

Leader in flour applications.

EMCEbest BugStop



The economical solution for bug-damaged wheat lots.

Crop damage from wheat bugs

Many farmers and millers are familiar with the problem: during long periods of hot weather, especially, the quality of the wheat harvest is threatened by an inconspicuous insect – the wheat bug. Large populations of these bugs attack unripe, green wheat grains and introduce digestive enzymes into the kernels through their saliva. In this way they liquefy the protein of the wheat and use the juice as food.

Bug damage impairs the properties and volume of the dough

Products baked from bug-damaged flour in no way constitute a health hazard; from the nutritional point of view it is quite in order to use this raw material in food production. But since bug infestation increases the protease activity of the flour, it often causes problems during processing.

The doughs have weak gluten; they are soft and tend to run. In the baking process the damage shows itself in the form of low fermentation stability, increased stickiness and a drastic loss of volume. If the infestation is very severe, the protein degradation can even cause a bitter taste, making the flours unsuitable for the production of bread and rolls. The precious raw material “wheat” is lost for nutritional purposes.

Shorter dough resting times and stronger baking properties

Bakeries find it difficult to compensate for these undesirable properties. Up to a point, the baker can work with shorter dough resting times. This gives the enzymes less time to take effect. In order to improve the results of baking it is also possible to reduce the effect of the protease by lowering the pH or strengthening the gluten.

Benefits of EMCEbest BugStop

- Enables the use of bug-damaged flours in bread production
- Makes flours bakeable
- Corrects Farinogram and Extensogram values
- Reduces the stickiness of the doughs
- Increases fermentation stability
- Enhances the crumb structure and volume of the products

In general it is advisable to optimize the baking properties of the damaged flours with enzyme complexes, emulsifiers or vital wheat gluten, for example.

EMCEbest BugStop makes flours bakeable

In close cooperation with our customers we have developed an innovative series of products that permits optimum processing of flours made from bug-damaged wheat: **EMCEbest BugStop**.

The mode of action of the formulations **EMCEbest BugStop** and **EMCEbest BugStop WT 1** consists in lowering the pH and de-activating the enzymes from the bugs. The desired effect is achieved with food acids. In addition to these components, enzyme complexes improve the general baking properties. **EMCEbest BugStop** also contains an emulsifier.

The effect of the new flour improvers has been tested in rheological analyses and baking trials. The basic treatments used were ascorbic acid and α -amylase (60 ppm ELCO C-100 K and 100 ppm Alphamalt VC 5000 SN). As Fig. 1 shows, **EMCEbest BugStop** significantly improved both the volume and the texture of the bread.

Saleable bakery products even with bug-damaged flour

A further variant from the Bug-Stop product series is the flour improver **EMCEbest BugStop BE**. With the advantage of low dosage, it nevertheless compensates for the damage caused by bug infestation through the use of oxidizing agents.

However, certain food-law restrictions have to be observed in connection with this power compound: because of its composition, it cannot be used in all countries.

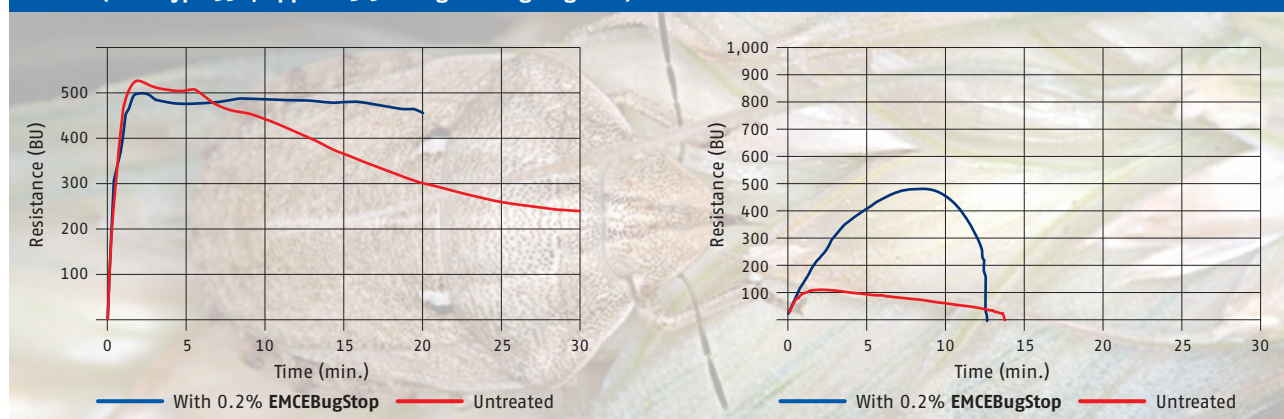
Individual advice for every application

We will be pleased to advise you on whether **EMCEbest BugStop BE** or one of the other products offers the optimum solution for your particular bakery. Please approach us: our experienced technologists will find the most effective and economical product for your application.

Fig. 1: Baking trials with EMCEbest BugStop. The volume and texture of bread baked from bug-damaged flour (Type 550, 3.5% damaged grains) improved significantly.



Fig. 2: Extensogram and Farinogram values show the efficacy of EMCEbest BugStop (flour Type 550, approx. 3.5% bug-damaged grains).



	Dosage (flour basis)	Dough stabilization through	EU approval
EMCEbest BugStop	0.05 – 0.2%	Enzymes, pH reduction	Yes
EMCEbest BugStop WT 1	0.1 – 0.3%	Enzymes, pH reduction	Yes
EMCEbest BugStop BE	0.02 – 0.15%	Oxidation	No

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