

New heat tolerant, late blight and virus resistant potato varieties

TECHNOLOGY DESCRIPTION

- ❖ CIP has developed a new population of late blight resistant and heat tolerant potatoes designated LBHT.
- ❖ Twenty six of the 43 elite high yielding, mid-maturing (90 day growing season) LBHT clones carry extreme resistance to potato virus Y, 32 to potato virus X and 18 are resistant to both of these factors in seed degeneration, while 7 are drought tolerant.
- ❖ These clones have been sent to several countries in Africa, Asia and Latin America for variety development and use in breeding.
- ❖ Two clones have been selected in Kenya (CIP398208.704 and CIP398190.200) and one in Tanzania (CIP398208.29) while several have been used in breeding for earliness and late blight resistance in Vietnam.

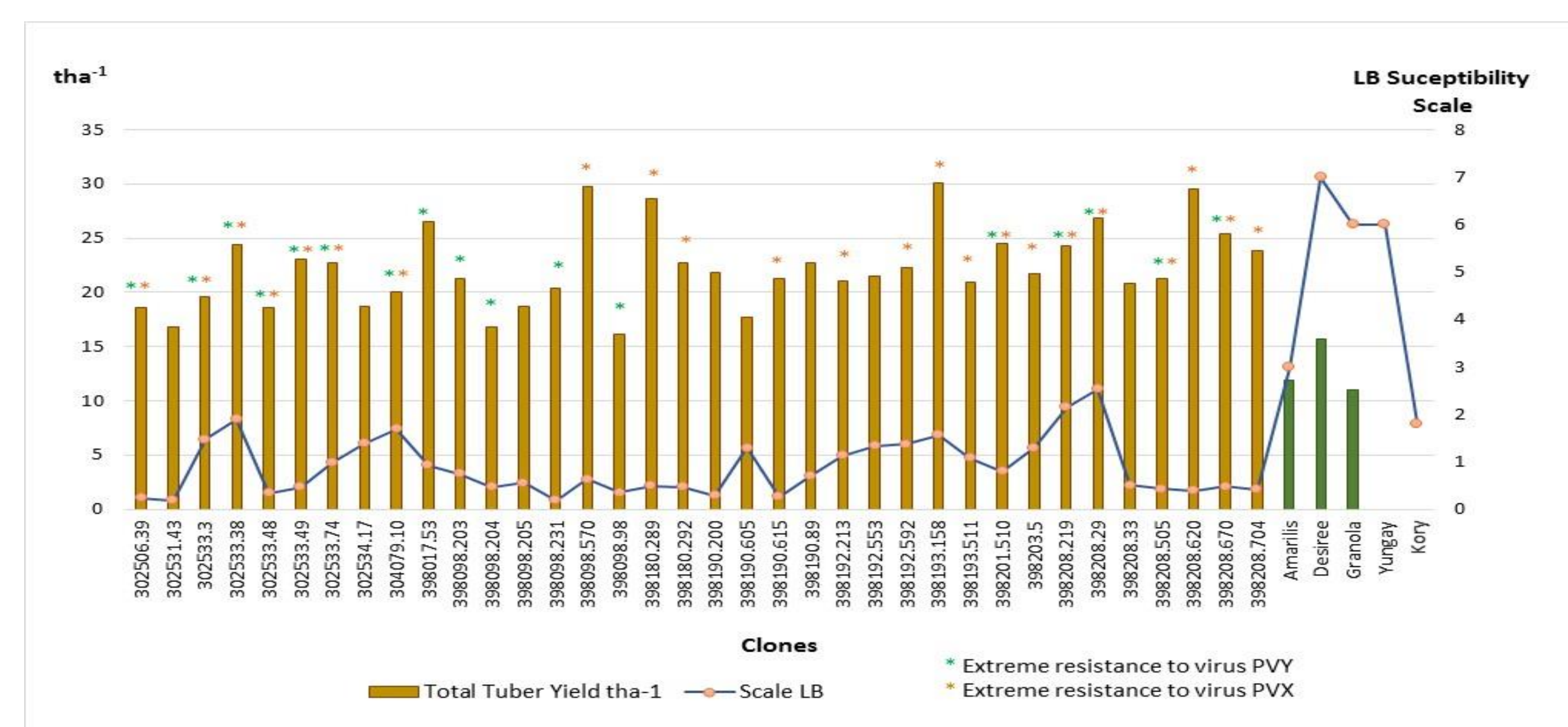


Figure 1. Yield of 34 LBHT clones and three controls under high temperatures (28°C day, 21°C night, San Ramon, Peru) and late blight resistance over 4 seasons (Oxapampa, Peru) based on susceptibility scale of Yuen a Forbes (2009). Virus resistance indicated with “*”.



Figure 2. Experiments in San Ramon (heat tolerance) and Oxapampa (late blight resistance)

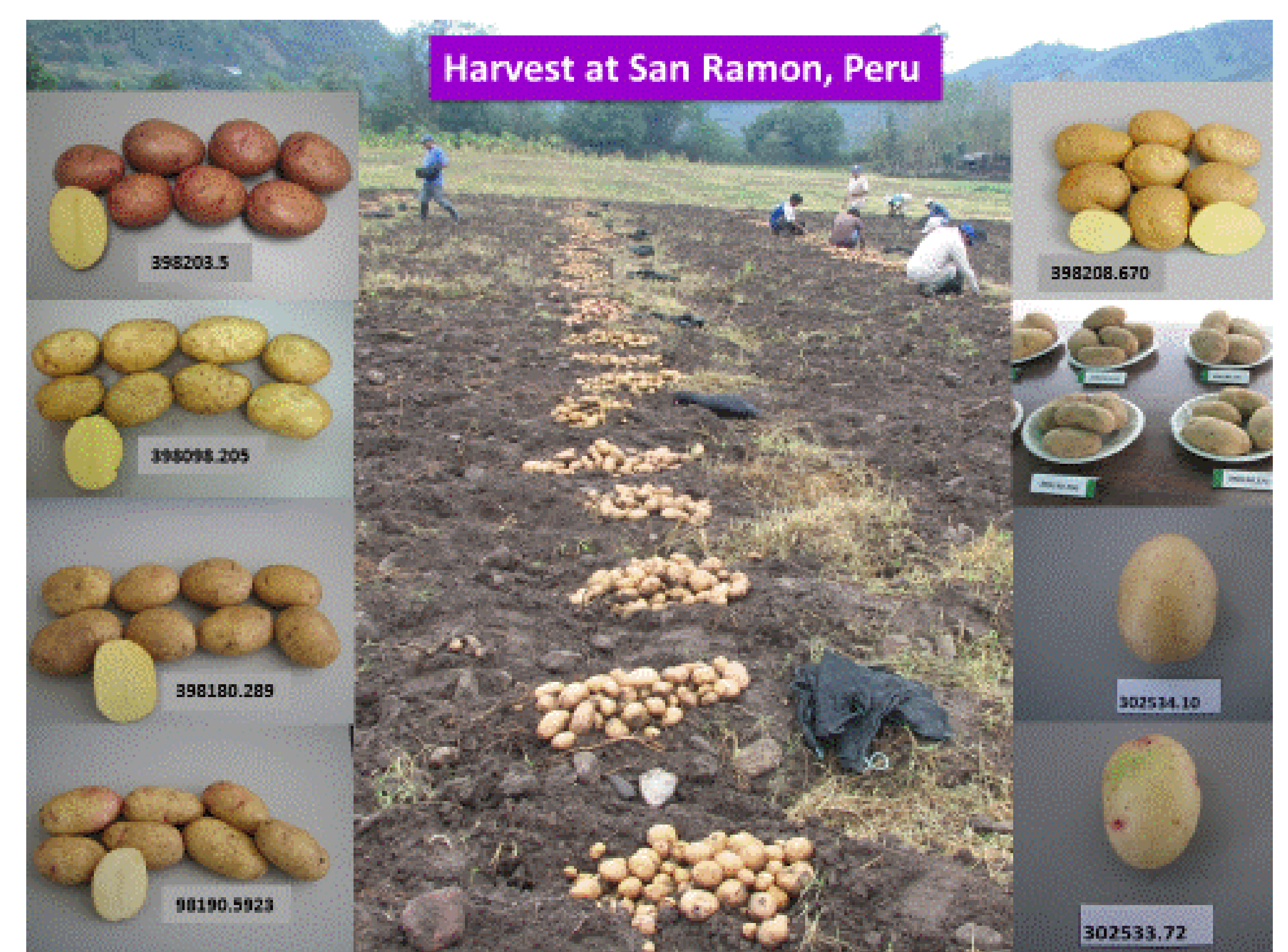
END USERS AND BENEFITS

- ❖ Farmers in highland and mid-elevation tropics of Sub-Saharan Africa, South and East Asia and Latin America will benefit through reduced risk of crop loss and increased reliability of harvests for new added-value markets.
- ❖ Several candidate varieties can be processed into chips, the processing industry is expected to provide more employment and income for farmers and small-medium sized enterprises.
- ❖ Consumers will benefit from lower prices as a result of higher average yields.



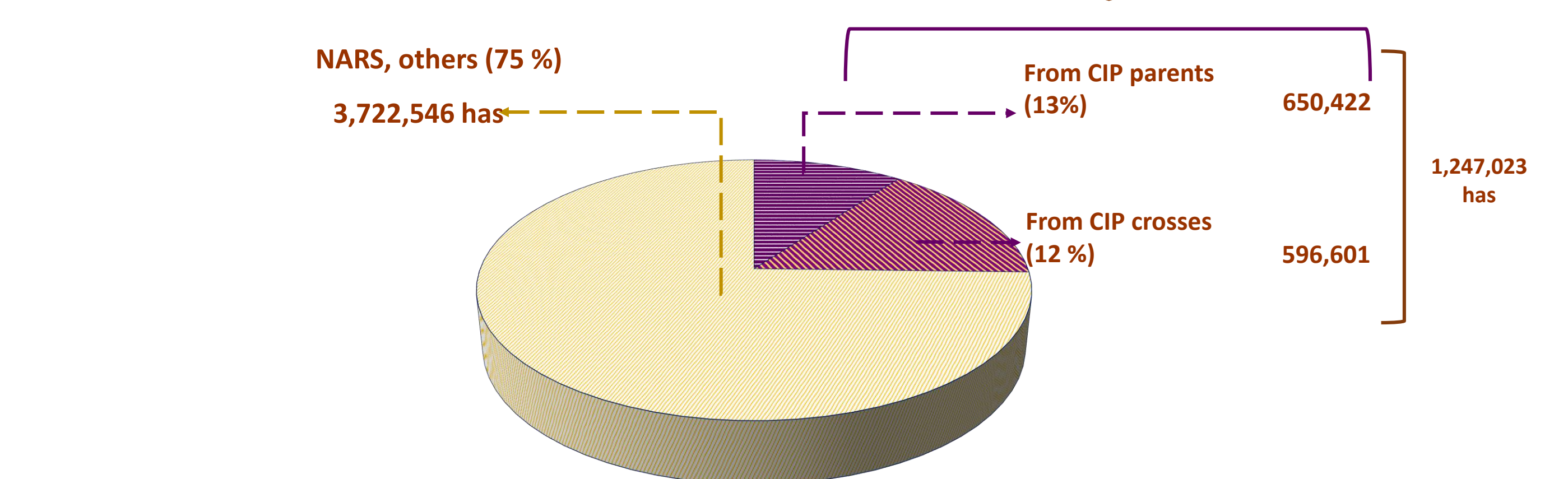
SCALING STRATEGY

- ❖ Following evaluation and selection through participatory multi-stakeholder consortia collaboration with NARS will ensure that top-performing clones will be entered into variety release processes in at least 20 countries globally, CIP and partners will create awareness about newly released varieties through variety catalogues, ICT platforms, demonstration farms and distribution in small seed packs.
- ❖ For effective scaling, enough seed must be produced requiring close work with the development of effective seed systems in PO 2.4 and PO 2.5 to ensure large scale access.
- ❖ Virus resistance will enable farmer-to farmer dissemination of seed of these new late blight resistant and heat tolerant varieties during local evaluation and after release.



LEVEL OF ADOPTION OR USE

Case : >38% of potato production in China is under CIP-bred varieties or varieties bred in China from CIP progenitors.



Unpublished data, SIAC Project, collected between 2015 and 2016 and representing about 90% of China’s potato area

KEY PARTNERS FOR SCALING

- ❖ To achieve dissemination and adoption of these new varieties, partnerships will be developed with private and public institutions.
- ❖ National programs (NARS), NGOs, universities, growers’ associations & processing companies will form consortia in which each member will have a role, especially in seed production and in developing and extending best practices for crop and post-harvest management.