

Molecular characterization of a *Triticum timopheevii* introgression in a Wentworth/Lang population

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A significant number of breeding lines and wheat varieties in the North East of Australia are derivatives of the variety Cook and contain a *Triticum timopheevii* introgression on chromosome 2B that conveys the stem rust resistance gene *Sr36*. Interest in deployment of *Sr36* diminished in 1984 when the resistance gene was overcome and Cook became susceptible to stem rust. Studies since then have shown that the *timopheevii* introgression contains a number of desirable loci conditioning resistance to black point, crown rot and powdery mildew as well as quality characteristics such as increased milling yield and increased grain protein. Interest in deployment of *Sr36* has been rekindled as it has been found very effective in combinations with other stem rust resistance genes and provides strong resistance to Ug99 stem rust. Unfortunately this segment also appears to be linked to a slightly lowered grain yield. Although the introgression, estimated to be approximately 40 cM in length, is believed to be inherited as one block, there have been reports of cultivars in which some of these loci have been lost. The aim of this project was to use molecular markers to identify potential breakpoints in the introgression in lines of a Wentworth/Lang population (> 900 BC₁F₂ lines). Results to date have suggested that about 40 lines have shorter segments of the introgression. The next generation of these lines is being tested to verify these results. Identifying lines that contain disease resistance and improved quality without the accompanying yield penalty will be of great value to both Australian wheat breeding programmes and global efforts to combat Ug99 stem rust.