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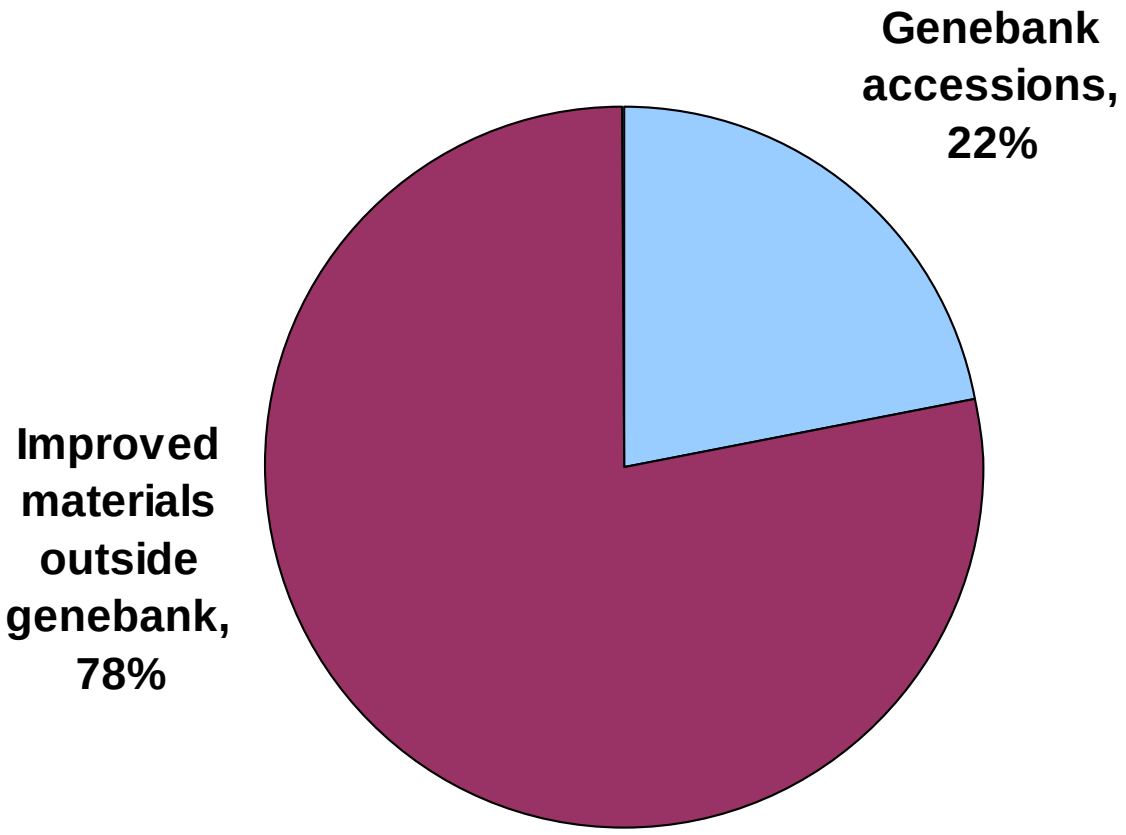
INTERNATIONAL TRANSFERS OF *PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE*

FACILITATED BY THE *CGIAR CENTRES*

UNDER THE *INTERNATIONAL TREATY ON PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE*

400-500,000 samples a year transferred internationally from CGIAR centres

- Mostly improved materials



(2008 data)

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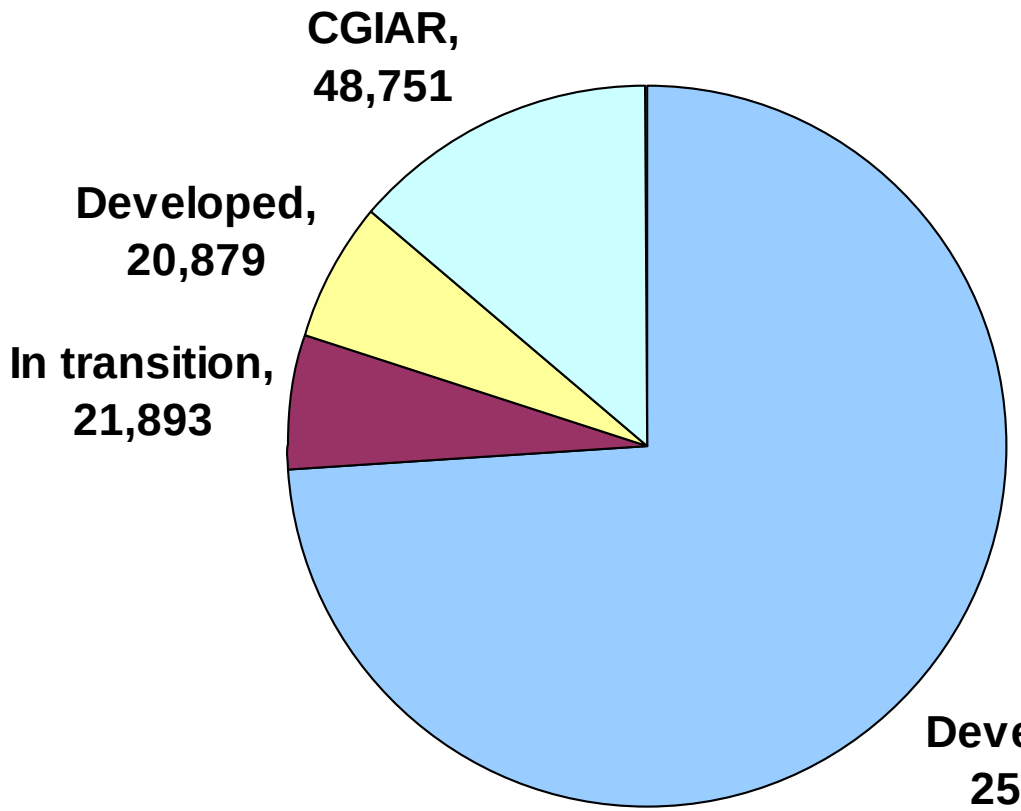
Recipients of germplasm from CGIAR

- Mostly developing countries



(2008 data)

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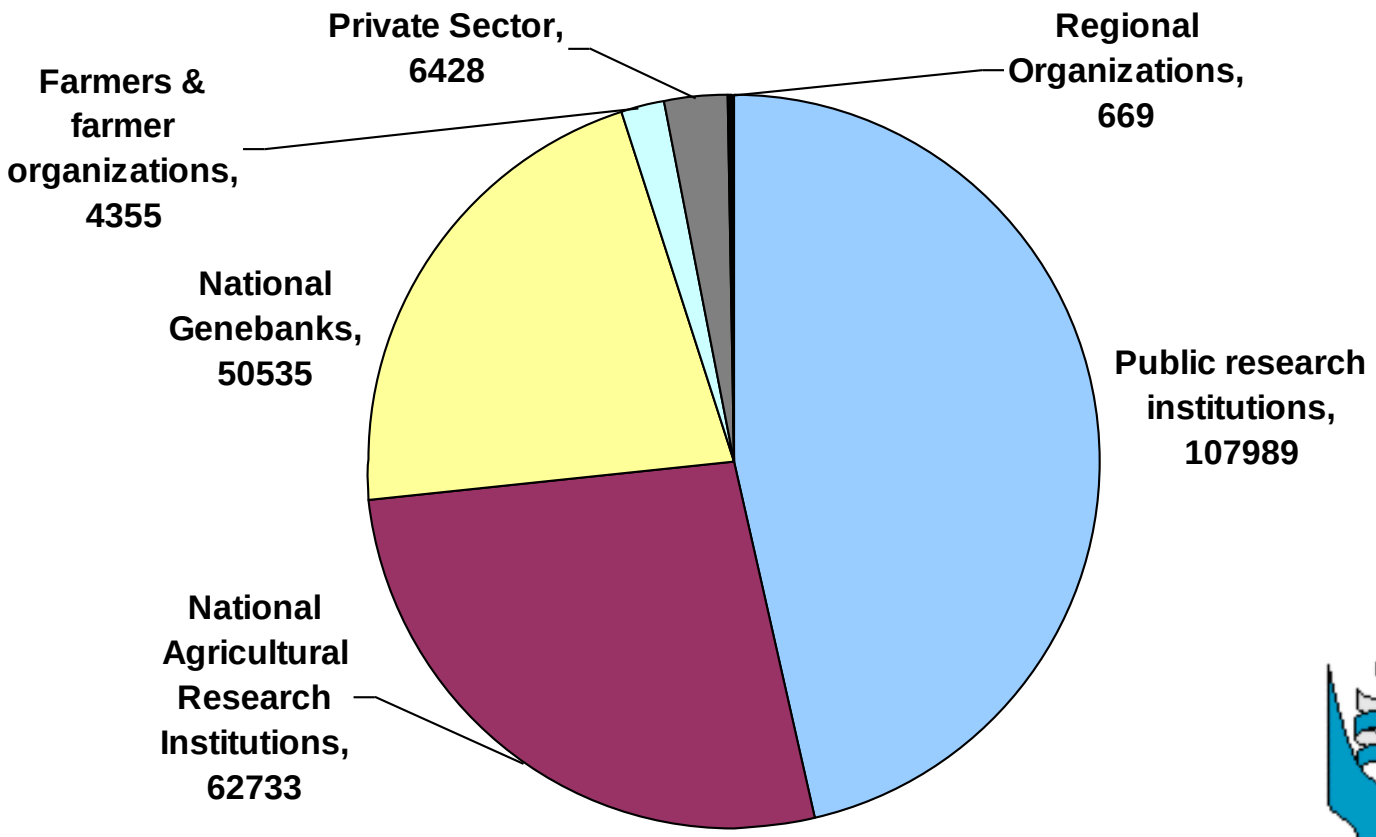
400-500,000 samples a year transferred internationally from CGIAR centres

Mostly for public sector breeding and research



(IRRI data only)

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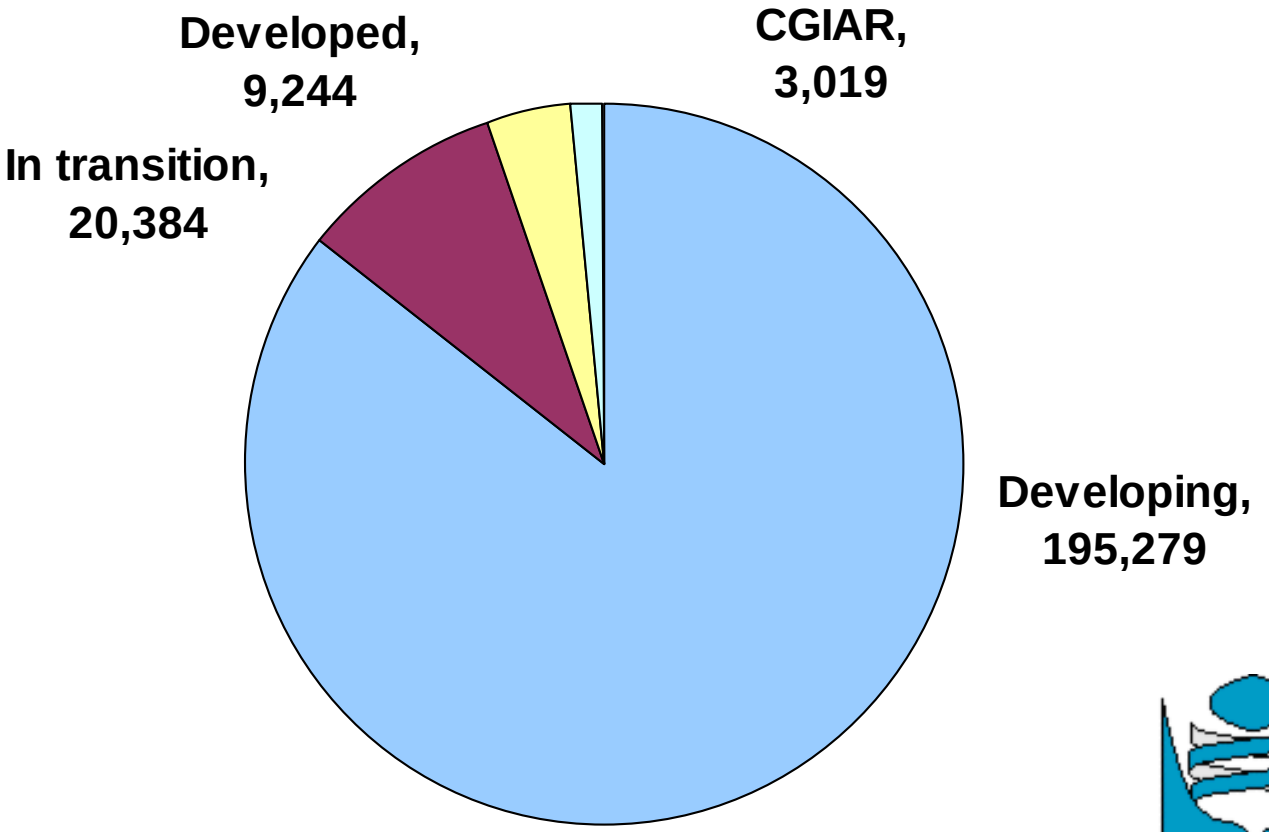
Recipients of germplasm from CGIAR

- Developing countries especially need improved materials



(2008 data)

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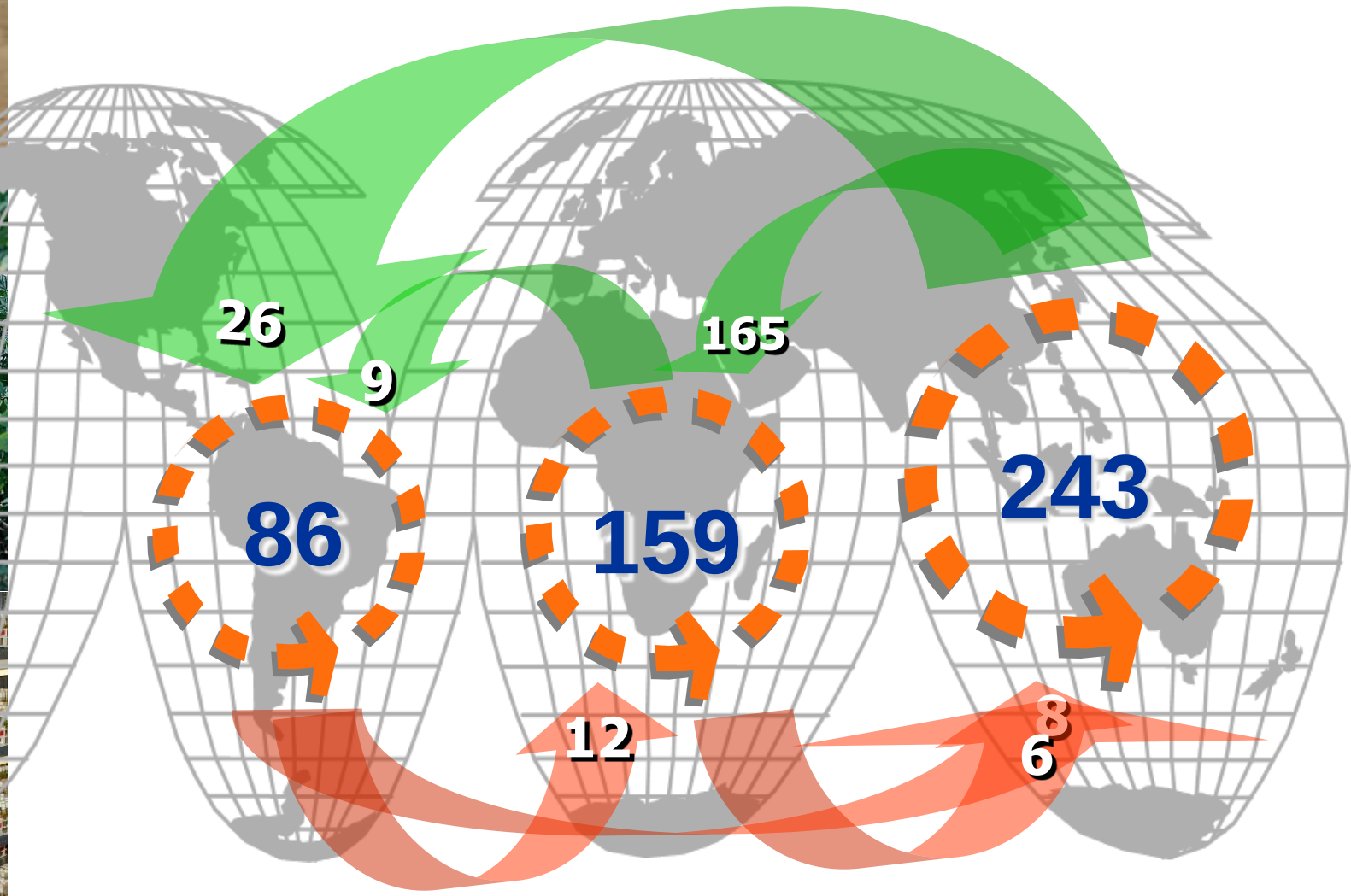
Improved cultivars of rice released through distribution of breeding materials



(IRRI 1975-2004)

The importance of transfers between countries

By combining varieties from different countries, we can breed varieties that are better than anything any one country can produce alone

IR8: the 1st green revolution rice cultivar

- Bred in IRRI 1965
- Released in 22 developing countries

- **Mother = Peta**
  - From Indonesia

x

- **Father = Dee Geo Woo Gen**
  - From Taiwan
  - In >50% of modern varieties

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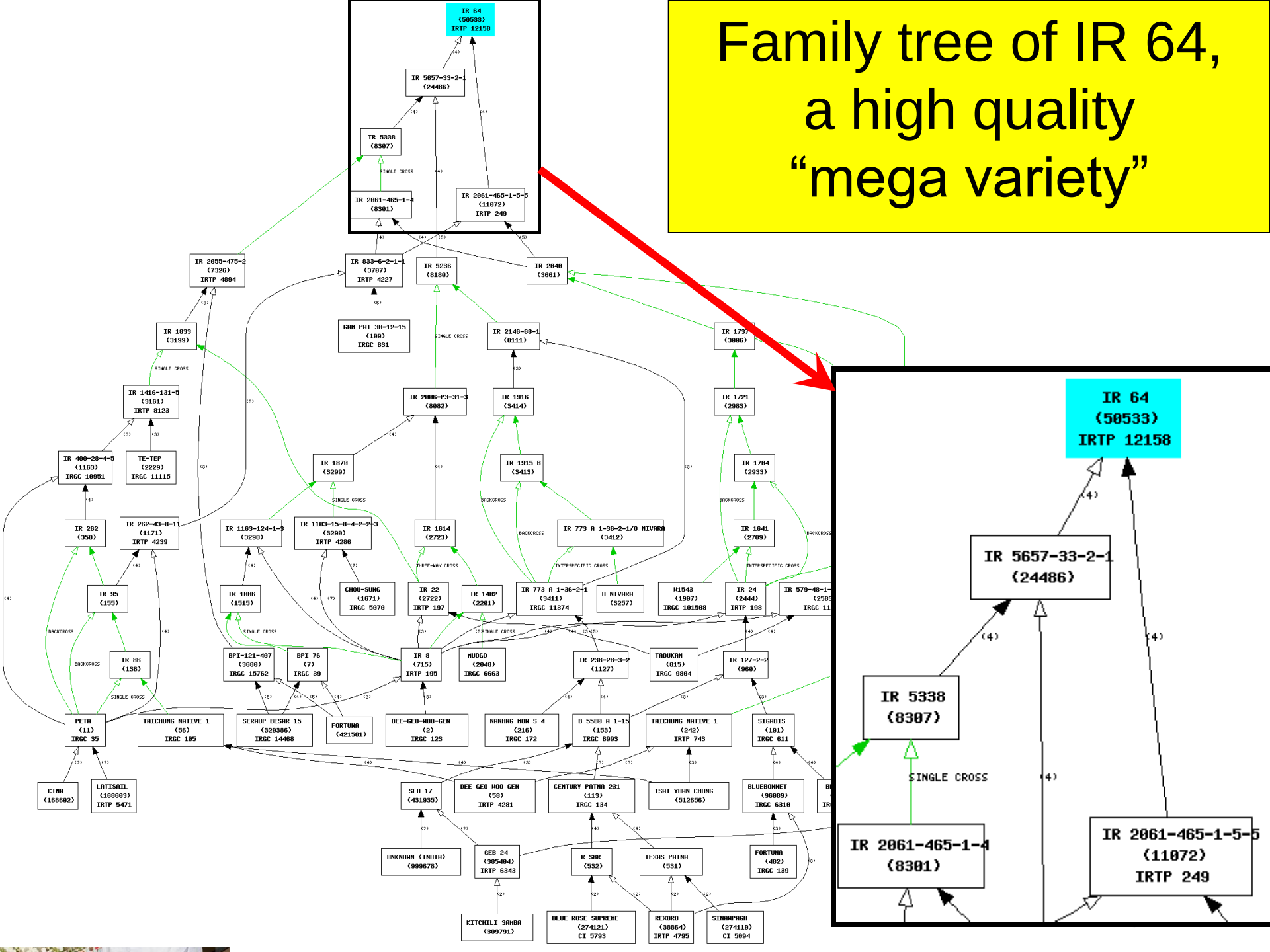
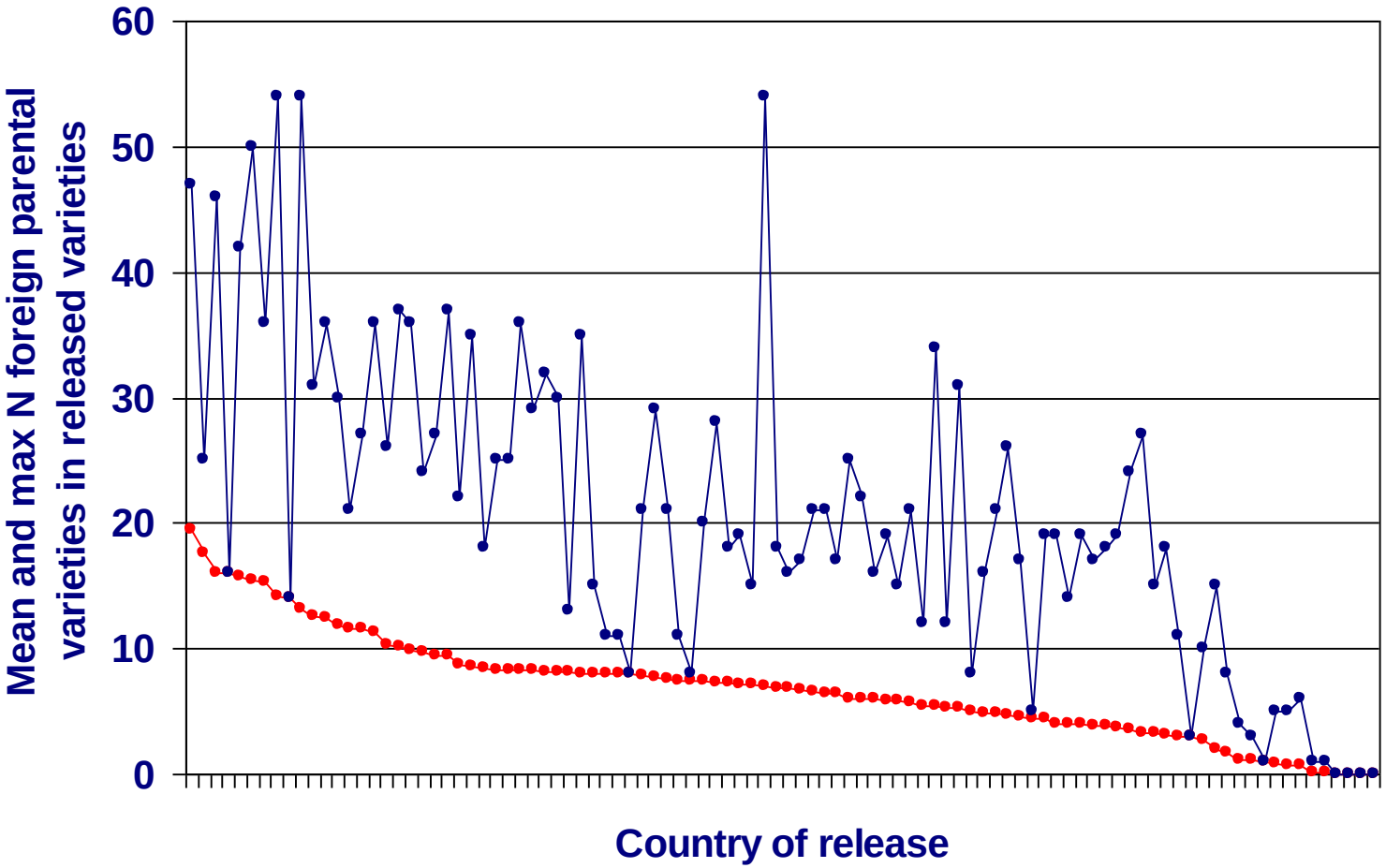
Family tree of IR 64, a high quality “mega variety”



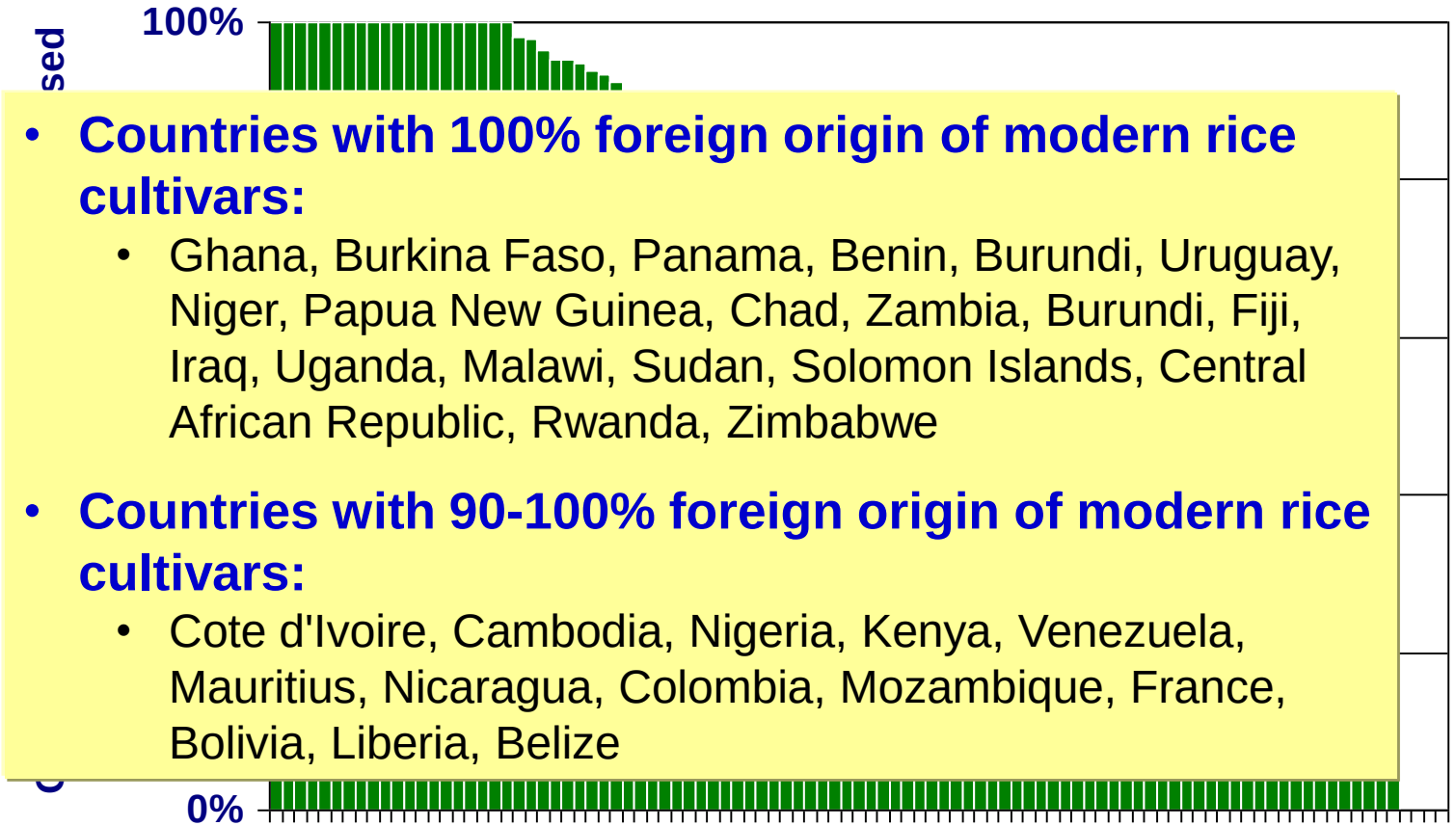
Complex origins of modern cultivars

Release country	Variety name	N parental varieties	N source countries
CUB	ECIA 128	54	24
KOR	SUWEON 300	50	16
KOR	SUWEON 312	50	16
PHL	IR 42	48	18
VEN	CT 8240-1-3-9P-M	47	16
VEN	FONAIAP 2000	47	16
COL	FEDEARROZ 275	46	15
VEN	FUNDARROZ PN 1	46	17

International origins of modern rice cultivars



International origins of modern rice cultivars



- **Countries with 100% foreign origin of modern rice cultivars:**
  - Ghana, Burkina Faso, Panama, Benin, Burundi, Uruguay, Niger, Papua New Guinea, Chad, Zambia, Burundi, Fiji, Iraq, Uganda, Malawi, Sudan, Solomon Islands, Central African Republic, Rwanda, Zimbabwe
- **Countries with 90-100% foreign origin of modern rice cultivars:**
  - Cote d'Ivoire, Cambodia, Nigeria, Kenya, Venezuela, Mauritius, Nicaragua, Colombia, Mozambique, France, Bolivia, Liberia, Belize

Juma rice:

a case study in origins

Improved cultivar bred in Dominican Republic → "Traditional variety" grown in Bangladesh

This sample is differs from the original Juma cultivar.

What is its country of origin?

Sample sent to IRRI genebank in 1970's

Sample sent to IRRI genebank in 1980's

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Conclusion

- Developing countries are the primary beneficiaries of international transfers of PGRFA mediated by the CGIAR
- What system of ABS can handle the complexities?
  - Millions of transfers
  - Multiple origins
  - Multiple breeders
  - “Country of origin” often difficult to assign
- The Treaty’s multilateral system

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The CGIAR System-wide Genetic Resources Programme

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The CGIAR mission

- To
  - Reduce poverty and hunger
  - Improve human health and nutrition
  - Enhance ecosystem resilience
- In developing countries
- Through agricultural research and partnerships

www.cgiar.org

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What is the country of origin?

- "*Country of origin of genetic resources*" means the country which possesses those genetic resources in *in-situ* conditions.
- "*In-situ conditions*" means conditions where genetic resources exist within ecosystems and natural habitats, and, in the case of domesticated or cultivated species, in the surroundings where they have developed their distinctive properties

- **Juma not Dominican because bred *ex situ* in Dominican Republic?**

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Movements of Juma

Juma bred in Dominican Republic

Seed sample sent to Bangladesh

Bangladeshi if here

Juma grown and selected on farm by Bangladeshi farmer

Seed sample sent to IRRI

Differences could have arisen here

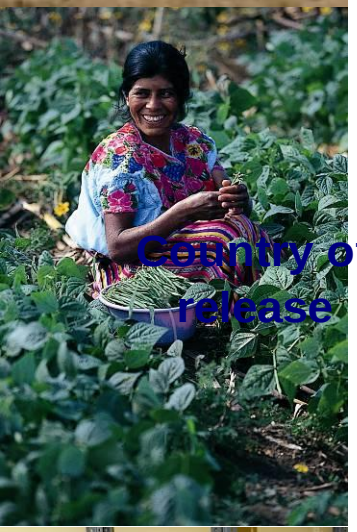
Seed sample sent to IRRI

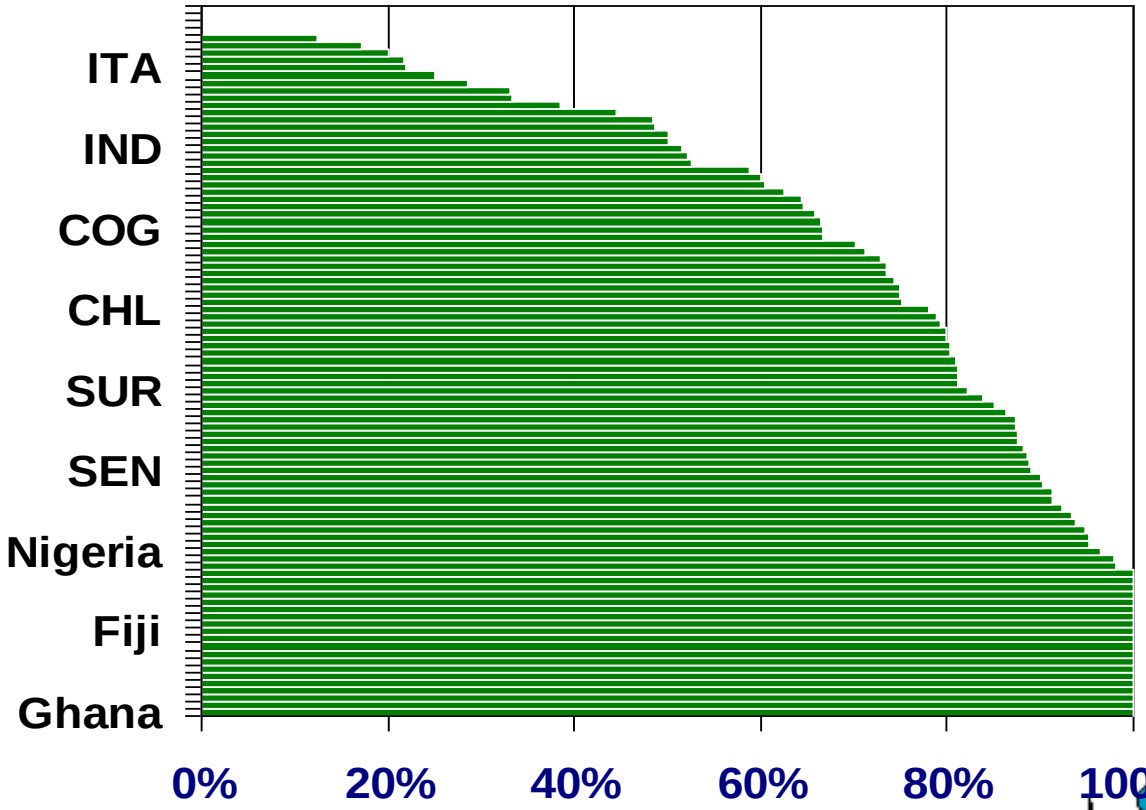
Seed sample (a) currently at IRRI

(a) and (b) are different

Seed sample (b) currently at IRRI

International origins of rice varieties





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