Exploiting the Commonwealth Gavin Ramsay, Gaynor McKenzie, Potato Collection Finlay Dale, Glenn Bryan, Lydia Castelli, Mark Taylor and John Bradshaw

g.ramsay@scri.sari.ac.uk

The Commonwealth Potato Collection

- an international genebank of wild and landrace potatoes held at SCRI

- tremendously valuable

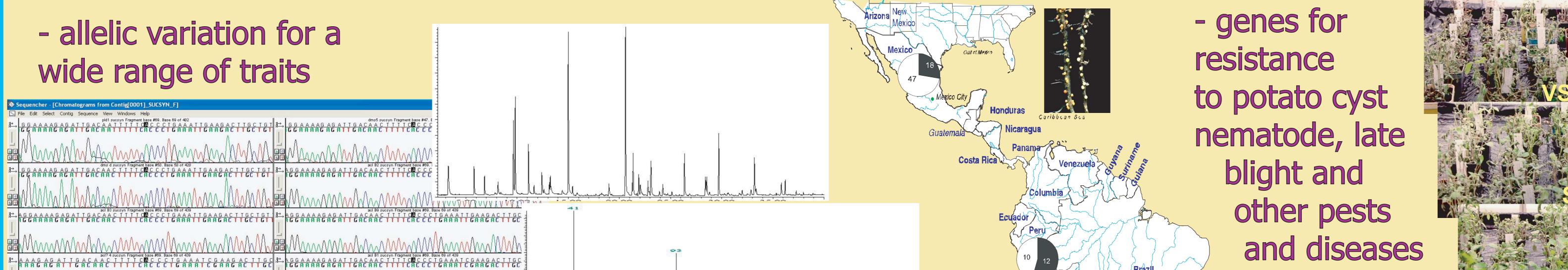
l.	3. Rybinii Phureja.	
	EPC 979. Red 6 Oct 39.	
	Balls' no : B7475	
<u>So</u>	lanum sp. Specimen obtained in market Pasto. Dept	200
Cui Obr Na: X? Pla 30	riño, Colombia. 9.8.39. Itivated at Los Pitreros, S. of Pasto and also in unuco, Cacita, in warm climates. tive name: "Chaucha negra". ants to 80cm. tall. Flowers white. The tubers grow to cm. long. Very good eating quality, selected seed sown August to harvest end of December (worth 8 pesos a	



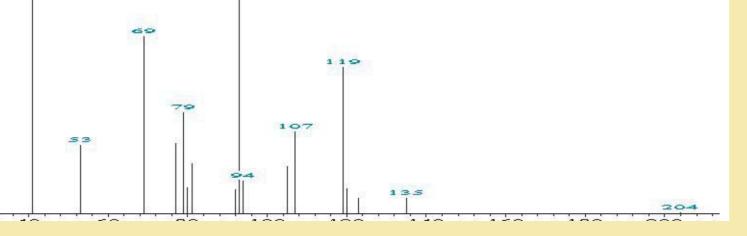


- genomics offers new ways of understanding and exploiting the diversity

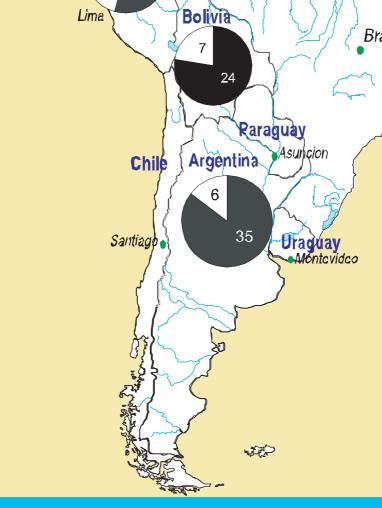
Useful traits in landraces and wild relatives



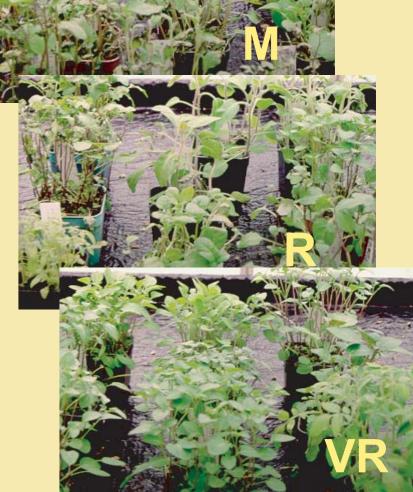
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- biochemical variation for flavour, nutrition and protection from pests



- abiotic stress resistance from adaptation to an extreme range of environments

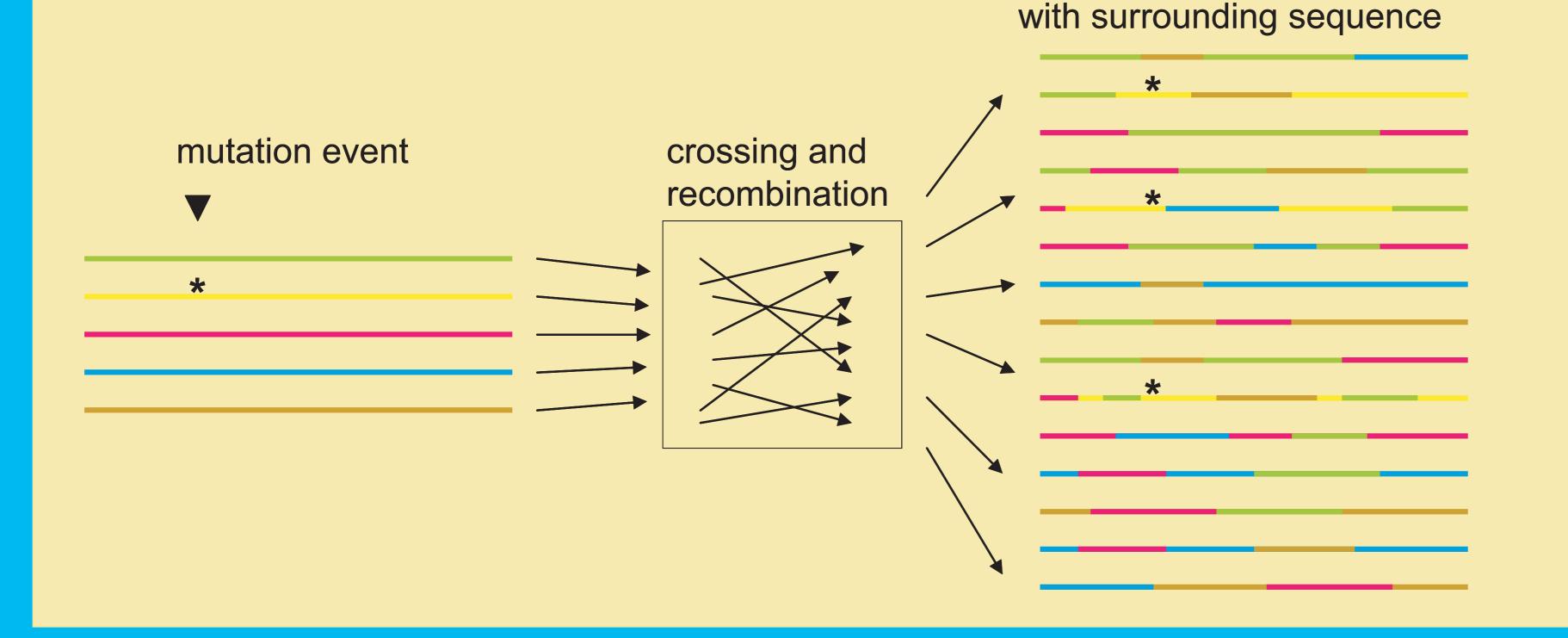


New approaches to using germplasm

- can we use association genetics to tag genes and understand traits more rapidly?
- the marked allele (below) and sequence in the yellow region will be associated, or in linkage disequilibrium, in interbreeding populations.



- in potato landraces, does linkage disequilibrium persist over 100 bp, kb's or cM?
- we are currently testing LD in CPC-derived neo-tuberosum lines, initially looking at sequence variation in candidate genes for tuber carotenoid levels. allele tending to be associated



Neo-tuberosum, derived by selection from S. tuberosum ssp. andigena, captures the diversity of Andean landrace potatoes, in a form adapted to Scottish conditions and so can be grown in replicated trials.