

Animal welfare, etológia és tartástechnológia



Animal welfare, ethology and housing systems

Volume 5

Issue 4

Különszám

Gödöllő
2009



THE INFLUENCE OF PRESERVE BY THE PREPARATE AGAINST EUROPEAN CORN-BORER (*OSTRINIA NUBILALIS*) ON THE CONTENT OF THE MOULD AND YEASTS IN THE MAIZE SILAGE

Poštulka Roman, Doležal Petr, Ivo Vyskočil

Mendel University of Agriculture and Forestry Brno, Faculty of Agronomy, Department of Animal Nutrition and Forage Production, Zemědělská 1, 613 00 Brno, Czech Republic

xpostulk@node.mendelu.cz

Abstract

The maize silages form the main part of the feedstuffs. In the feed mixtures has the maize silage a yearly using. Its quality is given without a chemical composition and the characteristics of the fermentation process through a hygienic quality too. The main indicator is the content of mouldy and of yeasts. In this time is presented European Corn-borer as the biggest pest. It participates on the transfer of mycotoxins in the plants and on the destruction of the plants. There are a few possibilities to fight with this pest. As the most effective alternative is given up the genetic modified hybrid MON 810 and the using of a chemical protection. Yeasts ferment the residual sugars on ethanol. However they can degrade the made lactic acid too and decrease the total acidity of silage. The activity of yeast is linked to the warming of silages. Moulds present very undesirable microorganism in the silages. The silages with the concentration of mould higher than 10^6 are useless for the feeding to the young and pregnant animals. Also the mould can metabolise all available nutrients. The danger of mould rests in their mycotoxins production. The mycotoxins have much negatively effects of organism. They can negatively affect the fermentation in rumen. The aim of this work was the evaluation of influence of the preserving against the corn-borer on the content of mouldy to state. In the experiment was used 3 hybrids of maize with the number FAO 270, 230, 260. It was produced 18 variants of maize silage (each hybrid was or was not treated with against corn-borer, and each variant had three alternatives – control, by a microbial preparation, by a chemical preparation). It was monitored the content of mouldy (CFU in 1g) and the content of yeasts in the day of the opening.

Key words: silage, hybrid, mould, yeast



Material and methods

The experiment was run in country Záblatí (above sea level - 524 m.). In the experiment were used 3 hybrids of corn with the number FAO 230, 260, 270. Like the protection against the European corn borer was used a chemical preparation. After the harvest was treated the matter by a chemical preparation (organic acid blend) in the amount 2l/t and by a microbial inoculant (15g/t).. As the control variant was the silage without the treatment. The size of the chopped forage was 1-2cm. The matter was compressed and conserved to the plastic tubs. After the opening (60 – 80 days) were taken the samples of silages and were measured the contents of moulds, yeasts and total amount of microorganism.

Subsequently followed the serial dilution by a factor of 10. 1 ml of respective dilutions was transferred on a Petri dish and overflowed with culture medium. The counts of yeasts and moulds were estimated on Chloramphenicol Glucose Agar (Biokar Diagnostics, France) after 120 hours at 25 °C.

Results and discussion

The treated and untreated variants of corn silage showed some difference in the content of moulds and yeasts. The content of moulds and yeasts are presented in the graphs down (*Fig. 1, 2 and 3*).

All three control hybrids treated against the European corn borer had a lower content of yeasts compared to the untreated silages. However, the lower content of yeasts and especially of moulds had the inoculated silages they did not treated against the corn borer. The content of the silages treated by a chemical preparation had the different content of moulds and yeasts no matter how was the matter treated. The content of yeasts was lower only in treated variant of the hybrid II. The content of moulds was lower in the treated variants of hybrids I and II.

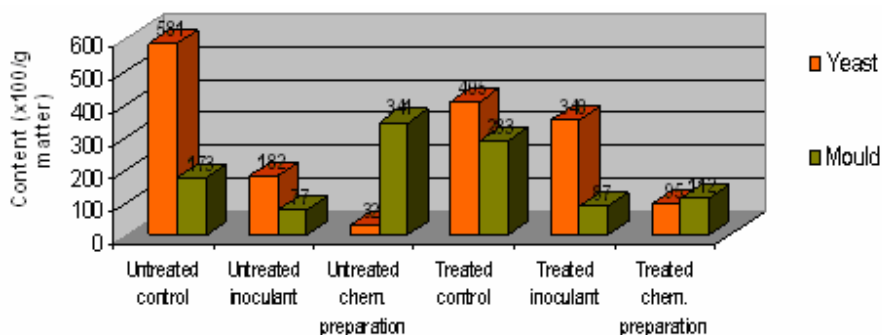


Figure 1. The content of moulds and yeast in the silage – hybrid I

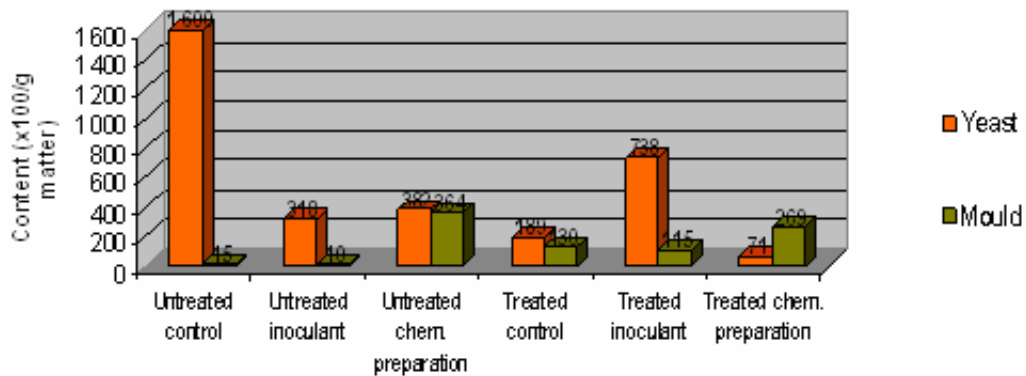


Figure 2. The content of moulds and yeast in the silage – hybrid II

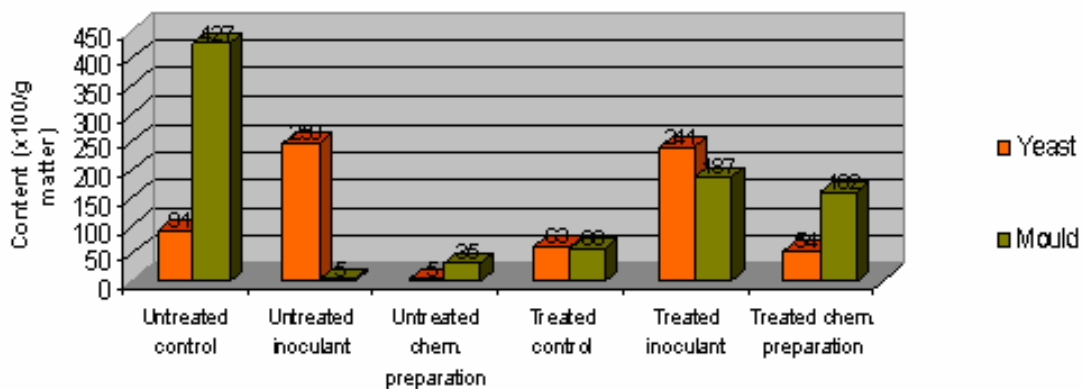


Figure 3: The content of moulds and yeast in the silage – hybrid III

Conclusion

In the results is evident that the treatment against the European corn borer did not directly affect the content of moulds and yeasts in the corn silage. However, the effect of treatment against corn borer on the content of microorganism will manifest when will used a silage additive.

Acknowledgements

The work was written within the framework of Grant IG290081 “The influence of hybrid, silage prepare and locality on the rumen degradability of starch of maize silage”, funded by the Internal grant Agency MZLU in Brno (IGA).