How To Beat Magnesium Deficiency In A Tomato

It’s that time of the year again when Magnesium deficiencies show up. Why does it show up? And for that matter, what can I do to solve this problem.

In these cold months the greenhouses are closed for the majority of the day. The plants are transpiring moisture into the air and consequently the relative humidity is rising. When the relative humidity in the greenhouse is high and the transpiration rate of the crop is low, the amount of water and fertilizers taken up is reduced. Lower nutrient uptake results in a lower level of magnesium uptake. To compound the problem, are the higher dose rates of potassium necessary for better fruit setting. The balance between potassium and magnesium is more in favour of potassium. As these two positively charged (K+ and Mg2+) ions are antagonists of each other, magnesium uptake will be reduced again.

Deficiency symptoms or chlorosis of magnesium are quite distinctive. You’ll see chlorosis in the older leaves. Magnesium is a mobile element within the plant, so the plant will always try to replenish the low magnesium levels in the younger leaves by moving magnesium out of the older leaves. Leaves keep their green veins, but the mesophyll will turn light green to yellow. A major function of magnesium is its role as the central atom in the chlorophyll molecule. Yellow leaves can’t contribute to the photosynthesis reaction. As well magnesium is part of the cell wall structure. Low magnesium levels make the leave brittle and the mid-rib can crack offering entry points for botrytis and other diseases.

Chelated magnesium prevents and cures magnesium chlorosis as this magnesium form can be taken up more easily compared to magnesium from Magnesium Sulfate or Magnesium Nitrate. The application of Dissolvine E-Mg-6 at a dose rate of 2-3 kg per 1000 liters 100x concentrated stock solution has been used successfully to keep the crop green. Apply Dissolvine E-Mg-6 in addition to magnesium sulfate in the B-tank and use it till the 8th-9th setting.

So keep your leaves as green as possible, optimize your yield and reduce the risks of infections by adding 2-3 kg Dissolvine E-Mg-6 each time to your fertilizer stock solution.

Pascal Weijters, Akzo Nobel Micronutrients
DNA *Previscan*®

The Best Tool To Monitor Your Recirculation System!

Nine “problem” fungi in one fast and preventive test. A fixed number of DNA *Previscan*®’s for a lower price!

A quick preventive check to test your drainwater on a regular basis for the presence of 9 “problem” fungi. You can determine yourself how often you do the DNA *Previscan*® (6 or 12 times) and when you feel the need for an analysis. This analysis offers you a picture of the fungal population in your drainwater within two days. Together with the results of the DNA *Previscan*® you will receive a historical overview, so you can follow the increase or decrease of the fungi in the drainwater. A recommendation about a treatment belongs to the service. You receive 6 or 12 labels in a handy folder. The labels can be attached to a sample bottle that can be sent to Relab den Haan.

**Composition of the DNA *Previscan*®**

<table>
<thead>
<tr>
<th>Cylindrocarpon destructans</th>
<th>Pythium spp.</th>
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<td>Cylindrocladium spp.</td>
<td>Rhizoctonia solani</td>
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<td>Fusarium oxysporum</td>
<td>Verticillium ablo-atrum</td>
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<td>Fusarium solani</td>
<td>Verticillium dahliae</td>
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<td>Phytophthora spp.</td>
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**DNA *Previscan*®: It’s made to cultivate!**

**Pricing based on Pre-Paid packages:**

| 1 Test .......... | $125.52/sample |
| 6 Tests .......... | $705.00 ($117.50/sample) |
| 12 Tests .......... | $1,315.00 ($109.58/sample) |

Reminder that we do have a pick up Service. **Call Melissa at 519-326-9037** to arrange for your farm to be included on our Leamington/Kingsville pick up service for all your sampling needs.
Introduction
The last years food safety is a important issue in a lot of different industries. Consumers are more and more concerned about the safety of their food. Because of this food companies and all other businesses in the food chain need to work with the highest hygienic standards. Quality systems and new laws are a logical consequence of these developments. Also in the Horticulture a lot is changed in the last ten years. Quality systems like HACCP, Eurepgap and ISO 9000 are generally used all over the world.

Microbiological contamination
Contamination of horticultural products can be caused by physical, microbiological and chemical factors. Residue analysis, safety limits and hygienic instruction for your employees, are for many growers standard procedures. It is logical that in supermarkets all products need to be free from any infection with harmful microbiological organisms. Especially in milk and meat products, human pathogens can develop quite easily. Because of this analyse-checks are very common in these products for many years. Examples of infection by human organisms are Salmonella spp., Lysteria spp. and E. coli. All of these organisms can cause serious health problems. Contamination by human pathogens is not very common in agricultural products although there are enough examples of infections by unwanted pathogens in crops like lettuce, tomatoes and cucumbers.

Sources of infection
Water is the most important factor for an infection of your products. Especially in water reservoirs, lakes and rivers organisms can develop quite easily. Algae growth, water without any tribulation and dead animals present in these waters can stimulate the growth very rapidly, and make the water unusable for irrigation. Because of this frequently checking your water sources is very important. Also sewers can be a source for further infection especially by heavy rainfall. In the inside of pipelines mostly there is a bio-layer present. Algae, fungi, bacteria and chemical sediments which are present in these layers are able to cause problems. Not only the blocking of your irrigation system but also contamination on your crop is a important issue. Clean the pipes every two or three years by using chemical products based on water hydroxide or chlorine. Water that is used to wash your products must have a water drinking quality or be filtered and disinfected first. The amount of microbiological organisms must be on a minimal level. Relab den Haan is able to give you these levels and can analyze your irrigation water.

Also in natural animal dung fertilizers or compost E. coli and Salmonella can be present and will develop very easily. Using this type of fertilizing during the cultivation season must to be carried out with the highest control standards. Never let fertilizers get contact with your cultivation products or washing water. The presence of animals like cats, birds or dogs in your greenhouse can also be dangerous factor.

Microbiological analyses
Relab den Haan can offer you different types of analyses to check the quality of your irrigation and washing water.

We use microbiological parameters to give you a quality identification. Herewith we also give you a general advice about the amount of the detected microbiologic organisms.

Fungi and bacteria count
A determination of the amount of germination of pathogens in our microbiological research gives you an idea about the concentration of fungi and bacteria in a sample. If these amounts will exceed a certain maximum limit it is likely that there is an external infection source in your irrigation system.

E. coli / Enterococcen
E. coli and the bacteria species of the Enterococcen can be present in the excrements of animals. If these bacteria are detected in your water it is very likely that there are more humane organisms present in your water system. Especially some species of E. coli can give serious problems in the intestines of humans. For this group of bacteria there is a zero tolerance.

Salmonella
The last few months there were different cases were Salmonella was detected in vegetables and fruit. Especially untreated irrigation water was the most important reason for this contamination. Also this bacteria lives in animals and can infect water. But also humans can carry this bacteria with them. That is why it is very important that your employees always wash their hand when they went to the toilet. This bacteria is able to make humans sick for a couple of days.

Sampling
For a microbiological analysis we need a minimum of 250 ml water. For a microbiological analysis on fruit and vegetables we need a minimum of tree parts. When you take a water sample from a pipeline try to disinfect the tap first. You can do this by using alcohol (70%) or heating (gas burner). During the time between sampling and sending try to store the samples in a fridge. Because of contamination it is also better to send the samples in combination with a cool pack. In general the results of the different microbiological-analyses will be ready in five days. In case you have questions concerning human pathogens, for instance because of Eurep GAP qualifications, you can always contact us.

Yours sincerely,
Ing. J.R. Sanders
Plant Pathologist
Relab den Haan

For further information on sampling feed water or plant material for Human Pathogens contact your MGS Horticultural Inc. sales rep:

MGS
HORTICULTURAL INC.

Another Way
We Are
Helping You Grow

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