



FUTURIS 2 “BREAD RESEARCH”

ENGLISH SCRIPT

0.00 GENERIQUE

0.08

Whether it's a rustic roll, hand crafted by your local baker, or a loaf, leavened in a factory on an industrial scale, Europeans get through 25-million tonnes of bread each year.

00.19 VOX POP (IN FRENCH)

"There are so many different types of bread...",

LAISSEZ VIGUILE

00.23 VOX POP (IN FRENCH)

"... and they're all good in one way or another."

LAISSEZ VIRGUILLE

00.27 VOX POP (IN FRENCH)

"I'm quite interested in how it's made..."

LAISSEZ VIRGUILLE

00.30 VOX POP (IN FRENCH)

"I'm interested in the taste above all. (Maybe I shouldn't be.) Je devrais peut-être pas".

00.34 LAISSEZ UN PEU DE MUSIQUE

00.36

European researchers are looking closely at what puts the "go" into "dough".

LAISSEZ MUSIQUE

00.42

And to improve the quality, they are using machinery more at home in a high-tech science lab than a baker's kitchen.



00.56

It's five am at Krakow's University of Agriculture, in Poland.

They might look like bakers, but in fact they are specialists in human nutrition.

They mix flour, water, fresh yeast and salt in pre-determined proportions...

... and leave the dough to ferment for an hour.

1.21 LAISSEZ NO COMMENT

1.24

The researchers want to know how the fermentation process affects glucose levels in the blood of those who eat it.

And they have a theory.

1.38 ITW BARBARA BORCZAK, HUMAN NUTRITION SPECIALIST. UNIVERSITY OF AGRICULTURE, KRAKOW. (IN POLISH)

"We know that the longer the fermentation process, the more alcohol and carbon dioxide is produced in the dough. Both these products are produced by simple sugars. And it's these sugars which are responsible for a high glycaemic-index in bread.

So we reckon that if the dough ferments for longer, the bread will produce less glucose in humans, because the simple sugars will have been transformed, into alcohol and gases, in the baked bread. So there will be less sugar to be absorbed by the body. These experiments should help us to confirm that theory".

2.14

The bread is baked for 20 minutes at 230 °C.

2.23

Then, it is sliced into portions of exactly 111-grams....

2.29

...before the second part of the experiments begins.



2.34 ITW BARBARA BORCZAK, HUMAN NUTRITION SPECIALIST, KRAKOW UNIVERSITY OF AGRICULTURE. (IN POLISH)

"The participants will now eat these rolls and we will measure the glucose concentration in the blood".

2.46

Fifteen guinea pigs - all students at the University - eat the 111 grams of bread....

2.56

...and blood samples are taken at different stages of the digestion process: four samples in about an hour and a half.

Volunteers think this research is vital to improve the nutritional qualities of the bread of the future.

3.12 ITW ANNA STACHOWICZ, STUDENT (IN POLISH)

"Bread is widely consumed here in Poland, during breakfast and dinner. Everyone knows it is an essential food. That is why it is very important to measure its glycaemic index and reduce it... not only for people suffering from Type 2 diabetes, but also for those who want to protect themselves against it."

3.30

The experiment is just one of a number of elements in a research project aimed at providing EU citizens with better and healthier bread, no matter the consumer's preferences.

3.44 VOX POP (IN FRENCH)

"Young people eat a basic kind of bread. Older people look more for nutrition, fibre and grain - a specific sort of bread. "

3.57 VOX POP (IN FRENCH)

"Factory bread? Never! It doesn't keep, it dries out really quickly. It's just no good."

4.03

The project is being coordinated from this Institute at Nantes, in Western France.

Researchers are working to improve the nutritional quality of industrially-produced bread, while cutting the amount of energy needed to make it.



Their work should also help to provide traditional bakeries with useful tips on making healthier bread with more environmentally friendly bakery techniques.

4.31 ITW ALAIN LE BAIL, EU-FRESHBAKE COORDINATOR (IN FRENCH)

"Traditional methods of bread-making make more minerals available... and with industrial methods, you're generally looking to save time, so the process is very quick.

But it's changeable. It really depends on fermentation methods, the recipe and the types of flour used.

A poor traditional-method might produce bread with no nutritional interest... and a good industrial method could, indeed, produce a nutritionally interesting and acceptable product.

With this project, we're trying to resolve the issues connected with the Glycaemic Index and, equally, to maintain good nutrition from an industrial process."

5.22

And to do that, researchers use sophisticated tools, like this brand new laser machine.

5.35

They turn a bread-roll in the beam of a scanning laser, which then draws the exact shape on a computer.

The software then accurately calculates the volume.

5.55 ITW SYLVIE CHEVALLIER, FOOD SCIENTIST, ENITIAA (IN FRENCH)

"The volume of bread is one of the criteria of quality. It tells you - according to a pattern - if the bread has risen well - and reveals information about the inside of the loaf... if it's properly aerated. In soft bread, for example, you're looking for the body of the loaf to be regular and even, while in French bread, like a baguette, it could have a more uneven texture, with some larger and some smaller air-bubbles."

6.29

Sylvie Chevallier uses also the scanner to study the texture and shape of the bread crumbs. The pictures help her measure the size and number of bubbles - which is useful in solving problems like the over-contraction of crumbs during baking.



6.51

Over-contraction, elasticity, porosity, molecular characteristics, moisture diffusion... uncommon terms in bakeries; but it's bread-and-butter to research institutes...

7.03

... like CEMAGREF, at Rennes in France.

And you won't find one of these in a standard kitchen showroom.

It's a sophisticated Nuclear Magnetic Resonance Spectrometer - with a built-in bread oven.

They use it to look at what's happening under the crust while the bread is baking.

7.24

The pictures help experts to learn how the expansion of gas determines the shape, volume and porosity of the final product.

7.37 ITW TIPHAINE LUCAS, AGRONOMIST, CEMAGREF (IN FRENCH)

"We realised for the first time that the top, the bottom and the middle of the bread expand in different ways. Let's take this bubble for example... you see it grows at the start of baking because the gases - water-vapour and CO₂ which are formed during fermentation - are expanding inside. So the bubble gets bigger. But there's an instant when that will slow down, and it will explode, because the centre is also trying to expand."

8.11 CONCLUSION

It's the volume, density, and distribution of these bubbles which essentially make the difference between a soft floury-bap, and a crunchy crusty-cob.

Researchers hope better understanding of how the bubbles breed, will lead to a bread that's better bred.

WEBSITE

8.25 GENERIQUE.

8.30 ENDS