



EUREKA

WIN Programme

Wheat for Industrial Needs

PROFILE SHEETS OF PARTICIPANTS

November 1998

FOREWORD

Because of the multidisciplinary of its scientific approaches, our EUREKA WIN programme (Wheat for Industrial Needs) has been organised as three interdependent themes:

- Theme I Endosperm development and structure and fracture mechanics
- Theme II Grain processing and upgrading of co-products
- Theme III Flour processing and product quality

Our whole consortium possesses a big scientific power. However, final success will depend on our capacity to achieve still more collaborative tasks.

There are many opportunities of collaboration between themes that have not been exploited yet.

To improve collaborations further, it was suggested to publish a book of profile sheets indicating what people are actually doing and what are the aims of the different research groups and companies involved in the WIN programme. So that participants can better know each other, can easily know and contact the relevant person for any problem, and can detect where other themes can provide support.

The profiles of 31 participants collected so far are classified in alphabetic order. Each listing contains updated information about the participant (name, address, phone, fax, email, languages spoken, involvement in the WIN programme,...), a list of keywords characterising the participant's field of expertise, and a list of relevant publications written by the participant.

The same document including digitalized picture of participants is also available on disk format (FileMaker Pro software).

It is my hope that this publication will help us in intensifying and establishing further contacts and closer collaboration.

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Deputy-Coordinator

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Position

Technologist Engineer

Languages spoken

French, English, Italian

Persons who can answer questions in your absence

Jean-Claude Autran (ext. 2217), Pierre Feillet (ext. 2352), Marc Chaurand (ext. 2563)

Involvement in specific EUREKA tasks

Involvement in Task 3 - The use of fracture mechanics to improve flour and starch production
Involvement in Task 5b - Effects of pretreatments

Key Words characterising the field of expertise

Species

Bread wheat, Durum wheat, Maize

End-products

Flour, Semolina, Bread, Biscuit, Pasta

Technological interest

Milling quality, Dough formation, Cooking quality, Drying

Basic problems

Cereal technology, Food engineering, Rheology

Specific interest

Specific techniques

Experimental milling, Mixing, Extrusion, Sheeting, Drying

References of 5 relevant publications which best illustrate the field of expertise

FEILLET P., ABECASSIS J. et ALARY R. 1976. Viscoélastographe: Procédé et appareil permettant la détermination de la qualité d'un produit notamment culinaire. *Brevet français* n° 76-39-817.

AUTRAN J.C., ABECASSIS J. and FEILLET P. 1986. Statistical evaluation of biochemical and technological tests for durum wheat quality assessment in breeding. *Cereal Chem.*, 63 (5), 390-394.

ABECASSIS J., FAURE J. and FEILLET P. 1989. Improvement of cooking quality of maize pasta products by heat treatment. *J. Sci. Food Agric.*, 47, 475-485.

ABECASSIS J. 1991. La mouture du blé dur. In: *Industries de Première Transformation des Céréales*, Tec & Doc Lavoisier, Paris, pp. 362-396.

ABECASSIS J., ABBOU R., CHAURAND M., MOREL M.H. and VERNOUX P. 1994. Influence of extrusion conditions on extrusion speed, temperature and pressure in the extruder and on pasta quality. *Cereal Chem.*, 71 (3), 247-253.

First Name, Last Name

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Position

Senior Scientist

Languages spoken

French, English

Persons who can answer questions in your absence

Marie-Hélène Morel (ext. 2562), Joël Abecassis (ext. 2203), Pierre Feillet (ext. 2352)

Involvement in specific EUREKA tasks

Deputy of the WIN Programme. Involvement in Task 3 - The use of fracture mechanics to improve flour and starch production. Leader of Task 5 - Structural basis of grain fractionation and pre-treatments. Involvement in Task 5a - Physicochemical composition

Key Words characterising the field of expertise

Species

Bread wheat, Durum wheat, Maize

End-products

Flour, Semolina, Bread, Pasta

Technological interest

Dry-fractionation of cereal grains, Grain hardness, Milling quality, Baking quality, Cooking quality of pasta

Basic problems

Biochemical-Genetics, Biochemistry, Physico-chemistry

Specific interest

Storage proteins: Gliadins, LMW and HMW subunits of glutenin, Gluten, Prolamins

Specific techniques

1-D Electrophoresis, SE-HPLC, Technological tests for quality evaluation in breeding

References of 5 relevant publications which best illustrate the field of expertise

AUTRAN J.C., LEW E.J.-L., NIMMO C.C. and KASARDA D.D. 1979. N-terminal amino acid sequencing of prolamins from wheat and related species. *Nature*, 282, 527-529.

AUTRAN J.C., ABECASSIS J. and FEILLET P. 1986. Statistical evaluation of biochemical and technological tests for durum wheat quality assessment in breeding. *Cereal Chem.*, 63 (5), 390-394.

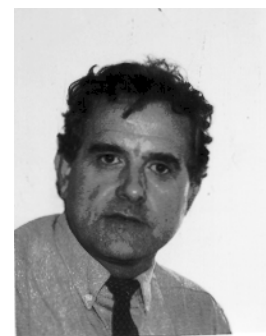
AUTRAN J.C., LAIGNELET B. and MOREL M.H. 1987. Characterization and quantification of low-molecular-weight glutenins in durum wheats. *Biochimie*, 69 (6-7), 699-711.

AUTRAN J.C. 1994. SE-HPLC for rapid examination of size differences of wheat and cereal proteins. In: *HPLC of Cereal Proteins and Legumes* (J.E. Kruger and J.A. Bietz, eds), A.A.C.C., St Paul, MN (USA), pp. 326-372.

AUTRAN J.C., HAMER R.J., PLIJTER J.J. and POGNA N.E. 1997. To explore and improve the industrial use of wheats. *Cereal Foods World*, 42 (4), 216-227.

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Involvement in specific EUREKA tasks

Involvement in Task 3 - The use of fracture mechanics to improve flour and starch production: 3a (grain and tissue mechanics), 3b (dynamics of pretreatments)

Involvement in Task 5b - Effects of pretreatments

Key Words characterising the field of expertise

Species

Wheat

End-products

Technological interest

Fractionning, Drying, Transfert in soils

Basic problems

Thermomechanics of heterogenous media (HM)

Specific interest

Irreversible phenomena in HM, Coupling between mechanics, transferts, chemistry in HM, Phase change in porous media

Specific techniques

Rheological tests on samples of endosperm. Mechanics of granular materials

References of 5 relevant publications which best illustrate the field of expertise

MRANI I., BÉNET J.C. and FRAS G. 1995. Transport of water in a biconstituent elastic medium. *Appl. Mech. Rev.*, 48 (10), 717-721.

MRANI I., BÉNET J.C., FRAS G. and ZRIKEM Z. 1997. Two dimensional simulation of dehydration of highly deformable gel: moisture content, stress and strain fields. *Drying Technology*, 15 (9), 2165-2193.

RUIZ T., ANOUA M., BÉNET J.C., JAILLARD B., COUSIN B. et MIGNARD E. 1997. Couplage entre transferts de matière et réactions chimiques dans un sol. Partie 1 : Modélisation mathématique. *Entropie*, 207, 3-12.

HADDAD Y., BÉNET J.C. and ABECASSIS J. 1998. A rapid general method for the appraisal of the rheological properties of the starchy endosperm of cereal grain. *Cereal Chem.* (accepted).

RUIZ T. et BÉNET J.C. 1997. Transport isotherme d'une solution en milieu poreux. Une nouvelle approche thermodynamique. *5èmes Journées Européennes de Thermodynamique Contemporaine*. CERET-ECAST, Université Paul Sabatier, 16-19 Septembre, Toulouse (France), pp. 57-63.

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**Involvement in specific
EUREKA tasks**

Coordinator of Theme II - Grain processing and upgrading of co-products

**Key Words
characterising the field
of expertise**

Species

Wheat

End-products

Bakery foods

Technological interest

Milling, Baking, Knowledge based systems

Basic problems

Doughmaking

Specific interest

Specific techniques

**References of 5 relevant
publications which best
illustrate the field of
expertise**

CAUVAIN S., GOUGH and WHITEHOUSE 1997. The role of starch in baked goods. Part 2. *Starke*.

BAILEY and CAUVAIN S. 1994. Refrigeration of baked foodstuffs. *Proc. Inst. Refrig. Conf.*, 90, 74-84.

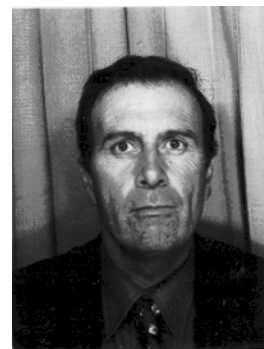
CAUVAIN S. 1991. Evaluating the texture of baked products. *S. Afr. J. Fd Sci. Nutr.*, 3, Nov., 81-86.

CAUVAIN S. and CHAMBERLAIN. 1988. The bread improving effect of fungal alpha-amylase. *J. Cereal Sci.*, 8 (3), 239-248.

CAUVAIN S. and YOUNG 1994. Advising the baker. *Proc. of Brit. Computer Soc. Specialist Group on Expert Systems*, December.

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Involvement in specific EUREKA tasks

Involvement in Task 3 - The use of fracture mechanics to improve flour and starch production
Involvement in Task 5b - Effects of pretreatments

Key Words characterising the field of expertise

Species

Bread wheat, Durum wheat, Maize

End-products

Flour, Semolina, Pasta

Technological interest

Milling quality, Grain fractionation, Dough formation, Drying

Basic problems

Cereal technology, Food engineering

Specific interest

Specific techniques

Experimental milling, Air-classification, Laser granulometry, Image analysis, Mixing, Extrusion, Drying

References of 5 relevant publications which best illustrate the field of expertise

CHAURAND M., VERNOUX P. et ABECASSIS J. 1993. Méthode d'appréciation de l'aptitude des maïs à donner des hominy : mise au point d'un fragmenteur pilote. *Industries des Céréales*, 84, 31-41.

LE ROUX D., VERGNES B., CHAURAND M. and ABECASSIS J. 1995. A thermomechanical approach to pasta extrusion. *J. Food Engineering*, 26 (3), 351-368.

CHAURAND M. 1996. Durum wheat milling (in German). *Getreide, Mehl und Brot*, 50 (3), 186-190.

GUILLAUME S., ROS F., CHAURAND M., BELLON-MAUREL V. and ABECASSIS J. 1996. Characterization of mill products by analysis of in-flow digitalized images. *J. Food Engineering*, 27, 311-322.

LE DESCHAULT DE MONREDON F., DEVAUX M.-F. and CHAURAND M. 1996. Particle size characterization of ground fractions of dent and flint maize. *Sciences des Aliments*, 16 (2), 117-132.

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**Involvement in specific
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Involvement in Task 4 - Raw materials.
Involvement in Task 5 - Structural basis of grain fractionation and pre-
treatments: 5c (Enzymatic pre-treatment studies)
Involvement in Task 9 - Gluten quality)

**Key Words
characterising the field
of expertise**

Species

End-products

Technological interest

Basic problems

Specific interest

Specific techniques

**References of 5 relevant
publications which best
illustrate the field of
expertise**

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Persons who can answer
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B. van Duijn, S. Langeveld, J. Kijne

**Involvement in specific
EUREKA tasks**

Involvement in Theme I - Task 1: Endosperm development

**Key Words
characterising the field
of expertise**

Species

Wheat, Rice, Pea, Tobacco, Arabidopsis

End-products

Transgenic plants with altered properties (*i.e.* starch)

Technological interest

Production of plants with improved starch

Basic problems

Gene expression, Starch initiation and biosynthesis

Specific interest

Gene expression, Cell cycle, Starch initiation

Specific techniques

Molecular biology

**References of 5 relevant
publications which best
illustrate the field of
expertise**

de PATER S. 1987. Plant expression signals of the *Agrobacterium* T-cyt gene. Thesis, Leiden University.

de PATER B.S., van der MARK F., RUEB S., KATAGIRI F., CHUA N.-H., SCHILPEROORT R.A. AND HENSGENS L.A.M. 1992. The promoter of the rice gene GOS2 is active in various different monocot tissues and bind rice nuclear factor ASF-1. *Plant J.*, 2, 837-844.

de PATER S., PHAM K., CHUA N.-H., MEMELINK J. AND KIJNE J. 1993. A 22-bp fragment of the pea lectin promoter containing essential TGAC-like motifs confers seed-specific gene expression. *Plant Cell*, 5, 877-886.

de PATER S., PHAM K., KLITSIE I. AND KIJNE J. 1996. The 22 bp W1 element in the pea lectin promoter is necessary and, as a multimer, sufficient for high gene expression in tobacco seeds. *Plant Mol. Biol.*, 32, 515-523.

van der KAMP J.W., BOOT M.J., BAKHUIZEN R. and de PATER S. 1997. Biotechnology as a tool for modification of starch composition and starch granule size in cereal crops. Starch 96 (van Doren and van Swaaij, eds.), Zestec bv/Carbohydrate Research Foundation, The Hague.

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Involvement in specific EUREKA tasks

UK activities

Key Words characterising the field of expertise

Species

Wheat (*Triticum aestivum*)

End-products

Flour, Bran, Starch

Technological interest

Instrumentation, Image analysis, Microscopy

Basic problems

Grain structure, Grain development

Specific interest

Alpha-amylase, Starch synthesis

Specific techniques

Bran speck detection

References of 5 relevant publications which best illustrate the field of expertise

KENT N.L. and EVERS A.D. 1994. *Technology of Cereals*, 4th edition., Pergamon Press, Oxford.

EVERS A.D. 1996. New opportunities in wheat grading. In: *Proc. 26th Nordic Cereal Congress* (G. Sknede and E.M. Magnus, eds.), NCF/ICC, Haugesund, Norway.

EVERS A.D., FLINTHAM J. and KOTECHA K. 1995. Alpha-amylase and grain size in wheat. *J. Cereal Sci.*, 21, 1-3.

EVERS A.D. 1993. On-line quantification of bran particles in white flour. *Food Science and Technol. Today*, 7, 23-27.

EVERS A.D. and STEVENS D.J. 1985. Starch damage. In: *Advances in Cereal Science and Technology* (Y. Pomeranz, Ed.), American Association of Cereal Chemists, St Paul, Minn., USA, Vol. 6, pp. 321-349.

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Position

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Languages spoken

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Persons who can answer questions in your absence

Involvement in specific EUREKA tasks

Involvement in Theme I - Task 2: Biochemical characterisation of starch granule protein complexes having an impact on starch quality

Key Words characterising the field of expertise

Species

Bread wheat, Durum wheat, (Rice)

End-products

Bread, Biscuits, Cakes, Pasta

Technological interest

Milling quality (endosperm texture) of wheat, Pasting properties of starch, Authenticity of durum wheat, Basmati rice

Basic problems

Molecular and genetic basic of functionality of wheat protein and starch, Interactions at the granule surface

Specific interest

Wheat proteins, particularly as minor components of starch granules, Structure of starch granules

Specific techniques

Protein PAGE (all types), Immuno-electroblotting, ELISA, Immuno-fluorescence microscopy, Rapid visco-analyser

References of 5 relevant publications which best illustrate the field of expertise

RUSSEL P.L., GOUGH B.M., GREENWELL P., FOWLER A. and MUNRO H.S. 1987. A study by ESCA of the surface of native and chlorine-treated wheat starch granules. *J. Cereal Sci.*, 5, 83-100.

GREENWELL P. and SCHOFIELD J.D. 1989. The chemical basis of grain hardness and softness. In: *ICC 89 Symposium, Wheat End-Use properties* (H. Salovaara, ed.), Lahti, Finland, 9, pp. 1-15.

SKERRITT J.H., FRENED A.J., ROBSON L.G. and GREENWELL P. 1990. Immunological homologies between wheat gluten and starch granule proteins. *J Cereal Sci.*, 12, 123-136.

SALMON S.E. and GREENWELL P. 1990. The effect of rate and timing of late nitrogen applications of breadmaking wheats as a ammonium nitrate or foliar urea -N. In: *Aspects of applied Biology*, 25, (Cereal Quality II), pp. 242-253.

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Involvement in specific EUREKA tasks

Involvement in Task 3 - The use of fracture mechanics to improve flour and starch production: 3a (grain and tissue mechanics), 3b (dynamics of pretreatments)

Involvement in Task 5b - Effects of pretreatments

Key Words characterising the field of expertise

Species

Wheat (*Triticum aestivum*)

End-products

Endosperm, Flour, Semolina

Technological interest

Milling behaviour

Basic problems

Wheat hardness, Vitreousness, Failure propagation

Specific interest

Relation: Suitability for milling / Mechanical properties

Specific techniques

Milling, Rheological tests, Simulation

References of 5 relevant publications which best illustrate the field of expertise

ABECASSIS J., MABILLE F., HADDAD Y., AUTRAN J.C. et BÉNET J.C. 1997.
La dureté des blés: état des connaissances actuelles. *Industries des Céréales*, 101, 11-18.

HADDAD Y., BÉNET J.C. and ABECASSIS J. 1998. A rapid general method for the appraisal of the rheological properties of the starchy endosperm of cereal grain. *Cereal Chem.* (accepted).

HADDAD Y., MERMET A., BÉNET J.C., MABILLE F. and ABECASSIS J. 1998.
Rheological properties of wheat endosperm and grinding behaviour. *9th European Symposium on Comminution*, September 8-10, Albi, France.

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Involvement in specific EUREKA tasks

Involvement in Theme I - Task 3: The use of fracture mechanics to improve flour and starch production: 3a (Grain and tissues mechanics), 3b (Dynamics of treatments). Involvement in Task 4 - Raw materials. Involvement in Task 9 - Gluten quality

Key Words characterising the field of expertise

Species

End-products

Technological interest

Basic problems

Specific interest

Specific techniques

References of 5 relevant publications which best illustrate the field of expertise

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Position

Scientific Co-worker

Languages spoken

Dutch, English

Persons who can answer questions in your absence

A. Bekkers, M. Bos

Involvement in specific EUREKA tasks

- Secretary of the programme
- Coordinator of Theme III - Flour processing and product quality
- Involvement in Tasks 2, 5c, 7

Key Words characterising the field of expertise

Species

Wheat (*Triticum aestivum*)

End-products

Bread, Biscuit, Gluten, Starch

Technological interest

Milling, Gluten/starch separation

Basic problems

Relation agriculture/quality, Milling quality

Specific interest

Kernel structure/function relations

Specific techniques

Milling, Image analysis, Immunochemistry

References of 5 relevant publications which best illustrate the field of expertise

KELFKENS M. and HAMER R.J. 1991. Agronomic factors related to the quality of wheat for the starch industry. *Starch*, 43, 340-347.

KELFKENS M. and van der KAMP J.W. 1991. The influence of endosperm ash content on milling quality of wheat. *Lecture AACC Congress*.

KELFKENS M. and HAMER R.J. 1994. New opportunities to control the quality of wheat flour during milling. *Lecture ICC Congress, The Hague*.

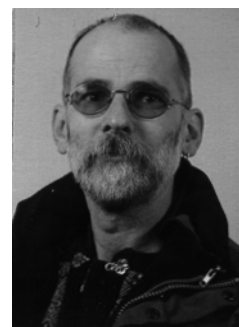
KELFKENS M., BEKKERS A., ORSEL R. and HAMER R.J. 1996. 1996. Impact of wheat bran on glutenin structure. *Lecture AACC Congress, Baltimore, USA*.

HAMER R.J. and KELFKENS M. 1995. Improvement of flour yield and purity of EC wheat by selection. *Lecture AACC Congress, San Antonio, USA*.

HAMER R.J. and KELFKENS M. 1996. Improvements at the mill: adjusting input and output. *Lecture ICC Congress, Porto Carras, Greece*.

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Persons who can answer questions in your absence

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Involvement in specific EUREKA tasks

Coordinator of Theme I: Endosperm development, structure and fracture mechanics

Key Words characterising the field of expertise

Species

Legumes, Wheat, Catharanthus (periwinkle)

End-products

Fixed nitrogen, Starch, Terpenoid indole alkaloids

Technological interest

Nitrogen fixation, Starch biosynthesis, Medicines

Basic problems

Host-plant specificity, Regulation of biosynthesis

Specific interest

Molecular signaling and signal transduction

Specific techniques

Molecular techniques, Cell and tissue culture, Microscopy

References of 5 relevant publications which best illustrate the field of expertise

- Van BRUSSEL A.A.N., BAKHUIZEN R., Van SPRONSEN P.C., SPAINKS H.P., TAK T., LUKTENBERG B.J.J. and KIJNE J.W. 1992. Induction of pre-infection thread structures in the leguminous host plant by mitogenic lipo-oligosaccharides of *Rhizobium*. *Science*, 257, 70-72.
- Van EIJSDEN R.R., HOEDEMAEKER F.J., DIAZ C.L., LUGTENBERG B.J., De PATER B. S. and KIJNE J.W. 1992. Mutational analysis of pea lectin. Substitution of Asn125 for Asp in the monosaccharide-binding site eliminates mannose/glucose-binding activity. *Plant Mol. Biol.*, 20, 1049-1058.
- De PATER B.S., PHAM K., CHUA N.H., MEMELINK J. and KIJNE J.W. 1993. A 22-bp fragment of the pea lectin promoter containing essential TGAC-like motifs confers seed-specific expression. *Plant Cell*, 5, 877-886.
- VISSER K., VISSERS A.P.A., CAGIRGAN M.I., KIJNE J.W. and WANG M. 1996. Fast germination of barley mutant is correlated with a rapid turnover of abscisic acid outside the embryo. *Plant Physiol.*, 111, 1127-1133.
- Van WORKUM V.A.T., CANTER CREMERS H.C.J., WIFJES A.H.M., Van der KOLK C., WIJFFELMAN C. A. and KIJNE J.W. 1997. Cloning and characterization of four genes of *Rhizobium leguminosarum* by trifolii involved in exopolysaccharide production and nodulation. *Mol. Plant-Microbe Interact.*, 10, 290-301.

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**Involvement in specific
EUREKA tasks**

Involvement in Theme I - Task 1: Endosperm development

**Key Words
characterising the field
of expertise**

Species

Wheat, Arabidopsis, Cassava, Tomato

End-products

Technological interest

Production of plants with improved starch

Basic problems

Starch initiation

Specific interest

Starch initiation, Granule development

Specific techniques

In situ hybridisation, Immunolocalisation

**References of 5 relevant
publications which best
illustrate the field of
expertise**

VROEMEN C.W., LANGEVELD S., MAYER U., RIPPER G., JÜRGENS G., van KAMMEN A. and De VRIES S. 1996. Pattern formation in the arabidopsis embryo revealed by position specific lipid transfer protein gene expression. *The Plant Cell*, 8, 783-791.

MUNYIKWA T.R.I., LANGEVELD S., SAHENUZZAMAN S.N.I.M., JACOBSEN E. and VISSER R.G.F. 1997. Cassava starch biosynthesis: new avenues for modifying starch quantity and quality. *Euphytica*, 96, 67-75.

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**Involvement in specific
EUREKA tasks**

Involvement in Theme I - Task 3: Grain and tissues mechanics

**Key Words
characterising the field
of expertise**

Species

Wheat

End-products

Technological interest

Milling, Grain fracture mechanics

Basic problems

Fragmentation and fractionation: to increase quantity and quality of flour or starch produced from wheat

Specific interest

Relations between milling characteristics and fundamental rheological properties

Specific techniques

Micro mill, Energy measurements, Granulometry

**References of 5 relevant
publications which best
illustrate the field of
expertise**

LÉTANG C., PIAU M. et VERDIER C. 1996. Caractérisation ultrasonore et propriétés rhéologiques de mélanges farine-eau. *Les Cahiers de Rhéologie*, 15 (1), 319-326.

LÉTANG C. 1997. Caractérisation rhéologique par ultrasons du pétrissage d'une pâte biscuitière. PhD Thesis, Université Joseph Fourier, Grenoble, France [confidential].

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Involvement in specific EUREKA tasks

Leader of Task 4 - Raw materials

Key Words characterising the field of expertise

Species

Wheat, Corn, Barley

End-products

Flour, Bread, Snacks

Technological interest

Milling, Baking, Extrusion-cooking

Basic problems

Link between genetic improvement and processing adaptation

Specific interest

Relationship between kernel structure, composition and processing

Specific techniques

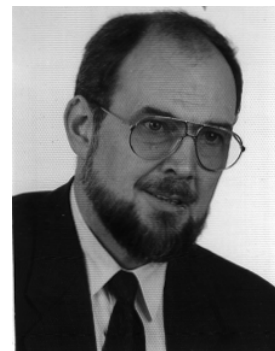
Wheat and corn milling, Baking, Extrusion

References of 5 relevant publications which best illustrate the field of expertise

--

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Secretary: Mrs Gisela Weber

Involvement in specific EUREKA tasks

Scientific Advisor of the WIN Programme

Key Words characterising the field of expertise

Species

Bread wheat, Maize, Rye, Peas

End-products

Flours, Baking goods, Starches and derivatives, Extrusion products

Technological interest

Milling, Baking, Extrusion, Extrusion cooking, Starch technology, Continuous dough fermentation, Processing of bread returns

Basic problems

Cereal and starch chemistry, Rheometry of non-newtonian fluids, Systems analysis

Specific interest

Enzyme hydrolysis of carbohydrates, Metabolic activities of lactic acid bacteria, Starch derivation

Specific techniques

Extrusion, Continuous dough fermentation, Continuous yeast fermentation, Pressurized homogenisation

References of 5 relevant publications which best illustrate the field of expertise

MEUSER F., WITTIG J. and HUSTER H. 1989. Effects of high pressure disintegration of steeped maize grits on the release of starch granules from the protein matrix. *Starch/Stärke*, 61 (6), 225-232.

VOLLMAR A. and MEUSER F. 1992. Influence of starter cultures consisting of lactic acid bacteria and yeasts on the performance of a continuous sourdough fermenter. *Cereal Chem.*, 69 (1), 20-27.

MEUSER F., GIMMLER N. and van LINGERICH B. 1992. A systems analytical approach to extrusion. In: *Food Extrusion Science and Technology* (J.L. Kokini, C.-T. Ho and M.V. Karwe, eds), Marcel Dekker, Inc., New York, Basel, Honk Kong, pp. 619-630.

MEUSER F. and ZENSE T.H. 1993. Investigation of the flow behaviour of sourdoughs in a continuously operating fermentation system. *Carbohydrate Polymers*, 21, 179-181.

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Involvement in specific EUREKA tasks

Involvement in Theme III - Task 8b: Evaluation of the use of produced starches in paper

Key Words characterising the field of expertise

Species

Surface treatment

End-products

Coated paper, Pigmentised, sized paper, Calendered paper

Technological interest

Coating structure, Drying, Printability, Calendering

Basic problems

Coating structure / Printability relations

Specific interest

Fibre coverage, Coating structure

Specific techniques

Coating processes, Paper testing

References of 5 relevant publications which best illustrate the field of expertise

MASSON P., MOREAU S. and MORIN V. 1993. Co-binder effect on shrinkage phenomena during color consolidation - PTS Coating Symposium, Munich, September.

MORIN V., MOREAU-TABICHE S. and ENGSTROM G. 1996. The influence of the coating and calendering procedures on the evenness of coated paper surface. EUCEPA Conference, Palma de Mallorca, 19-20 April.

MOREAU-TABICHE S., MORIN V., LEMAITRE A. and NGUYEN MINH T. 1997. Modelisation of the drying of coated paper. Experiences on a pilot coater. 18th PTS Coating Symposium, Munich, 16-18 September.

MORIN V., MOREAU-TABICHE S. and ENGSTROM G. 1997. Calendering effect on the coated paper structure - 50th ATIP Congress, Bordeaux, October.

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Involvement in specific EUREKA tasks

Involvement in Theme III - Task 8b: Evaluation of the use of produced starches in paper

Key Words characterising the field of expertise

Species

Starch

End-products

Papers and boards

Technological interest

Sizing-coating of papers and boards

Basic problems

Coated and sized paper's structure

Specific interest

Surface treated paper properties

Specific techniques

Sizing, coating trials on paper

References of 5 relevant publications which best illustrate the field of expertise

ENGSTROM G. and MORIN V. 1997. Compression of coating layer during calendering. 18th PTS Coating Symposium, Munich, 16-18 September.

MOREAU-TABICHE S., MORIN V., LEMAITRE A. and NGUYEN MINH T. 1997. Modelisation of the drying of coated paper. Experiences on a pilot coater. 18th PTS Coating Symposium, Munich, 16-18 September.

ENGSTROM G., MORIN V. and BI L.S. 1997. Analysis of porosity distribution in coating layers. TAPPI Coating Conference, Philadelphia, 11-15 May.

ENGSTROM G. and MORIN V. 1996. Double coating on wet with the metering size press. 18th PTS Coating, Munich, 12-15 sept. 1995. In: TAPPI Metered size press Forum Proceedings, Nashville, 16-18 May.

MORIN V., MOREAU-TABICHE S. and ENGSTROM G. 1996. The influence of the coating and calendering procedures on the evenness of coated paper surface. EUCEPA Conference, Palma de Mallorca, 19-20 April.

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Involvement in specific EUREKA tasks

Involvement in Theme III - Task 7: Starch and gluten production

Key Words characterising the field of expertise

Species

End-products

Technological interest

Basic problems

Specific interest

Specific techniques

References of 5 relevant publications which best illustrate the field of expertise

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Involvement in specific EUREKA tasks

Involvement in Task 7: Process development on pilot scale, testing of specific raw materials on laboratory and pilot-scale

Key Words characterising the field of expertise

Species

Wheat flour, potatoes

End-products

Starch, protein, by-products

Technological interest

Solid-liquid separation

Basic problems

Relation wheat flour quality, yield of the end-products

Specific interest

Gluten/starch separation

Specific techniques

Gravity separators

References of 5 relevant publications which best illustrate the field of expertise

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Involvement in specific EUREKA tasks

Involvement in Task 5a - Physicochemical composition of cereal grains

Key Words characterising the field of expertise

Species

Bread wheat, Durum wheat, Rye, Maize

End-products

Bread, Baked products, Enzymes

Technological interest

Dough development, Enzymatic improvers, Milling

Basic problems

Physicochemical bases of dough properties, Structure/function of non-starch polysaccharides

Specific interest

Pentosans, Arabinoxylans, Phenolic acids, Polysaccharidases, Oxydo-reductases

Specific techniques

Polysaccharide chemistry, Enzyme chemistry, Phenolics chemistry, Micro-baking test

References of 5 relevant publications which best illustrate the field of expertise

ROUAU X. and MOREAU D. 1993. Modification of some physicochemical properties of wheat flour pentosans by an enzyme complex recommended for baking. *Cereal Chem.*, 70 (6), 626-632.

ROUAU X. 1993. Investigations into the effects of an enzyme preparation for baking on wheat flour dough pentosans. *J. Cereal Sci.*, 18 (2), 145-157.

ROUAU X., EL-HAYEK M.-L. and MOREAU D. 1994. Effects of an enzyme preparation containing pentosanases on the bread making quality of flours in relation to changes in pentosan properties. *J. Cereal Sci.*, 19 (3), 259-272.

ROUAU X. and SURGET A. 1994. A rapid semi-automated method for the determination of total and water-extractable pentosans in wheat flours. *Carbohydrate Polymers*, 24 (2), 123-132.

LEMPEREUR I., ROUAU X. and ABECASSIS J. 1997. Arabinoxylan and ferulic acid variations in durum wheat (*Triticum durum* L.) grain and distributions in milled wheat products. *J. Cereal Sci.*, 25, 103-110.

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Involvement in specific EUREKA tasks

Task 1 - Starch synthesis control

Key Words characterising the field of expertise

Species

Wheat

End-products

Technological interest

Molecular biological techniques

Basic problems

Gene cloning

Specific interest

Endoreplication

Specific techniques

Molecular biology

References of 5 relevant publications which best illustrate the field of expertise

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Involvement in specific EUREKA tasks

Involvement in Task 4 - Raw materials.
Involvement in Task 5 - Structural basis of grain fractionation and pre-treatments: 5c (Enzymatic pre-treatment studies)
Involvement in Task 9 - Gluten quality)

Key Words characterising the field of expertise

Species

Wheat, Rye

End-products

Flour, Flour based products

Technological interest

Raw material preparation, Blending, Milling, Handling finished products

Basic problems

Relation of cost and quality

Specific interest

Kernel structure in relation to fracturing and separation

Specific techniques

Milling results evaluation, Simulation of end-use

References of 5 relevant publications which best illustrate the field of expertise

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**Involvement in specific
EUREKA tasks**

Involvement in Theme III - Task 7: Starch and gluten production

**Key Words
characterising the field
of expertise**

Species

End-products

Starch, Gluten, Starch derivatives

Technological interest

Starch and gluten production

Basic problems

Separation techniques

Specific interest

Wheat starch and gluten production

Specific techniques

**References of 5 relevant
publications which best
illustrate the field of
expertise**

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Involvement in specific EUREKA tasks

Involvement in Task 4 - Raw materials.
Involvement in Task 5 - Structural basis of grain fractionation and pre-treatments: 5c (Enzymatic pre-treatment studies)
Involvement in Task 9 - Gluten quality)

Key Words characterising the field of expertise

Species

End-products

Technological interest

Basic problems

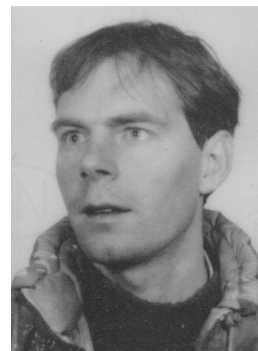
Specific interest

Specific techniques

References of 5 relevant publications which best illustrate the field of expertise

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Involvement in specific EUREKA tasks

Scientific Coordinator of the WIN Programme.
Involvement in Theme I - Task 1: Endosperm development

Key Words characterising the field of expertise

Species

Barley

End-products

Beer, Non-food uses

Technological interest

Signals regulating development and germination

Basic problems

Hormone signal perception, Ion transport

Specific interest

Second messengers, Ion transport, Cell physiology

Specific techniques

Electrophysiology, Quantitative fluorescence imaging, Mathematical modelling

References of 5 relevant publications which best illustrate the field of expertise

Van DUIJN B., FLIKWEERT M.T., HEIDEKAMP F. and WANG M. 1996. Different properties of inward rectifying potassium conductance of aleurone protoplasts from dormant and non-dormant barley grains. *Plant Growth Regul.*, 18, 107-113.

WANG M., HEIMOVAARA-DIJKSTRA S. and Van DUIJN B. 1995. Modulation of germination of embryos isolated from dormant and non-dormant barley grains by manipulation of endogenous abscisic acid. *Planta*, 195, 586-592.

Van DUIJN B., HEIMOVAARA-DIJKSTRA S. 1994. Intracellular microelectrode membrane potential measurements in tobacco cell suspension protoplasts and barley aleurone protoplasts: interpretation and artifacts. *Biochim. Biophys. Acta*, 1193, 77-84.

Van DUIJN B. 1993. Hodgkin-Huxley analysis of whole-cell outward rectifying K-currents in protoplasts from tobacco cell suspension cultures. *J. Membrane Biology*, 132, 77-85.

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Involvement in specific EUREKA tasks

Involvement in Theme I - Task 3: The use of fracture mechanics to improve flour and starch production: 3a (Grain and tissues mechanics), 3b (Dynamics of treatments). Involvement in Task 4 - Raw materials. Involvement in Task 9 - Gluten quality

Key Words characterising the field of expertise

Species

Biological organisms

End-products

Technological interest

Mechanical testing

Basic problems

Fracture, Mechanical properties, Mechanical design

Specific interest

Specific techniques

Most mechanical tests on solid materials, biological materials

References of 5 relevant publications which best illustrate the field of expertise

VINCENT J.F.V., JERONIMIDIS G., KHAN A.A. and LUYTEN H. 1991. The wedge fracture test - a new method for measurement of food texture. *J. Texture Stud.*, 22, 45-57.

VINCENT J.F.V., KHAN A.A. and LIU J.-H. 1998. The shape of the wheat kernel and its influence on fracture. *J. Cereal Sci.* (in press).

KHAN A.A. DOBRASZCZYK B.J. and VINCENT J.F.V. 1997. Characterisation of vitreous and mealy wheat endosperm in relation to their mechanical properties and density. In: *Proc. Plant Biochem. Symp.*, Reading, pp. 301-308.

VINCENT J.F.V. 1993. Mechanical and fracture properties of fruit and vegetables. In: *Food Colloids and Polymers: Stability and Mechanical Properties* (E. Dickinson and P. Walstra, eds.), Society of Chemistry and Industry, pp. 191-203.

VINCENT J.F.V. 1994. Texture of plants. In: *Vegetables and Vegetable Products, Modern Methods of Plant Analysis*, 16 (H.F. Linskens and J.F. Jackson, eds.), Springer-Verlag, Berlin, pp. 57-72.

VINCENT J.F.V. 1998. The quantification of crispness. *J. Sci. Food Agric.* (in press).

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Involvement in specific EUREKA tasks

Task 10 - Adding value to co-products

Key Words characterising the field of expertise

Species

Wheat

End-products

Composted bran and wheatfeed as organic fertilizer

Technological interest

Conversion of plant co-products into organic fertilizers

Basic problems

Method of composting, Use in horticulture and agriculture

Specific interest

Composting

Specific techniques

Composting, Plant growth trials

References of 5 relevant publications which best illustrate the field of expertise

RICHARDS I.R., WALLACE P.A. and PAULSON G.A. 1996. Effects of applied nitrogen on soil-nitrate content after harvest of winter barley. *Fertilizer Research*, 45, 61-67.

RICHARDS I.R., WALLACE P.A. and TURNER I.D.S.T. Comparison of six cover crop types in terms of N uptake and effect of response to N by a subsequent spring barley crop. *J. Agric. Sci.*, 127, 441-449.

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Involvement in specific EUREKA tasks

1. The use of fracture mechanics to improve flour and starch production
2. Raw materials
3. Gluten quality

Key Words characterising the field of expertise

Species

End-products

Technological interest

SEM, Confocus microscopy, Compressive and impact testing

Basic problems

Micromorphology, Mechanical properties, Fracture and deformation behaviour

Specific interest

Deformation and fracture mechanism of wheat starch

Specific techniques

References of 5 relevant publications which best illustrate the field of expertise

WANG L., BEVIS M.J. and ALLAN P.S. 1995. Enhancement of internal weld line strength in unfilled and glass fibre filled TLCP moulding. *Plas. Rub. & Composites Proc. & Appl.*, 23, 71-85.

WANG L., BEVIS M.J. and ALLAN P.S. 1996. Management of morphology and physical properties in moulded thermotropic liquid crystalline polymers. *Plas. Rub. & Composites Proc. & Appl.*, 25 (8).

WANG L., BEVIS M.J. and ALLAN P.S. 1997. The application of scorim for in-situ formation of 0°-90° laminates in moulded thermotropic liquid crystalline polymers. *Plas. Rub. & Composites Proc. & Appl.*, 26 (8), 351.

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Involvement in specific EUREKA tasks

Leader of Task 3 - Use of fracture mechanics
Involvement in Tasks 4 (Raw materials) and 5b (Effects of pretreatments)

Key Words characterising the field of expertise

Species

Wheat (*Triticum aestivum*)

End-products

Flour, Wheatfeed

Technological interest

Milling, Wheat and flour quality testing

Basic problems

Milling quality, Baking performance of flours, Wheat, flour and baked products quality tests

Specific interest

Image analysis, Fracture mechanics

Specific techniques

Image analysis, Milling

References of 5 relevant publications which best illustrate the field of expertise

WHITWORTH M.B., EVERS A.D. and BROCK C.J. 1997. On-line measurement of bran in flour by image analysis. In: *Cereals: Novel Uses and Processes* (G.M. Campbell et al., eds.), Plenum Press, pp. 125-131.

WHITWORTH M. 1994. Under the spot light. *International Milling Flour & Feed*, 188 (5), Supplement, 10-13.

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Involvement in specific EUREKA tasks

Key Words characterising the field of expertise

Species

End-products

Technological interest

Basic problems

Specific interest

Specific techniques

References of 5 relevant publications which best illustrate the field of expertise

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Persons who can answer questions in your absence

Involvement in specific EUREKA tasks

Key Words characterising the field of expertise

Species

End-products

Technological interest

Basic problems

Specific interest

Specific techniques

References of 5 relevant publications which best illustrate the field of expertise

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Involvement in specific EUREKA tasks

Key Words characterising the field of expertise

Species

End-products

Technological interest

Basic problems

Specific interest

Specific techniques

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Persons who can answer questions in your absence

Involvement in specific EUREKA tasks

Key Words characterising the field of expertise

Species

End-products

Technological interest

Basic problems

Specific interest

Specific techniques

References of 5 relevant publications which best illustrate the field of expertise