BUGS DAMAGED WHEAT CORRECTION

Effects on bread and solutions

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EUROGERM is ...

**Flour Correctors**
Custom solutions

**Bread and Pastry Improvers**
Handy, tasty solutions

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

**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.
• Proteolytic enzymes action on gluten
Undamaged wheat

Chopin Alveograph test

20 mn 180 mn

W : 245  W : 244

P/L : 1,42  P/L : 0,73
Bugs damaged wheat (3 – 6%)

Chopin Alveograph test

20 mn  180 mn

W : 133  W : 65
P/L : 1,58  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

<table>
<thead>
<tr>
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<th>W</th>
<th>P/L</th>
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<tbody>
<tr>
<td></td>
<td>20 mn</td>
<td>180 mn</td>
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<tr>
<td>BUG DAMAGED FLOUR</td>
<td>140</td>
<td>70</td>
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<tr>
<td>GX BD 0,2%</td>
<td>155</td>
<td>125</td>
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<tr>
<td>GX BD 0,5%</td>
<td>175</td>
<td>165</td>
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Effect of GERMIX BD on the dough aspect after 20 minutes kneading

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

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

3 : Vol 1H45 : 1960 cc    Vol 2H45 : 1940 cc
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 $W_{20 \text{ mn}} \geq 130$ and $W_{180 \text{ mn}} \geq 80$

• 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,
- Possibility of blending it.

Feel free to require our assistance for these matters.