

IAOM 2008

19th Annual Technical Conference

Arusha Tanzania



Protein quality of semi - hard wheat



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Wheat Protein !

What are we talking about ?

- **Glutenin** 40 - 50%
- **Gliadine** 30 - 40%



80 - 85 %



Source : Futur of Four AgriMedia

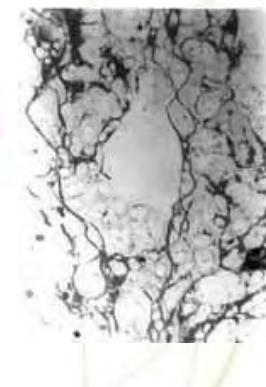
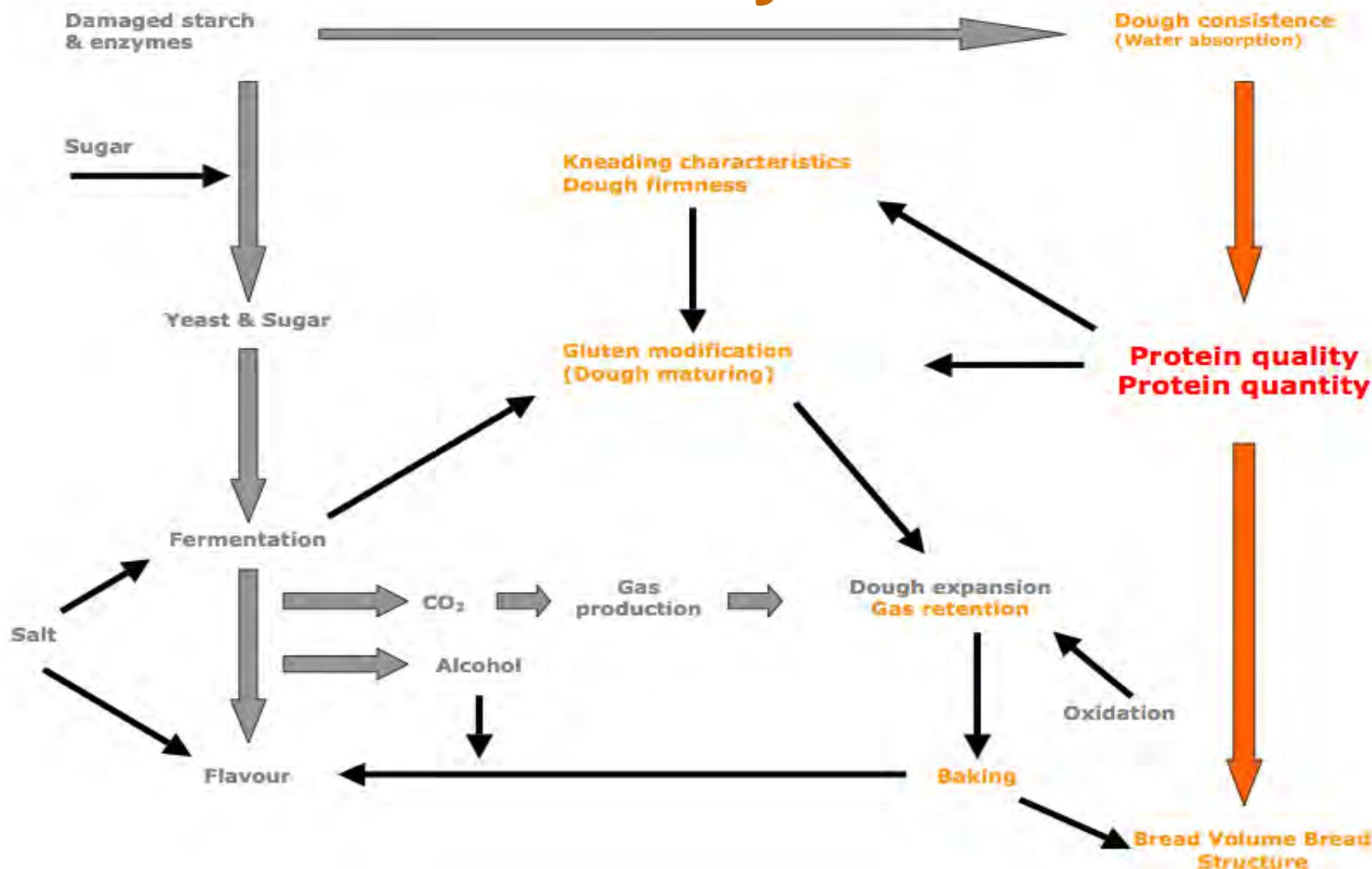
- **Globulin**
- **Albumin**



15 - 20 %

Wheat Protein !

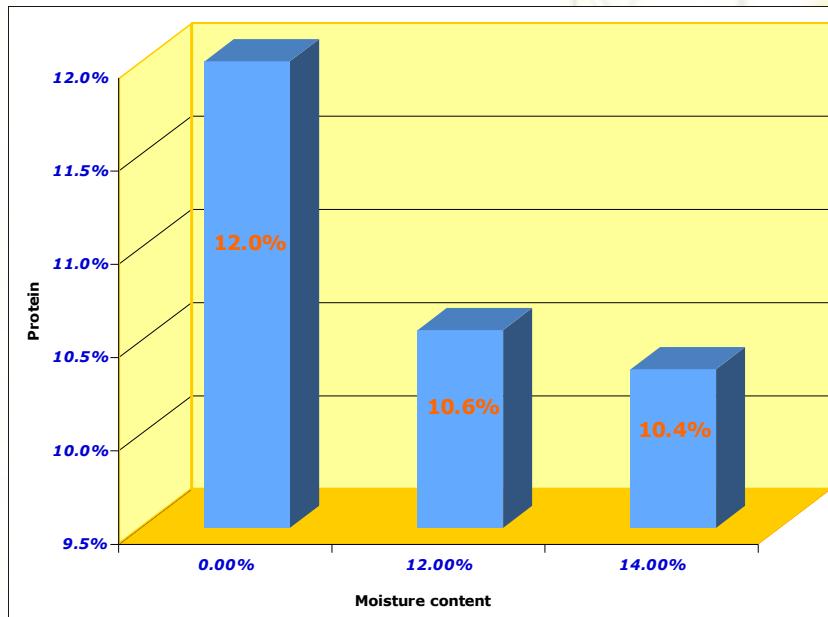
What is my function ?



Wheat Protein !

Are quoted values all the same ?

- Moisture basis, France Dry Matter Basis
- Nitrogen coefficient, France 5,7



Wheat Protein !

Wheat grading & trade

- Grading by protein content within wheat classes
- Protein is a component of price

Wheat Protein !

From a miller's point of view !

- Gluten Quantity
 - Gluten Quality
- 80% of total protein
- Plasticity of dough
 - Gas retention
 - Bread Volume



Source : Futur of Four AgriMedia

Gluten quality

how can we evaluate quality ?

- Gluten tests
- Zéleny
- Farinograph
- Extensograph
- Alvéograph

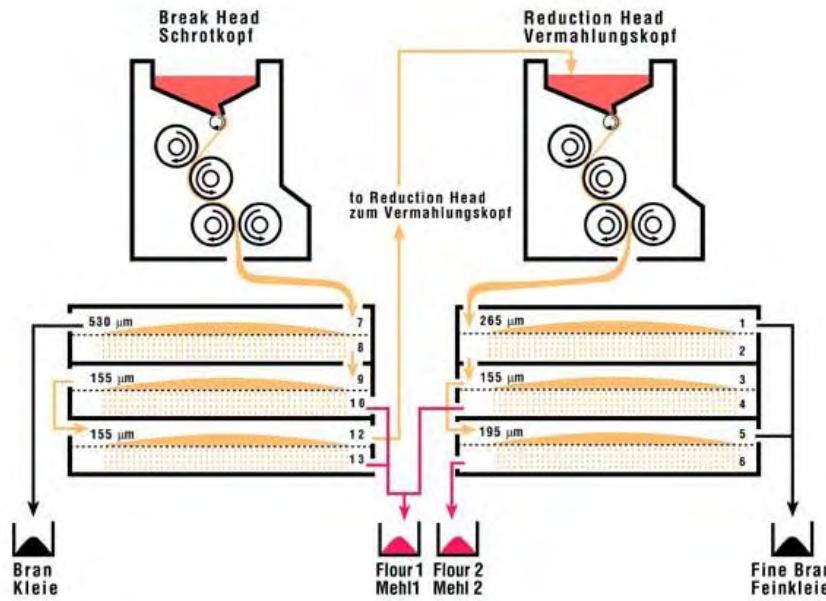


What happened in France ?

France Export Céréales Made a study on major wheat parameters evolution in the past years.

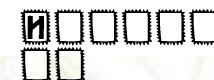
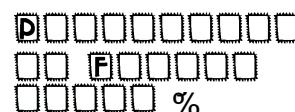
Lets have a look into the figures !

Result basis



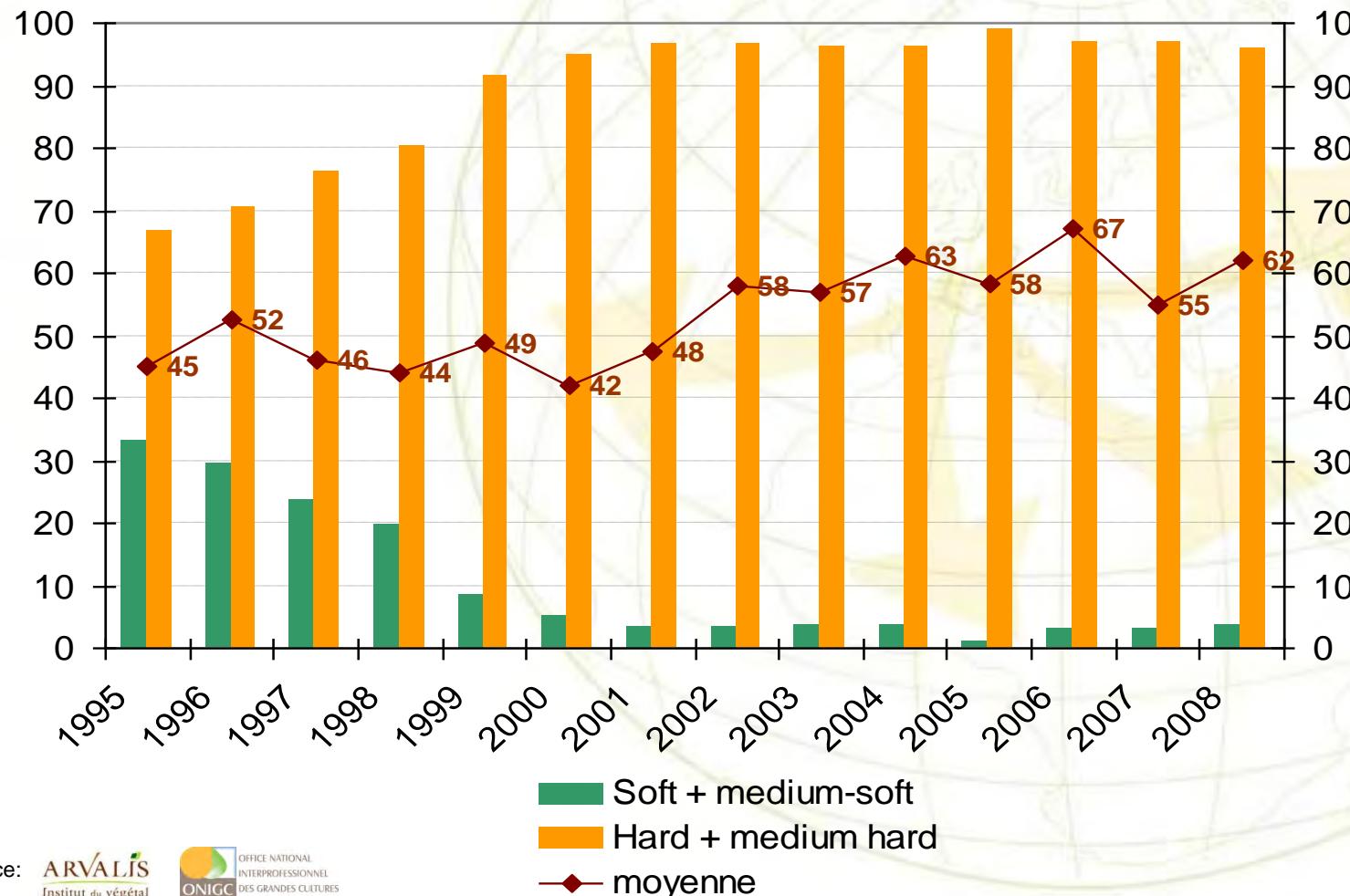
The Quadrimat Senior from Brabender

What about semi-hard wheat

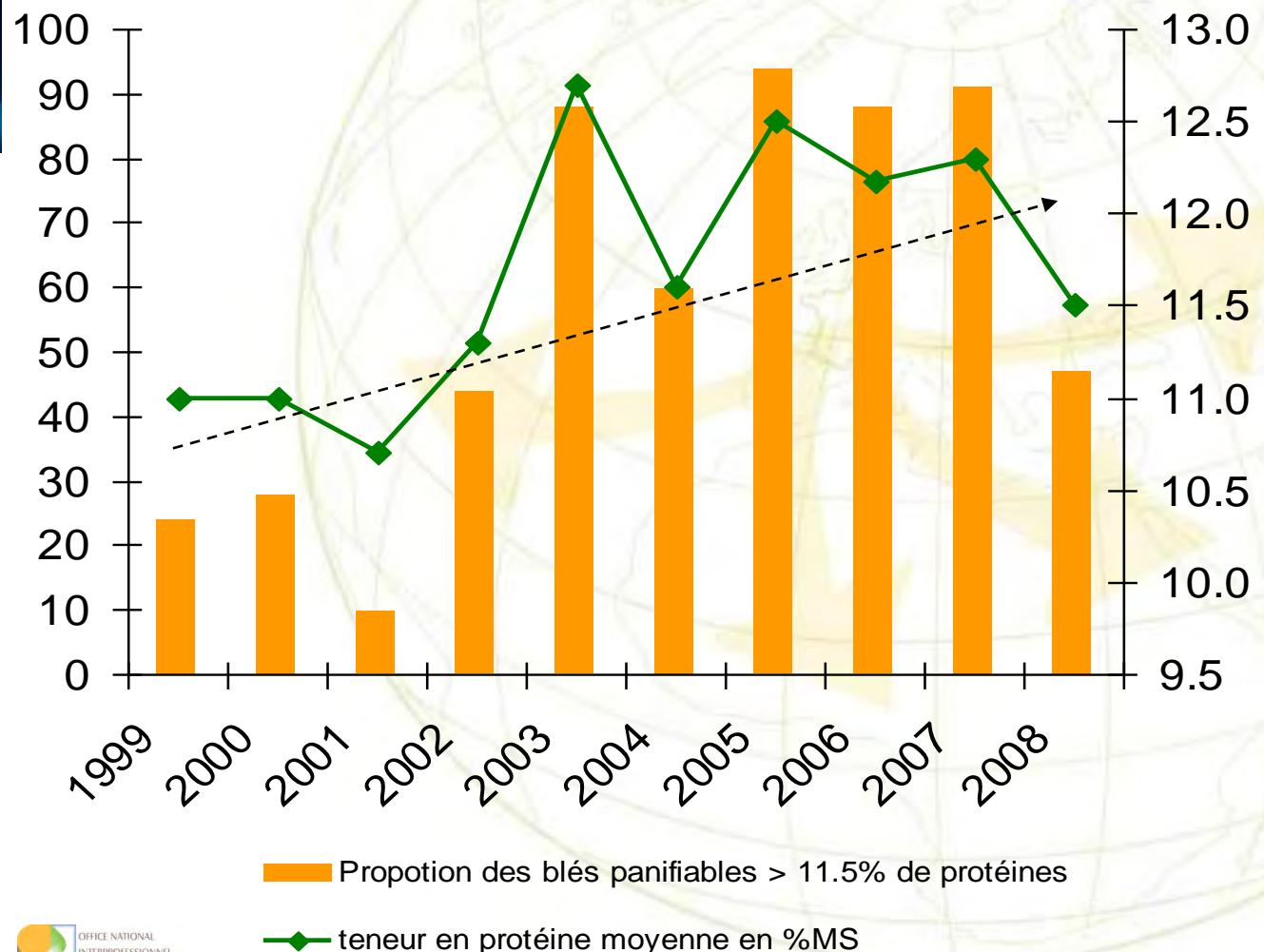


HRW

SRW



Protein in semi - hard wheat



Wet Gluten and Gluten Index



Wet Gluten : Measures the Gluten Quantity

Gluten extraction by mechanical action and washing of the mixture with a 2% salted solution.

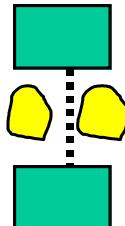


Gluten Index : Measures the Gluten Quality

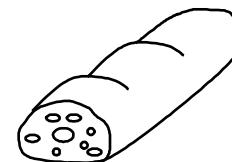
The viscous elastic characteristics are measured after centrifugal treatment of the gluten through a sieve. Evaluation of the remaining part at the end of the process.

Gluten Index

GI 60 - 90

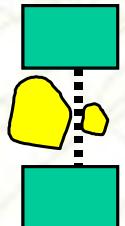


Balanced
Gluten

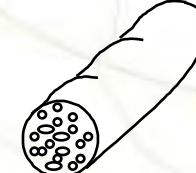


Good Gas retention
Well developed
Aerated crum
Good volume

Near 100

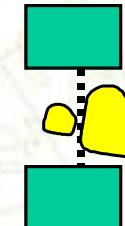


ELASTIC
Gluten

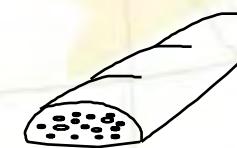


Good Gas retention
Poor development
Compact crum
low volume

GI < 60

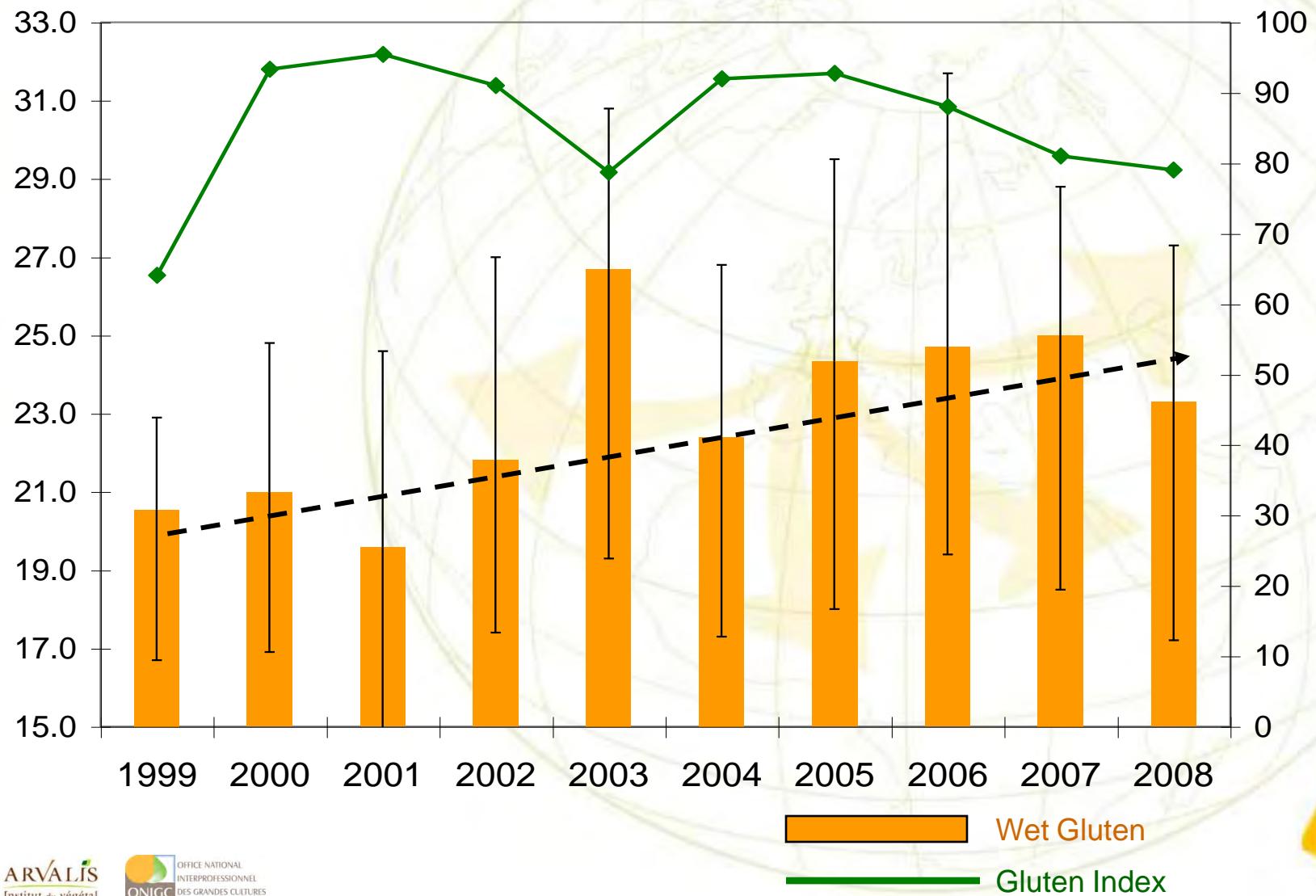


EXTENSIBLE
Gluten

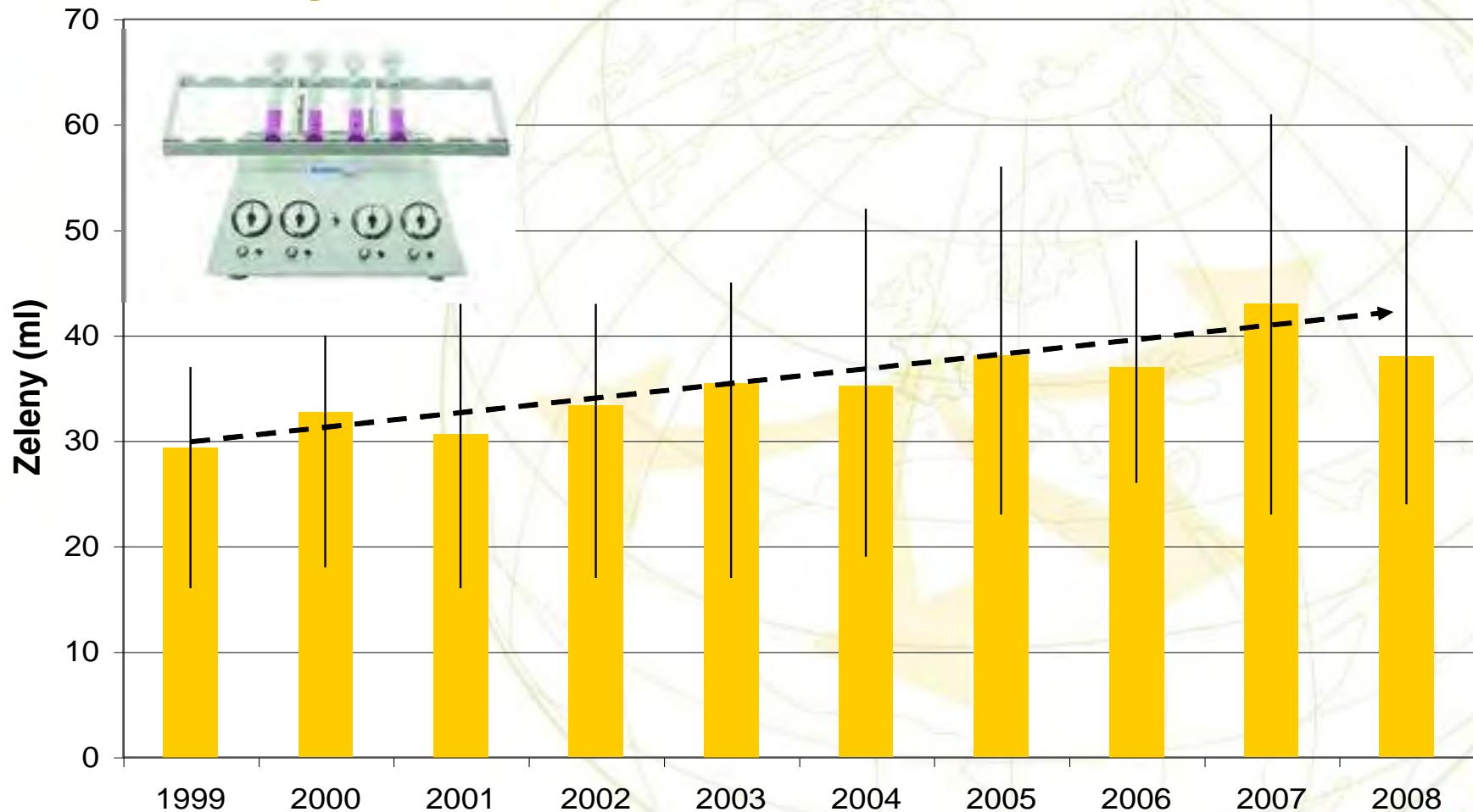


Poor Gas retention
Flat shape
Non aerated crum
Low volume

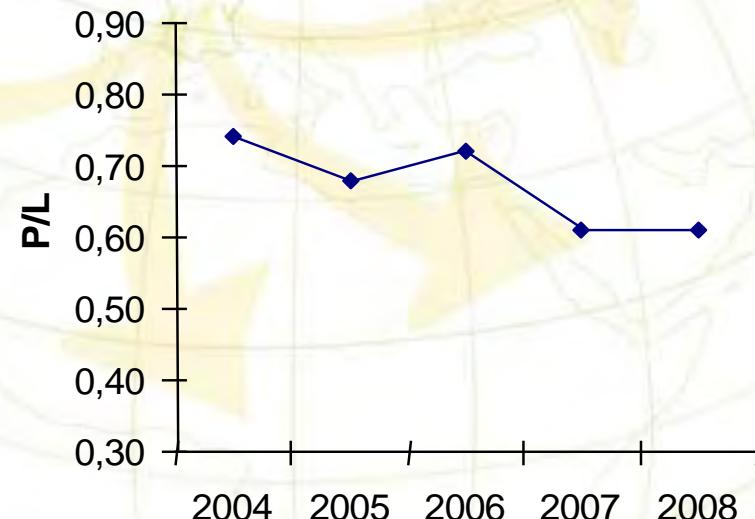
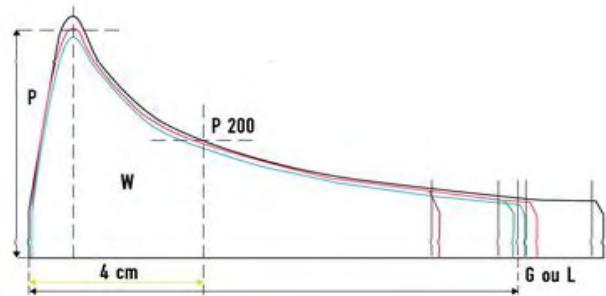
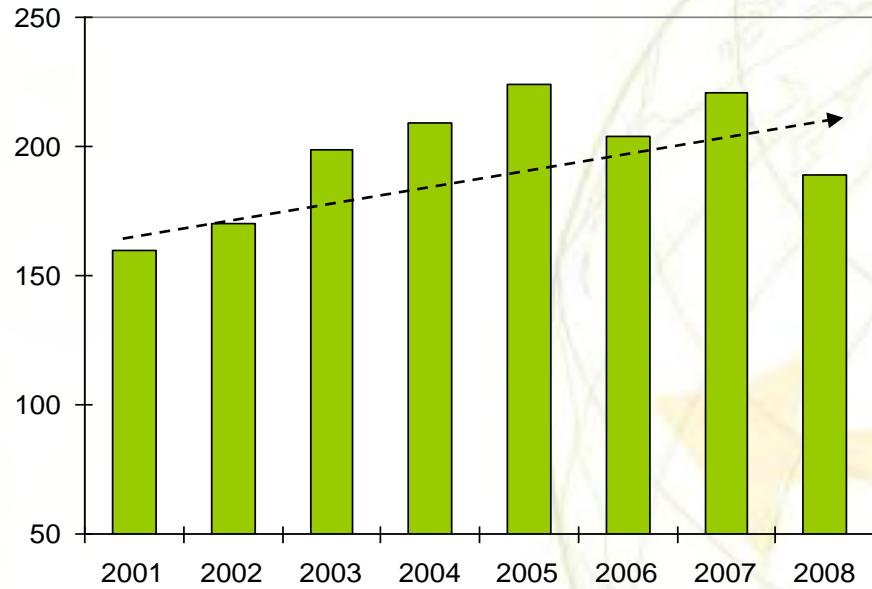
Gluten and semi-hard Wheat



Zélény and semi - hard wheat

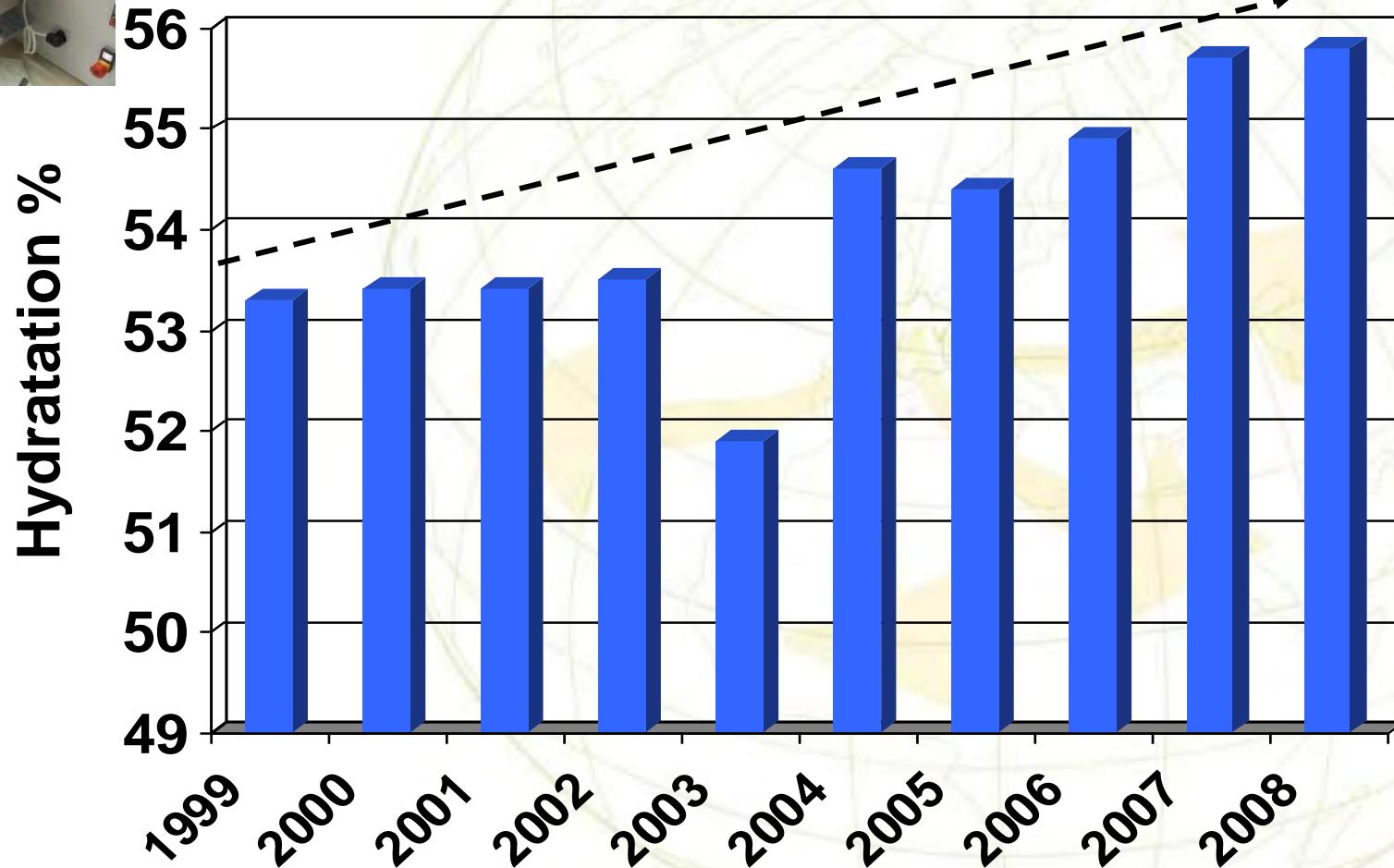


Backing properties of semi - hard wheat

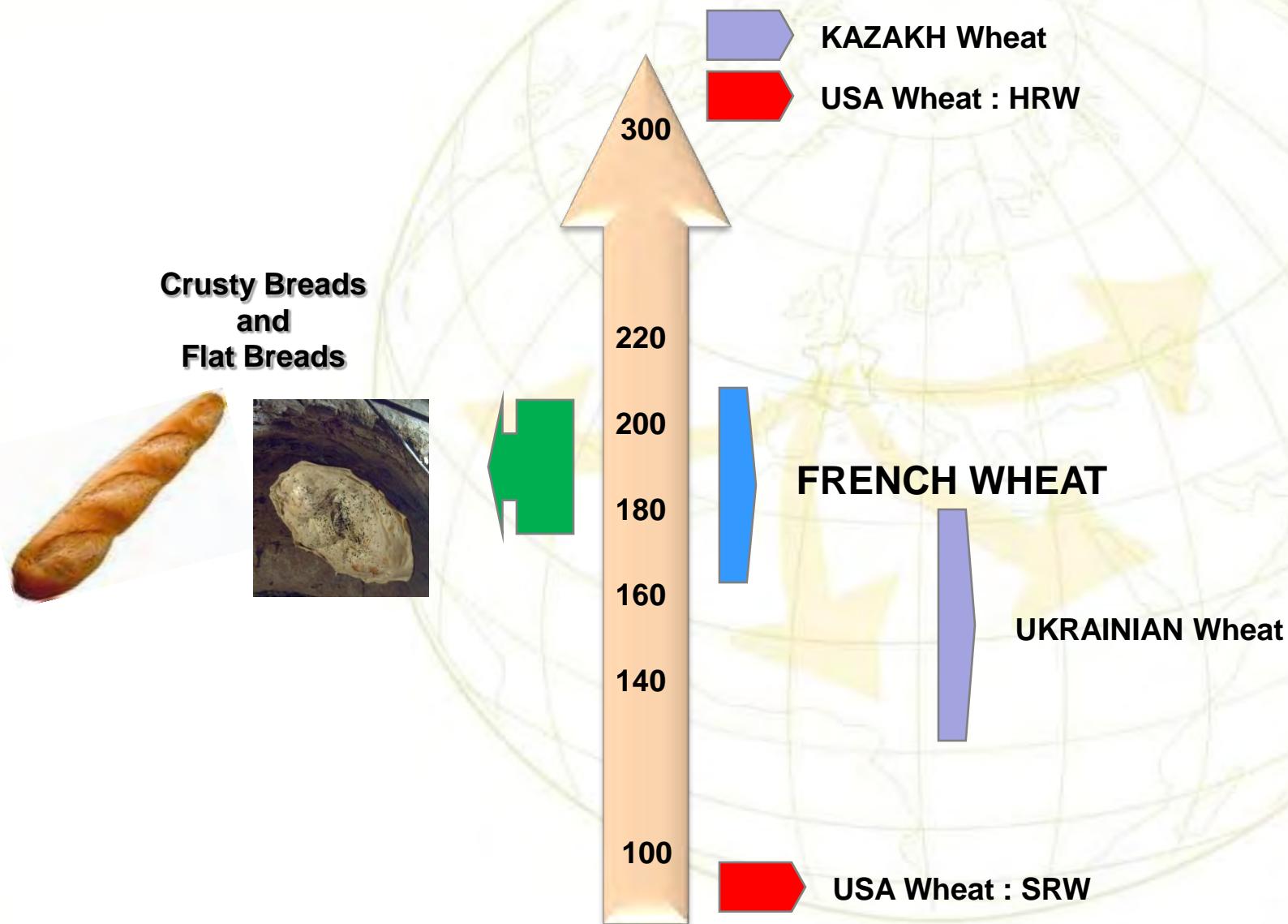




Water absorption of semi - hard wheat

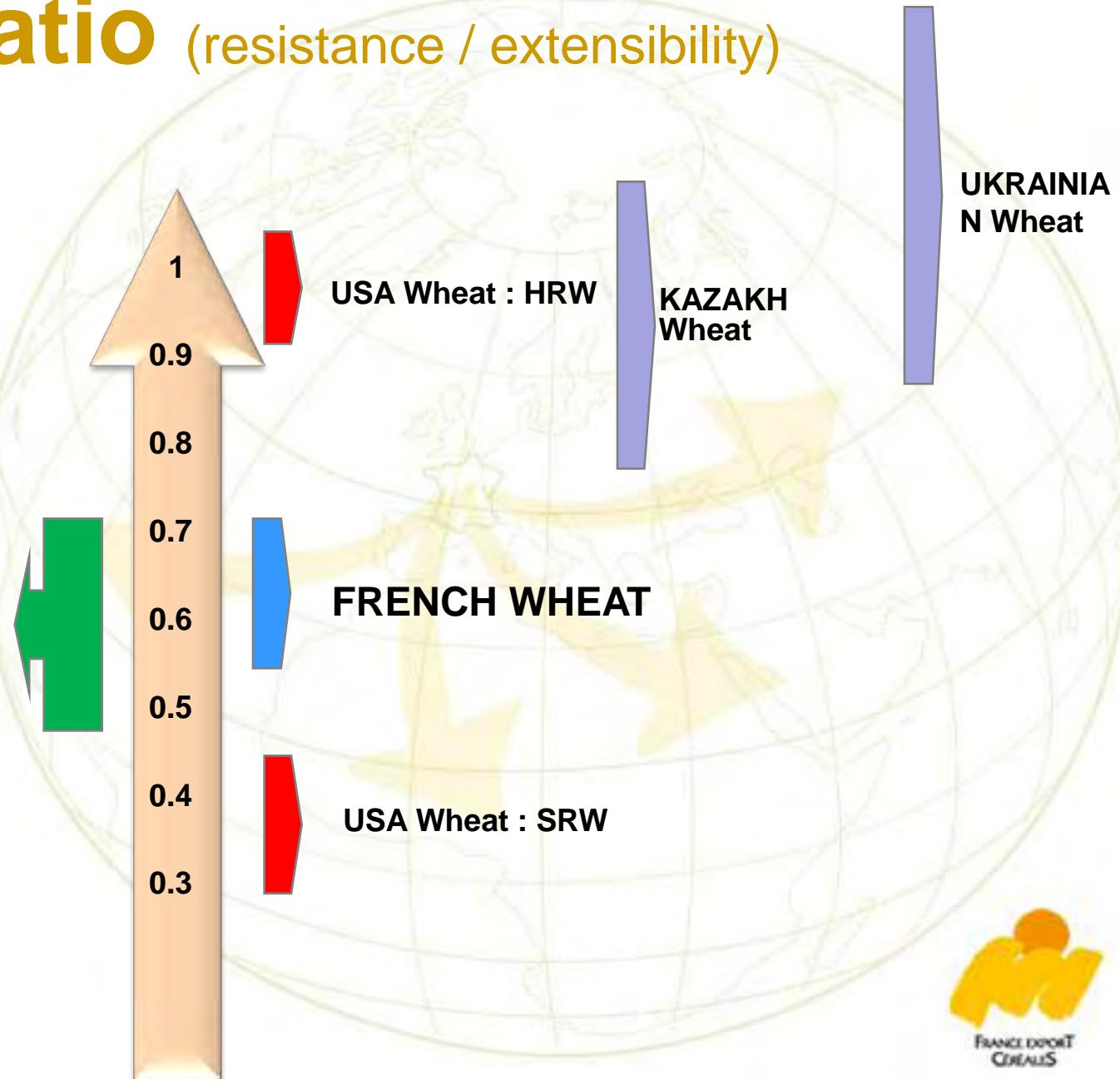


Baking strength of flours

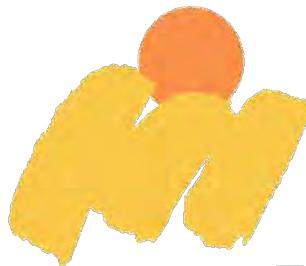


P/L ratio (resistance / extensibility)

Crusty Breads
and
Flat Breads

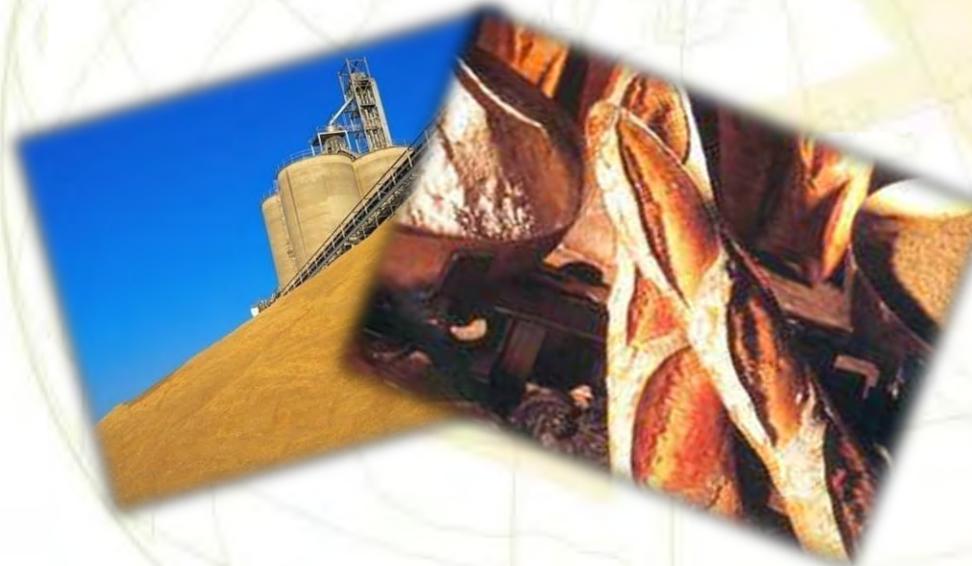


Thank you for your kind attention



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Christian HEINIGER



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