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FROM SEED TO PASTA III

A SUSTAINABLE DURUM WHEAT CHAIN
FOR FOOD SECURITY AND HEALTHY LIVES



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FROM PLANT BREEDING TO INDUSTRIAL PROCESS: INTEGRATED DATA MANAGEMENT BASED ON A RESEARCH RESOURCE PLANNING.

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Modern breeding techniques such as genome-scale marker assisted selection and high throughput phenotyping are huge generators of great potential data along with the now easily accessible sensor and environmental data. Combined with the needs of the market, generated by an integrated chain of return of experience from the food industry and from end-consumers, it makes data management a real challenge to make this information a source of improvement in breeding.

Before using Research Resource Planning¹ (RRP), breeding organizations were lacking tools to analyse and get concrete indicators out of genotypic, phenotypic and processing data altogether, with restricted time and resources. Most of the historical data handling and analysis solutions combined various software or solutions implying complexity and difficulties for global, multidimensional analysis.

In the case of wheat, with its diverse uses, including complex end chain processes for seed transformation, integrated approaches can be particularly beneficial for breeding organizations.

Indeed, possible combination of metadata and data from every step of the breeding process in an integrated data management system for all campaigns would help wheat commercial breeders fit the changing pasta quality standards accentuated by the consumer expectations.

Besides, integrated data management and analysis approaches, based on a RRP, will also support innovative long-term processes such as hybrid wheat breeding, genomic selection, and further pedigree studies implying specific and complex analysis algorithms (e.g. evaluating parents combining ability).

This presentation discusses the possibilities offered by an RRP such as RnDExperience[®] by Doriane[®] to integrate data management tool for wheat breeders, and the benefits provided in terms of integrated analysis and decision making focusing on processing information and consumers expectations into breeding strategies.

¹ A Research Resource Planning is collaborative software based on relational database allowing users to manage multiple research processes of an organization