

## BREEDING FOR RESISTANCE TO BACTERIAL WILT OF POTATOES IN BRAZIL

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Bacterial wilt (BW), caused by *Ralstonia solanacearum*, is one of the main potato diseases in Brazil, where the crop is mostly grown in latitudes from 20° to 32°S. Even in cooler regions, if warm spells are associated with high soil moisture, losses may reach 50%.

Disease control has been partially achieved with crop management measures, such as timing of planting, field selection, crop rotation, certified seeds, and use of more resistant cultivars. 'Achat', a popular German cultivar grown in Brazil, is significantly the most resistant genotype in the country; however, its acceptance has considerably dropped in the last few years due to its poor cooking qualities.

With the objective of developing a BW-resistant cultivar to replace 'Achat', genotype selection for BW-resistance at Embrapa-HORTALIÇAS began in 1987 through a cooperation project with the International Potato Center (CIP), Lima, Peru. Since then, approximately 80,000 clones obtained from true-seeds received from CIP and cloned in Brasília have been evaluated. Previous to screening for BW-resistance, the clones are multiplied and selected for tuber marketable characteristics such as shape, color, and eye-deepness. Evaluation for BW-resistance consists of exposing the genotypes to a field naturally infested with race 1, biovar I of *R. solanacearum*. The experiments are carried out as completely randomized block design with at least four replications and six plants per plot. Disease incidence is assessed weekly after first symptoms are observed and the Areas Under the Disease Progress Curves are compared through cluster analysis. Only clones grouped together with 'Achat' and/or 'Cruza 148', which are the resistant controls, are selected.

The best clones selected for resistance to race 1 in Brasília are to be planted in an infested field in Paraná, a southern Brazilian state, where race 3 of the pathogen prevails. Most of BW-selected clones have been meristem-tip cultured and indexed for viruses, being available to breeders in Brazil and elsewhere. Since 1995, the 30 more resistant clones are being used at Embrapa-HORTALIÇAS in crosses involving cultivars with good market acceptance and/or clones/cultivars possessing interesting characteristics such as resistance to other diseases, high dry matter content and high yield.