



Release and Adoption of Improved Cultivars in Southeast Asia

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January 12, 2017
2.00 - 3.30pm

Organized Session Overview

Session 5.2 – 2.00-3.30pm

1. Marcel Gatto (CIP)

Release and Adoption of Modern Potato Varieties in Southeast, East, and South Asia. (20min)



2. Ricardo Labarta (CIAT)

The Adoption of Improved Cassava Varieties in South and Southeast Asia. (20min)



3. Alice G. Laborte (IRRI)

Release and Adoption of Improved Cultivars in South and Southeast Asia: Rice (20min)



4. Marcel Gatto on behalf of KumaraCharyulu Deevi (ICRISAT) *Groundnut, Chickpea, Pigeon pea, Lentils and Barley*



Introduction – “*It’s all about impact*”

Donors demand:

- **Impact** (e.g. poverty, incomes, food security)
- **Rigor** (e.g. causality, improved methods)

IARCs:

- Experience in Breeding
- Support of NARS (e.g. sending material)

What impact do we have?

How to demonstrate impact?

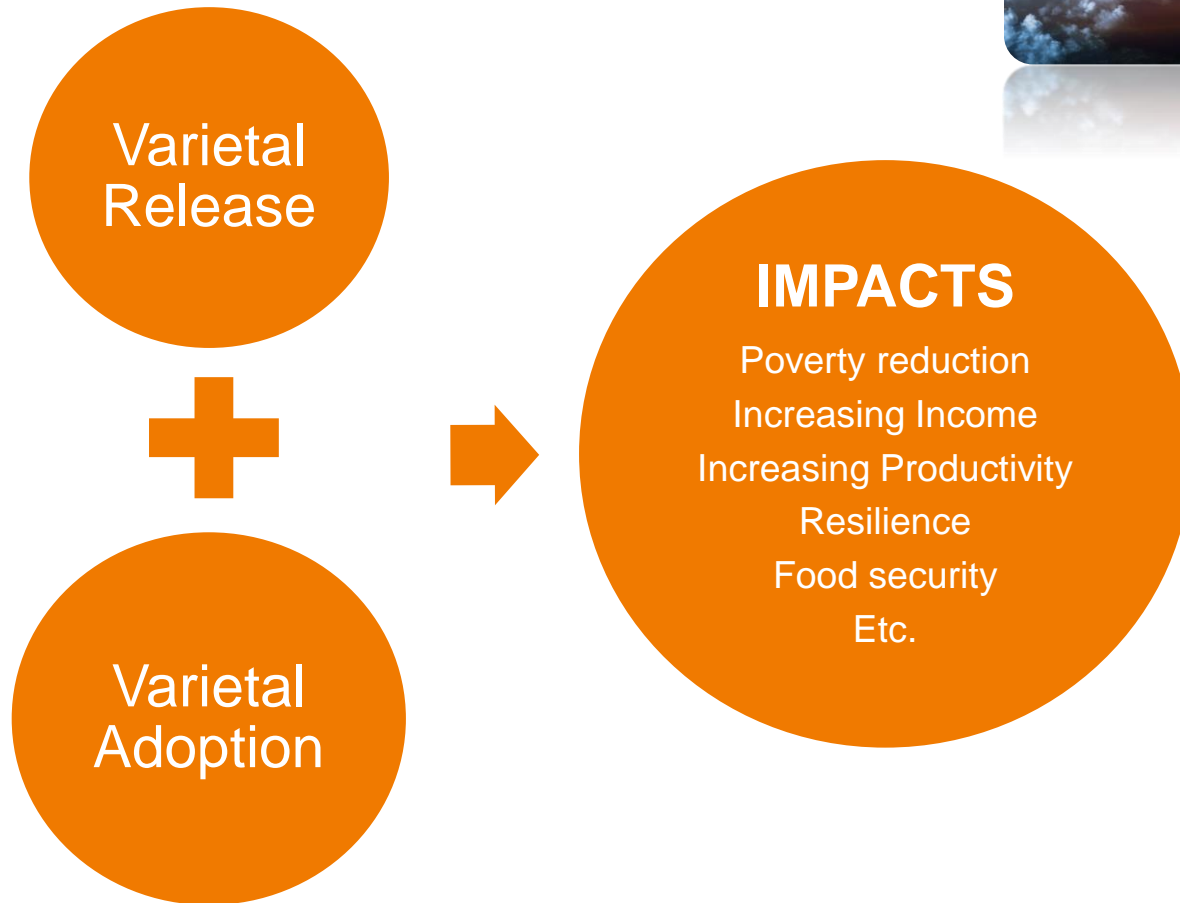
What is needed for this?

What is impact?



IARC = International Agricultural Research Center
NARS = National Agricultural Research System

Introduction – What is Impact?



Introduction – Reality Check!



- Release databases incomplete/outdated
- Varietal characteristics often unknown
- Adoption databases at national level (i.e. FAOSTAT)
- Adoption rates at crop level, not at varietal level

This leads to:

- *Agricultural interventions & research activities poorly targeted
⇒ public funds are spent inefficiently and ineffectively*
- *Poor understanding of dynamics of varietal change*
- *Poor understanding of contribution of food-crop genetics research*

Introduction – SIAC 2.1

Strengthening Impact Assessment in the CGIAR Activities 2.1

Objective:

Documentation of release and adoption data of improved cultivars in Asia

Purpose:

- Fill gaps in existing release and adoption databases
- Establish baseline dataset to demonstrate impact over time

How?

- Inexpensive methodology: expert elicitation workshop

Funded by:



Introduction – SIAC 2.1

Collaborative Effort of IARCs and NARS

Country	Rice	Maize	Wheat	Barley	Ground-nut	Chick-pea	Pigeon Pea	Lentil	Cassava	Potato	Sweet potato
Afghanistan			1								
Bangladesh		1	1					1		1	1
Cambodia	1	1							1		
China	8	8	6		2				1	12	9
India	4	8	6	4				4	2	6	3
Indonesia	1	1			1				1	1	1
Laos	1								1		
Malaysia	1										
Myanmar	1				1	1	1		1		
Nepal		1	1					1		1	1
Pakistan	1	1	1			1				1	
Papua New Guinea											1
Philippines	1	1							1		1
Thailand	1	1							1		
Vietnam	1	1			1				1	1	1
Total	21	24	16	4	5	2	1	6	10	23	18
	IRRI	CIMMYT	ICRISAT						CIAT	CIP	
	21	40	18						10	41	

11 crops

15 countries

130 workshops

5 CG-Centers



Release and Adoption of Modern (Sweet)Potato Varieties in South, East, and Southeast Asia

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Junhong Qin
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SIAC 2.1 – Methodology

Expert elicitation workshops

2015-2016

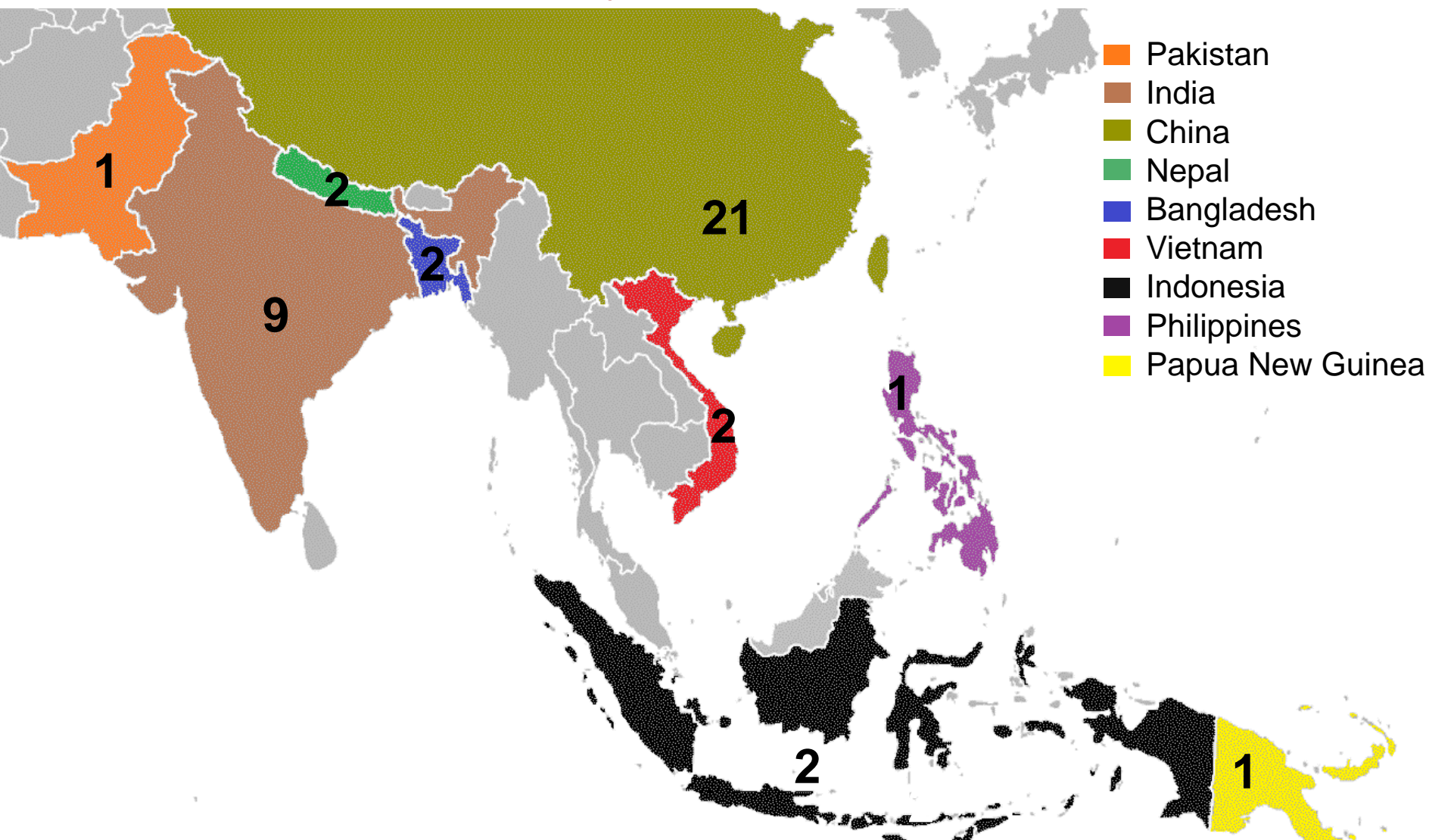
- 15 experts per workshop
- Experts from value chain
- 575 participants in 41 workshops
(23 potato, 18 sweetpotato)
- Validate release data
(i.e. name, pedigree, year of release, rel. institution, resistances, etc.)
- Estimate adoption rates
 - Perceived adoption at varietal level
 - By agro-ecological zones/ region, and season
 - National adoption rates (entire group)
 - Disaggregated adoption rates (subgroup)



Group discussion, Punjab, India

SIAC 2.1 – Methodology

Workshops per country



SIAC 2.1 – Outcomes

Databases: Open Access

Per workshop:

- 1 Release database
 - 1 Adoption database
- ⇒ 82 databases



OPEN ACCESS:

- 2 Consolidated release databases (potato/sweetpotato)
- 2 Consolidated adoption databases (potato/sweetpotato)
- Available after 6 months embargo period (ending June 21, 2017).

Results – Potato Release & Adoption & CIP's contribution

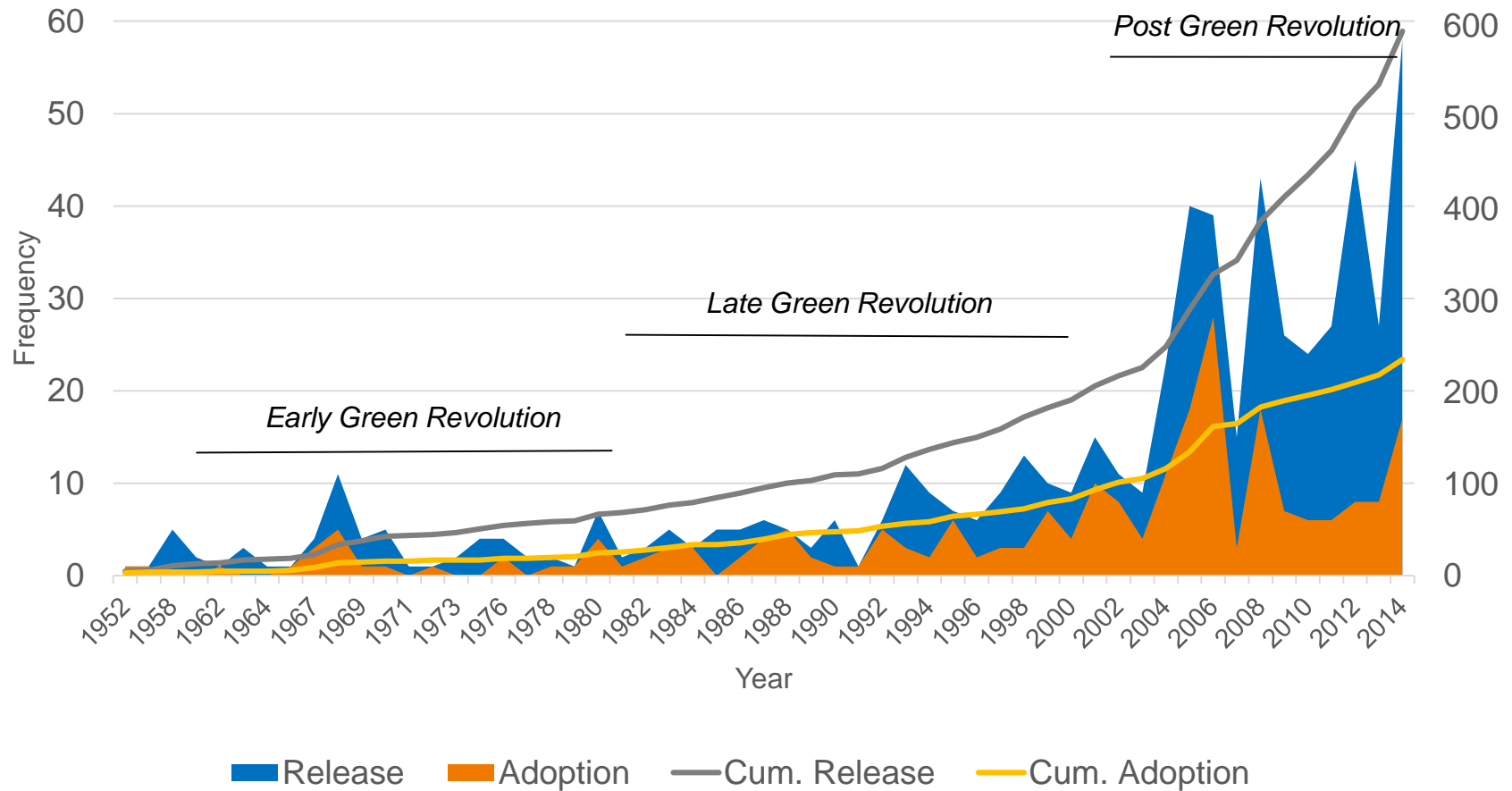
Year = 2015	Total		CIP-related	
Country	Release	Adoption	Release	Adoption
Bangladesh	73	10	16	2
China*	255	94	105	33
India**	70	37	12	7
Indonesia	35	16	16	5
Nepal	12	14	9	8
Pakistan	29	18	1	0
Vietnam	18	15	9	6
Total	492	204	168 (34%)	61 (30%)

Notes: *12 Provinces, duplicates excluded; **6 States

CIP-related:

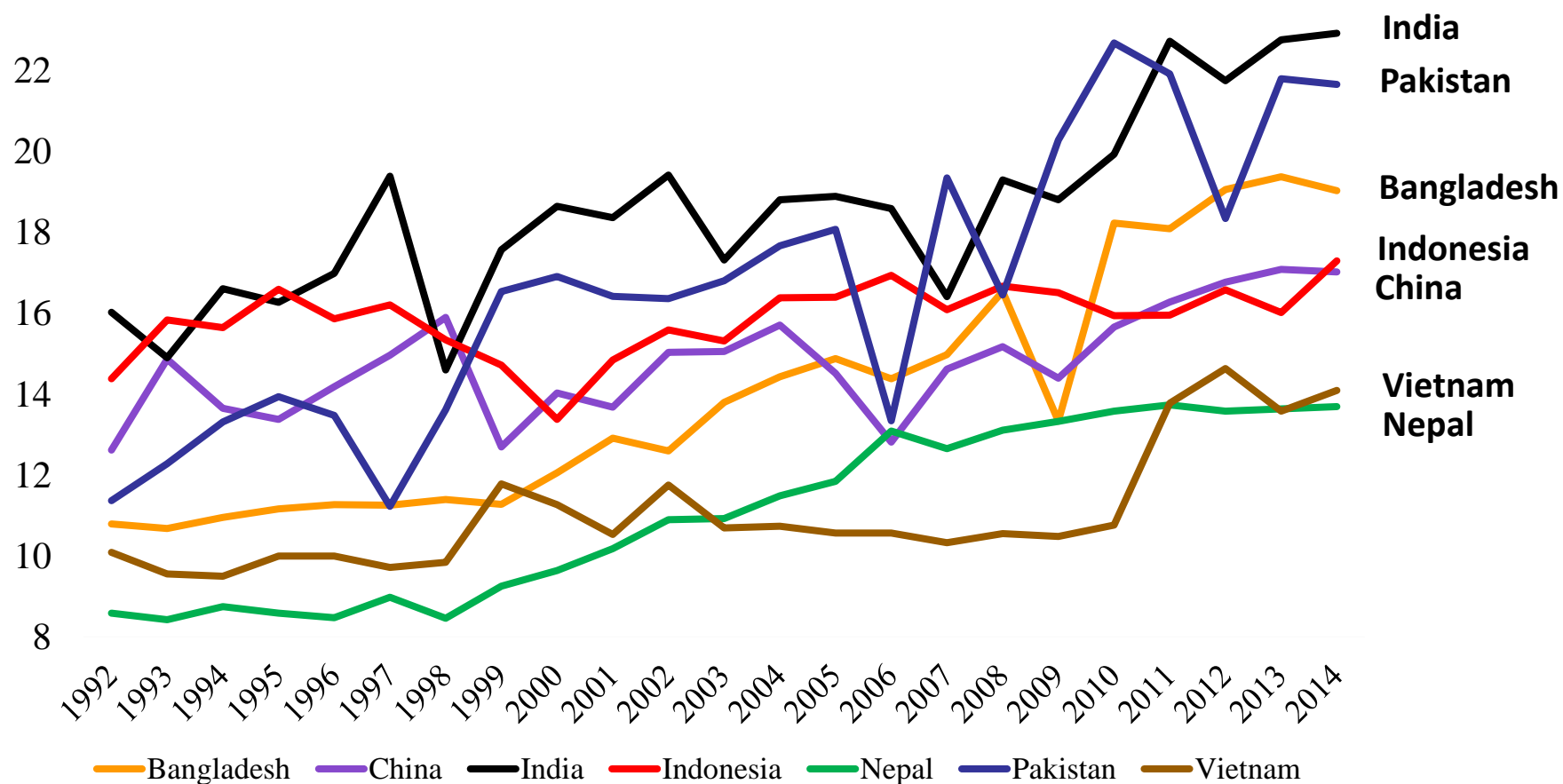
- Facilitated/distributed by CIP
- Selection from CIP crosses/progenitors

Results – Potato Release & Adoption Between 1952-2014



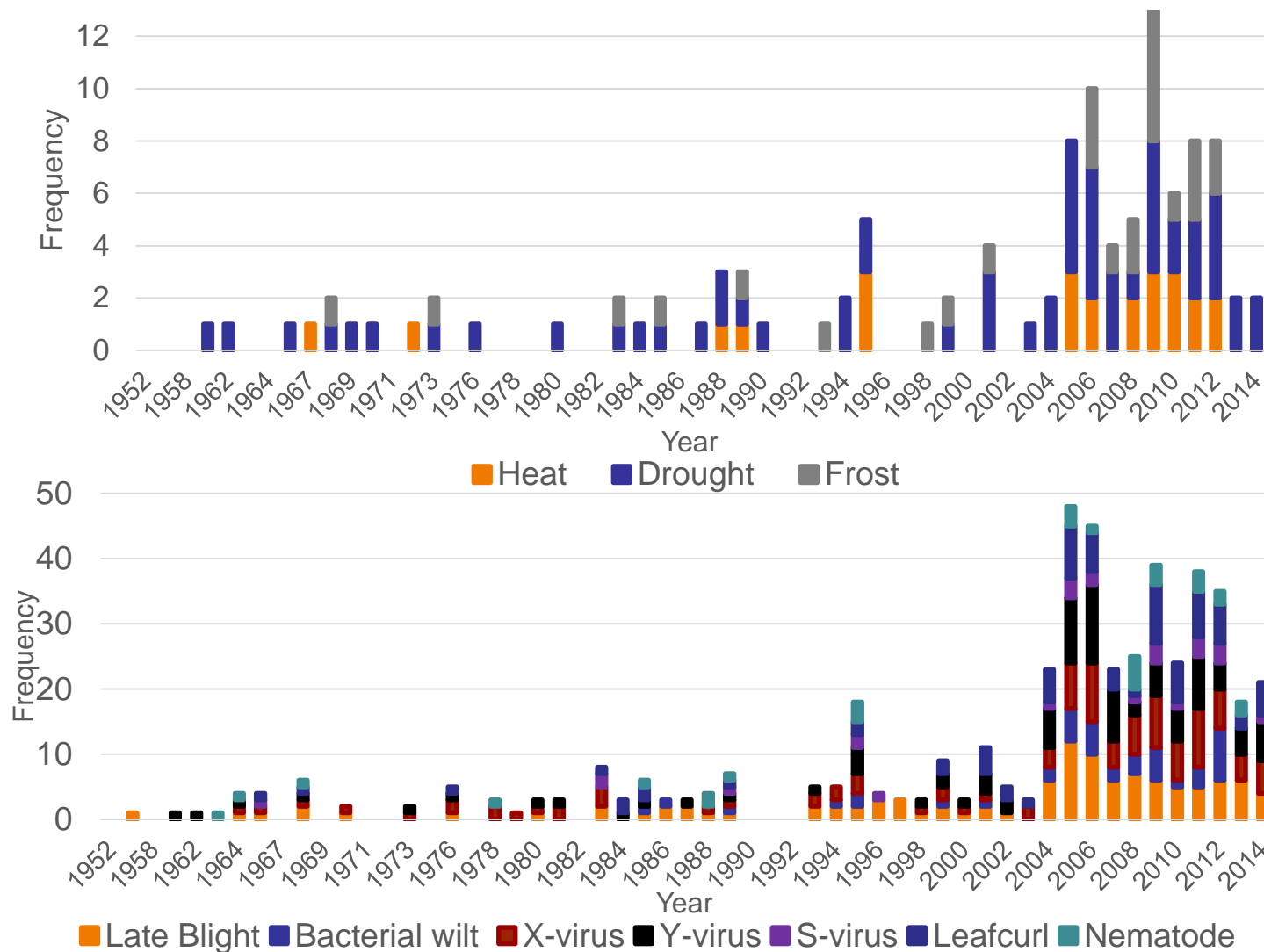
Results – Potato Release & Adoption

Contributed to productivity



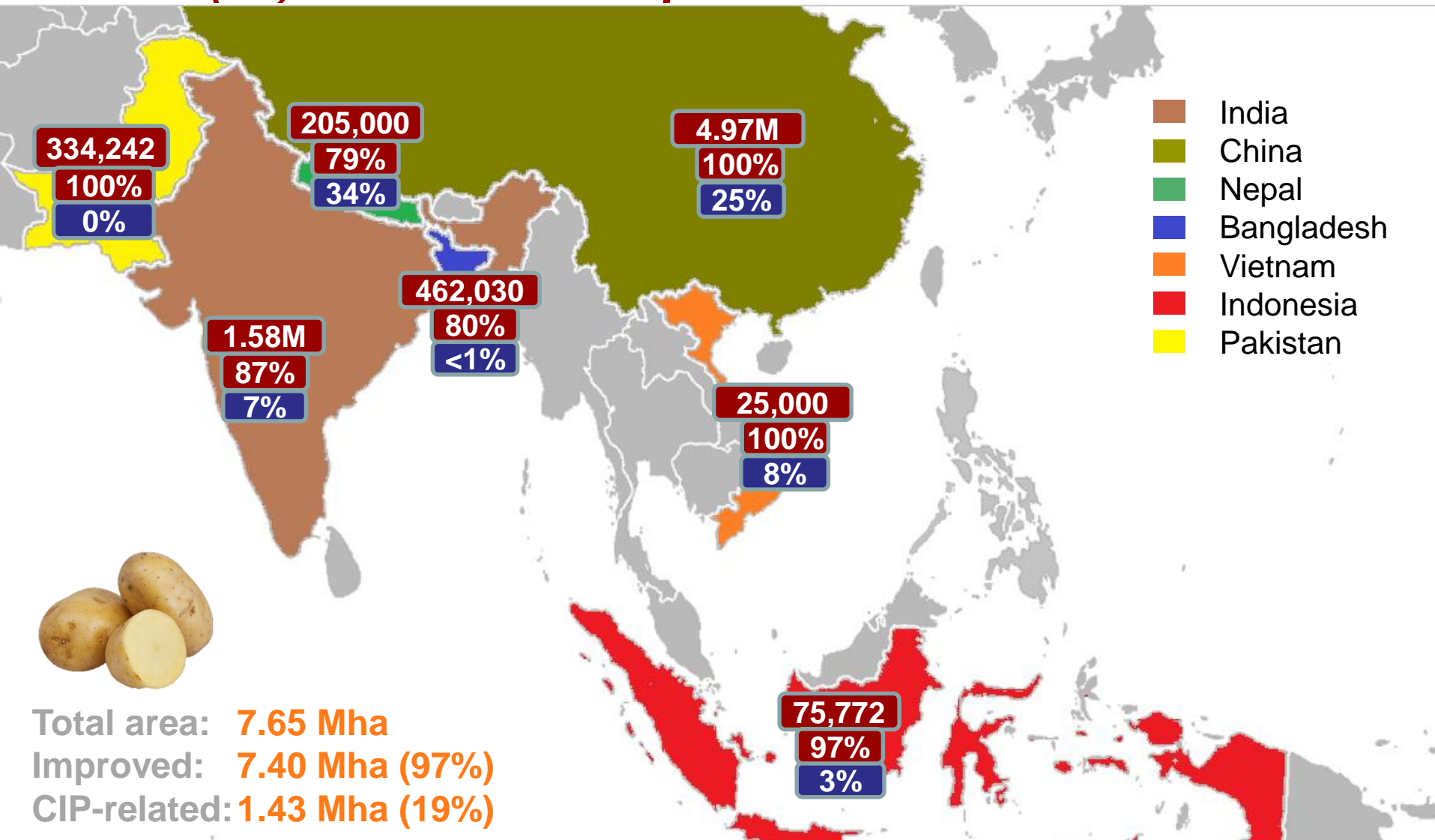
Results – Potato Release 2015

By Abiotic and Biotic Traits



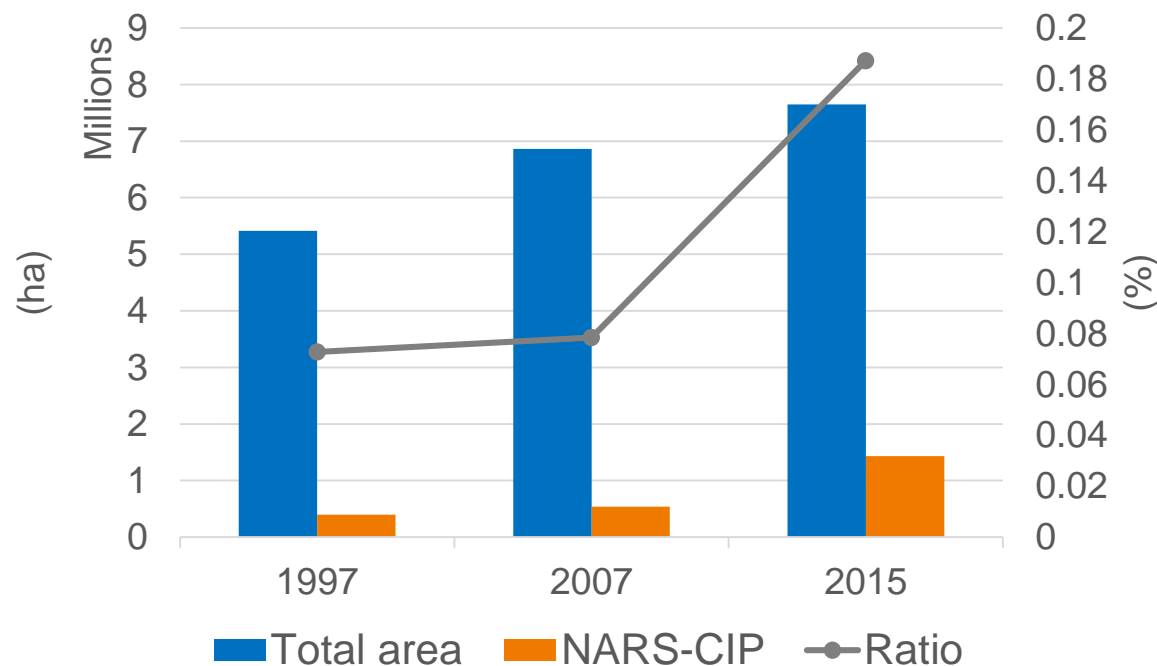
Results – Potato Adoption 2015

Area (ha) and share of improved and CIP-related varieties



Results – Potato Adoption 2015

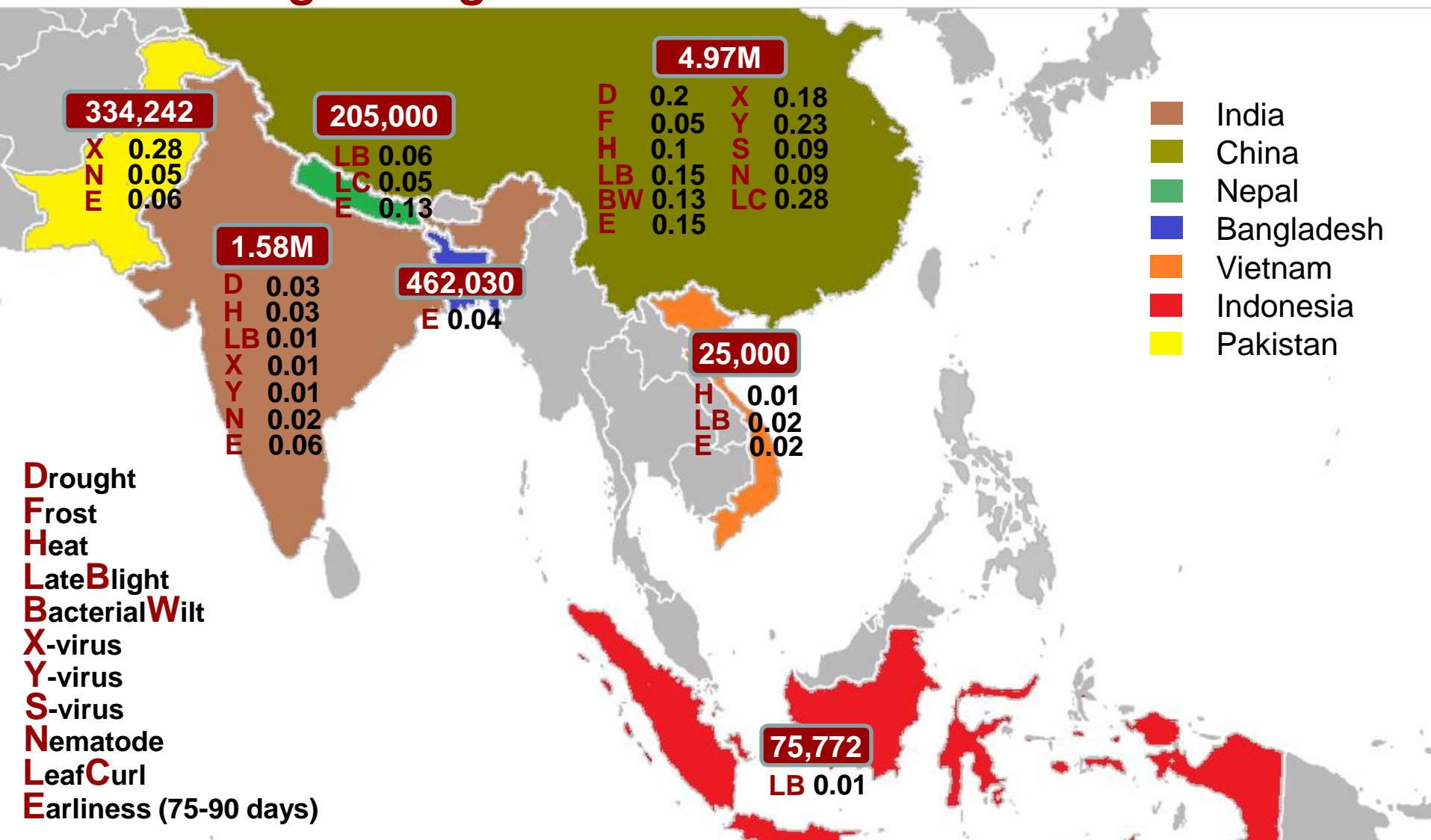
CIP-related area over time



Notes: own calculation and adapted from Thiele et al., (2008);
ratio refers to right axis.

Results – Potato Adoption 2015

Percentage of high resistant varieties



Results – Sweetpotato Release & Adoption & CIP's contribution

Year = 2015	Total		CIP-related	
Country	Release	Adoption	Release	Adoption
Bangladesh	13	9	8	4
China*	244	153	17	6
India**	32	19	4	0
Indonesia	25	13	8	6
Nepal	7	7	4	4
Pakistan	81	14	1	0
Vietnam	32	9	0	0
Total	19	17	5	5

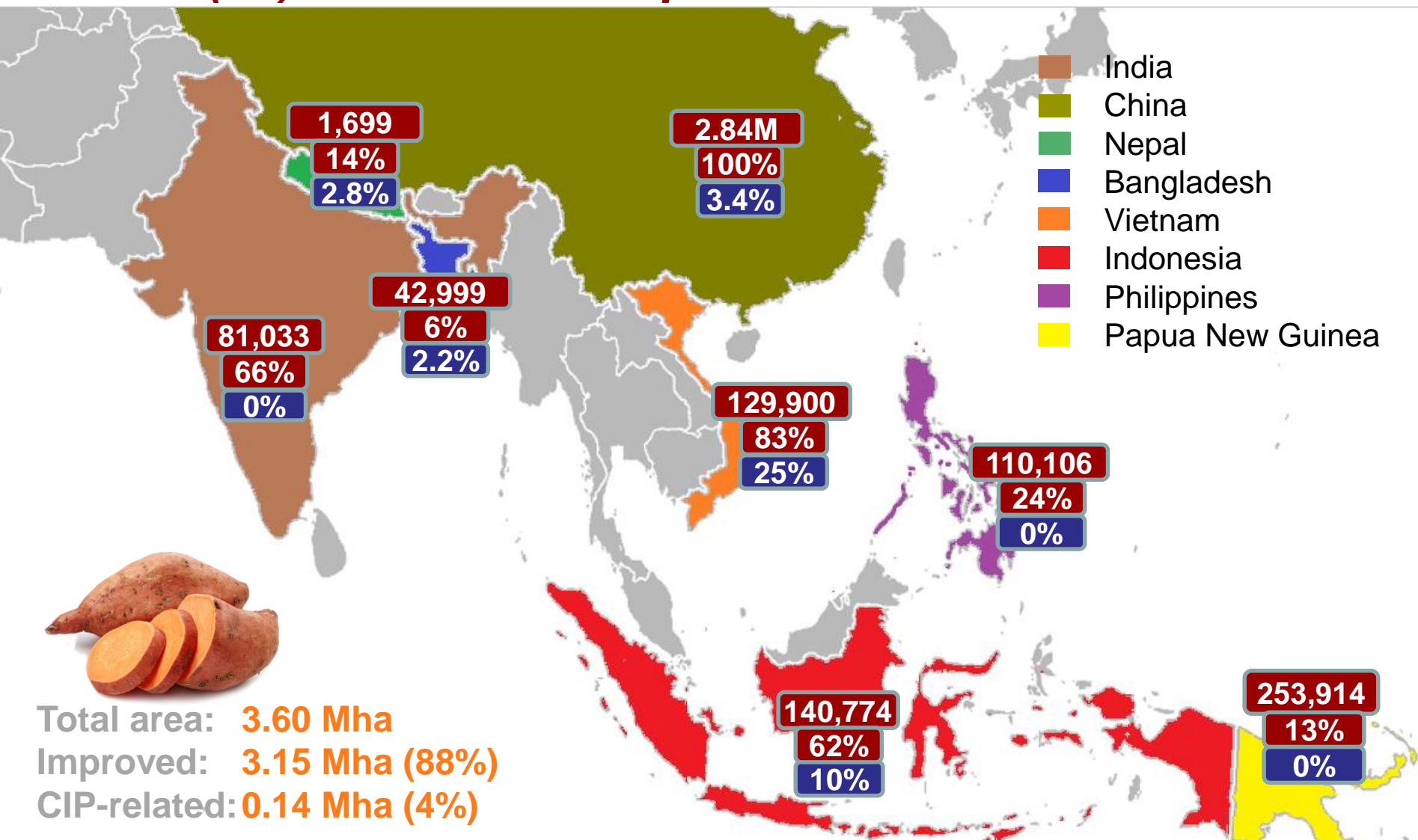
Notes: *9 Provinces, duplicates excluded; **3 States

CIP-related:

- Facilitated/distributed by CIP
- Selection from CIP crosses/progenitors

Results – Sweetpotato Adoption 2015

Area (ha) and share of improved and CIP-related varieties



Conclusions

- Collaboration between CIP & NARS success
- CIP's 'impact':
 - 34% of potato releases
 - 19% of total potato area
 - China: major impact (vars. C88, E-potato 5)
- => 97% improved varieties (BUT, regional differences).
- Improved variety = improved variety?
 - Increasing importance of resistances
- Next steps:
 - Continue collaboration + mapping exercise to



India - Punjab



Bangladesh



Nepal



Vietnam



India - Uttar Pradesh

References

SIAC Program Report, July 2016 ([click here](#))

SPIA website ([click here](#))

FAOSTAT (2015) ([click here](#))

Thiele, G. et al. 2008. Varietal change in potatoes in developing countries and the contribution of the International Potato Center: 1972-2007. Lima, CIP. Working Paper No. 6, 46 pp. ([click here](#))

OPEN ACCESS (embargo ending June 21, 2017)

<http://dx.doi.org/10.21223/P3/2UOG9I>

(release potato)

<http://dx.doi.org/10.21223/P3/XJGEG0>

(release sweet potato)

<http://dx.doi.org/10.21223/P3/HGAEAM>

(adoption potato)

<http://dx.doi.org/10.21223/P3/AWDL2Y>

(adoption sweet potato)



The International Potato Center (known by its Spanish acronym CIP) is a research-for-development organization with a focus on potato, sweetpotato, and Andean roots and tubers. CIP is dedicated to delivering sustainable science-based solutions to the pressing world issues of hunger, poverty, gender equity, climate change and the preservation of our Earth's fragile biodiversity and natural resources.

www.cipotato.org



CIP is a member of CGIAR

CGIAR is a global agriculture research partnership for a food secure future. Its science is carried out by the 15 research centers who are members of the CGIAR Consortium in collaboration with hundreds of partner organizations.

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