

HealthBread project summary

Project: HealthBread product innovation based on FP6
HealthGrain results and knowledge

Coordinator: Jan Willem van der Kamp

TNO Food and Nutrition, Zeist, the Netherlands

www.healthbread.eu



➤ Call Topic

KBBE.2012.2.3-02: Exploitation of Framework Programme projects in food processing by small and medium-sized enterprises (SMEs).

➤ Time / Budget

2 years: 01-10-2012 – 01-10-2014

Total budget k€ 1.558 EC Funding k€ 997, 75% for SMEs

➤ Project Coordination / Administration Coordination

TNO (NL)

RTD Services (AT)

➤ Consortium Partners

2 RTOs (TNO, VTT), 8 SME Bakers (AT, D, I, NL), 5 other SMEs

2 major flour and ingredient suppliers - and don't receive funding

3 partners are acting as mentoring partners for the SME bakers



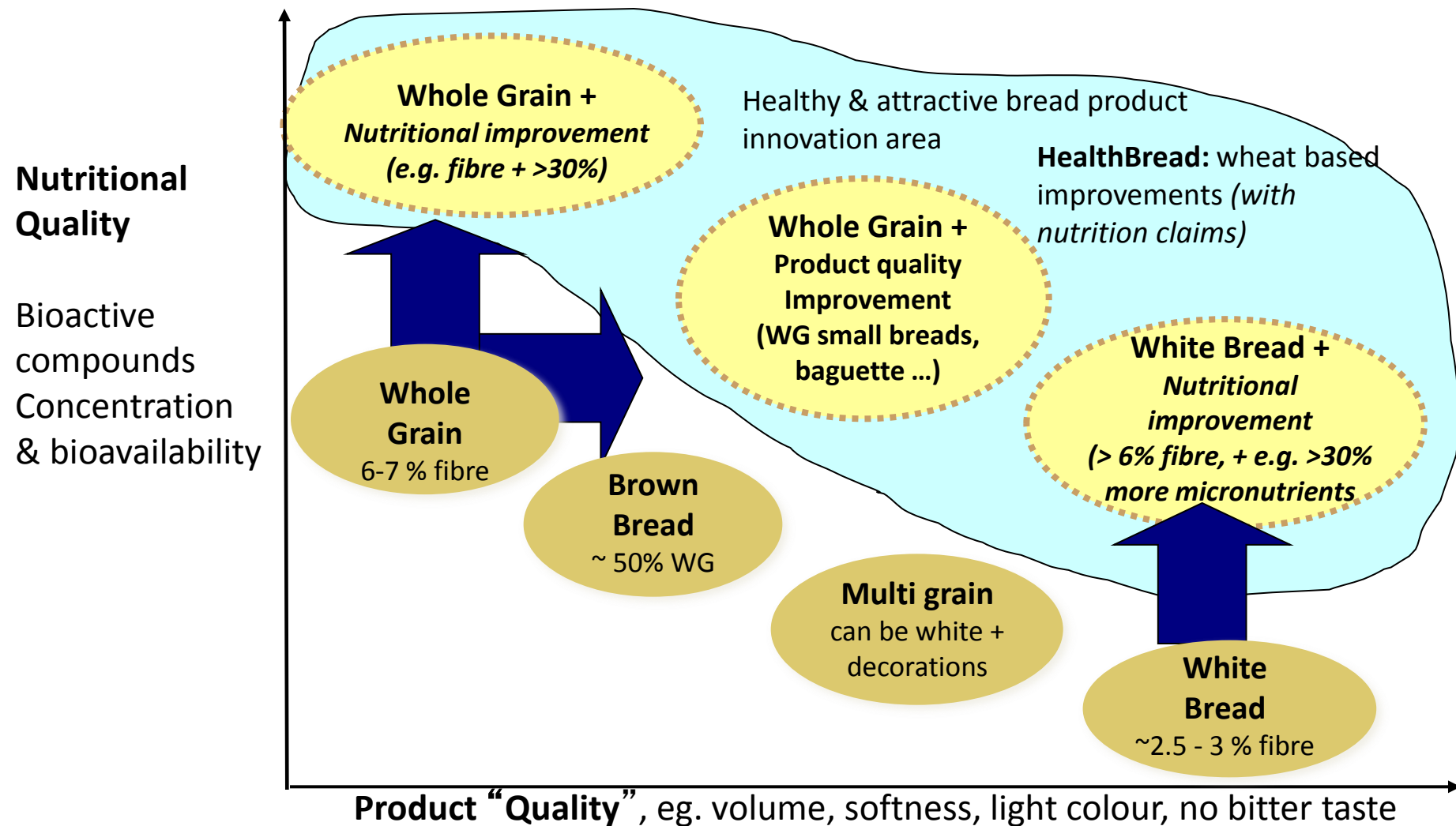
➤ Key Output

8 commercially viable bread products

- Rich in healthy components of (wheat) grain.
- Nutritional benefits beyond common white and whole grain breads.
- Based on HEALTHGRAIN insights and results SME bakers agree on.
- Dissemination of knowledge and wider application by bakeries.

HealthBread

Product Development Targets



Work Package 1

Dry Processing



Micronizer Tandoi, Italy

Develop dry processing (milling) technologies for production of wheat fractions with various particle size.

1. Bran fractions
Common wheat
Durum wheat
2. Whole grain concentrate
Without additives
3. Aleurone rich materials

➤ WP2 - Aim

Improve the bioaccessibility of bioactive compounds (Ferulic acid (FA), minerals) in wheat fractions by bioprocessing without compromising technological functionality.

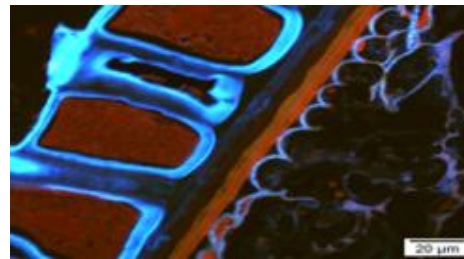
➤ WP2 - Tools

Combination of xylanase and ferulic acid esterase treatment with yeast fermentation in optimized conditions (obtained with modeling).

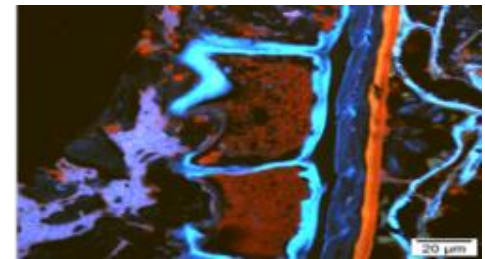
➤ Outcome

Controlled modification of bran structure for liberation FA, breakdown of phytic acid and liberation of minerals without extensive arabinoxylan degradation → functional bran ingredient for bakeries.

Native rye bran



Bioprocessed rye bran



➤ **WP3 - Aim**

Guide and support the development of healthier bread products with respect to nutritional quality targets for both white bread and wholegrain bread and its communication to consumers, taking into account European and national regulations and practices

➤ **WP3 - Objective**

By using specific parts of the wheat grain kernels breads will be obtained with higher levels of dietary fibre and beneficial nutrients such as B-vitamins, minerals and anti-oxidants.

Dedicated fermentation processes will improve the availability of these nutrients for uptake in the digestive tract.

➤ **White bread +**

- a) High in dietary fibre (i.e. at least 6% fibre)
- b) Levels of Fe, Zn, Mg, B-vitamins (1,2,3,6), and folic acid) and ferulic acid (FA) at least 30% higher than in standard white bread
- c) AND/OR increased bioavailability of bioactive compounds: 50% increased bioavailability of minerals and/or 200% increase of FA

➤ **Whole grain +**

- a) Levels of fibre and selected bioactives at least 30% higher than in standard whole grain bread
- b) AND/OR increased bioavailability of bioactive compounds: 50% increased bioavailability of minerals and/or 200% increase of free ferulic acid

➤ WP4 – Aim

- Evaluate the effects of bioactive-rich wheat fractions on the bread making process and bread organoleptic quality and optimizing the key quality parameters of bread

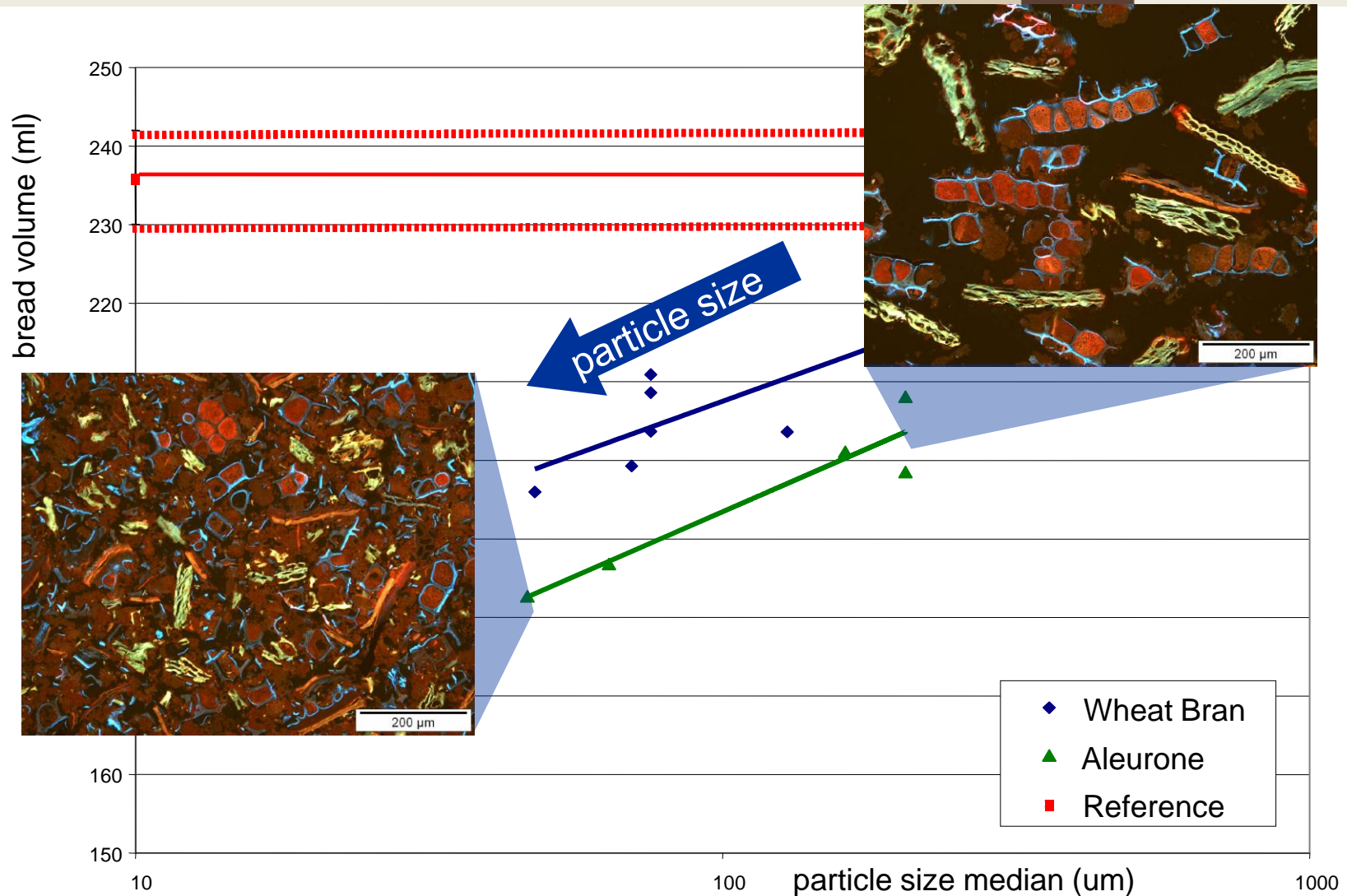
➤ WP4 – Objective

- Insight obtained on lab scale will be made available to WP5 for product development



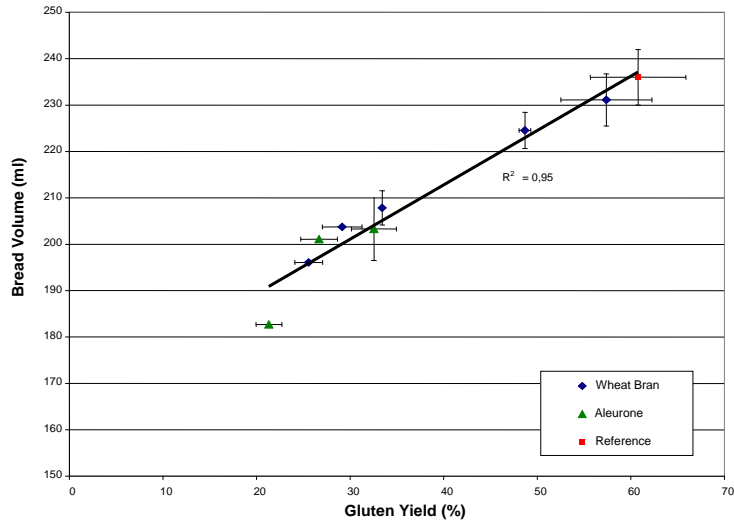
Work package 4

Effect of bran on bread volume



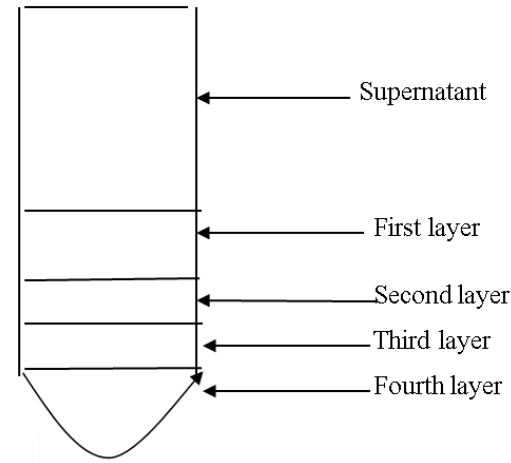
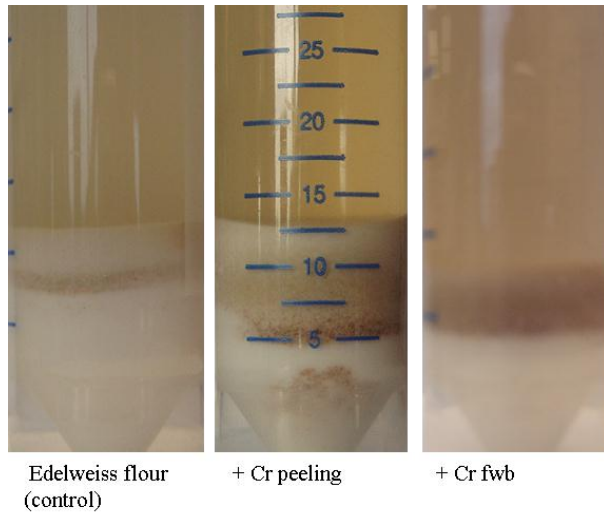
Work package 4

Mechanism: Fibre gluten interactions



The negative influence of bran on bread volume is related to reduced ability of gluten to aggregate

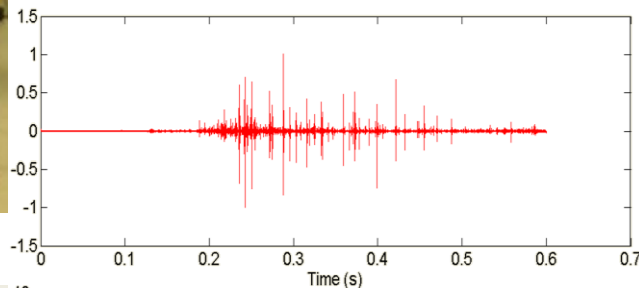
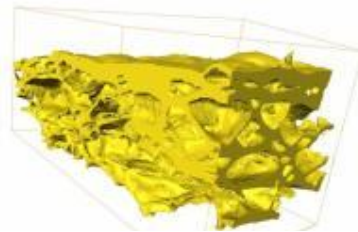
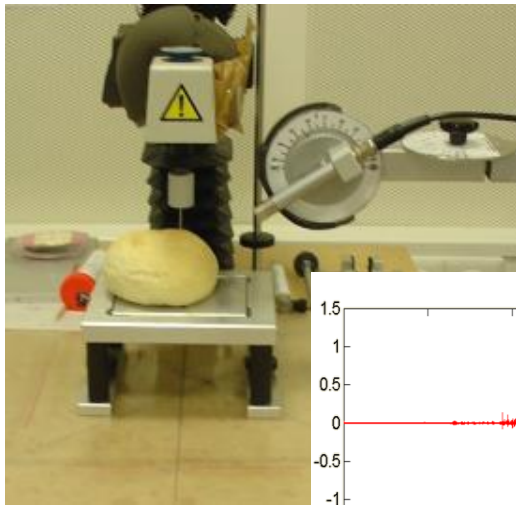
- Dough stability & processing
- Product volume & texture



Work package 4

Bran & crust crispness

- High bran content reduces crust crispness
 - Hypothesis:
 - high water binding fibre / high water content dough
- AND
- negative fibre-gluten interactions reduce crust porosity



Work Package 5

Product Development



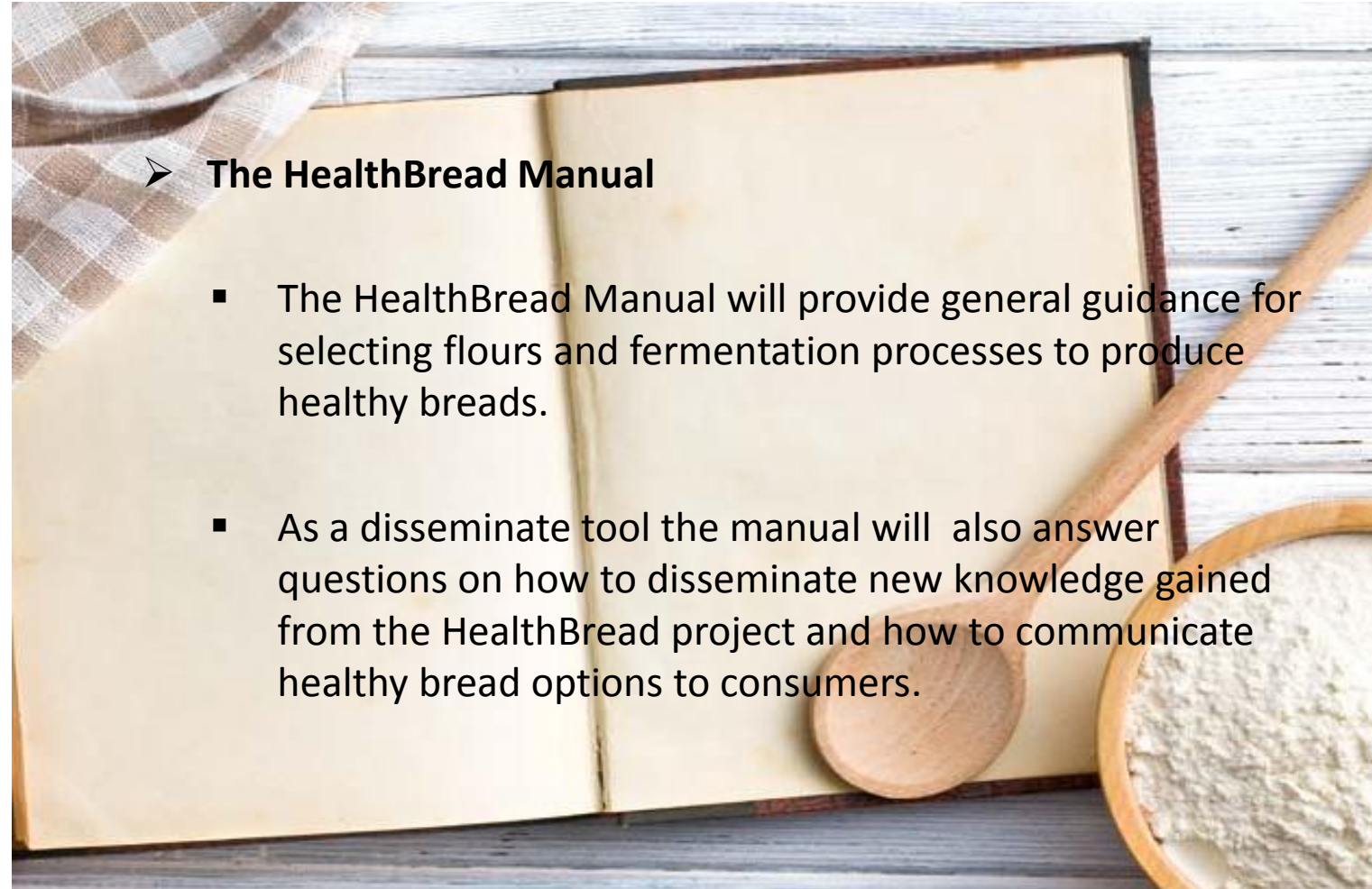
➤ **WP5 – Aim**

Exploiting the unique HealthBread knowledge base
- scientific, applied expertise and craftsmanship
–for development of high quality, healthy bread products.



➤ **WP5 – Objective**

Develop bread products with optimized nutritional and product quality, produce these in baking trials at the SME bakeries and make the baked goods available for evaluation by consumers.



➤ **The HealthBread Manual**

- The HealthBread Manual will provide general guidance for selecting flours and fermentation processes to produce healthy breads.
- As a disseminate tool the manual will also answer questions on how to disseminate new knowledge gained from the HealthBread project and how to communicate healthy bread options to consumers.

Work Package 6

Business Development



➤ **WP6 – Aim**

- The aim of this workpackage is to support the SMEs to bring the HealthBread results “onto the shop shelves”

➤ **WP6 - Objective**

- Develop a business plan and communication management strategy for HealthBread bakeries marketing HealthBread products.
- Development of a number of dissemination tools (website, flyers, posters, newsletters , conference presentations and journal articles etc.) for the promotion of the project and the exploitation of its results.

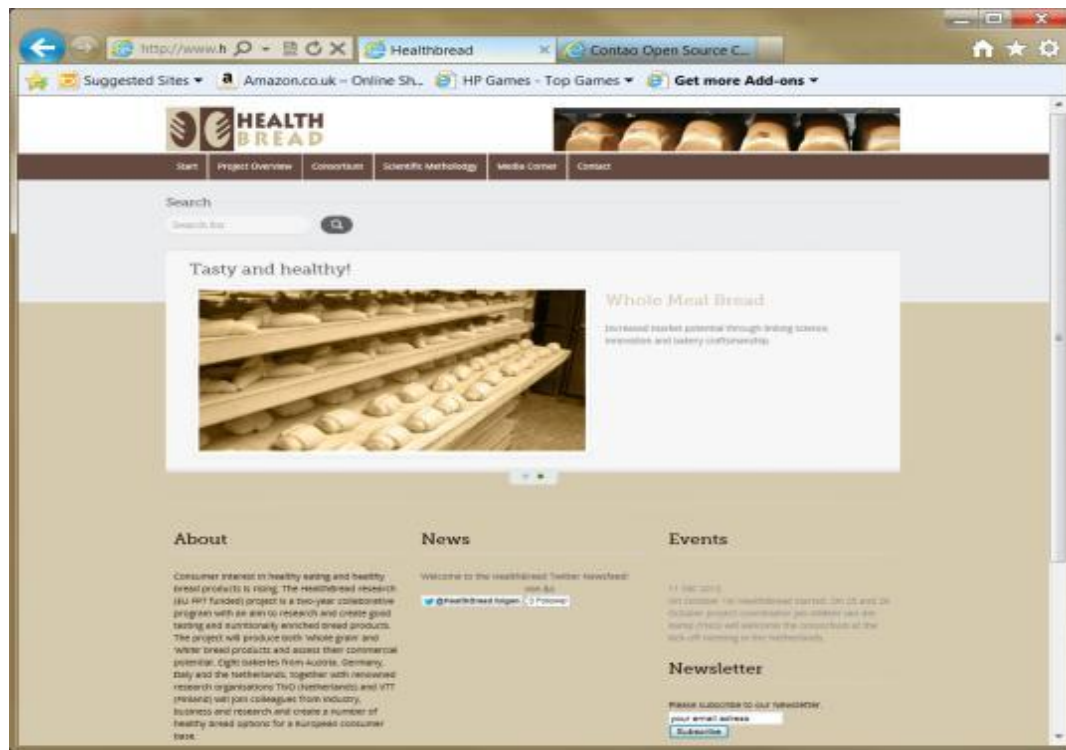


Work Package 6

Business Development



- **The HealthBread website** www.healthbread.eu serves as a platform allowing an engagement with multiple audiences and in particular the dissemination of conference papers, reports, business plans in a number of languages (English, German, Dutch and Italian).



The HealthBread project (KBBE.2012.2.3-02 - 312165) is financially supported by the European Commission in the Communities 7th Framework Programme. The Community is not liable for the material presented in this format or in other such HealthBread dissemination publications.

Work Package 6

Business Development

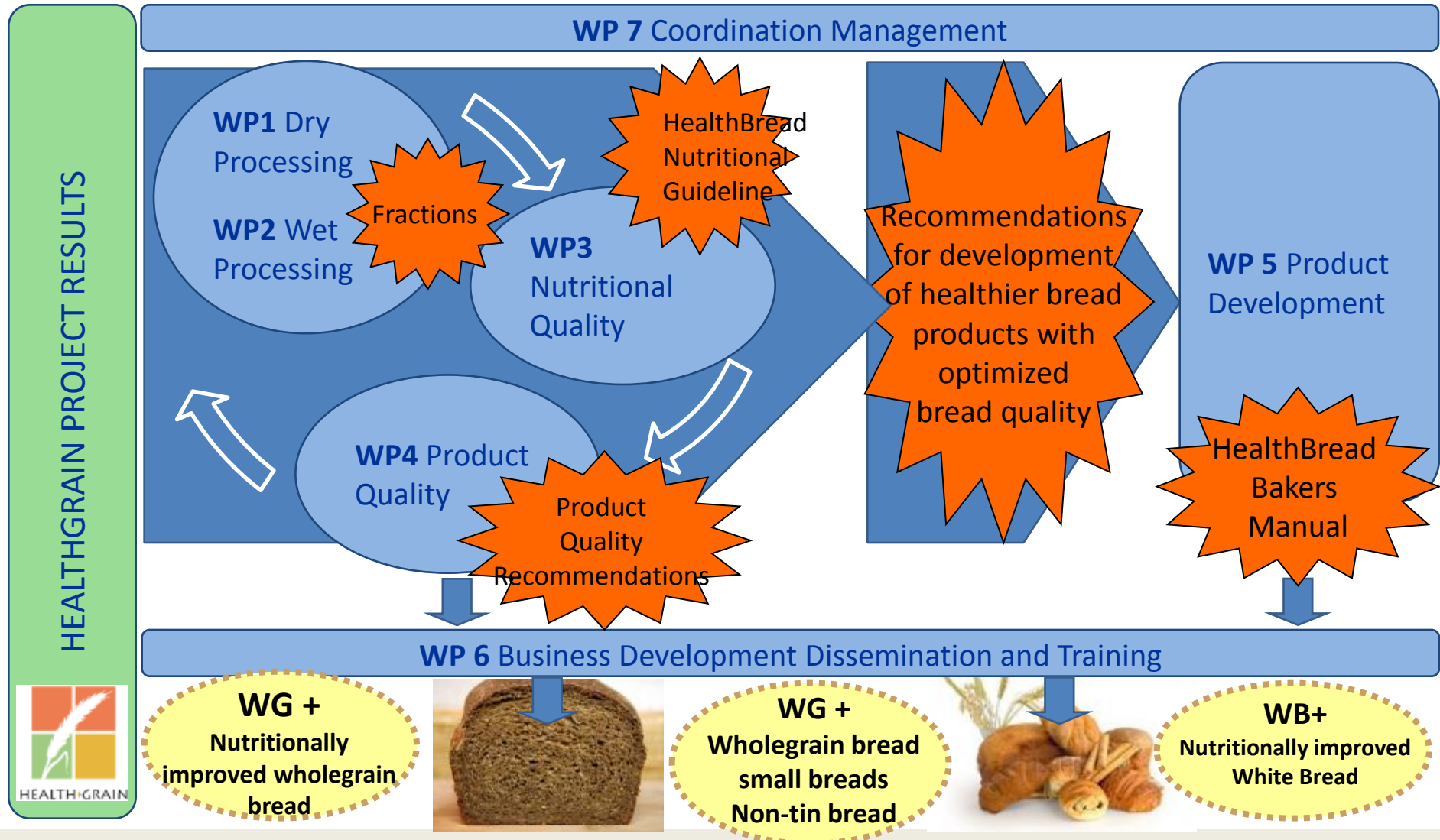


➤ Dissemination Material - Bakeries flyer (English, German, Dutch & Italian)



HealthBread

Project Overview



The HealthBread project (KBBE.2012.2.3-02 - 312165) is financially supported by the European Commission in the Communities 7th Framework Programme. The Community is not liable for the material presented in this format or in other such HealthBread dissemination publications.



➤ 4-Steps To Success

- Analysis of state of play – what are present limitations and potential future scenarios for artisan bakeries.
- The Innovative Research Mission – Develop a number of healthy bread products for a European consumer base.
- Translation of Results – a mentoring partner scheme will allow SME's gain new knowledge. Providing Business Support to SME's – to bring new breads to the market place.
- Achieve Impact at European Level – bakeries will adopt materials and insights of the HealthBread project.



HealthBread Participants



| Partner (Country) | Legal entity | Roles in Project |
|-------------------------------------|--------------|--|
| TNO (NL) | RTO | Coordinator, WP3 (Nutrition), WP4 (Product Quality) |
| RTDS Vienna (AT) | SME | Admin. Coordinator, WP6 (Dissemination) |
| VTT (FI) | RTO | WP2 (Wet Processing, Fermentation) |
| DYADIC (NL) | SME | WP2 (Enzyme development) |
| Netherlands Bakery Centre, NBC (NL) | SME | WP5 (Product development), mentor Dutch SME bakeries |
| Open Fields srl (Italy) | SME | WP1 (Dry processing, milling), mentor Italian SME bakeries |
| Geovita (Italy) | SME | WP1 (Dry processing, milling) |
| Kampffmeyer Food Innovation (GER) | Industry | WP1 Ingredient supplier, ment. German & Austrian SME bak. |
| Tandoi (IT) | Industry | WP1 (Dry processing, milling, focus: durum wheat) |
| Kasses, Lasser (both AT) | SME bakery | WP5&6 (Product & Business development) |
| Ripken, Welter (both GER) | SME bakery | -"- |
| Fusé, Regazzoni (both IT) | SME bakery | -"- |
| Kamstra, Uljee (both NL) | SME bakery | -"- |



The HealthBread project (KBBE.2012.2.3-02 - 312165) is financially supported by the European Commission in the Communities 7th Framework Programme. The Community is not liable for the material presented in this format or in other such HealthBread dissemination publications.

Contributors and contact



Coordinator:

Jan Willem van der Kamp

TNO

jan-willem.vanderkamp@tno.nl

+31(0)88 866 51 18

Layout:

Dissemination Management

RTD Services Vienna

healthbread@rtd-services.com

Picture Credits:

© Jörg Ripken / Fotostudio Scheiwe,
Shutterstock

Partners:



Find us on www.healthbread.eu