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## *Etude de l'effet d'un éliciteur commercial : le BION, sur le système racinaire du soja et du maïs*

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**Résumé en anglais** : In the course of evolution, plants have developed a complex array of mechanisms involving recognition, attack and defence, in order to protect themselves against potential pathogens. Plants have developed an ability to perceive some of the molecules produced by pathogens and they use the perception to activate their defence responses. The molecules are termed elicitors. These elicitors activate a signalling pathway which includes synthesis of secondary metabolites (phytoalexins) to inhibit the growth of the pathogen and induce changes in physiology and production of catalytic enzymes. These mechanisms can induce a protection against a broad range of pathogens. Treatments of plants with elicitors could be an alternative strategy of crop protection with a more satisfactory preservation of the environment.

Various chemicals have been discovered. They seem to mimic the activation of resistance. The best studied resistance activator is the Bion<sup>®</sup> (acibenzolar-S-methyl). It acts as a functional analog of salicylic acid, an important signal molecule in plant defence.

The aim of the study is to test the effect of Bion<sup>®</sup> on root growth and development of maize and soybean. Root characteristics such as length, average diameter, surface area and mass have been used to describe root systems quantitatively and qualitatively. Measurement of the root samples was performed with WinRhizo, an interactive scanner-based image analysis system.

Results of this study show that Bion<sup>®</sup> had negative effects on maize seedling growth. We also notice that the morphologic effect on root was more important when Bion<sup>®</sup> was applied in high concentration. For the soybean experiment, the treatment increased the root growth during 15 days and then we notice a decrease in growth and development.

The growth reduction we noticed after Bion<sup>®</sup> treatment may be due to the allocation cost. In deed, investment in defence may reduce the fitness of plants in enemy-free environments. Or maybe this effect is due to action of Bion<sup>®</sup> on the regulation of phytohormones. The methods used for the culture have also an impact on the effect Bion<sup>®</sup> has on roots