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Mission Statement:

Modern agriculture is constantly looking for new ways to produce environmentally friendly products despite the decreasing amount of agricultural land. Greenhouses that consist of plexiglass or net structures can be considered as a promising alternative to open field cultivation systems; contrary to the prevailing opinion, greenhouse systems are very resource-efficient systems in many respects compared to outdoor farming.

All greenhouses are equipped with ventilation openings, which account for up to 30 % of the greenhouse surface in order to create a good microclimate for plant growth. Unfortunately, these slots also serve as the main entrance for pests. For this reason, farmers are forced to close the slits with fine-meshed gratings to prevent pests from entering through the gaps. In order to prevent small pests (e.g. white flies and thrips) from entering the greenhouses, very fine mesh grids are required. However, nets with fine mesh sizes hinder ventilation and increase the air temperature in the greenhouse. Moreover, the light transmission is reduced.

It is therefore necessary to develop an agricultural textile that can provide physically active protection against all types of pests without compromising the yield or quality of the plants in the greenhouse. Within the project *AgriTexSil* an environmentally friendly and non-toxic agricultural textile is developed that actively protects plants against insect pests.

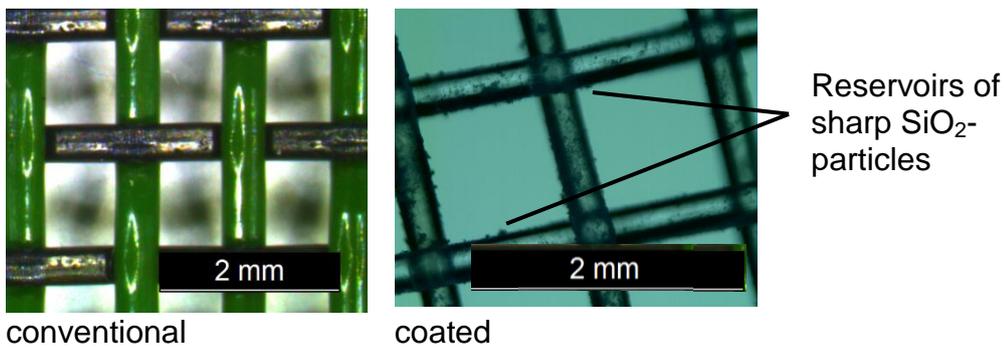
Approach:

The environmentally friendly properties are achieved by avoiding the use of toxic chemicals. The active protective function is achieved by coating the agricultural textile with sharp silicate particles which

injures the shell surface of the entering bugs. The pests are thus killed by dehydration.

For the development of an agricultural textile with the mentioned properties, the project focuses on the following research areas:

- Selection and development of a coating process with silicate particles by complete and uniform coating the fibers.
- Development of a melt spinning process for coatable fibers with the desired yarn properties
- Development of the structure of agricultural textiles
- Development of a demonstrator in the form of an agricultural textile on an industrial scale



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