

The White Papers

Welcome to The White Papers, an article dedicated to providing exclusive access to some of the the most fiercely guarded cultivation techniques used for flower and fruit production by professionals around the world. The techniques found within these pages have been perfected following tens of years of governmental research and funding, by some of the highest proclaimed experts in this field. This is an opportunity for serious cultivators to take their production and product quality to whole new levels. Step-by-step instructions on many closely guarded processes and cultivation techniques will be explained. Recipes and how-to guides to help take your personal understanding and production abilities to a whole new level.

You will be granted access to the tools that will help you elevate your craft and achieve success beyond your wildest dreams. Get ready to unlock the secrets of the world's top experts and revolutionize your cultivation practices forever.

TECHNICAL GUIDANCE DOCUMENT NO. 3

PLANT NUTRITION 2 - ORGANIC BIO-STIMULANTS

THE USE OF ORGANIC BIO-STIMULANTS OVER PESTICIDES AND FUNGICIDES

1. INSECT PROOFING

2. PATHOGEN/MOLD RESISTANCE

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The Use of Organic Bio-Stimulants over Pesticides and Fungicides

TGD3

1.0 SCOPE

This document outlines the use of Bio-stimulants over the use of pesticides or fungicides on medicinal products meant for human consumption (In 2001 Holland banned the use of Fungicides on all food crops as the products produced were no fit for human consumption due to the remaining remnants of the fungicides still present within the final product).

These formulas and techniques will be used in conjunction with the Master Feeding Program as part of the proposed *Regulatory Strategy Document*. It should be read in conjunction with TGD documents 1-5.



2.0 WHAT IS AN ORGANIC BIO-STIMULANT? AND WHAT DO THEY DO?

Bio-stimulants allow the plant to take up more water and fertiliser, the more efficiently a plant can take up water and fertiliser. The more chemical reactions the plant can achieve, the higher the brix (sap sugar content). This is our main goal to produce high brix plants, full of stored energy, that can be released into bursts of fruit and flowers and be used as energy to fight off pests, diseases and pathogens without the need of pesticides or fungicides.

3.0 WHY USE NPK RAW NUTRITION?

NPK nutrients are isolated into their purest form, and is almost a completely organic range, allowing the nutritional needs of the plant to be met with a fully controllable, instantly adjustable, fully water soluble, expert feeding programme. Feeding programs should and will evolve and change as the plants needs and requirements change, usually inline with the different phases during the photoperiod. Nutrient manufacturers provide a baseline guide based upon their set-ups. The feeding programme should be adjusted in line with your plants personal requirements, not necessarily to the exact composition and PPM shown in the manufacturer feed programme. Only the NPK RAW range allows for such a fluid, instantly changeable feeding programme. The plants entire nutritional needs, bio-stimulators, bio-boosts, protection from pests, insects and pathogens such as mold and powdery mildew can be provided by various compositions of the isolated RAW components, triggering complex chemical processes within the plant, allowing it to be primed for, and able to, protect itself against pests and sucking insects and pathogens, exactly as nature intended. Pesticides and Fungicides will not be used at all during this process.

This really is the new frontier in plant nutrition

Plants are *Autotrophic - relating to a living thing that can make its own food from simple chemical substances such as carbon dioxide*. Most autotrophs, such as green plants, certain algae, and photosynthetic bacteria, use light for the production of energy. Plants are able to make their own food, they need 17 essential elements, Carbon, hydrogen, oxygen, water, 14 mineral elements and with these elements they harvest the energy of the sun. They take up water through the roots, Carbon dioxide through the leaves and they make sugars. Some of these sugars are used for energy, to grow and reproduce, Some of the sugars they leak from the roots, to feed the plant growth promoting Rhyzobacteria. in exchange for those sugars, the microbes in the root zones make biologically active molecules. These biologically active molecules are what we call Bio-Stimulants:



What Do Bio-Stimulants do to the plants exactly?

- Improve Uptake of Water and Minerals
- Open up Ion channels in the root zone
- Stimulate Plants Natural Resistance to Sucking Insects, Pests & Diseases
- Less Fertiliser required with better results - no over fertilisation of plants
- Stimulates Resistance to Powdery Mildew and Grey Mold
- Stimulates and conditions the plant to stress before the stress happens
- Improves the overall quality to *the best of the best* and overall yields by 20%

CASE STUDY, HARLEY SMITH: BIO-STIMULANTS

Harley Smith, is a veteran in the hydroponics and cannabis industry, with over 24 years' experience as a hydroponics consultant and research scientist. In 1995, Harley started his career working with schools, setting up hydroponics labs and tissue culture labs in agriscience programs across the United States. In his home state of Michigan, he eventually built hydroponics labs in 2/3rds of all the horticultural programs in the state and went on to national fame. He became known nationwide for his expertise in hydroponics and advanced plant nutrition, putting on state-wide professional development workshops for teachers in Michigan, Wisconsin, Arkansas, Indiana, Washington and at the National Association of Agriscience Educators. As his career developed, Harley spent less time with educators and more time as a professional hydroponics consultant. His intimate knowledge of plant science, precision fertiliser management and organic bio-stimulants made him a valuable resource for both hobbyists and commercial growers.

In 2005, he was given a management position at Superior Growers Supply in Livonia, Michigan, where he worked as a full-time consultant in the hydroponics and cannabis industry. Meanwhile, he continued to perform research and teach online classes on hydroponics, plant propagation, advanced plant nutrition, microbiology, integrated pest management, organic bio-stimulants and computer environmentally controlled agriculture. Harley Smith is a contributing author for Maximum Yield Magazine, where he published over 14 feature articles.

Harley, now renowned world expert on Bio-Stimulants began his journey into Bio-Stimulants in the Netherlands 20 years ago. In 2001 the Dutch government banned the use of fungicides on all food crops, as research had proven that side effects were possibly created for human beings. They were practically banned overnight. The companies growing, and in particular, those growing under high humidity conditions, were suddenly losing 40% of their crops to powdery mildew, grey mould and other fungi. This was of course unacceptable, so the Dutch government began experimenting with Bio-Stimulants.

Harley was invited to the Netherlands and literally, was able to interview the grower that was doing the trials for the Dutch government. He was able to see the results of the trials before the Dutch government did. The results were both conclusive and spectacular

- They went from losing 40% of their crop, to losing 0%.
- They achieved a 10% increase in yield over any past year.
- Their crop was regarded the best of the best in all of the Netherlands.
- They had the highest sap sugar analysis (brix) in fruit.

Harley was incredibly excited about these results and insisted they needed this also in the USA. What is in it? How does it work?



He even interviewed the German scientist that invented and developed the Bio-Stimulants. However, due to 10 years of research and development to create the recipe, that it was a closely guarded secret and he couldn't just share this information freely.

Harley returned to the USA and began digging into advanced plant nutrition, microbiology, organic-chemistry, bio-chemistry, just looking for clues. Within 4-5 years later the mystery was finally solved. When he returned to the Netherlands several years later and told them of the experiments he was conducting, they informed him that he knew more about their products than they did themselves.

Harley believes knowledge should be freely shared, and discoveries and insights that will impact the world shouldn't be withheld in the name of competition.

End of case study.

Bio-Stimulants

We can create our own bio-stimulants using the exact same nutrient components that are used in our nutrition plan. We can prime the plant and make it powdery mildew and Grey Mould proof. We are also able to make the plant unrecognisable as a food source to any pests or foliage eating insect with the same bio-stimulants.

Also by replacing the use of pesticides and fungicides with organic bio-stimulants, we are guaranteeing there will be no negative effects to the quality of the final product and allows a fully organic provenance. The final quality standard shall be a pure, clean, true medicinal cannabis product that stands in a very special league of its own.

So instead of using pesticides and fungicides to treat the plants, we adapt a natural prevention program, for as we all know, prevention is better than a cure. We will use the existing nutrient elements from the Raw NPK range to produce bio-stimulants that will not only prime the plant to be more stress-resistant, increase nutrient and water absorption, build a strong, efficient

vascular system, the bio-stimulants will also act as enzymes and catalysts for complex chemical processes within the plant.

These processes will result in the plants becoming insect and mould/Pathogen resistant. These factors are a major concern, as can wipe out an entire crop and/or cause lab tests failings for final authorisation of release of the medicinal product.

These Bio-Stimulants and Booster-Formulas will work in conjunction with the Master Feed Programme within the Master Plan Cultivation process.

This document includes project specific data, for the purpose of integrating regulatory and quality strategies, and will form part of the *Regulatory Strategy Document*. It should be read in conjunction with Technical Guidance Documents: 1-10.

The Grow Phase is fully covered in Technical Guidance Documents:

Technical Guidance Document 2 -
The Master Plan

Technical Guidance Document 3 -
Bio-Stimulants

Technical Guidance Documents 5 -
Nutritional Data

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