



BUGS DAMAGED WHEAT CORRECTION

Effects on bread and solutions

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EUROGERM is ...

Flour
Correctors
Custom solutions



Premixes for
Speciality Breads
Technological solutions
Over 50 top-of-the-range
premixes.



Bread and
Pastry Improvers
Handy, tasty solutions



Cereal
Ingredients
Technological,
taste/colour ranges
and custom products.



Summary

- Entomologic aspect
- Infestations areas
- Quality's impacts
- Alveograph detection
- Eurogerm solutions



BUGS



Hémipter Eurygaster and Aelia

Main contaminated areas

Attacks happen in the following areas:

- Mediterranean sea, Caspian sea, Black sea
- South of central and east Europe
- China



Signs of bugs damages

- Bad smell
- Visual detection : bugs damaged kernels show a little spot in the middle of a white and hollow area

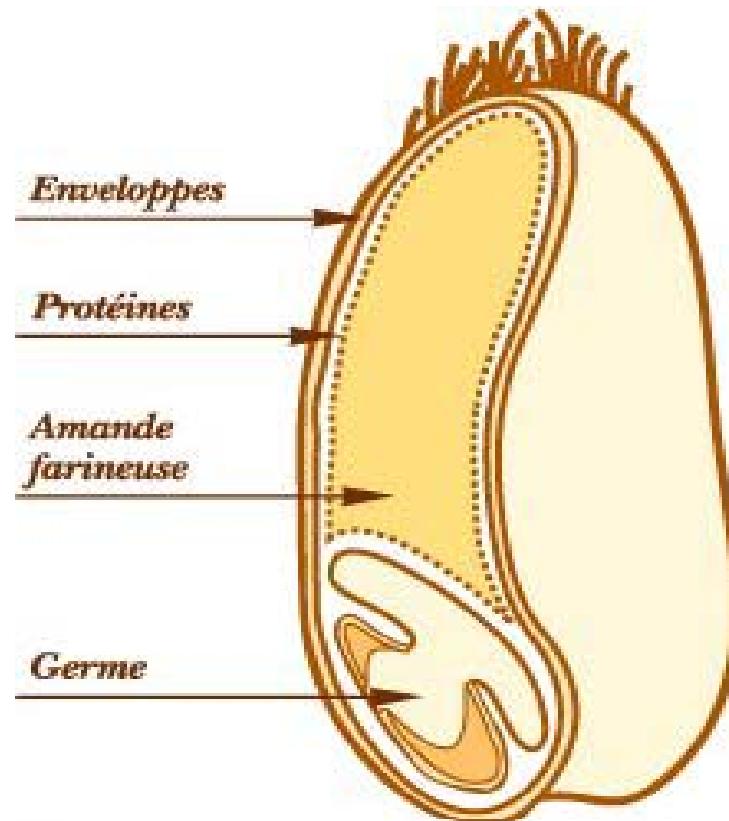


Kernel : attacked by others insects



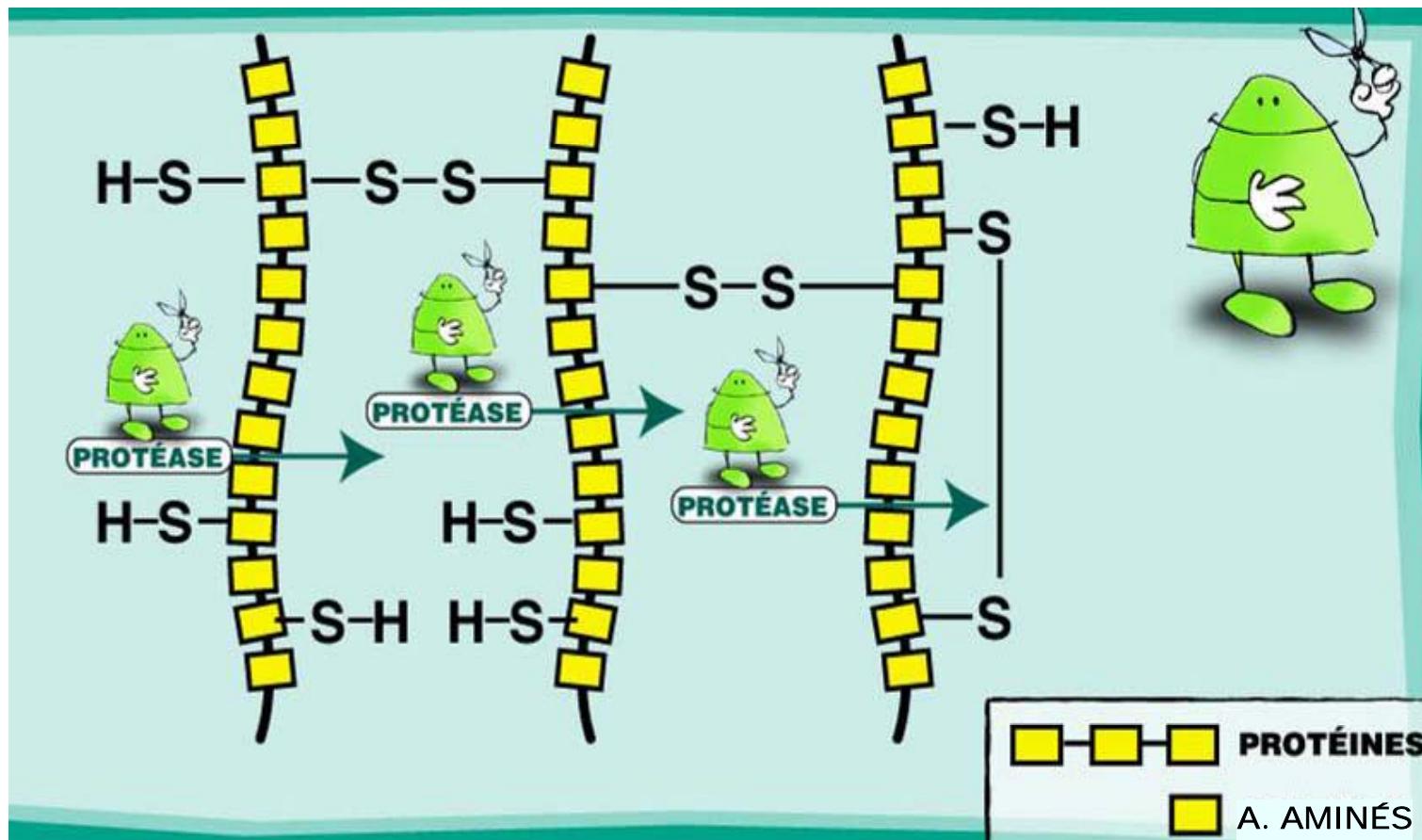
Effects on kernel

Bug injects proteolytic enzymes through the kernel's envelop and aspire the hydrolysed starch milk.



*Coupe longitudinale
schématique d'un grain de blé*

- Proteolytic enzymes action on gluten



Undamaged wheat

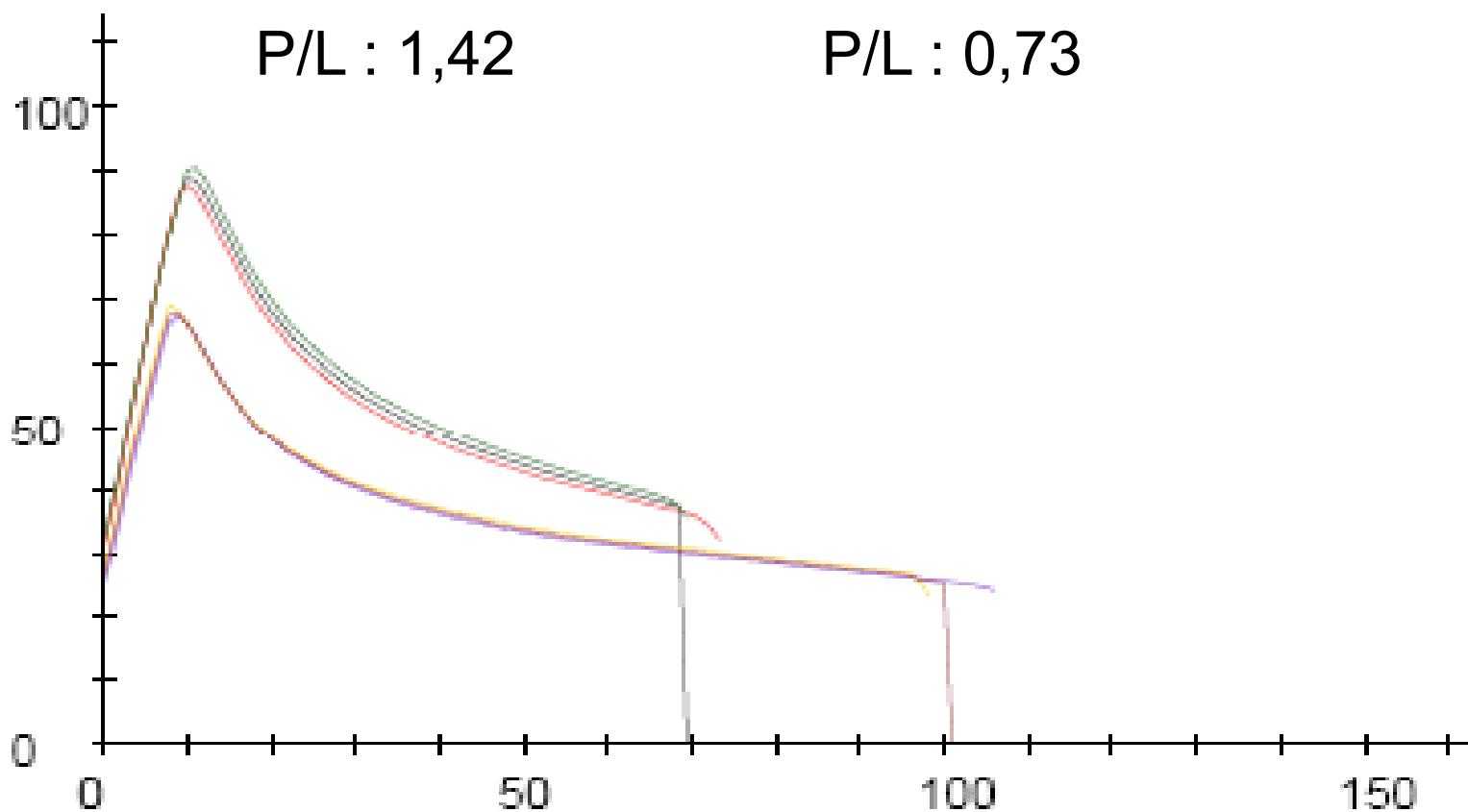
Chopin Alveograph test

20 mn

180 mn

W : 245

W : 244



Bugs damaged wheat (3 – 6%)

Chopin Alveograph test

20 mn

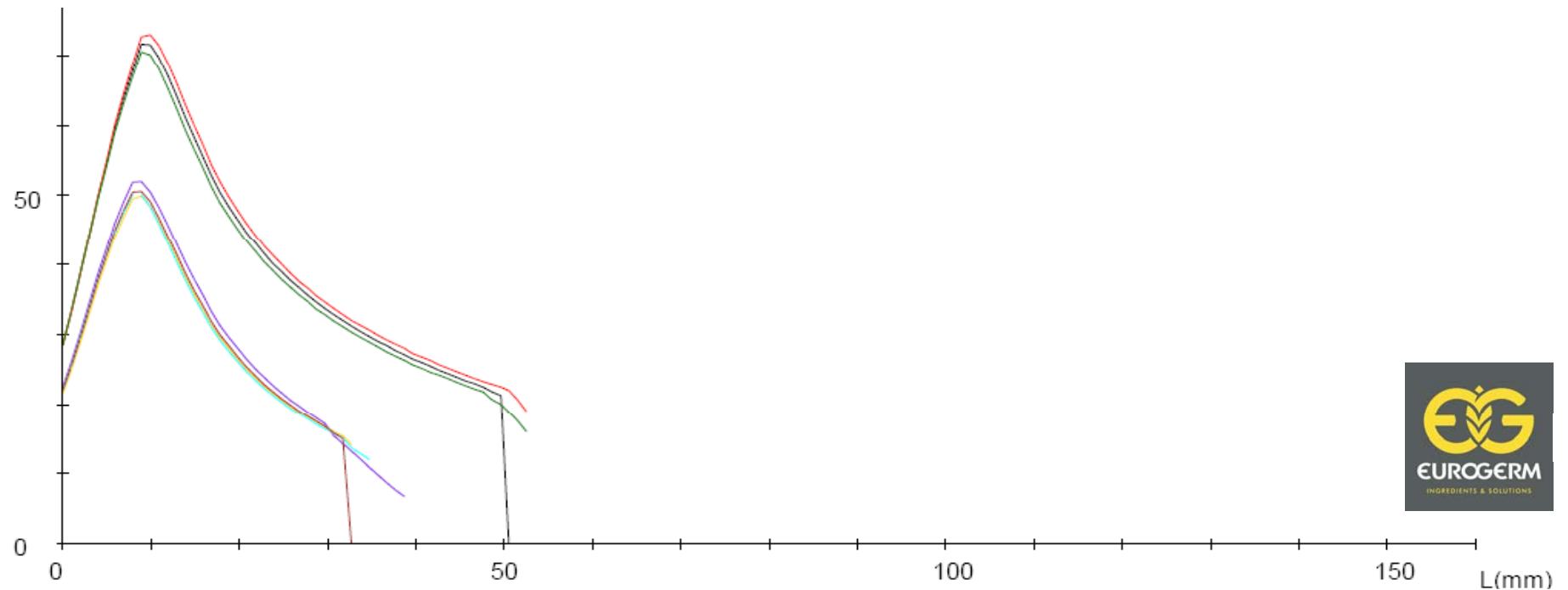
W : 133

P/L : 1,58

180 mn

W : 65

P/L : 1,75



Eurogerm solutions

- GERMIX BUGS DAMAGE 0,2% and 0,5%
- Ingredients:
acid, enzymes, oxydizing agent, gluten, carriers.
- Action : rebuild the viscoelascticty of the
gluten network, increase dough tolerance and
bread volume.



Effects of GERMIX BD on Alveo parameters

	W		P/L	
	20 mn	180 mn	20 mn	180 mn
BUG DAMAGED FLOUR	140	70	1,65	1,75
GX BD 0,2%	155	125	2,5	1,8
GX BD 0,5%	175	165	2,6	1,85



Effect of GERMINIX BD on the dough aspect after 20 minutes kneading



1



2

1 – damaged wheat's flour

2 – GX BUGS DAM 0,2 %

Effects on loaves



1 : Vol 1H45 : 1400 cc Vol 2H45 : 1100 cc



2 : Vol 1H45 : 1560 cc Vol 2H45 : 1400 cc



3 : Vol 1H45 : 1960 cc Vol 2H45 : 1940 cc

- 1 – bugs damaged flour
- 2 – GX BUGSDAM 0,2%
- 3 – GX BUGSDAM 0,5%

Cost approach

GERMIX BUGS DAMAGE 0,2% :

Dosage = 0,2%

Price €/kg = 4 to 5 €

Cost (€/T) = 8 to 10 €/ton of flour

GERMIX BUGS DAMAGE 0,5% :

Dosage = 0,5%

Price €/kg = 4 to 5 €

Cost (€/T) = 20 to 25 €/ton of flour



Main ideas

- Bugs damaged wheat can be detected through Alveograph test 180 mn specific protocol. All wheat coming from risky area should be tested that way.
- We consider that it is worth correcting the flour if $W\ 20\ mn \geq 130$
and $W\ 180\ mn \geq 80$
- Good miller's practices :
 - Whenever possible use no more than 15% of damaged wheat in the blend with usual milling correctors.
 - Use 50 % of damaged wheat with GERMIX BD 0,2%.
 - If no other solution, use GERMIX BD 0,5%.



Conclusion

Using bugs damaged wheat may be an acceptable and economical solution.

Decision should be based on :

- Percentage of damaged kernels,
- Price of damaged wheat,
- Possiblity of blending it.

Feel free to require our assistance for these matters.

