NATURALIS®-L

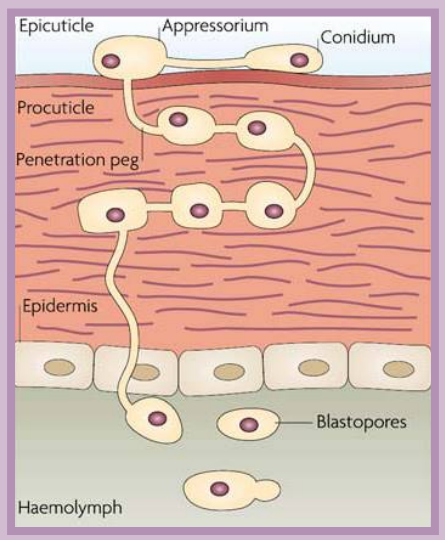
Naturalis-L® is a microbial insecticide/acaricide based on the entomopathogenic fungus Beauveria bassiana strain ATCC 74040.

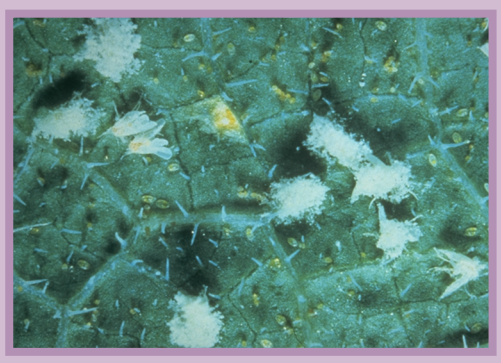
Naturalis-L® acts primarily by contact. Once the fungal spores attach to the insect's cuticle, the spores germinate and hyphae are produced, which actively penetrate through the cuticle of the insect.

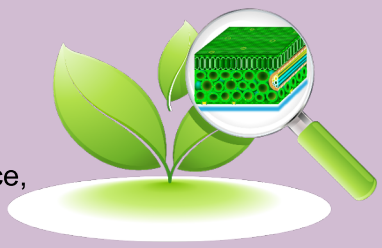
Naturalis-L® can affect several and/or all developmental stages of the target pest, from eggs to adults, immature stages included, but it obviously has no effect on pest stages present inside plant tissues.

Whiteflies –B. bassianacan affect all developmental stages of whiteflies. In case the crop is already infested by whiteflies, apply first a knock-down insecticide, followed by 2-3 additional applications of **Naturalis-L®** at 5-7-day intervals. In Belgium the registration includes thrips, in Netherlands spidermites are pending.

Naturalis-L® does not harm beneficial insects and natural enemies; **Naturalis-L®** can therefore be used in combination with beneficials, and can help to re-establish an equilibrium among target pest and populations of beneficials. **Naturalis-L®** is harmless to bumblebees and other pollinators.

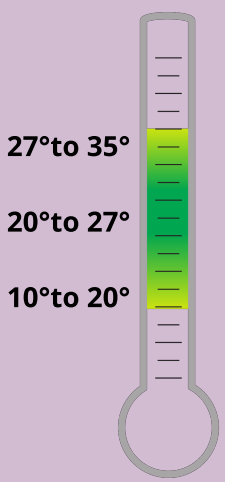






Scientific evidence exists that within a layer of 1-2 mm above the leaf surface, RH can be as high as 100%, even though ambient humidity is much lower.

For this reason, entomopathogenic fungi, such as B. bassiana, can be effective also in desert environments. Beauveria isolates can vary in their threshold water activity for germination, but in the case of foliar sprays, the spores are diluted in water, and are thus ready to germinate, once they reach the plant tissues/target pest. Thorough coverage is obviously essential to increase the likelihood of the target pest getting in contact with the spores.



The efficacy of B. bassiana strain ATCC 74040 has been thoroughly investigated under different environmental conditions. These studies showed that the optimum temperature for the activity of the strain ranges from 20 to 27°C, but good efficacy can be achieved at temperatures ranging from 10 to 35°C.

It should always be kept in mind that usually at higher temperatures insects and mites develop faster, and that they can complete one single generation in a much shorter period of time than at lower temperatures. Therefore, special attention is required in the timing of applications of plant protection products, such as Naturalis, which do not have any knock-down effect.

It is widely believed that Relative Humidity (RH) is a key factor for the activity of antagonistic fungi. However, a clear distinction must be made between the ambient humidity in the greenhouse and the microclimate humidity in the habitat, where spores and insects or mites interact, that is the leaf surface (especially the lower leaf surface in the case of whiteflies and spider mites). For small insects, such as whiteflies, the humidity just above the leaf surface is high enough for the fungus to be effective.

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