The development of near infrared calibrations for assessing grass herbage quality

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The main selection parameters used by forage grass (rye and Italian rye grass) breeders are dry-matter yield, seasonal growth, persistency, disease resistance, heading date, and heading. These characteristics can all be identified usually in the segregating F2 population, however characteristics such as soluble carbohydrate level, protein, lipid and digestibility cannot be identified. The emphasis of this work is to introduce a quantitative selection process for characterization of herbage quality e.g. protein, water-soluble carbohydrates, fiber fractions, dry matter digestibility. NIRS calibrations are currently being developed for identifying grass genotypes to assist the selection process, thereby allowing the opportunity to actively breed improved herbage quality. The changes in fibre fractions, associated components and digestibility of a number of grass clones at different growth stages are being assessed changes taking place during a growing season. This will provide a database of the major changes taking place during a growing season. Attempts to classify quality differences between genotypes will be carried out using multivariate analysis of the spectral data. I addition changes associated with maturity of grass will be considered in order to develop robust calibrations.