

Delicious bread

– with ancient wheats

Did you know that new product launches of breads made with ancient wheat varieties have more than tripled in the last five years?*



Healthy and delicious. Part of the global trend towards healthier foods is new interest in spelt and other “ancient grains,” including emmer and kamut (khorasan) wheats. Perceived as healthier, these older forms of wheat have very different baking performance than modern wheat. They are gaining in popularity even though they are more expensive.

These ancient wheat varieties typically produce breads with lower volume and higher density, a challenge for bakers wanting breads with the soft, elastic, moist texture and aerated crumb structure that consumers have come to expect.

In addition, the ancient wheats have a significant impact on the bread-making functionality:

- Shorter storage – Bread made with ancient wheat tends to dry quickly, and becomes hard and firm in a shorter period of time
- Poor bread stability – Bread made with ancient wheat varieties has poor stability, and bread pans may be required to produce a nice loaf of bread

Fortunately, Novozymes enzymes are able to compensate for many of these challenges, and make it possible to deliver delicious breads, also with flours made from ancient wheats.

Softer, more elastic bread during storage

Novozymes fresh-keeping enzymes let you achieve excellent crumb softness and melting properties in applications with ancient wheat varieties, improving softness, moistness and eating properties throughout storage.

Improved dough stability and volume

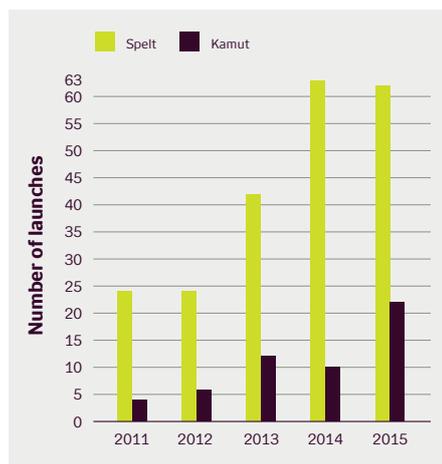
Novozymes’ dough-conditioning enzymes increase bread volumes, and provide a finer, more regular crumb structure. This helps correct the lower volume and higher density typical of breads made with ancient wheat flours.

Better machinability

Novozymes’ gluten-strengthening enzymes improve dough stability and provide dry dough conditions for better handling. With enzymes, you can achieve better machinability and oven spring, even with low-glutenin flours that fail to produce a dough with the strength typical of modern wheat.

*Source: Mintel Global New Product Database 2016

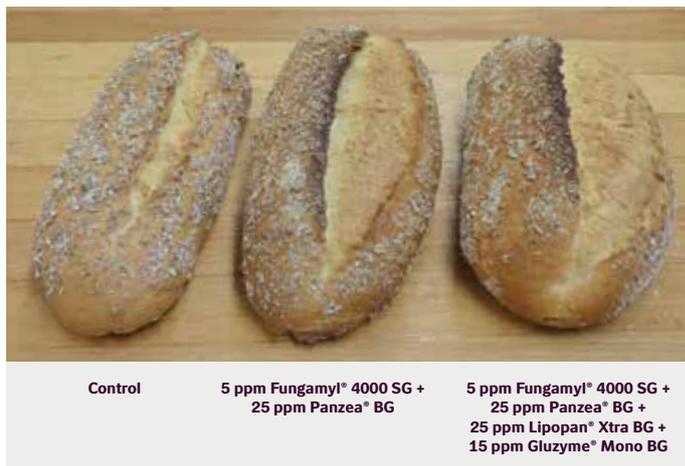
Interest in ancient grains is rising



*Source: Mintel Global New Product Database 2016

The number of launches of new packaged bread products containing spelt or other ancient varieties of wheat has tripled in the last five years. Spelt flour is still the most popular, and kamut is also gaining ground.

Better volume and appearance in spelt bread with enzymes



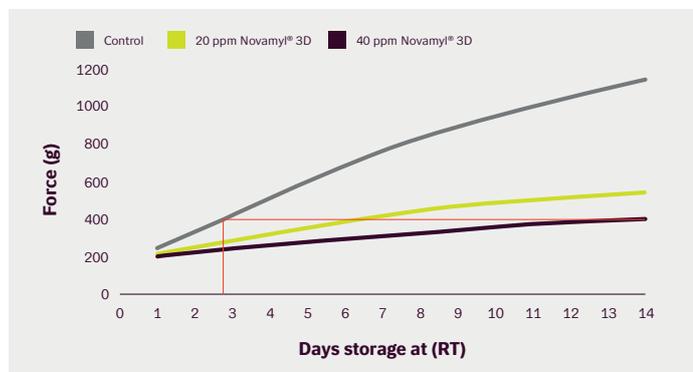
Control

5 ppm Fungamyl® 4000 SG +
25 ppm Panzea® BG

5 ppm Fungamyl® 4000 SG +
25 ppm Panzea® BG +
25 ppm Lipopan® Xtra BG +
15 ppm Gluzyme® Mono BG

Enzymes can be used to strengthen both gluten and dough, resulting in better dough stability and increased dough volume, as well as better crust crispiness, clearly improved bloom and finer, more regular crumb structure.

Crumb softness

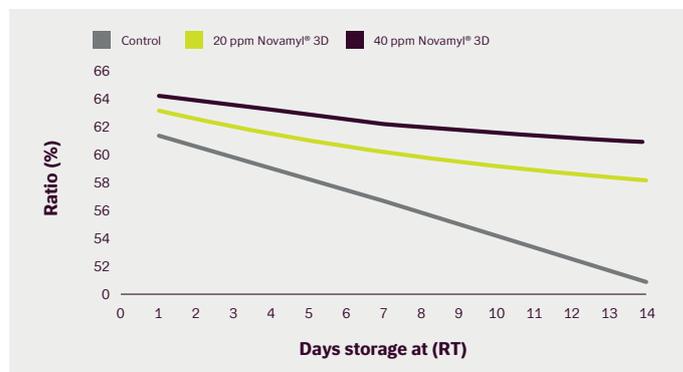


The red line in the graph shows that spelt bread with enzymes had the same softness on day 14 after baking as the control bread had on day 3. Breads with enzymes are clearly softer compared to the control, and this effect increases with higher dosages.

Overview of Novozymes' solutions for bread made with ancient wheat varieties

The Novozymes products on the right are recommended for application with spelt and ancient wheat varieties. They are available in concentrated or standardized granulate form. It is recommended to add enzymes based on total flour used in the recipe.

Crumb resilience



The graph above shows how enzymes increase the crumb resilience compared to the control, a benefit in crumb texture that increases with dosage and over time.

Benefit	Product	Enzyme	Dosage
Softness Freshness Moistness	Novamyl® 3D BG	Maltogenic amylase	30 - 100 ppm
Volume increase Crumb structure	Fungamyl® 4000 SG	Fungal amylase	2 - 12 ppm
Volume increase Crumb structure	Panzea® BG	Bacterial Xylanase	20 - 40 ppm
Dough strengthening	Lipopan® F BG Lipopan® XTRA BG	Phospholipase	20 - 30 ppm
Dough stability Dough dryness	Gluzyme® 10000 BG Gluzyme® Mono 10000 BG	Glucose Oxidase	5 - 20 ppm

Get ahead

Staying ahead of the dynamic food and beverage market requires the best technology and expertise to become even more flexible, efficient and profitable. With our solutions and know-how, Novozymes can support you on that journey. Let's transform the quality and sustainability of your business together.

It's the quality that counts

Staying Novozymes provides safe production strains, assessed and approved raw materials – under strict, controlled processes that have full traceability. We are your expert when it comes to monitoring, understanding and complying with local and global food legislation, and we continue to pursue key international food safety and quality certifications – so you and your customers can feel confident.



About Novozymes

Novozymes is the world leader in biological solutions. Together with customers, partners and the global community, we improve industrial performance while preserving the planet's resources and helping build better lives. As the world's largest provider of enzyme and microbial technologies, our bioinnovation enables higher agricultural yields, low-temperature washing, energy-efficient production, renewable fuel and many other benefits that we rely on today and in the future. We call it Rethink Tomorrow.

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Novozymes Switzerland AG

Neumattweg 16
4243 Dittingen
Switzerland

Tel. +41 61 765 6111
Fax +41 61 765 6333

Novozymes A/S

Krogshøjvej 36
DK-2880 Bagsvaerd
Denmark

Tel. +45 4446 0000