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FOR WHEAT**

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MICROSATELLITES FOR WHEAT DUS TESTING

Abstract prepared by experts from the United Kingdom

MICROSATELLITES FOR WHEAT DUS TESTING.

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Susan Freeman, Jenny Jackson, Sarah Rendell, John R Law, Vince Lea, Paolo Donini*, Robert J Cooke

*** Presenting author**

1. There is abundant evidence that DNA microsatellites (SSRs, STMS) can distinguish between wheat cultivars. Thus demonstration of differences between cultivars – and hence possibly Distinctness - is not a major problem. However, the level of variation within cultivars at molecular marker loci (Uniformity) is unknown. Lack of uniformity at STMS loci in morphologically sufficiently uniform cultivars may be anticipated because a) there is no breeder selection for uniformity at such molecular loci and b) microsatellites are generally in non-coding ('junk' DNA) regions of the genome. In this project (funded by MAFF) an assessment is being made of the level of uniformity exhibited in UK National List wheat cultivars using STMS loci that have been shown to be potentially useful for Distinctness testing.

2. A preliminary screen of informative markers analysing 48 individuals of ten cultivars has shown a range of uniformity levels; screening of those loci which show high uniformity is being extended to more varieties (30 NL + 10 candidates) and will then be further extended to cover more individuals and successive generations (thus beginning to examine aspects of stability). This will allow a comparison of the level of uniformity revealed by molecular markers with currently accepted morphological characters. It will evaluate whether it is possible to select a set of markers that demonstrate sufficient levels of uniformity within cultivars whilst retaining high levels of discrimination between cultivars.

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