

Recent advances in breeding potato for resistance to bacterial wilt (*Ralstonia solanacearum*) in Brazil.

Lopes C. A.¹, Carvalho A. D. F.¹, Pereira A. S.², Silva G. O.¹, Emygdio B. M.², Azevedo F. Q.², Castro C. M.², Rossato M.³.

¹Embrapa Hortaliças, Brazil; ²Embrapa Clima Temperado, Brazil; ³Universidade de Brasília, Brazil.

mauricio.rossato@unb.br

The objective of this pre-breeding activity of the Brazilian potato breeding project was to obtain superior bacterial wilt (BW)-resistant clones free from undesirable traits found on wild species. Genotype selection started at Embrapa in 1987 under the cooperation of CIP-Peru, and CNPq-Brazil. The starting point was a set of genotypes selected for BW resistance by CIP's breeders based on crosses with wild *Solanum* species. In the first decade of the screening tests, we focused on the accessions derived from *S. phureja*, originally selected at the University of Wisconsin, since they better combined resistance and tuber characteristics. Since then, approximately 160,000 clones obtained from true-seeds have been evaluated. Even with *S. phureja* as a genitor, selection index for resistance has been very low, with approximately 1% of selection for reasonable tuber appearance upon artificial and natural inoculations. Even from these, improvement of tuber appearance maintaining high levels of resistance has been difficult due to the complex recombination of alleles, as expected for a tetraploid species. In the first decade, two clones, MB-03 and MB9846-01, were selected for their high and stable resistance upon successive exposures to naturally infested fields with races 1 and 2 of *Ralstonia solanacearum*. They were used in Embrapa's breeding program in recurrent crosses with genitors that favor tropical adaptation, tuber appearance and culinary quality. The most advanced clone so far, MB54-2 (MB9846-01 x BRSIPR Bel), has been used preferentially as a BW-resistant genitor for its high and stable level of resistance as well as high yield, resistance to PVY, good tuber shape and skin, and processing quality. The protocols for BW resistance assessments in the greenhouse and in the field, the levels of resistance achieved, and the characteristic of recently selected clones will be presented.