

A collage of various breads including baguettes, rolls, and sliced bread. The breads are arranged in a dense, overlapping manner, showcasing different shapes, sizes, and textures. Some are whole, while others are sliced, revealing the soft interior. The colors range from light golden to deep brown, indicating different baking styles and ingredients.

DEVELOPING AND CUSTOMIZING HEALTHY BREADS FOR EUROPEAN CONSUMERS

WHOLE GRAIN SUMMIT 2015, Portland

Roberto Ranieri
www.openfields.it

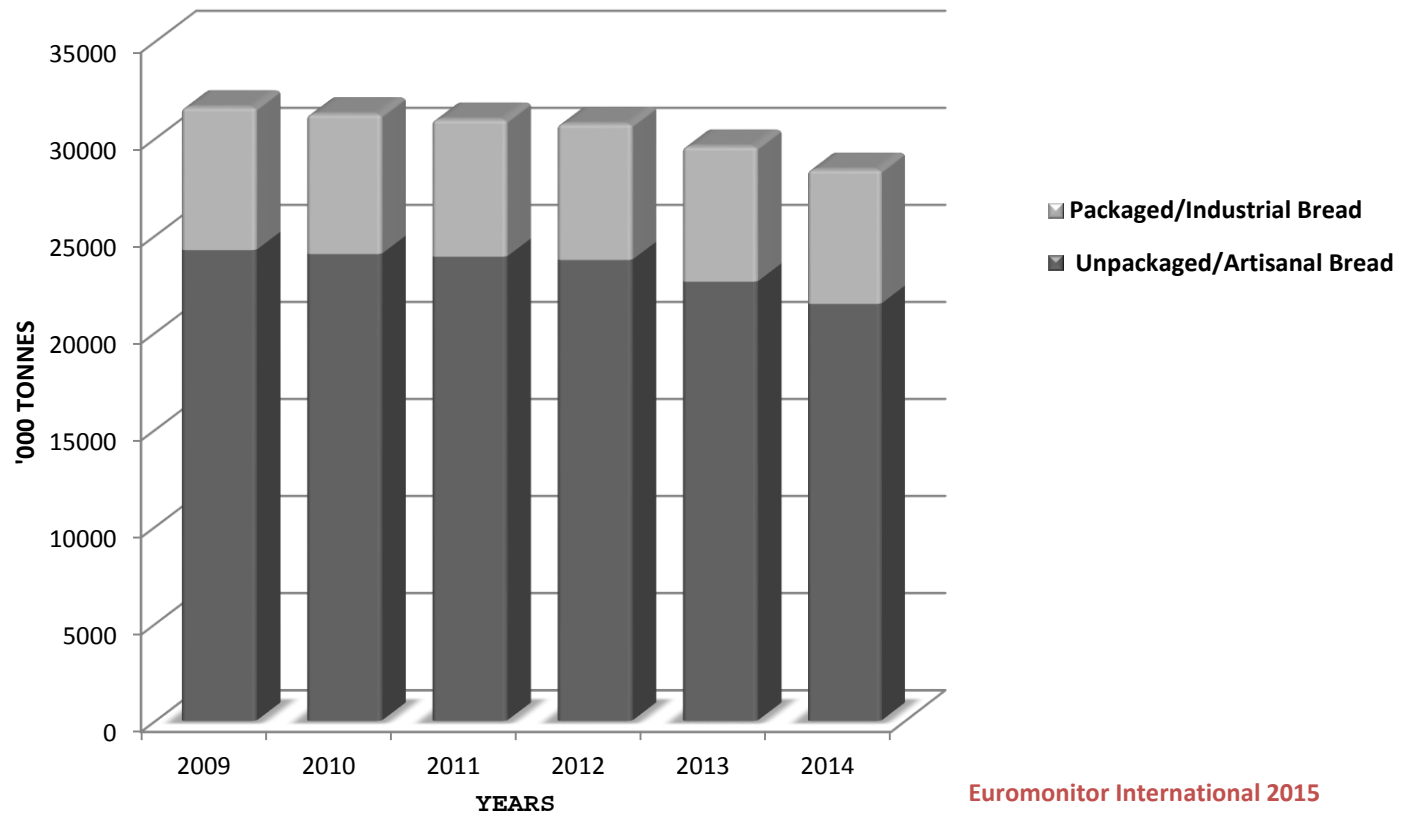
A collage of various breads including baguettes, rolls, and slices. The breads are arranged in a dense, overlapping manner, showcasing different textures and colors from golden brown to dark crusts. Some breads are whole, while others are sliced into rounds or halves.

Contents

- Bread Consumption in Europe
- HealthBread Project
- HealthBread Applications

BREAD IN EUROPE - I

HISTORIC RETAIL BREAD VOLUMES



BREAD IN EUROPE - II

COUNTRY	TOTAL BREAD PRODUCTION	
	TONS	INCREASE/DECREASE
Germany	6,400,000	Stable
France	3,150,000	+1%
Italy	3,000,000	+1%
Spain	1,699,095	+3,7%
United Kingdom	1,409,353	-2%
Greece	865,000	Stable
The Netherlands	620,200	-1%
Finland*	210,000	Stable
Denmark	125,000	-1%
Slovenia*	85,728	n/a

COUNTRY	CONSUMPTION OF BREAD	
	~Kg/head/year	INCREASE/DECREASE
Greece	68	Stable
The Netherlands	62	-1%
France	57	Stable
Germany	56	Stable
Italy	52	Stable
Denmark	45	Stable
Slovenia*	42	Stable
Finland*	42	Stable
Spain	37	+4,2%
United Kingdom	32	-1%

*Data from Finland and Slovenia are 2012 statistics

Global Data by AIBI (Association Internationale de la Boulangerie Industrielle) Bread Market Report 2013

BREAD IN EUROPE - III

COUNTRY	NUMBER OF	
	INDUSTRIAL BAKERIES	CRAFT BAKERIES
Slovenia*	289	190
France	220	30,000
Italy	190	22,500
The Netherlands	67	2,000
Germany	50	10,750
United Kingdom	48	n/a
Spain	40	11,000
Greece	22	7,000
Finland*	17	640
Denmark	6	n/a

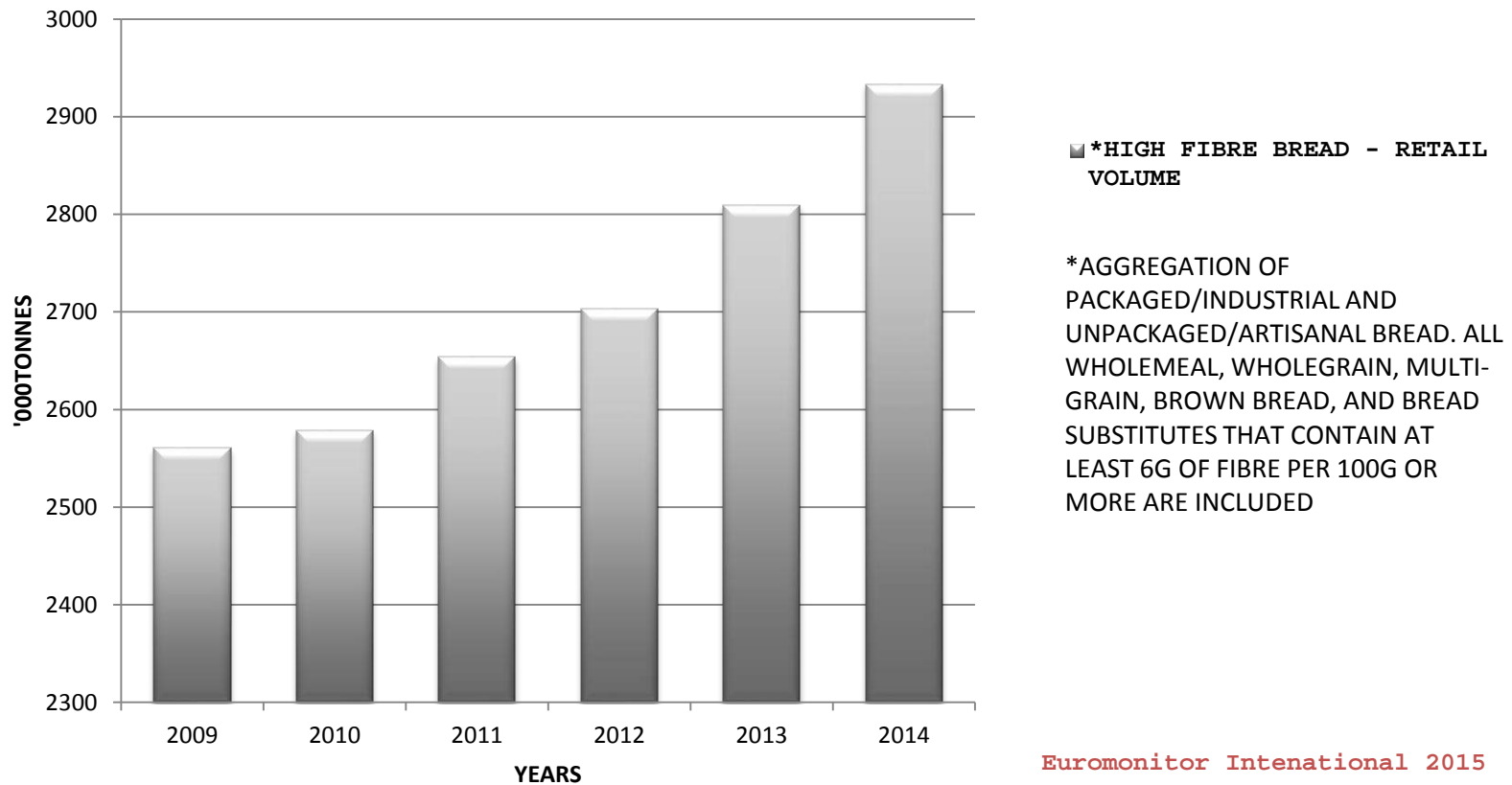
COUNTRY	MARKET SHARE (%)	
	INDUSTRIAL BAKERIES	CRAFT BAKERS
The Netherlands	85	15
United Kingdom	80	20
Finland*	75	25
Slovenia*	55	45
Denmark	45	55
Germany	40	60
France	35	55
Spain	34	59
Italy	15	85
Greece	4	96

*Data from Finland and Slovenia are 2012 statistics

Global Data by AIBI Bread Market Report 2013

BREAD IN EUROPE - IV

HIGH FIBRE BREAD - RETAIL VOLUME IN WESTERN EUROPE



In Europe, bread is currently receiving a lot of criticism because of:

- **Carbohydrate content**
- **Salt Content**
- **Gluten-related disorders**
- **Taste is not like that of the old days**

While the nutritional and health benefits of bread containing bran are not well known by consumers

What to do for Bakers?

What to do for Bread Eaters to offer a tastier bread as well as nutritionally appealing?

HEALTH BREAD



ATTRACTIVE BREAD PRODUCTS with HIGH NUTRITIONAL VALUE and with NUTRIENTS DIRECTLY COMING from the WHEAT KERNEL

17 Partners	Role
TNO (NL)	Research
VTT (FL)	Research
NBC (NL)	SME and Mentoring
OPEN FIELDS (IT)	SME and Mentoring
RDTs (AT)	SME and Project Managing
DYATIC (NL)	SME and Enzymes producer
GEOVITA (IT)	SME and Ingredient producer
BAKERY KAMSTRA (NL)	Industrial Bakery
MEESTER BAKKER ULJEE (NL)	Craft Bakery
BAKEREI WELTER (D)	Craft Bakery
BAKEREI RIPKEN (D)	Craft Bakery
BAKEREI KASSES (AT)	Craft Bakery
BAKEREI LASSER (AT)	Craft Bakery
PANIFICIO FUSÈ (IT)	Craft Bakery
PANIFICIO REGAZZONI (IT)	Craft Bakery
KAMPFFMEYER FOOD INNOVATION, NOW GOODMILLS INNOVATION (D)	Ingredient industry
TANDOI (IT)	Mill

Coordinator:
Jan Willem van der
Kamp from TNO

INTAKE OF DIETARY FIBRE IS BELOW RECOMMENDED LEVELS

Recommended Intake for adults —→ **25 day¹** (Daily reference intake.DRI)



Cereal fibre are the preferred type of fibre².

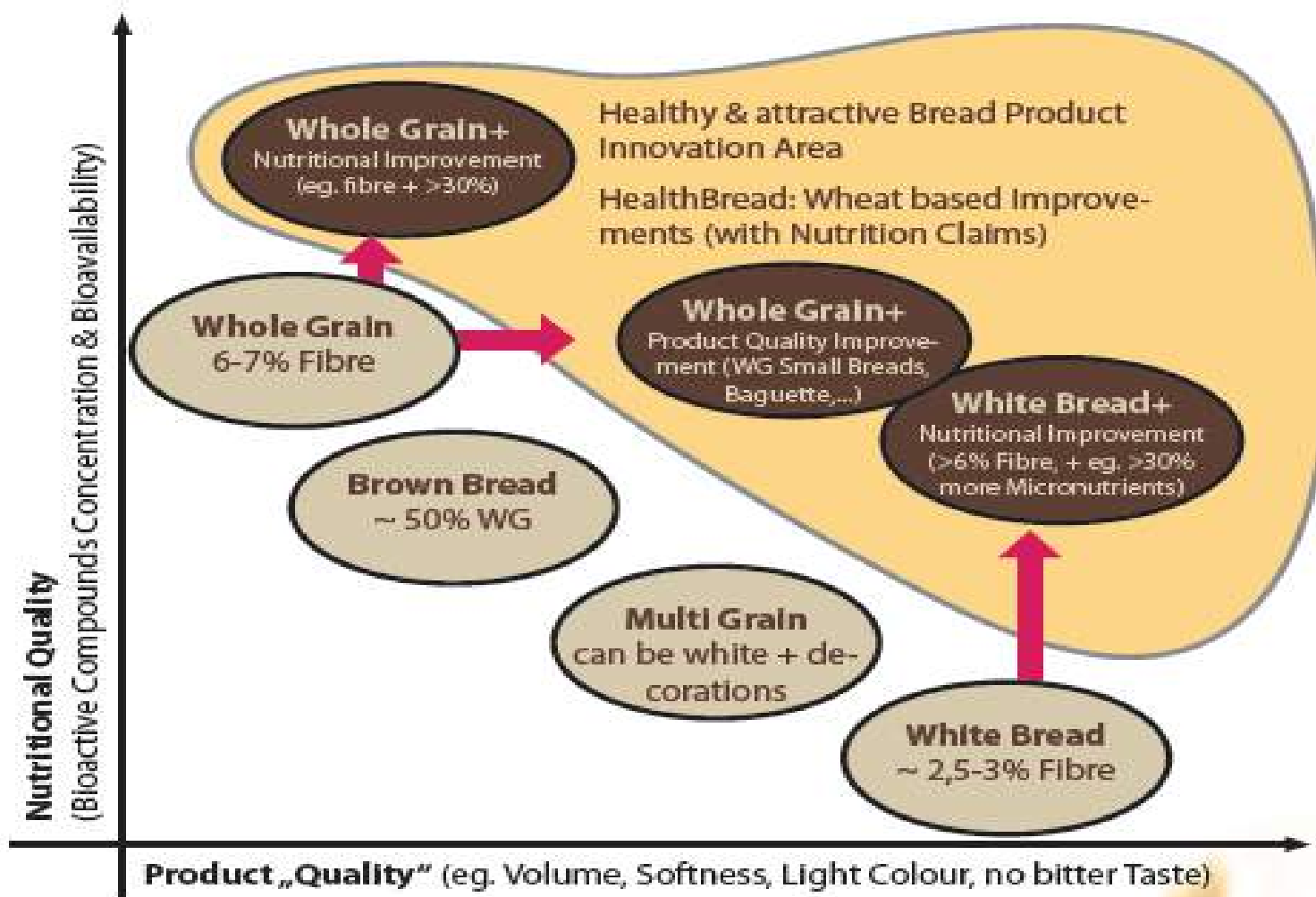
Bread is one of the foods derived from the processing of cereals more consumed.



HEALTH BREAD

Magnesium, Zinc, Iron (for females), are included in the list of compounds where actual intake is often lower than the recommended intake

PRODUCT DEVELOPMENT AIMS



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Whole Grain Summit 2015

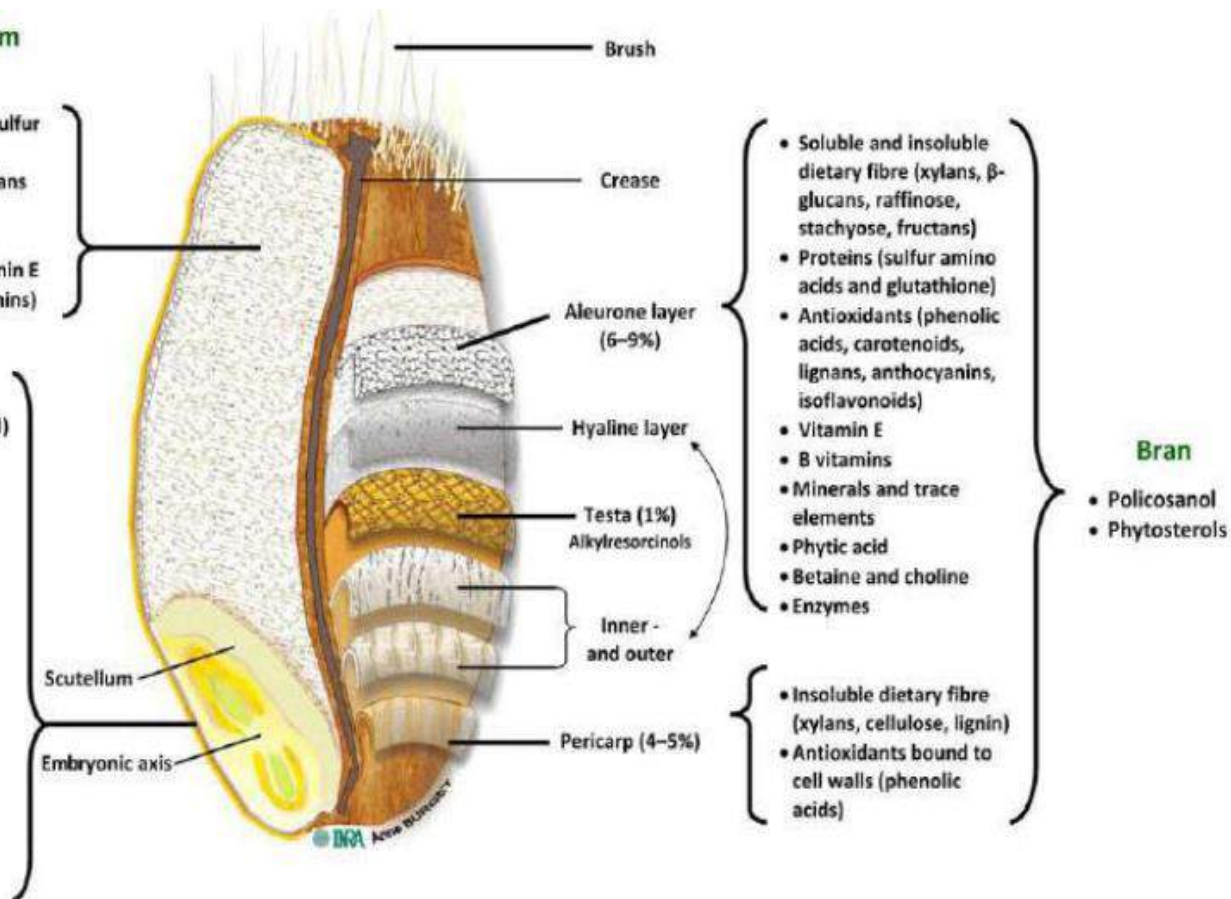
WHEAT KERNEL COMPOSITION

Starchy endosperm (80–85%)

- Starch and proteins (sulfur amino-acids)
- β -Glucans, arabinoxylans
- Carotenoids
- Se
- Thiamin (B_1) and vitamin E
- Flavonoids (anthocyanins)

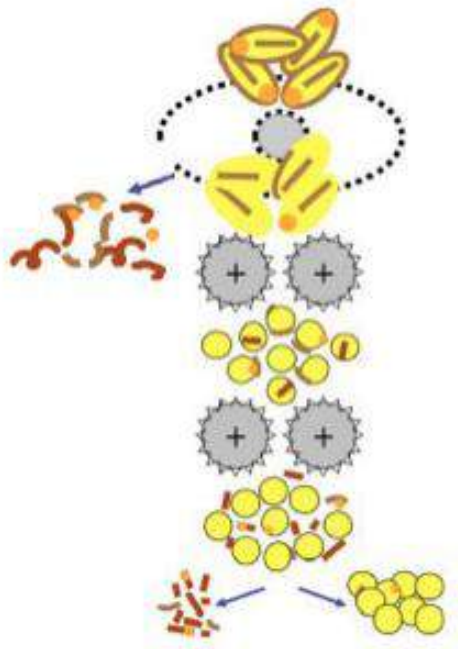
Germ (3%)

- Lipids (α -linolenic acid)
- Sucrose and monosaccharides
- Sulfur amino acids
- Glutathione
- Insoluble and soluble fibre, raffinose
- Flavonoids
- Vitamin E
- B vitamins
- Minerals and trace elements
- Phytosterols
- Betaine and choline
- Policosanol
- Enzymes
- Myo-inositol



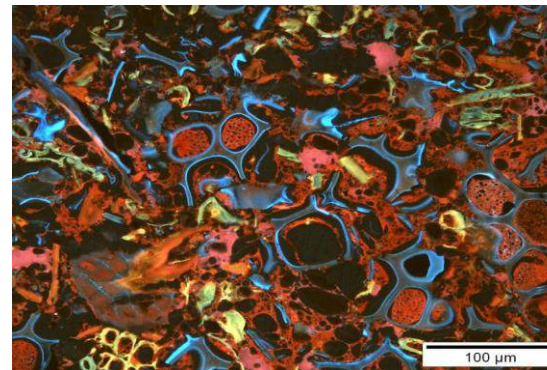
From: Healthgrain, 2011

Pearling and Air Separation

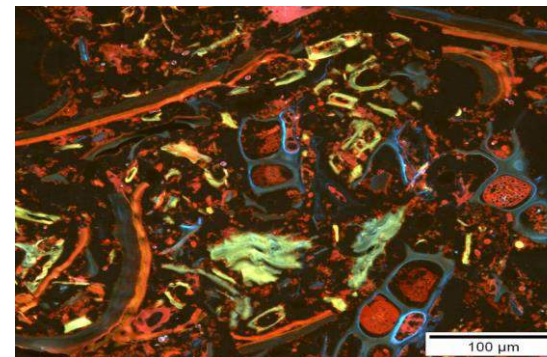


Fermentation

**Control,
unfermented
bran**



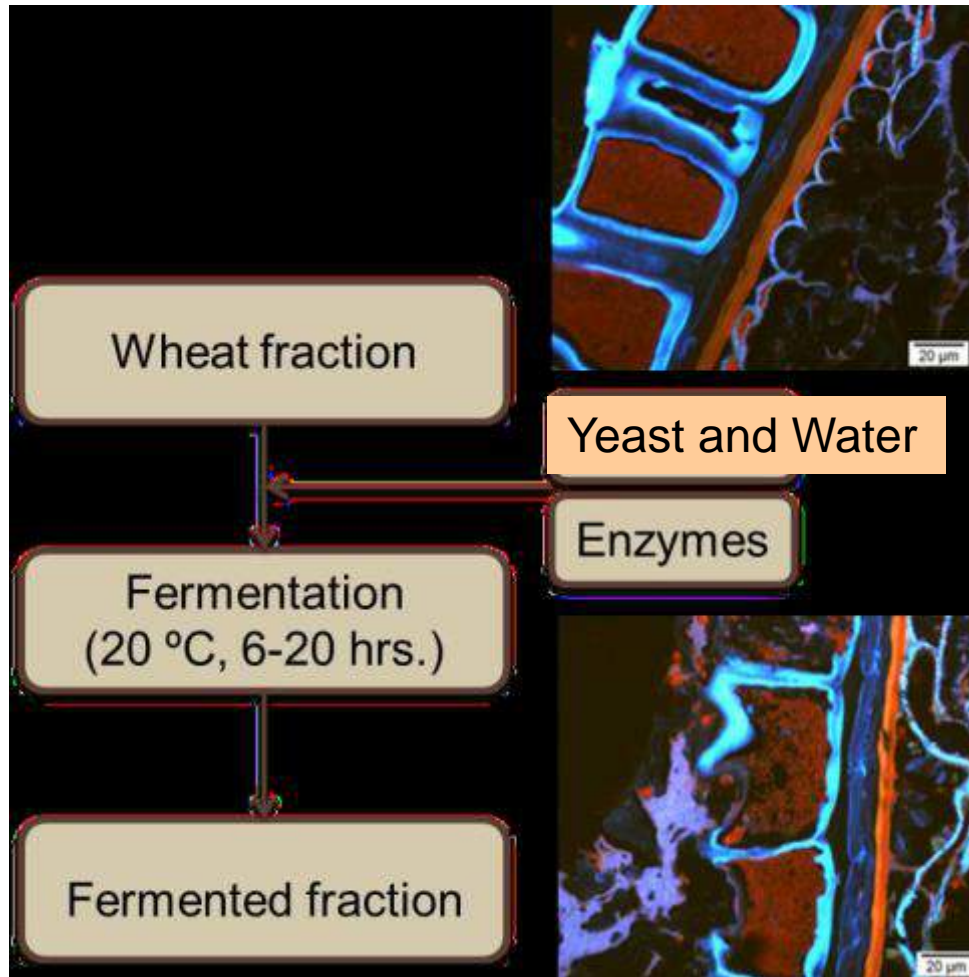
**Fermented
bran**



PEARLING AND AIR SEPARATION

$\emptyset = 457 \mu\text{m}$	$\emptyset = 110 \mu\text{m}$	$\emptyset = 453 \mu\text{m}$	$\emptyset = 238 \mu\text{m}$	$\emptyset = 221 \mu\text{m}$
SOFT WHEAT ALEURONE		DURUM WHEAT ALEURONE		
$\emptyset = 516 \mu\text{m}$	$\emptyset = 63 \mu\text{m}$	$\emptyset = 510 \mu\text{m}$	$\emptyset = 210 \mu\text{m}$	$\emptyset = 34 \mu\text{m}$
SOFT WHEAT BRAN		WHOLE GRAIN CONCENTRATE		

FERMENTATION OF WHEAT FRACTION

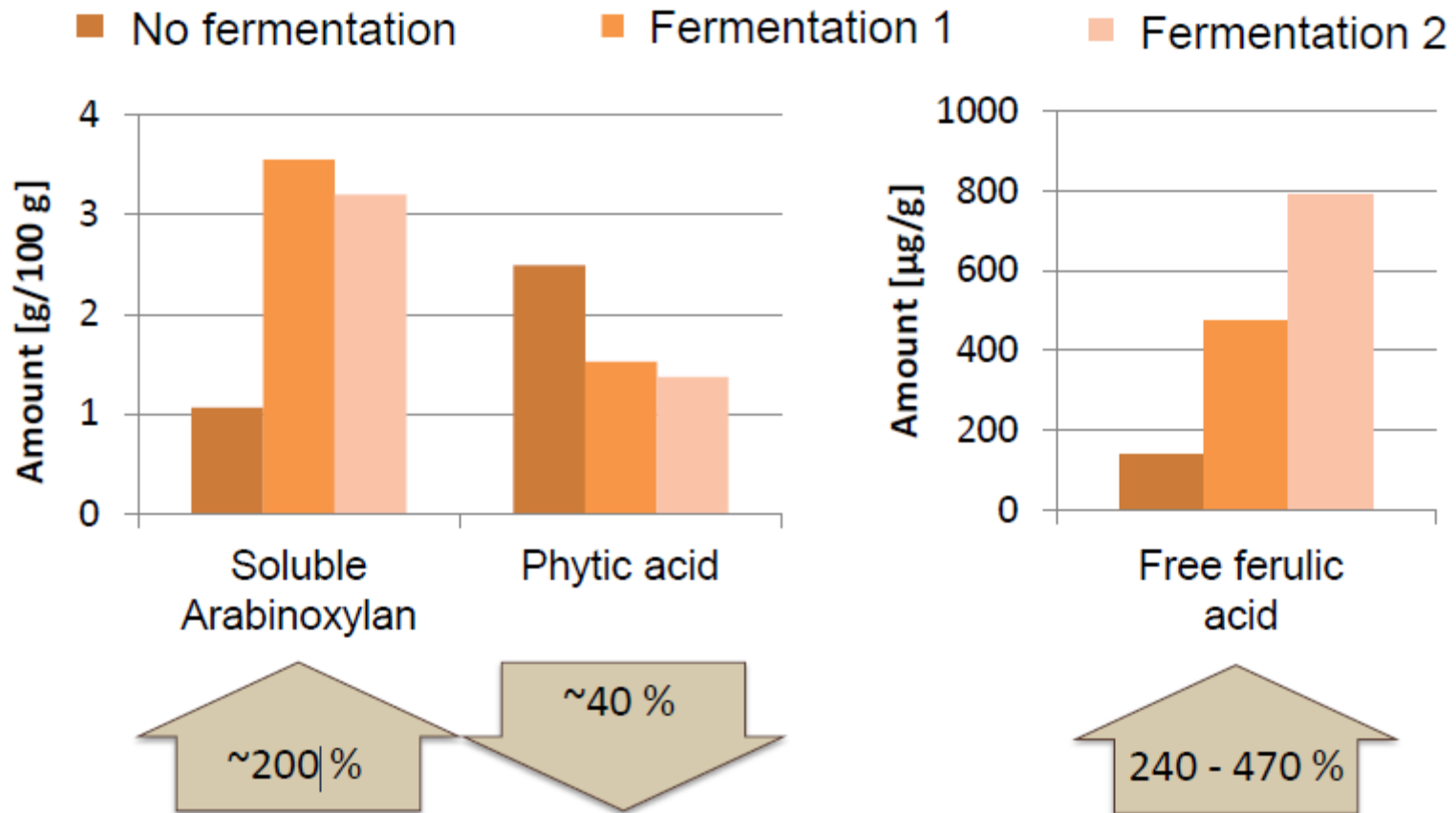


Aimed outcome:

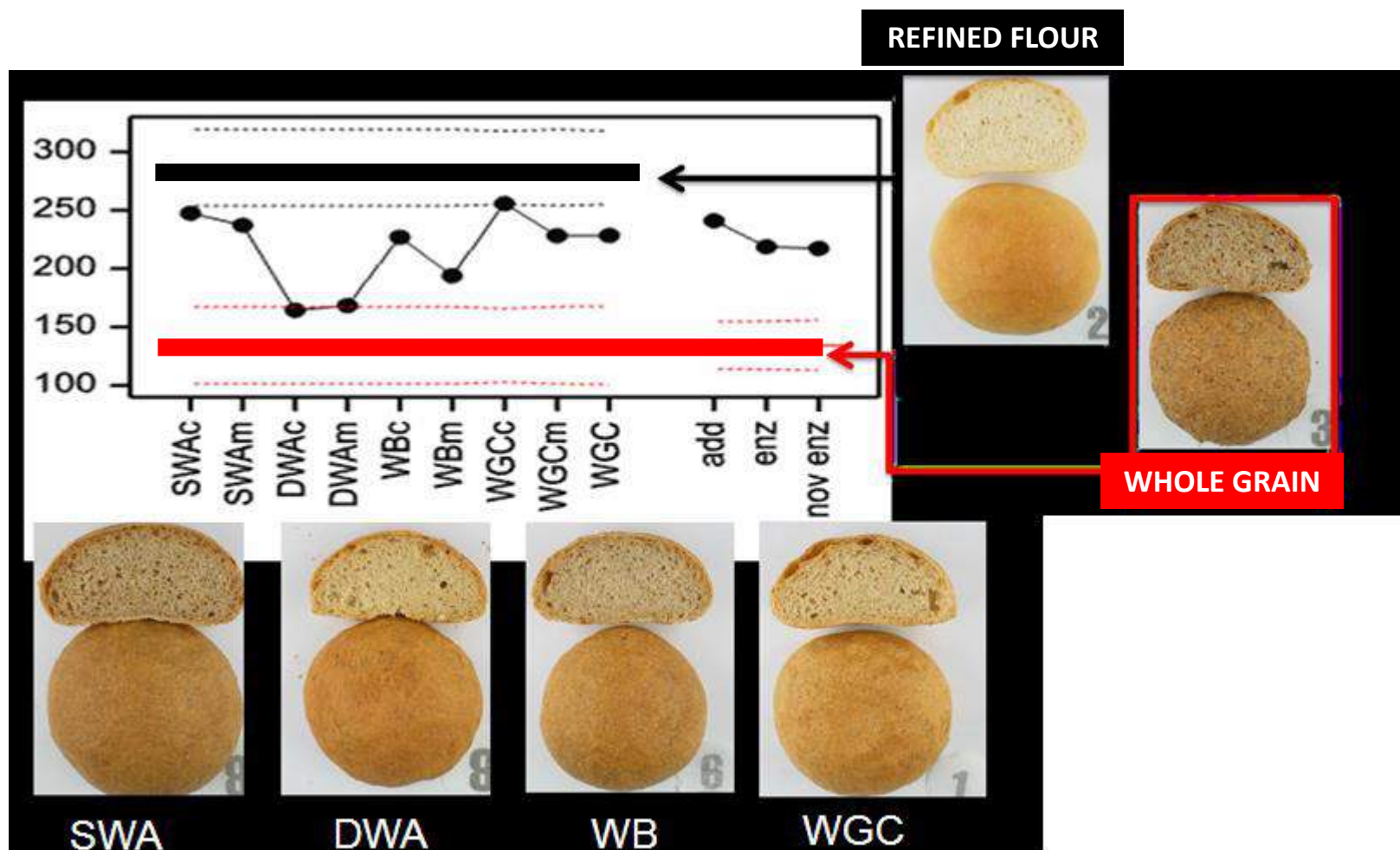
Improve the bioaccessibility of bioactive compounds of bran/ wheat fraction :

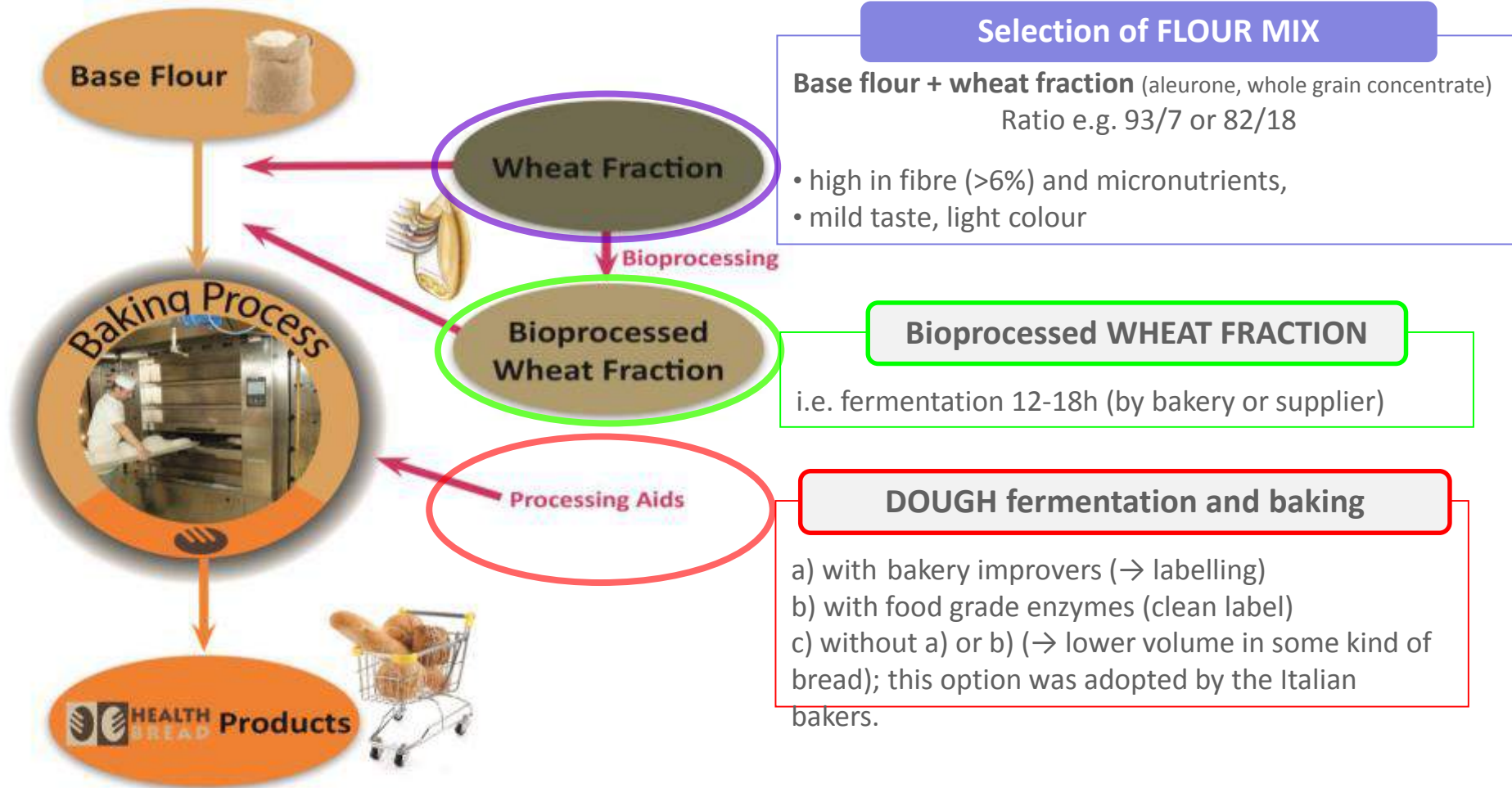
- ❖ +200% free ferulic acid - 50% phytic acid
- ❖ Without extensive arabinoxylan degradation
- ❖ Without compromising technological functionality (stickiness, bread quality)

RESULTS BRAN FERMENTATION



HEATH BREAD CRISPY ROLLS WITH >6% FIBER





Regulation (EC) 1924/2006

Nutrition claims used

- **High in fibre** (at least 6g / 100g product)
- **Source of** at least 2 of the micronutrients of concern: Fe, Mg, Zn, folate

Health claims used

- **Fe, Mg, Zn, folate** have “different important functions including contributing to the reduction of tiredness and fatigue, to normal muscle and immune system functions.” (*applying EFSA approved health claims*)
- Hardly used: Wheat bran fibre - ‘increases faecal bulk’ ‘accelerates faecal transit’

HEALTHBREAD APPLICATION

Product development and market introduction by bakeries



Bakery	Concept product	Market introduction	HealthBread fraction	Nutrition statements	Remarks
Fusè (It)	Salutello	June '14	Wholegrain (WG) concentrate	Fibre, Fe, Mg, Zn, Vit. B9 (folate)	Fermentation: All bakeries included long and/or special fermentation e.g. -of HB fraction -of complete dough -using sourdough
<u>Regazzoni</u> (It)	FibraPiù	July '14	Durum wheat aleurone	Fibre, Fe, Mg, Zn	
Uljee (NL)	Origo Wit	Not interested in the product launching	WG concentrate	Fibre, Zn, Vit.B9	
Kamstra (NL)	GoedBegin		Wheat aleurone	Fibre, Fe, Mg, B9	
Ripken (D)	Vollwert Riese	June '14	WG concentrate Pre-fermented	Fibre, Fe, Mg, Zn, Vit.B9	
Lasser (At)	<u>Europa-Krusterl</u>	June '14	Wheat aleurone	Fibre, Fe, Mg, Zn, Vit. B9 (folate)	
Kasses (At)	Vollwert Laib	June '14	WG concentrate Pre-fermented	Fibre, Zn, Vit. B9	
Boni (It) *	Healthbread Fiore	August '14	Wholegrain concentrated	Fibre, P, Zn, Vit. B9 (folate)	
Saccani (It) *	Healthbread Rosa	September '14	Durum wheat aleurone	<u>Fibre, P, Zn, Vit. B9</u> (folate)	

* Volunteers, not partners.

HEALTHBREAD APPLICATION

Nutritional and Communication Tool-Kit for the Bakers (I)



HealthBread

Deliverable D 3.10
HealthBread Nutritional Guideline

Nutritional Guideline



- **High in fibre** (at least 6g / 100g product)
 - **Source of at least 2 of the micronutrients of concern:** e.g. Fe, Mg, Zn, folate.
- Chapter: How to communicate Health to your customers

HealthBread

Deliverable D 5.14
Questionnaire for Consumers of Each SME Bakery (Public)



Welcome to the short questionnaire:

- You received a FREE sample of your HealthBread product next to the bread you've bought and after that about the free sample you received;
- It will take 5 minutes of your time.

HEALTHBREAD APPLICATION

Consumer questionnaire (Ia)



5 bakeries + 2 more bakeries at the end of the project (Austria, Italy, Germany)
~ 1.000 consumers

Buyers of regular product received:

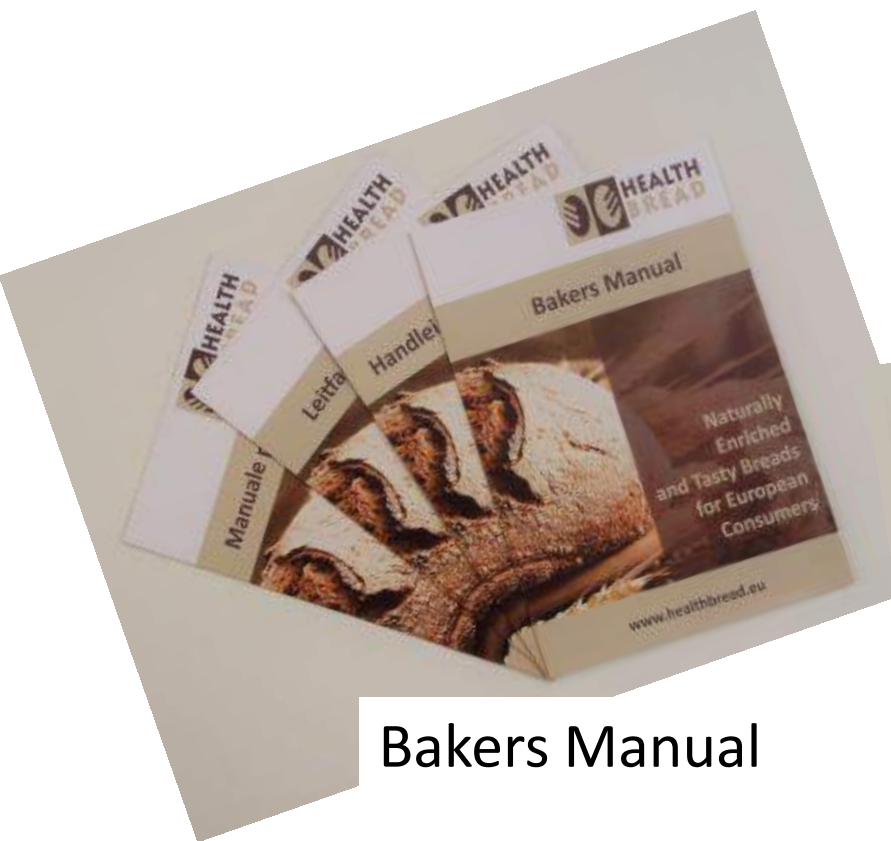
- ✓ free sample of HealthBread products;
- ✓ information on its nutrition and health benefits;
- ✓ on-line questionnaire: focus on taste, satisfaction, price acceptance.

Results indicated

- ✓ HealthBread products well appreciated
- ✓ Many consumers interested in buying HealthBread product for higher price than their standard product
- ✓ Both taste and health related information were appreciated,
- ✓ Also: 75% of replies: "I will recommend this to friends"

HEALTHBREAD APPLICATION

Nutritional and Communication Tool-Kit for the Bakers (II)



Bakers Manual



HEALTHBREAD APPLICATION

Nutritional and Communication Tool-Kit for the Bakers (III)



Assistance at the selling point to explain the nutritional benefits



APPENDIX 1. HEALTHGRAIN publications

1. Aman, P., Landberg, R., Dey, E.S., Da Cruz Francisco, J. and Kamal-Eldin, A. (2007) Comparison of Supercritical Carbon Dioxide and Ethyl Acetate Extraction of Alkylresorcinols from Wheat and Rye, *Journal of Food Composition and analysis*, 20:6, Pages 534-538.
2. Andersson A, Landberg R, Söderman T, Hedkvist S, Katina, K., Juvonen, F. **More than 200 papers from HealthGrain project as background** alkylresorcinols *ic* 91:226-232.
3. Li, L., Ward, J., Dynkowska, W., *biochemical and*



Presenting the project at the European Bread Day

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Whole Grain Summit 2015

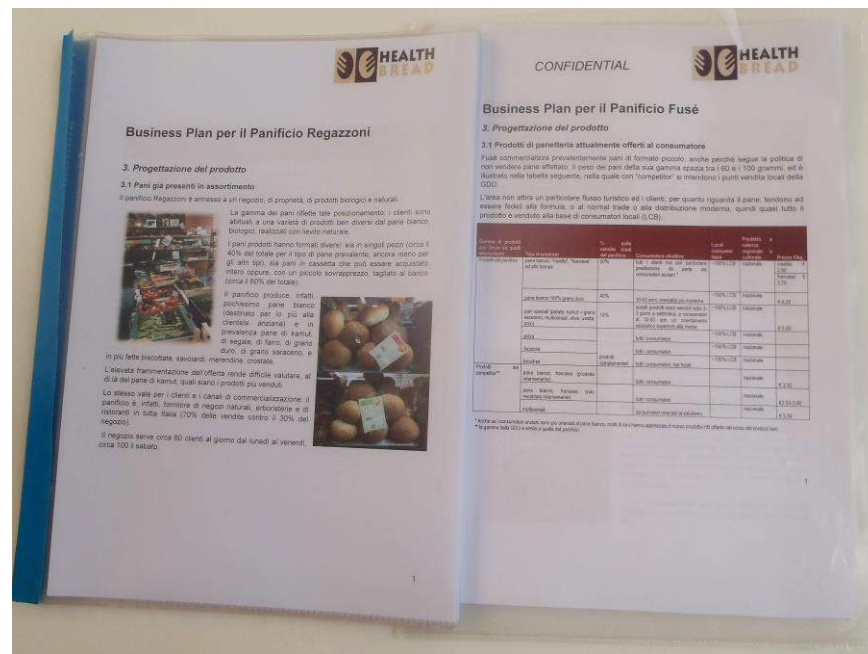
HEALTHBREAD APPLICATION

Nutritional and Communication Tool-Kit for the Bakers (IV)



Projecting the roll up at each selling point

SWOT and Business Plan



Alberto Fusé, del Panificio Fusé, la sua via da Bologna attraverso un HealthBread

HEALTHBREAD APPLICATION

Nutritional and Communication Tool-Kit for the Bakers (V)



SALUTELLO®

*Valori nutrizionali di pane
SALUTELLO® per 100 grammi*:*

<i>Valori nutrizionali</i>	<i>100 g</i>	<i>**DRI (%)</i>
<i>Energia</i>	<i>306 kcal</i>	15%
<i>Carboidrati di cui zuccheri</i>	<i>53,5 g 2,3 g</i>	
<i>Grassi di cui saturi</i>	<i>1,9 g 0,4 g</i>	
<i>Proteine</i>	<i>14,7 g</i>	
<i>Sale</i>	<i>1,6 g</i>	
<i>Fibre</i>	<i>7,8 g</i>	
<i>Folati</i>	<i>40,3 µg</i>	20%
<i>Ferro</i>	<i>2,3 mg</i>	16%
<i>Magnesio</i>	<i>61,6 mg</i>	16%
<i>Zinco</i>	<i>2,4 mg</i>	24%

*** un panino SALUTELLO pesa circa 75 g**

**** DRI:** % delle quantità giornaliere raccomandate per un adulto calcolate sulla base di un fabbisogno giornaliero di 2000 kcal. Il fabbisogno può essere diverso a seconda del sesso, dell'età e delle attività fisiche svolte.

Nutritional Labelling

FIBRAPIU'

*Valori nutrizionali di pane FIBRAPIU'
per 100 grammi*:*

<i>Valori nutrizionali</i>	<i>100 g</i>	<i>**DRI</i>
<i>Energia</i>	<i>227 kcal</i>	
<i>Carboidrati di cui zuccheri</i>	<i>38,3 g 1,1 g</i>	
<i>Grassi di cui saturi</i>	<i>1,8 g 0,3 g</i>	
<i>Proteine</i>	<i>10,2 g</i>	
<i>Sale</i>	<i>1,5 g</i>	
<i>Fibre</i>	<i>8,4 g</i>	
<i>Ferro</i>	<i>3,5 mg</i>	25%
<i>Magnesio</i>	<i>91,4 mg</i>	24.4%
<i>Zinco</i>	<i>2,1 mg</i>	21%

*** una fetta di FIBRAPIU' pesa circa 35 g; un panino FIBRAPIU' pesa circa 80 g**

**** DRI:** % delle quantità giornaliere raccomandate per un adulto calcolate sulla base di un fabbisogno giornaliero di 2000 kcal. Il fabbisogno può essere diverso a seconda del sesso, dell'età e delle attività fisiche svolte.

HEALTHBREAD APPLICATION

Product development



Logo: *la Bottega del Pane*
Fusé

Salutello
Naturale, buono e sano!

Salutello combina il buon sapore ad un alto valore nutrizionale.



✓ Alto contenuto di fibra* ✓ Fonte di acido folico (vitamina B9)*
✓ Fonte di importanti minerali come ferro, magnesio e zinco*
✓ Lunga fermentazione



Logo: **I GENUINI**
bio dal 1982

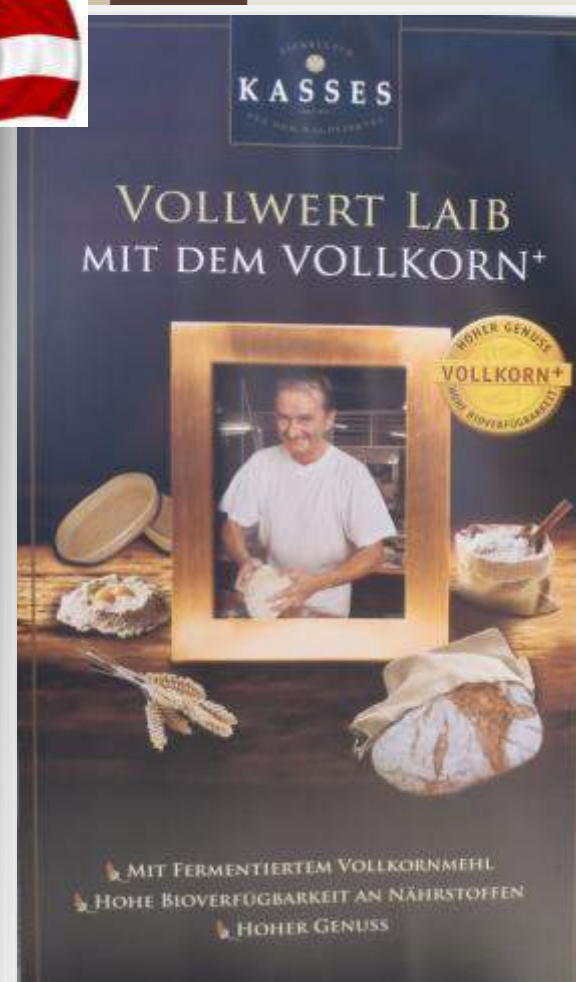
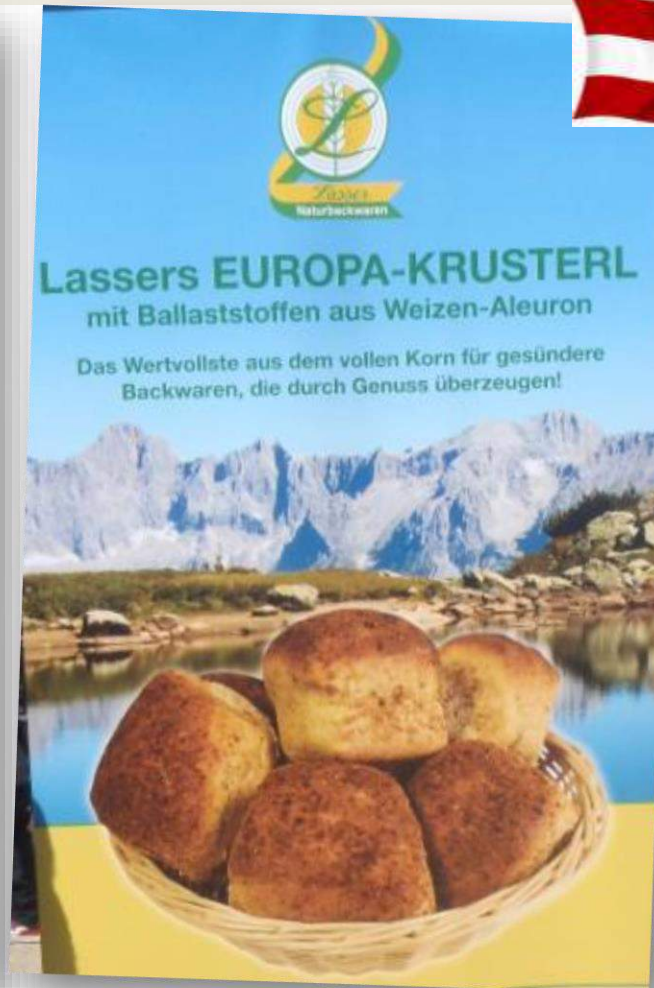
FIBRAPIÙ
Il pane buono ad alto contenuto di fibra



✓ Alto contenuto di fibra*
✓ Fonte di ferro, magnesio e zinco*
✓ Lunga fermentazione
✓ Ricco di Aleurone: la parte migliore del chicco di grano

HEALTHBREAD APPLICATION

Product development



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THANK YOU FOR YOUR ATTENTION!



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