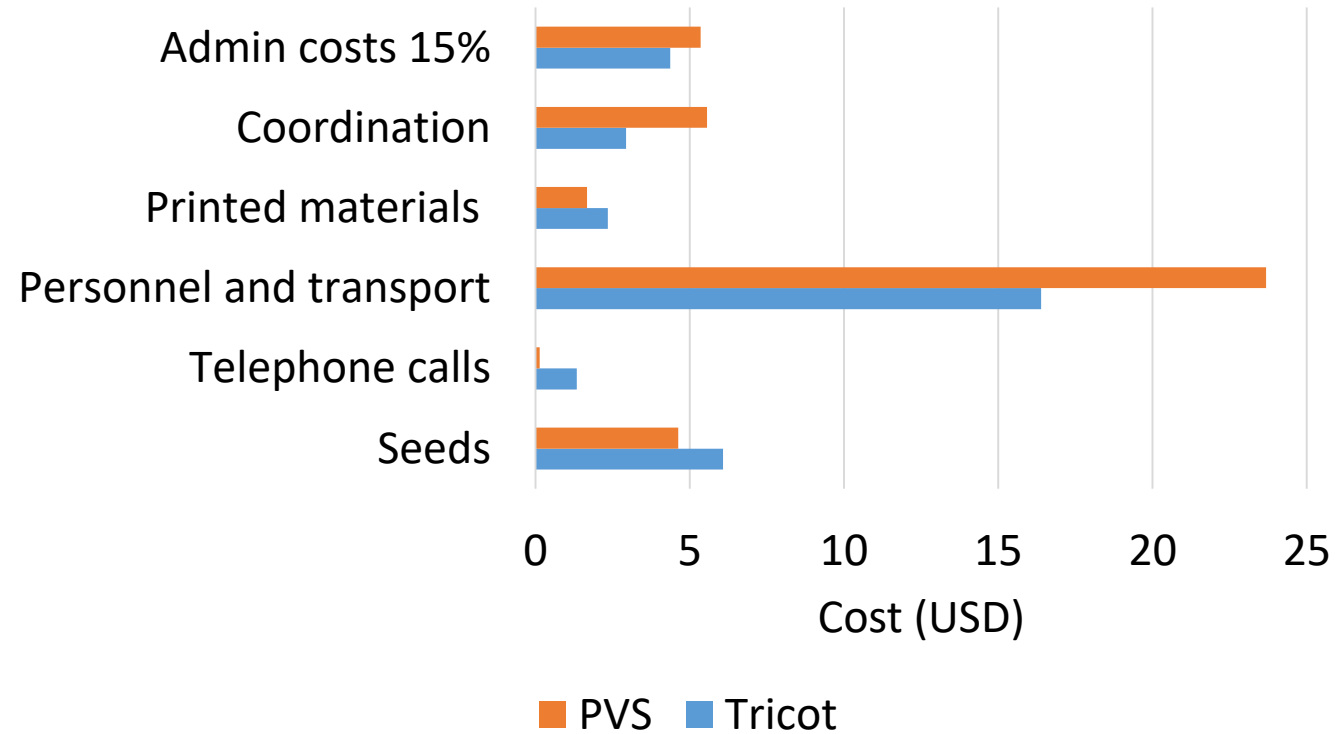
Thank you!

This is a compilation of several presentations of the members of Bioversity International's "Information Services and Seed Supplies" Team. If you intend to cite it please do it as:

de Sousa, K; Steinke, J.; van Etten, J. (2019) Farmers' generated data for climate adaptation: experiences from three continents

Other materials used in this training course are available at:

https://github.com/kauedesousa/ClimMobTools