## IMPROVED CODOMINANT SCORING OF AFLP, BASED ON COLLISION PROBABILITIES

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AFLP is a DNA fingerprinting technique used frequently in the plant sciences. In the basic form of AFLP, bands emerging at distinct positions within the lane of an electrophoretic medium are dominantly scored, i.e. binary scored as present or absent. However, more information is available, because the intensity of the band can be scored as well. The intensity is a function of (amongst others) the amount of amplified DNA. Since in individuals which are homozygous at the restricted locus twice as much DNA material is expected compared to heterozygous individuals, the intensity can be used to infer the zygosity of the individual at the locus. This is called codominant scoring (Piepho, 2000). The basic idea is to model the data as a mixture of normal distributions and use ordinary unmixing techniques. One of the problems in codominant scoring is that a larger amount of DNA can also be a result of a so-called collision. In that case two or more fragments of the same length, but from different loci, are restricted and amplified. Since fragments of the same length collide (approximately) at the same position within the lane, more DNA is present at that position, resulting in a higher band intensity. In an earlier study (Gort, 2006) collision probabilities

were calculated. We concluded that larger numbers of bands lead to larger collision probabilities bilities and that smaller fragments have higher probabilities. In the present paper we study how these collision probabilities can be used to arrive at improved codominant scores.

Gort, G., Koopman, W.J.M. and Stein, A. (2006). Fragment length distributions and collision probabilities for AFLP markers. Biometrics, submitted. Piepho, H.P. and Koch, G. (2000). Codominant Analysis of Banding Data From a Dominant Marker System by Normal Mixtures. Genetics 155, 1459-1468.