

## **ANEUPLOID HYBRIDS FROM 3X X 4X CROSSES IN POTATO: CHROMOSOME NUMBER, FERTILITY AND RESISTANCE TRAITS**

I. CARUSO, L. CASTALDI, G. CARUSO, L. FRUSCIANTE, D. CARPUTO

Department of Soil, Plant and Environmental Sciences, University of Naples “Federico II”,  
Via Università 100, 80055 Portici, Italy

*Solanum tuberosum*, *Solanum commersonii*, *Ralstonia solanacearum*, pentaploid

The aim of this study was to characterize twenty-nine *S. commersonii* – *S. tuberosum* progenies, deriving from 3x X 4x crosses to provide evidence that they can be used in potato breeding. The chromosome number of hybrids analyzed ranged from hypo-pentaploid ( $2n=5x-10=50$ ) to hyper-pentaploid ( $2n=5x+7=67$ ), with ( $2n=5x=60$ ) class predominant. Despite being aneuploid, the hybrids did not generally show phenotypic aberrations or vigor reduction common to aneuploids of other species. Most genotypes resembled *S. tuberosum* in growth habit, except eye depth and stolon length. Variability was found for tuber production. Interestingly, a number of hybrids (21%) displayed introgression from *S. commersonii* of resistance to *Ralstonia solanacearum*, the casual agent of bacterial wilt. Although aneuploidy has often been associated with reduced fertility, many hybrids were fertile as female parents with *S. tuberosum*. Indeed, the average berry set and number of seeds/berry were 37.1 and 31.5 respectively. In particular, values of seeds/berry decreased as the aneuploid level of female parents increased. The relationship was principally linear. No significant quadratic relationships were noted. The correlations between aneuploid chromosome number and fertility/agronomic parameters are discussed.