

## B2: Oral

### New potato clones resistant to bacterial wilt

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Bacterial wilt is one of the major potato diseases in Brazil, responsible for considerable losses in seed potato production because of the zero tolerance. It occurs in all the potato growing regions where it is caused by races 1 or 3, the latter being the most frequent in the southern and southeastern states, where more than 90% of Brazilian potatoes are grown. Partial disease control has been achieved by adopting cultural measures like crop rotation, clean seed, and water management. The German 'Achat', the most common variety in the country up to 3 years ago, has intermediate resistance, which certainly contributed to keeping wilt disease under control. In the last three years, however, the very susceptible Dutch cultivar Monalisa has replaced 'Achat' and now covers more than 80% of the Brazilian potato area of c.a. 170.000 ha. The search for resistance at Embrapa Hortaliças started 15 years ago, with field trials of germplasm developed by the International Potato Center. Around 25,000 genotypes have been evaluated so far, according to four phases: I. cloning of genotypes from true seeds in screenhouse, II. multiplication of clones in BW-free field and selection for tuber characteristics, and III. field assessing for disease resistance for race 1 (biovar I) in Brasília (DF); and IV. field assessing for resistance to race 3 (biovar II) in Rio Grande do Sul. In the last 13 years, from 100 to 250 clones, multiplied and selected for tuber characteristics in the previous year (phase II), were planted in a field naturally infested with biovar I of *R. solanacearum* in Brasília. The genotypes were planted in April or May to avoid the high disease pressure of the warmer periods from September to March. The trials were conducted in five blocks (replications) of six plants. Disease development usually started one week after hilling, manually performed around 30 days after planting. The controls were 'Achat' (resistant), 'Cruza 148' (resistant) and 'Monalisa' or 'Baronesa' -a Brazilian cultivar- (both susceptible). Disease incidence was then assessed weekly by counting, in mid afternoon, the number of wilted plants. Genotypes were statistically compared with the controls using the area under the disease progress curves (AUDPC). In 1997, crosses of selected CIP clones were started in Brasília to obtain lines combining disease resistance and tuber quality. Three clones were selected for their high resistance (similar to the most resistant control 'Cruza 148'), high yields under infested soil and reasonable tuber characteristics (shallow eyes, smooth skin, lack of internal defects, round or elongated shape). The three best clones to date were 'MB-03' (BR63-76 x CIP XY-9); 'MB9721-01' (CIP 385147-59 x CIP 389464-23) and 384515-01 (CIP 7XY.1 x Katahdin). 'MB-03' has also shown high level of resistance when exposed to a field naturally infested with biovar II (race 3) in Rio Grande do Sul, indicating that the tests in Brasília are adequate for screening for both races 1 and 3. This clone has been cleaned through meristem tissue culture and is available upon request for collaborative work. The other clones are being cleaned and will also be available soon.