Baker’s Perspective on Enzymes
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• Started bakery career in 1992, going on my 26th year

- Loading racks to palletizing bread
- Oven operator
- Divider operator
- Dough mixer
- Shift Foreman
- Lead Supervisor
1960’s Alpha Amylase: degrade the damaged starch in wheat flour into small dextrin's, which allows yeast to work continuously during dough fermentation, proofing and the early stage of baking. The result is improved bread volume and crumb texture.

1970’s Protease: Protease acts on protein chains, breaking the peptide bonds between amino acids. Protease is used as a mix reducer and dough relaxer.

Xylanases: Dough conditioning. Easier dough handling and improved crumb structure.
1991: Our company and the baking community in general took a big hit due to a California law which eliminated a key ingredient.

Potassium bromate, a flour "improver" that strengthens dough and allows for greater oven spring and higher rising in the oven. Potassium bromate, commonly referred to as simply "bromate," is a slow-acting oxidizer, contributing its functionality throughout the mixing, fermentation and proofing stages, with important residual action during the early stages of baking.
Baking and processing aides

ADA matures flour through oxidation

In 2014: The Food Babe Urges Subway to Stop Using Azodicarbonamide

In that same year, we worked with our supplier to get us an Enzyme/Ascorbic blend to replace ADA
Bread and cake staling is responsible for significant financial loss for both consumers and producers. For instance, every year in the USA bread worth more than 1 billion dollars that is discarded. However the main saving on prolonging the shelf life is actually savings in transportation and fuel costs due to a more efficient distribution.

1999: we began using Novomyl, which was an extended shelf life enzyme. This ingredient was used at 10 grams per 10 sack dough. This extended out shelf life from 3 to 5 days

2001-2006: we began working with one of our suppliers that began using a protein based ESL that raised our shelf life to 7 days
Extended Shelf Life

With the success of reducing returns, eliminating trucking and fuel. The question is really how long can we go. Shutting down of major bakeries, means we travel a lot further to get to some of our customers

The quality of the current Enzymes has our shelf life up to 14-21 days. In other bakeries this us up to months.
Market trends

Market trends are a big contributor to the needs of Enzymes.

Enzymes are key for many of these items to keep cost down, due to high ingredient costs, such as gluten reduction and also as vital processing aides.
Mono and diglycerides acts as an emulsifier, it can improve loaf volume and create a softer crumb.

They promote inflammation and obesity; raise LDL, or bad, cholesterol levels; and lower HDL, or good, cholesterol levels.
Since around 2005, enzymes have been introduced to us as an ingredient reducer
Amylase: Maximizes the fermentation process to obtain an even crumb structure and a high loaf volume.

Glucose oxidase: Oxidative reaction with gluten to make weak doughs stronger, drier and more elastic.

Lipase: Modifies the natural lipids in flour to strengthen the dough.

Xylanase: Dough conditioning. Easier dough handling and improved crumb structure.

Protease: Weakens the gluten to give plastic properties required in doughs for biscuits.

TEAMWORK
Together Each Achieves More
Bakers Perspective on Enzymes

Enzymes are hugely important to our baking lives.
1. They increase our efficiencies
2. They give us consistent quality
3. They give us longevity to our product
4. They keep us moving with trends

Always remember, you are dealing with dumb bakers!!!

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