The beneficial health and wellness stories centred on oats mean that it occupies an excellent position in the consumers view. Exploitation of this for existing and new products is still in its relative infancy compared with other cereals. Oats have a good nutritional and health beneficial component portfolio and these have been the target of an increasingly intense breeding effort. To ensure a resilient supply chain the environmental and agronomic aspects have been, and continue to be, studied to ensure that quality maintenance and enhancement is realised in different environment and conditions.

As part of several oat-based projects, including QUOATS (www.quoats.org), we have adopted a metabolomics approach to oat analysis alongside geneticists, breeders and agronomist to deliver a more complete story on the development of oat quality. Metabolomics, by definition, deals with metabolites many of which in isolation or through processing deliver the desirable end-user parameters. In broad terms well designed field trials were exploited and identified that there were expected outcomes from agronomic practices, e.g. increasing applied N impacted on amino acids content and composition, but also unexpected ones, e.g. impacts on phenolic content and composition. This will be dealt with in greater detail for key quality components.

Using real industry examples we will also show how metabolism (raw material quality) impacts on product quality, shelf life and health benefits, and where some potential targets for future enhancement may lie and the implications of this for new product development.

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**Notes**