



RESEARCH
PROGRAM ON
Grain Legumes



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PABRA in the era of the CGIAR Research Program on Grain Legumes

*Eastern and Central Africa Bean Research
Network
Annual Steering Committee Review and
Planning Meeting*

Kampala Uganda
3rd – 7th February 2014
By Ellis Noel

www.grainlegumes.cgiar.org

*Leveraging legumes
to combat poverty, hunger, malnutrition and
environmental degradation.*



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IN PARTNERSHIP WITH



and public and private
institutes and organizations,
governments, and farmers
worldwide



Vision

Health, food security, environmental sustainability and increased smallholder income

Mission

Leveraging legumes to combat poverty, hunger, malnutrition and environmental degradation.



Our goal is to enhance the **food security**, **income** and **health** of resource-poor farmers in Africa through research on beans. To achieve this goal, we work in partnership with farmers and rural communities, Non-Government Organizations.



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In collaboration with:

Generation Challenge Program (GCP)

Brazilian Agricultural Research Corporation (EMBRAPA)

Ethiopian Institute of Agricultural Research (EIAR)

Indian Council of Agricultural Research (ICAR)

Turkish General Directorate of Agricultural Research (GDAR)

Feed the Future Innovation Lab for Collaborative Research on:

Grain Legumes

Peanut and Mycotoxin

National agricultural research and extension systems in Africa, Asia and Latin America

National and international public and private sector research and development partners



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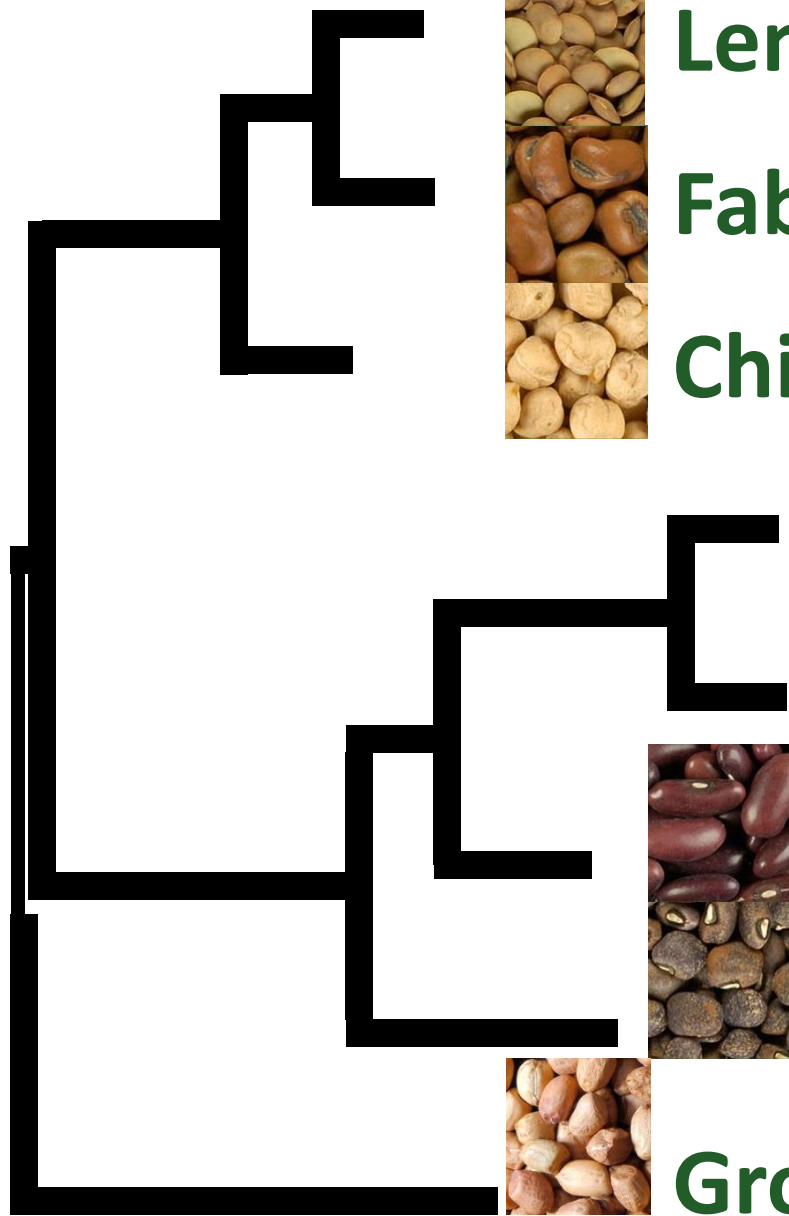
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Lentil



Faba bean



Chickpea



Soybean



Pigeonpea



Common bean



Cowpea



Groundnut

After:

Lavin et al. (2005) *Syst Biol* **54**:575

Choi et al. (2004) *PNAS* **101**:15289



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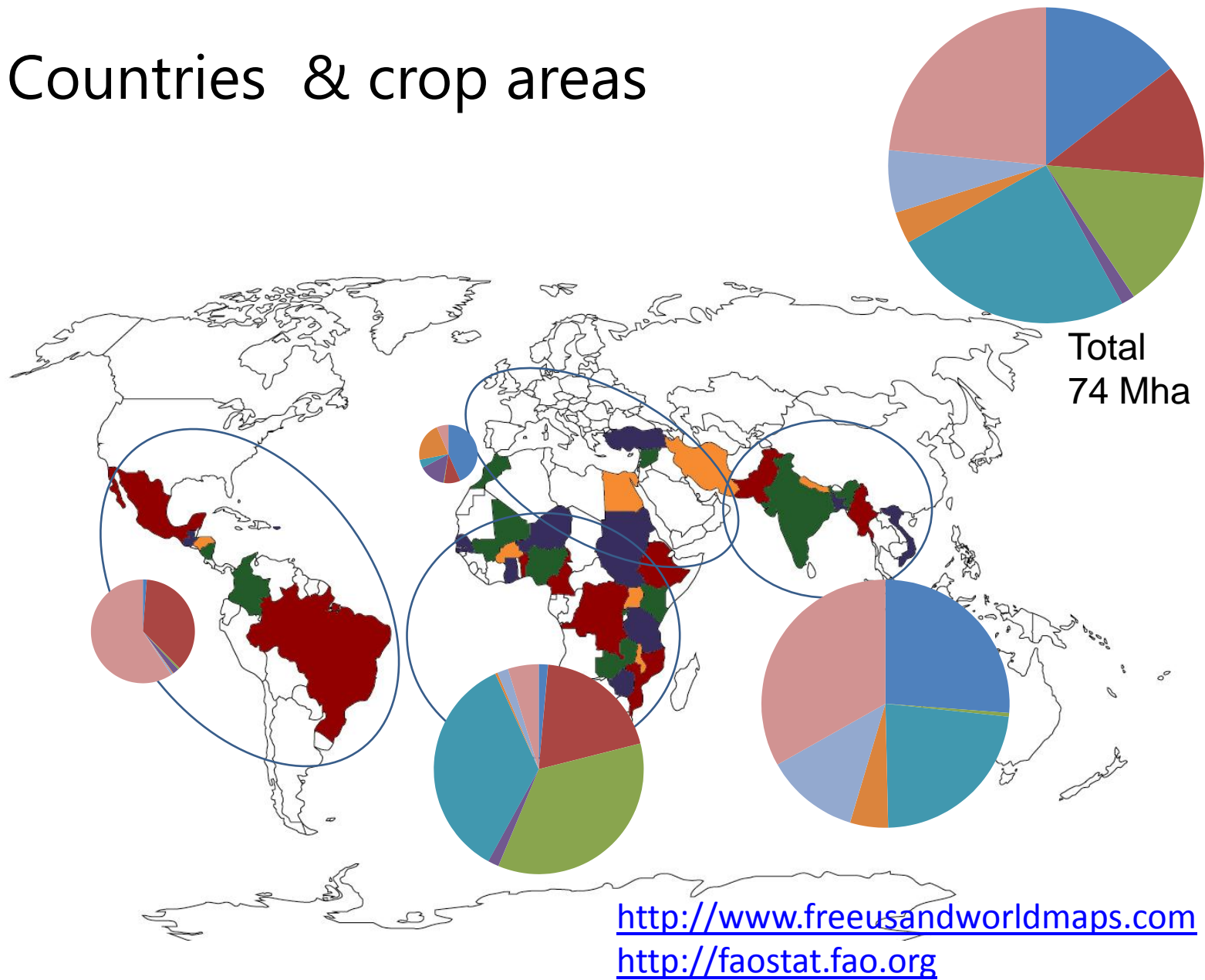


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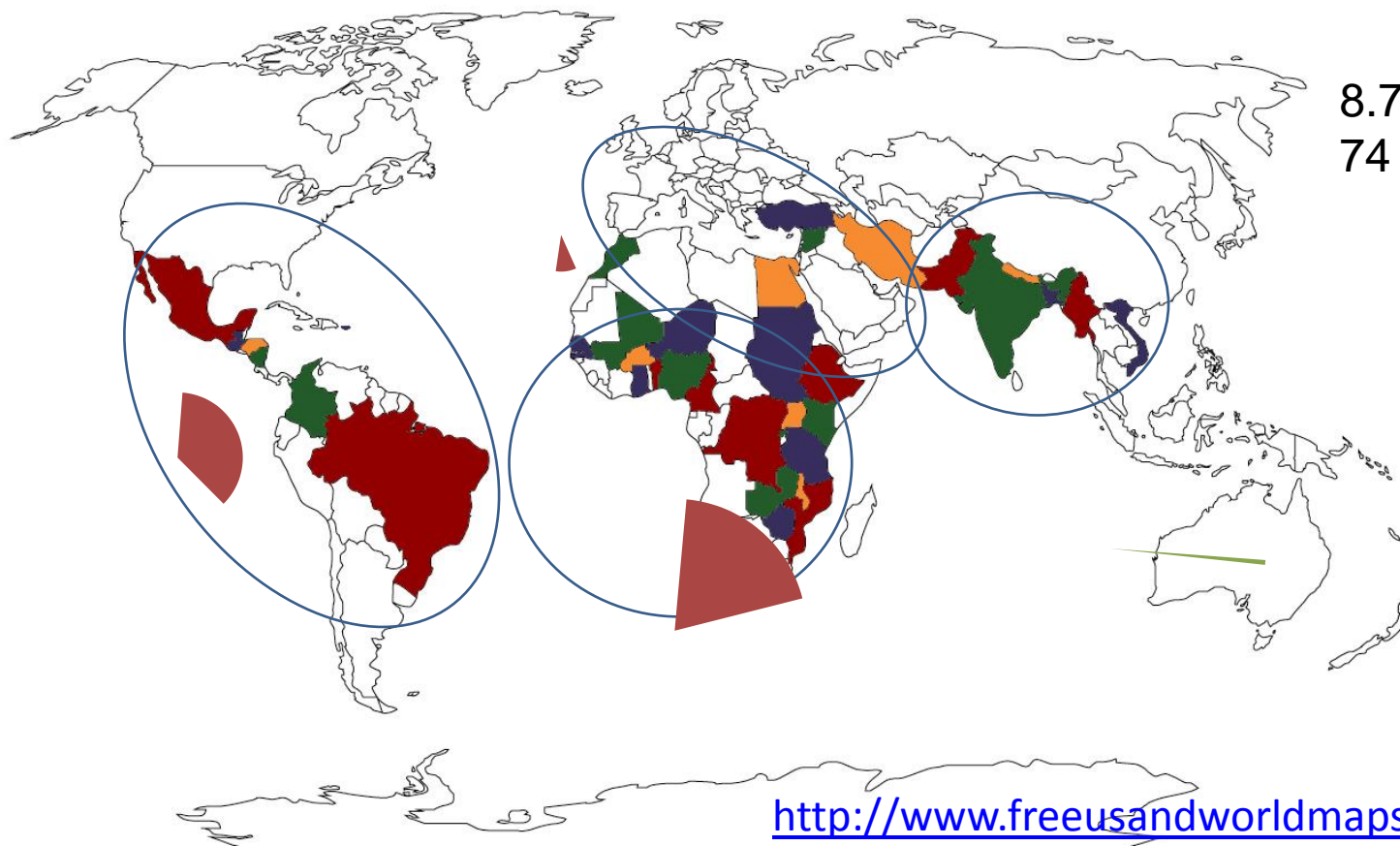
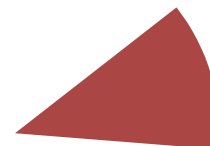


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Countries & crop areas



Common bean



8.75 of
74 Mha

<http://www.freeusandworldmaps.com>
<http://faostat.fao.org>



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- PL1** Drought & low-P tolerant **common bean**, cowpea & soybean
- PL2** Heat tolerant chickpea, **common bean**, faba bean & lentil
- PL3** Short-duration, drought tolerant & aflatoxin-free groundnut
- PL4** High N-fixing chickpea, **common bean**, faba bean, and soybean
- PL5** Insect-smart chickpea, cowpea, and pigeonpea prod. systems
- PL6** Extra-early maturing chickpea and lentil varieties
- PL7** Herb. Tol. machine-harvestable chickpea, faba bean & lentil
- PL8** Pigeonpea hybrid and management practices



PL1 common bean



drought & P

PL2 common bean



temp

PL3



PL4 common bean



N≡N

PL5



PL6

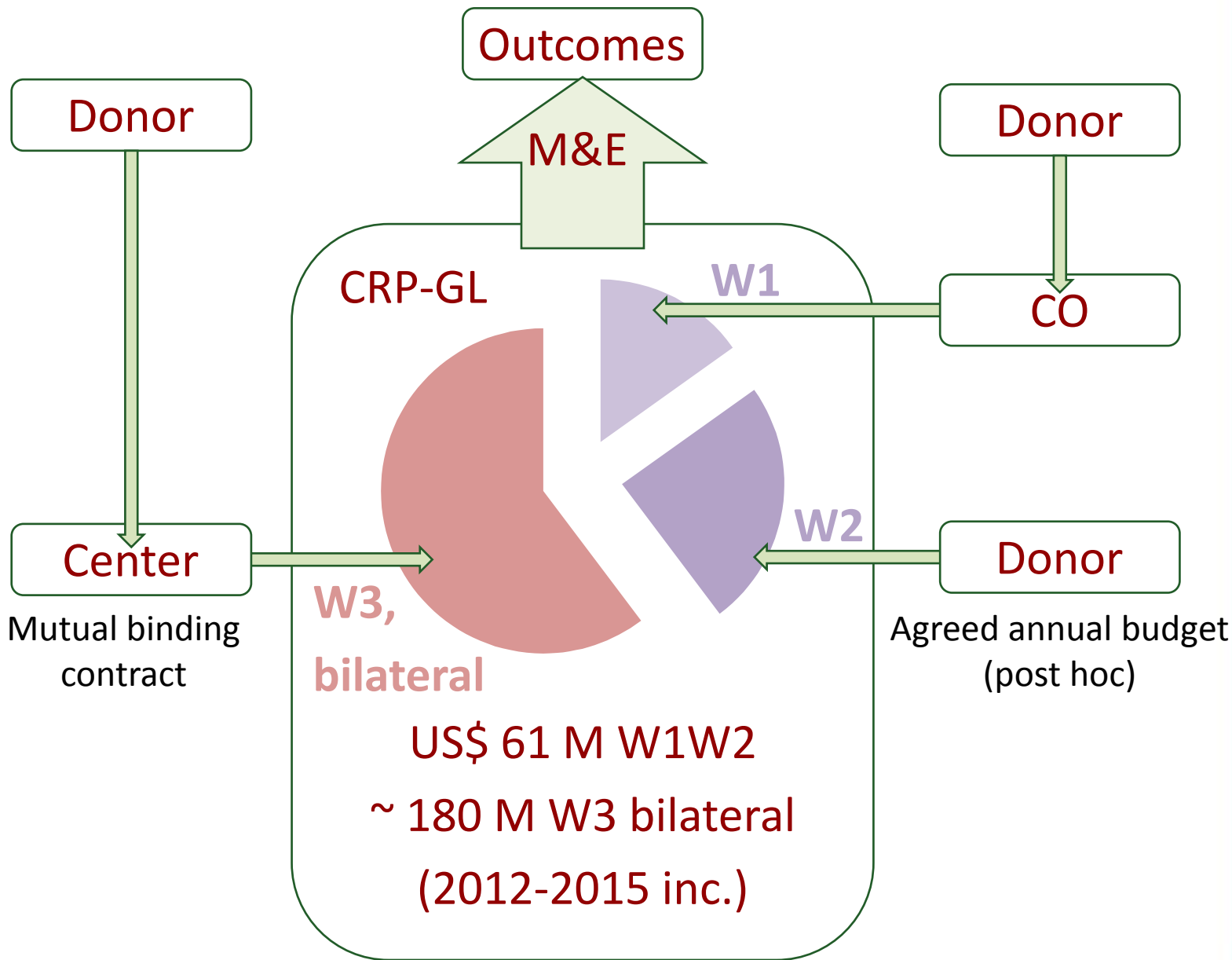


PL7



PL8







Flagship product & Supporting technologies

Research questions

Discovery

New concept of product, service, or process

Proof of concept

Testing in real world /controlled conditions

Pilot

Multi-location release/trials for smallholders

Scaling up

Release for adoption

Priority setting

Drought & low-P tolerant common bean



Mapping populations

Sequencing

- for bacterial identification in insect control (PL4)
- rhizobium strain identification (PL5)
- *Fusarium oxysporum fsp ciceris* genome & transcriptome.
- Candidate gene and whole genome for chickpea heat tolerance (PL2),
- maturity (PL6)
- and herbicide tolerance (PL7)
- NBSLRR (PL8) in chickpea, diploid and tetraploid *Arachis* (PL3)

Variety release

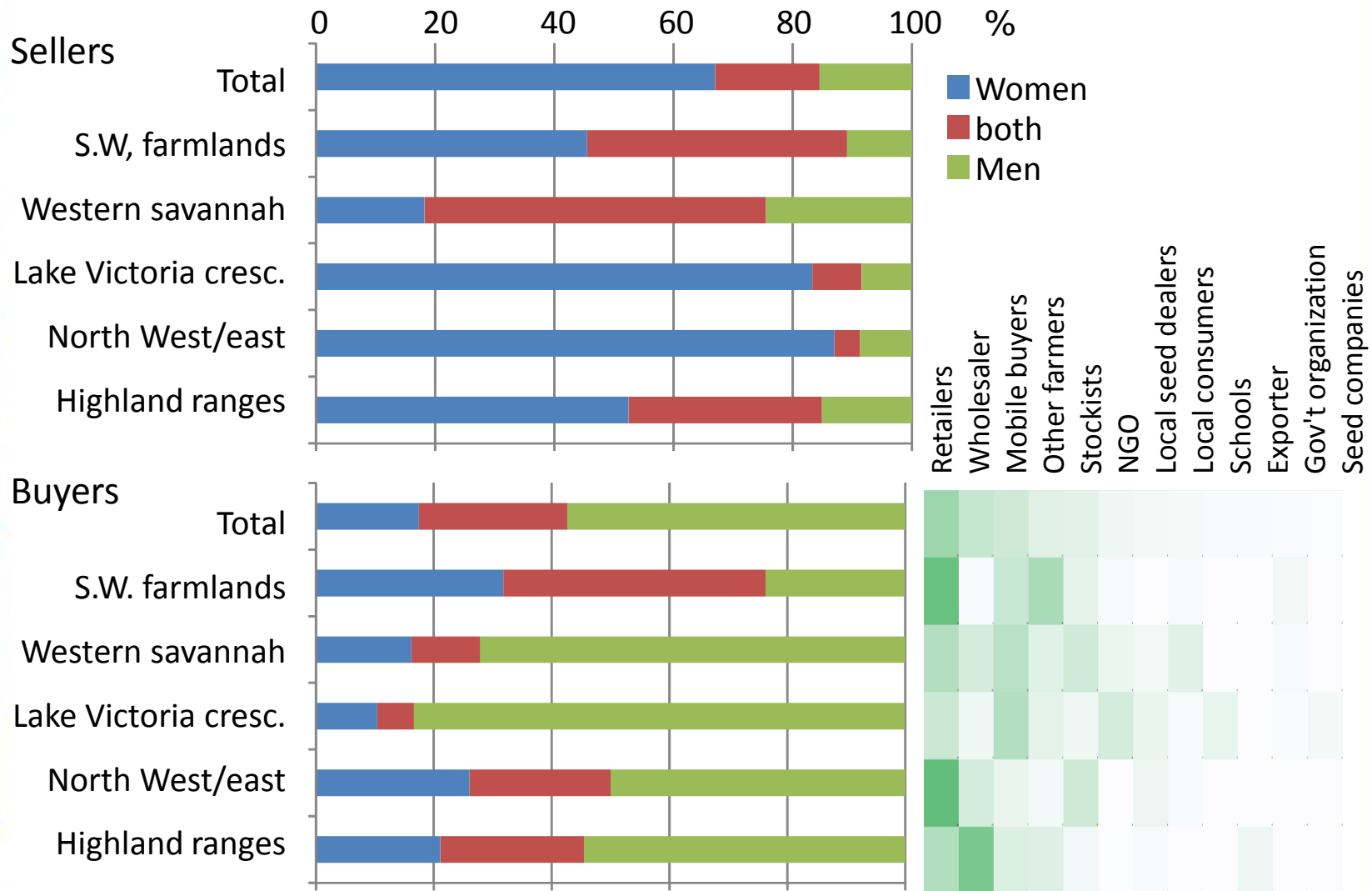
- for all target species and across regions
- breeders' seed bulking


Biological control agents

- active against the pod borer *M. vitrata*
- ***Helicoverpa***: Screening for natural & Bt mediated transgenic resistance chickpea & pigeonpea



Newly released cowpea variety also resistant (L) vs sensitive (R) to *Striga gesnerioides*





The CGIAR Research Program on Grain Legumes
is organizing a one day

Open Forum on Science in Grain Legumes

6th July 2014

This is an independent meeting organized alongside
the **IFLRC VI** and **ICLGG VII** meetings
in Saskatoon, Canada

<http://sdrv.ms/J9PMZd>



Thanks to:

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