

BléNNat, wheat-based food ingredients that are richer in fibers and magnesium

At the same time as its Annual General Meeting, held on April 2nd 2010, Céréales Vallée presented a report on its research program BléNNat, launched on July 1st 2007 and due to be completed in July 2010.

The vocation of BléNNat has been to develop cereal products that are nutritionally superior in order to meet customer expectations within the framework of public health policies. In order to improve the nutritional value of cereals and cereal products, the program set out to create wheat varieties that are richer in magnesium and fibers.

Questions for Doctor Elisabeth Chanliaud, the BléNNat project leader and research co-ordinator at Ulice



Why create food that is richer in fibers and magnesium? Doesn't our intake contain enough of them?

*"In our daily food intake today, **we do not consume enough fibers and magnesium**. Our daily adult intake of **fibers** should be 25 or even 30 g/day for adults. But in fact for France it is estimated to be between 15 and 22 g/day, about 50% of which comes from cereal products. Let's not forget that wheat represents 90% of the cereal products consumed in France".*

What does the research work of BléNNat involve?

*"The research work of BléNNat focuses on **resistant starch**. It is the type of starch that escapes digestion in the small intestine and passes into the large intestine. Resistant starch combines the nutritional advantages of insoluble and soluble fibers because of its capacity to be fermented at the end of the digestion process.*

Resistant starch is thus prebiotic fiber, i.e. it maintains symbiotic fermentation in the intestine, while behaving like a slow sugar, and therefore has a low glycemic index".

*"Cereal products are also the main source of **magnesium** for the French. In France they are mainly manufactured using type 55 or type 65 wheat flours. Since these flours are purified through a grinding process, they end up with only a fraction of the nutritional components naturally present in the grain. The conventional breeding of varieties and also wheat grain fractionation have enabled us to develop solutions to optimize the concentration of magnesium in first and second transformation products that are widely consumed".*



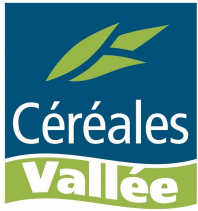
In 2012, new European regulations will come into force. What will they change?

*“Indeed in 2012 new European regulations will come into force. They will deal with claims regarding nutrition and health. There are two main points involved. First of all, the composition of products marketed will need to comply with more targeted nutritional requirements. Secondly, industrialists making a claim that has an impact on health will need to register a file with the **European Food Safety Authority**, in order to demonstrate the validity of their products. The objective of this legislation on the one hand is to standardize the European market for nutritional food products and thus to facilitate the free movement of products within its member states. Furthermore it aims **to fight against eating disorders** by providing consumers with better information on the nutritional content of products that are sold”.*

What will BléNNat’s contribution to industrialists be with this new legislation?

“BléNNat creates wheat varieties that meet targeted nutritional needs while preserving the authenticity and natural characteristics of plants. It is above all a research program. It highlights improvements that respect standards of nutrition and public health that will subsequently be applied by industrial partners. This research program will enable them to anticipate the new regulations since they will have access to knowledge and plant material from this research work. In 3 to 5 years after the project’s completion, which is planned for July 2010, the industrial partners of this program will be able to launch new products on the basis of our results.”





BléNNat has four objectives all related to one single priority: demonstrating the value of nutritional flours, i.e. the “health” benefits they can have on consumers.

1) Breeding varieties

The objective is to breed varieties with high nutritional value. Collections that are stored or developed in the Auvergne genotyping center are explored to look for varieties with the right nutritional characteristics. In this way we can simultaneously combine different wheat varieties in order to create new ones that meet more targeted requirements in terms of nutrition.

2) The definition of crop growing profiles

The second objective is to define the best crop growing profiles so that the varieties developed can express their nutritional potential. This is carried out in a given environment, maintaining acceptable agronomic characteristics for producers.

3) The development of nutritional concepts and products

The third objective consists in testing the technological quality of wheat that has been optimized in this way in a certain number of test scenarios that are representative of the applications used to produce the target products (cereal ingredients, French bread, sandwich loaves...). Different flours will be tested to quantify their aptitude for transformation and sensorial analysis tests will be used to measure their impact on the appearance and taste of products.

4) Studies to test the impact on health

The fourth objective is to assess the impact on health through in vitro and in vivo studies in conjunction with the Regional Centre for Human Nutrition and by metabolome analysis, in order to develop our understanding of how such innovations act, which is indispensable for nutritional allegations.



BléNNat comprises the following partners:

- **Vetagro Sup**, National College of Agricultural Engineering of Clermont-Ferrand
- **Grands Moulins de Paris** (Nutrixo Group), French leaders in milling
- **INRA** Clermont-Theix and INRA Montpellier
- **Jacquet**, 2nd largest industrial bakers in France, Clermont-Ferrand
- **ULICE**, R&D structure for Limagrain Céréales Ingrédients. LCI, based in Riom, is the European leader for functional flours and cereal pellets. *Project leader*

More information about Céréales Vallée

Céréales Vallée has 66 members and involves nearly 500 players, both public and private, all involved in research, industry, services and training for cereal chains. Of international dimension, this Cluster has developed 4 strategic topics for research and development: “cereals for the future”, the true backbone of the organization, “cereals for human nutrition and health”, “cereals for animal feed” and “cereals for agro-materials, plant chemistry, and bio-energy”.

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