Guidelines for cattle parentage verification based on SNP markers

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SNP profile:

Minimum number of SNPs in reference core panel (published in ISAG WEB site):   100
Minimum number of SNPs available in profile: 95
(If less than 95 SNPs can be scored, retest the sample or request a new sample).

If mismatches occur in a supposed parentage, the general rule is to first retest the samples involved or request new samples to confirm the determined genotypes. If the genotypes are confirmed the following guidelines are suggested.

Case with offspring and one parent tested
Minimum number of common SNPs in verification offspring: 90
Number of mismatches*:   0-1   -> parentage accepted
Number of mismatches*:   2-3   -> parentage doubtful, backup panel required**
Number of mismatches*:   >3   -> parentage excluded.
*:   example: offspring = GG, sire = AA
**: When the parentage is doubtful, first genotype the samples with both panels (ISAG and backup). If results remain doubtful, ask customer for the other given parent and or another candidate parent. If there are no other possible parents, then qualify the parentage.

Case with offspring and both parents tested
Minimum number of common SNPs in verification offspring: 85
Number of mismatches*:   0-2   -> parentage accepted
Number of mismatches*:   3-4   -> parentage doubtful, backup panel required**
Number of mismatches*:   >4   -> parentage excluded.
*:   example: offspring = AG, sire = AA, dam = AA
**: When the parentage is doubtful, first genotype the samples with both panels (ISAG and backup). If results remain doubtful, ask customer for other possible parents. If there are no other possible parents, then qualify the parentage.
    In any case, it is recommended that samples be retested if there is parentage exclusion with ISAG and/or back up panels.