Instrumental Biocommunication in Nematodes

Successful QUANTEC® Application on a Large African Ornamental Plant Farm

Fig. 1

Fig. 2: Damaged Hypericum Root

The Counts Szapary manage a large ornamental plant farm in Kenya. Since March 2004, especially the Hypericum areas have been treated with QUANTEC®. The main problem was a severe, existential threat to the plants due to nematode infestation. This is the story of the QUANTEC® application at the "Wildfire Flowers" farm in Naivasha, Kenya, written by Countess Szapary:

„In 2003, twenty hectares were planted with two varieties of Hypericum - Pinky Flair and Sugar Flair. At the beginning of 2004, we lost a third of our Hypericum production due to an infestation with root-knot nematodes (meloidogyne spp). These roundworms damage the plants through the root system (see Fig. 2). The resulting wounds make the plants susceptible to secondary infections, which can then ultimately kill the plant.

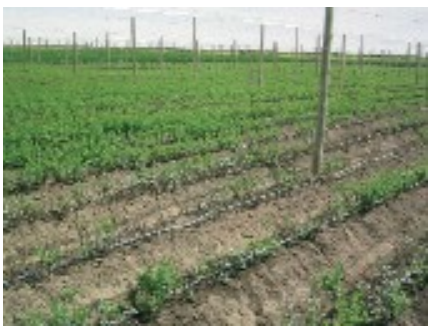

Fig. 3: Infested Zone with Healthy Plants in the Background

Immediate measures had to be taken at that time to prevent the destruction of the entire harvest and also of the plants themselves".

Hypericum is a cut plant harvested from a mother bush. Hypericum is known for its particular susceptibility to nematode infestation; this problem is further accentuated by the lack of clay in the volcanic soils around Naivasha. Before we grew Hypericum, we had no experience with nematodes – but then we got to know them all the more thoroughly.

Large, oval patches that stood out from their healthy surroundings due to significantly reduced plant growth appeared in the fields. Many plants died, usually immediately after they had been cut back (see Fig. 3).

Initially, we tackled the nematode problem through conventional methods. We had precise schedules for applying chemical nematocides (Nemacur, Temik, Vydate, Rugby). However, none of these agents had any effect on the nematode population. In no time, we lost control over the plague.

In March 2004, we acquired a QUANTEC® device and began using it immediately. At the same time, we replaced the unsuccessful chemical insecticides with biological products and beneficial organisms.

The QUANTEC® Application

The area of the farm planted with Hypericum was divided into numbered units, which were then registered on a GPS aerial photograph. Each of these fields was individually scanned by QUANTEC® and subsequently also treated individually (see Fig. 4).

We then created an extremely precise program for each growth phase; first for the soil, to create ideal conditions for sowing, then for the different growth phases, for the harvest, for transport from the field, the packaging, the journey to the destination,

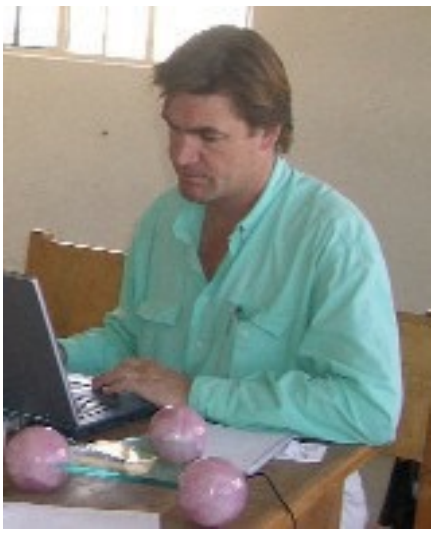

Fig. 4

Fig. 5: Strong Hypericum Plants of the "Pinky Flair" Variety

Fig. 7

for unpacking there, the auction, right up to the flower vase at the end consumer. For each of these individual steps, we programmed perfect conditions and a perfect environment for perfect plants, as well as a long lifespan to the satisfaction of all.

In this way, each numbered field received its individual treatment determined by QUANTEC®. The broadcasting of the fields is now carried out on average for two months, after which the field is rescanned for interference zones and problems and subsequently treated with the new program (HealingSheet). In addition, soil samples are constantly sent to a specialized laboratory in Holland to count the nematodes.

The Result . . .

We have been treating the Hypericum fields since early March 2004 with QUANTEC®, beneficial organisms, and biological measures. Now it's only August 2004, making the time span too short to present well-founded results or make definitive statements. Apart from that, the first results are very, very positive. The general impression is that a profound change has taken place on the farm. The growth of the Hypericum plants after the harvest cut is significantly better than before.

Fig. 6

The nematode counts have shown that the number on most fields has dropped to an acceptable level. In the fields that still show higher nematode numbers, the plants seem to be able to cope well with the infestation stress (see Fig. 5).

Quite curiously, in one case: On one field, the number of nematodes has even increased since March 2004, and exactly on this field, the best quality and the largest quantity were harvested that could ever be achieved since the farm existed (see Fig. 6).

On two other fields, new patches caused by nematode infestation appeared after four months of treatment. We reanalyzed these fields with QUANTEC® and, instead of the usual approach of broadcasting every four hours, then did it every twenty minutes, while increasing the biological measures. After just one week, the plants in the affected areas recovered significantly, followed by healthy growth.

The latest auction settlements at the auction markets in Holland show that our deliveries are classified into higher quality categories, both in terms of the size of the berries, their color, and their faster recovery after the long transport from Africa (see Fig. 7).

Although QUANTEC® is not the only new treatment method on our farm, we have no doubt that it has played a large part in the successes achieved." (Countess Sylvia Szapary, Wildfire Flowers, Naivasha, Kenya, August 2004).

Final Considerations

As the highly toxic chemical agents had remained completely ineffective in this case, the turnaround to biological measures was an economic necessity. The effect of QUANTEC® in combination with biological measures then impressively convinced.

Contrary to the traditional thinking approach, which sees the extent of the infestation by nematodes as the actual problem according to the causal approach, the biological consideration in the post-processing of the data is more differentiated. As reported by the Szaparys, even those plants in the few fields where the nematode population had not decreased coped well. And as if someone from higher up wanted to draw attention to the fact that it is not about eliminating problems but rather thinking in solutions, precisely the field with the highest nematode infestation produced a record harvest. Perhaps the plants in this field were particularly protected and strengthened by QUANTEC® due to the very high nematode infestation, thus producing a larger and higher quality harvest.

Whatever the case – well-coordinated and ecologically impeccable measures of subtle and material nature have shown their possibilities here. This approach will not prevail because of its hundred percent environmental compatibility, but for a much more important reason for the affected farmers: it costs less and not only fights problems but also simultaneously increases the quantity and quality of the harvests.

Worldwide Service Offer

If you have an ecological problem – of any kind – and as described here are looking for a solution with your own QUANTEC®, we will come on-site with the device not only to train you in its operation but also to assist in creating the individual treatment steps for your project. This offer is valid against reimbursement of pure travel costs (economy flight) without further financial expenditures – worldwide.

Further information is available at:

QUANTEC GmbH
Wilhelmshöhenstraße 16
82319 Starnberg

info@quantec.eu
+49 (0)8104/62 90 88