Early Blight: Pathogenicity of *Alternaria solani* and *Alternaria alternata* and fungicidal activity

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Introduction

In recent years, several studies were conducted within BASF to understand the Early blight disease complex in potato and tomato. An important key aspect of these studies was the question about the pathogenicity of *Alternaria solani* and *Alternaria alternata*. Furthermore, the fungicidal activity of different compounds was evaluated under different conditions.

Trial objectives

- The pathogenicity tests were conducted with different strains of *A. solani* and *A. alternata* in the greenhouse and under field conditions. The pathogenicity was evaluated on tomato as well as on potato. The results shown in this poster summarize the results of a field pathogenicity test in potato.
- The fungicidal efficacy was evaluated in greenhouse as well as in field test. The results below give a summary about field trials with natural infection on different locations and years.

Results and Conclusions

Alternaria solani
4 days after inoculation

Alternaria solani
22 days after inoculation

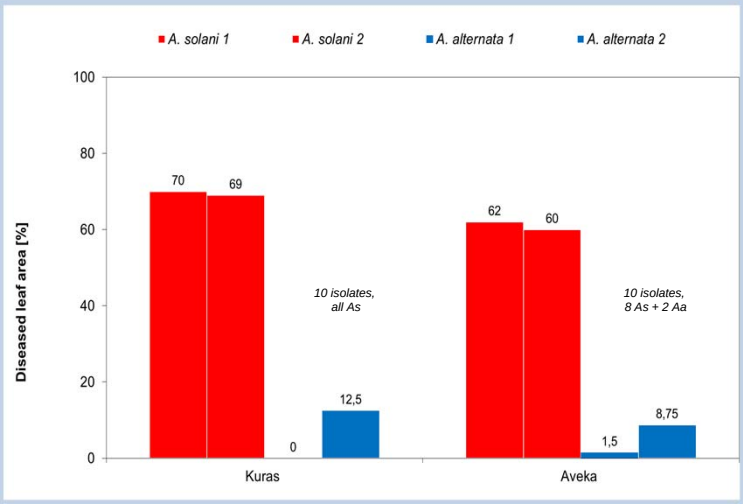

Figure 1: Assessment of a field trial in potato 22 days after inoculation with *A. solani* and *A. alternata*

- In the greenhouse, *A. solani* was highly virulent, *A. alternata* was not or only partially virulent on tomatoes and potatoes.
- In the field, *A. solani* inoculations resulted in disease symptoms already 4 days after inoculation and ended in a very strong disease attack 3 weeks after inoculation. *A. alternata* was in the same test not pathogenic.
- In a few plots inoculated with *A. alternata*, symptoms occurred. Isolates obtained from these lesions were identified as *A. solani*. This indicates that the symptoms were caused by a cross-contamination during the inoculation process with *A. solani*.

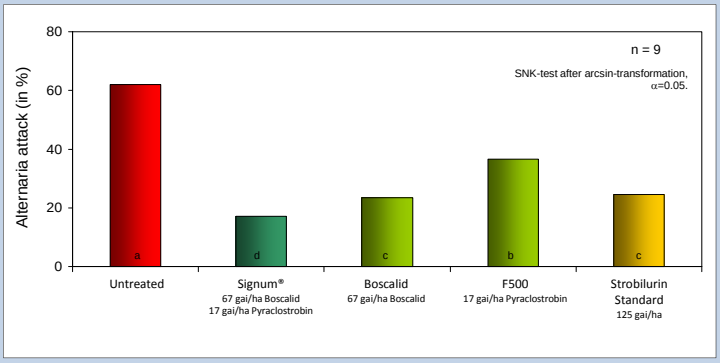

Figure 2: Summary of 9 field trials with natural infection conducted in NL and in DE

- Both active ingredients of Signum® (Boscalid and F500) contribute in the relevant field rates significantly to the efficacy against *Alternaria*.
- Therefore, an efficient disease and resistance management is provided by Signum®.

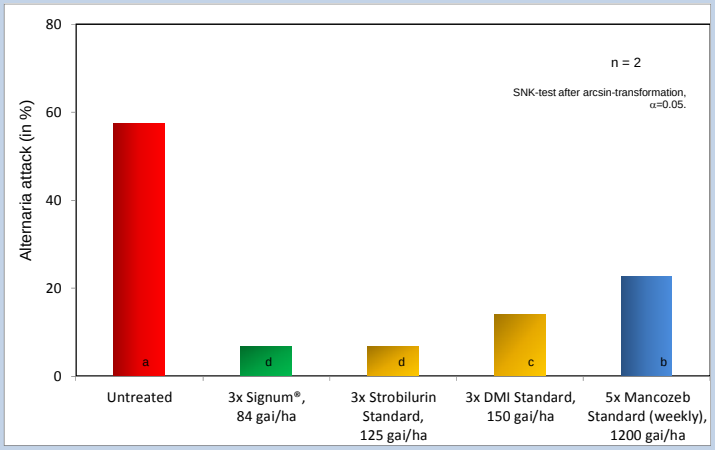

Figure 3: Summary of 2 field trials with natural infection conducted in DE

- Special *Alternaria* fungicides, e.g. Signum®, provide a significant stronger control compared to other products.
- Sprayed in a weekly interval, Mancozeb / Metiram based products contribute significantly to the *Alternaria* control. Therefore, Mancozeb / Metiram based fungicides provide a contribution to the *Alternaria* control strategy.