



Roam Technology

CASE STUDY

AGRICULTURE

Greenhouse disinfection during crop rotation Tomato grower Holland



The Challenge

During the cultivation, a microbiological contamination may build up in the green house: fungi, yeasts, viruses and bacteria can be found in the greenhouse, but also on the glass surfaces, floors, walls, gutters, poles, These residual organisms (such as eg. *fusarium spp.*) may possibly exert a harmful influence on the plants during the new growing season and may cause huge losses. The substitution of cultivation is a good time to perform a full greenhouse disinfection and to reduce the overall microbiological pressure.

The Results

In January 2015 the interior of an empty tomato greenhouse with a total area of 4 ha was disinfected by a specialized contractor, using Huwa-San TR50. In order to carry out the disinfection Huwa-San was sprayed at a concentration of 2% (on product 40L 2000L of water per ha), without heating the greenhouse first. To measure the efficiency of the disinfection procedure, a 1st-generation ATP quantification was carried out in combination with so-called 'dipslides' (growth testing of bacteria, fungi and yeasts).



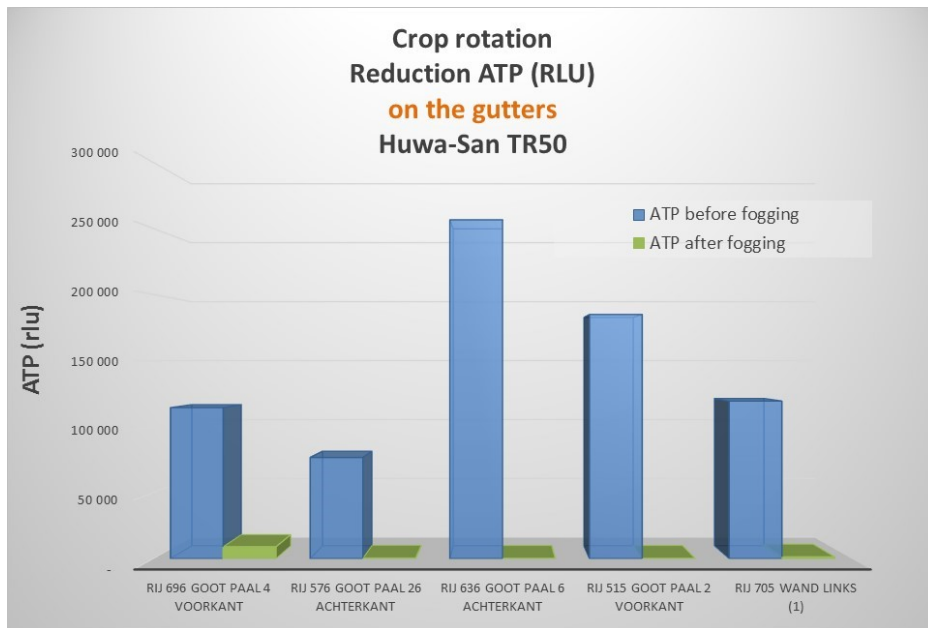
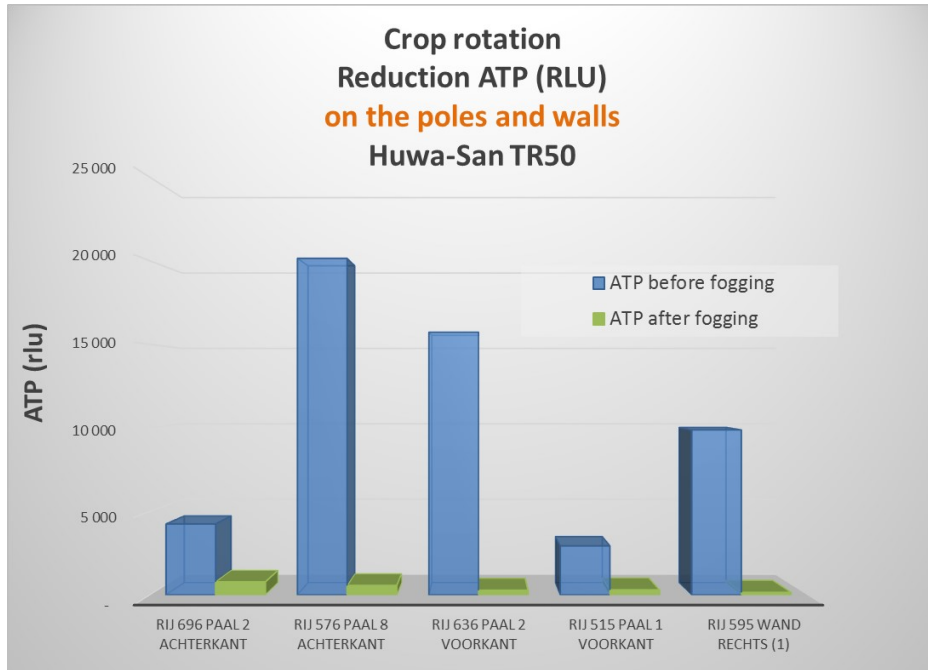
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Huwa-San[®]
A sustainable way of disinfection



1) Results: 1st generation ATP kwantification



Conclusion ATP measurements:

The ATP measurements show that the microbial pressure was reduced with >95% at the indicated locations.

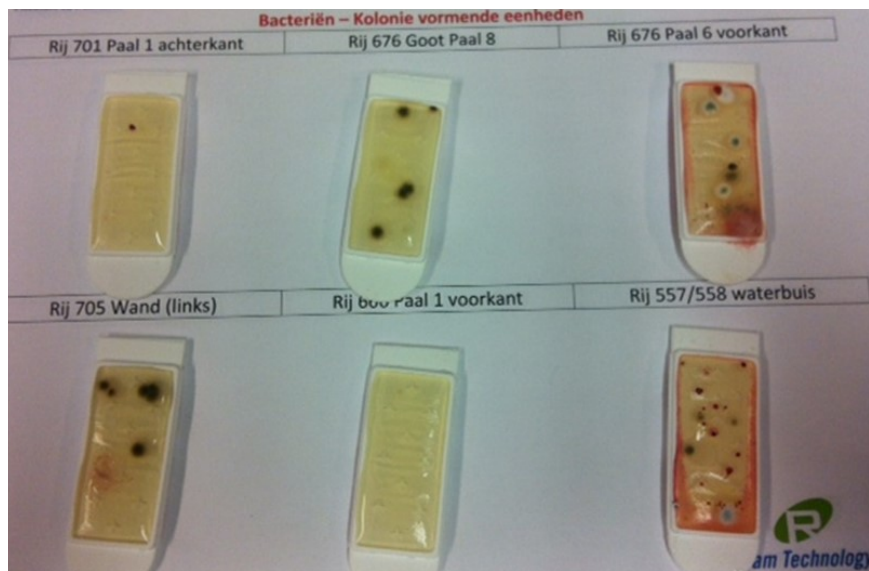


2) Results dipslide analysis

Colony-forming bacteria - prior disinfection



Colony-forming bacteria - after disinfection





Fungi and yeasts - prior disinfection



Fungi and yeasts - after disinfection



Conclusion dipslide analysis:

Before an increased presence of bacteria and fungi/yeast was detected on all locations. After spraying with Huwa-San TR50 the infection related bacteria and fungi drastically reduced. On 4 of the 6 locations bacteria and fungi are hardly perceptible. On 2 of the 6 locations (rij 676 paal 6 en rij 557/558 waterbuis) further optimization is possible, despite the sharp decline.



General conclusion:

Based on the above data, we can conclude that the disinfection procedure using spraying Huwa-San TR-50 has been very successful. This will be shown on the one hand on the basis of the detectable decreases in ATP, which is typically > 90%. On the other hand dipslides provide visual confirmation of the drastic reduction in bacteria as well as fungi and yeasts due to the disinfection procedure.

Due to the disinfection of the greenhouse, the presence of potentially harmful microorganisms in the area and on interior surfaces is drastically reduced. This eliminates the risk of contamination of the young plants that will be used to start the new growing season. In the future this will undoubtedly contribute to less loss resulting from bacterial or fungal infections that spread through the room or by contact (mechanical).

By spraying Huwa-San TR50 at a dosage of 2% (40 L Huwa-San TR50 per 2000l water per hectare) on the surfaces inside the empty greenhouse, fall out due to ex. Fusarium spp., and other bacteria and fungi, greatly reduced which results in a better quality of the tomato, and a higher yield. Furthermore Huwa-San has some additional advantages over the previously used product (Formaldehyde): the greenhouse should not be heated, the greenhouse is faster operational again, it is not dangerous to employees, and it leaves no residues behind that can damage the next crop.

Based on these results and his personal observations, the gardener has decided to go start dosing Huwa-San on the drip lines, to prevent new infections and monitoring of water quality at the plant.

The Primary Benefit

By spraying Huwa-San on the surfaces, the cultivation may start in a disinfected, clean greenhouse. As a result, fall out due to bacteria and fungi is greatly reduced which results in a better quality of the final product, and thus a higher yield.

The Return on Investment

This greenhouse disinfection combined with improved water quality will contribute to a better tomato cultivation. Furthermore the use of pesticides can be drastically reduced.

The Secondary Benefit

The overall frequency of preventive spraying and / or fogging with pesticides may possibly already be reduced at the beginning. Huwa-San has the advantage that no dangerous residues are left behind which can be harmful to the following cultivation.

The Return on Environment

Energy saving because the greenhouse should be not warmed up before spraying. Huwa-San is very environmentally friendly because the only by-products are water and oxygen, two harmless compounds.

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