ANTI BIO

TECHNOLOGIES PTY LTD

PURIFYING THE ESSENCE OF LIFE

The impact of the use of sweeping sound frequencies on hydroponically grown plants.

Anti Bio Technologies Pty Ltd, an Australian company, have developed a system designed to emit variable sound frequency ranges into surrounding media. The technology has demonstrated benefits in achieving and maintaining a healthy and safe swimming environment. Investigations using the Anti Bio System on swimming pools have demonstrated improvements in i) biological water quality, ii) reduced chemical usage, iii) maintenance requirements are minimized and iiii) the need for backwashing minimized.

Other field studies with other applications using the technology have uncovered the following;

- Prevention of biofouling in the brewing industry.
- Reduction of bacterial counts in drinking water
- Prevention of barnacle growth on boat hulls

Application of this technology in various industries has been recognized as having significant potential. The most exciting application and having already derived commercial sales is the Hydroponics Industry.

Problems facing the Australian hydroponics industry

Market demand peak and major growing season is in the warmer months as is the incidence of the four major water borne pathogens being:

1. pythium
2. phytophthora
3. sclerotinia
4. rhizoctonia

These are all fungi. The reduction of oxygen available in the water as the temperature increases allows pythium, in particular, to thrive. The remaining three are also prevalent in the cooler months.

Biological matter remaining in trays after several crops promotes the growth of pathogens.

Treatment methods currently used

- Ozone has been used in the past but is expensive
- Reverse osmosis is sometimes an unavoidable necessity on sites which use bore water which is high in salt content

Anti Bio Technology

With success achieved in 2005 on a Malaysian hydroponics plantation Anti Bio sought field trials on home soil whereby the ability to monitor and test the technologies ability would be integral to the successful commercialization of the technology.

Objectives of field trials using Anti Bio systems

- identify reduction in crop losses arising from infection by fungi
- identify increase of plant size
- identify increase of plant volume in order to allow a reduction in number of plants required to be sold “per bunch”
- identify ability to extend growing time to increase plant size before losses occur as a result of rot
- identify any reductions in growing time required to reach minimum plant size

Two field sites were employed with the technology and trials commenced in October 2006.

Results achieved by the technology

- reduction in biofilm formation through piping
- manual labour decreased
- improved colour in foliage
- root growth more dense and finer
- root masses substantially whiter and healthier in appearance
- growth rate shortened increasing crop output
- Asian vegetables providing a 10% yield increase via a reduction of hollow stems and more solid growth of plant butt
- Stabilized pH
- the addition of beneficial bacteria reduced

After a six month period both farms purchased the technology and further sales have been derived through referrals and recommendations from the two field sites.

DPI NSW Testing

DPI NSW will commence a series of tests on behalf of the company within the coming quarter. It is expected and pending the successful results from the testing that this validation will assist with market penetration.

Summary

Commercial sales thus far have returned the company $50,000 over a period of six months and with market research on the industry complete, forecasts over the next 18 months indicate that the Hydroponics industry will be the company's main stream business.


AB treated plant on the right was planted and picked on the same days as the untreated plant on the left. Note the larger, finer, denser, and cleaner root mass on the treated plant


AB treated plant on the right was planted and picked on the same days as the untreated plant on the left. Note the larger, finer, denser, and cleaner root mass on the treated plant


AB treated plant on the right was planted and picked on the same days as the untreated plant on the left. The untreated plant only weighed 325 grams while the treated plant weighed 375 grams (a 15% improvement). The growers advised that the treated plant was less bitter to taste.

Dragon Power Plantations Sdn. Bhd.

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25th January 2006

Mr. Alex Chong
Anti Bio Technologies (M) Sdn. Bhd.
Suite A-4-8, 4th Floor,
Greentown Business Centre
1, Persiaran Greentown 2,
30450 Ipoh
Perak Darul Ridzuan

Dear Mr. Alex Chong,

ANTI BIO HYDROPONICS SYSTEM

We thank you for your product presentation, and subsequent trail of the unit from 30th April 2005 to 29th June 2005.

We were skeptical of your system initially, as we have not heard of your product from any of our equipment suppliers. In our farm, we are using Ozonator Systems to treat our nutrient water.

During the two months trial, we are happy to report that there are significant beneficial results to the growth of our vegetables;

1. Even growth throughout the trial plot.
2. pH consistency was inherent throughout the trial.
3. Noticeable algae reduction.
4. Our vegetables' roots densities have increased with no black blemishes to indicate parasital bacterial attacks.
5. Overall better plant coloration.
6. More robust and healthier plant growth.

We acknowledge that the Anti Bio Hydroponics Systems have been a worthwhile investment for our farm; therefore, we proceeded to purchase 3 units of the Anti Bio Hydroponics Systems from you after the trial.

It is now more than 6 months into using your products, and we are happy to note that they are all operating consistently and now play an integral part in our hydroponics agriculture.

Thank you.

Yours Sincerely,

Tan Phooi Leong

Director

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Summary of observations of trial of Anti Bio Systems

Industry:	Hydroponics
Client:	Rykoff Bros
Observer:	Peter Rykoff - client
Trial start date:	5th October, 2006

Document date: 14th May, 2007

- tables being treated contain up to 30,000 plants at any one time of mainly Asian vegetables
- beneficial bacteria not used on this set of tables
- substantial reduction in biofilm in tables resulting in:
  - ability to provide increased pressure to furthest ends of tables which assists in a more even growth rate of plants on those tables
  - an average of 5 hours per week saved in checking and cleaning blocked lines and cleaning tanks which equates to approximately $100 per week of staff productivity savings
- Asian vegetables providing a 10% yield increase via:
  - reduction of hollow stems
  - more solid growth of plant butt
- Asian vegetables foliage was improved in colour
- Lettuce root growth is more dense and finer
- Lettuce root masses are substantially whiter and healthier in appearance
- Lettuce foliage was improved in colour
- Lettuce growth rate shortened by 2 - 3 days during observation period resulting in a choice of either:
  - allowing more time to clean tables
  - increasing annual crop output

Dill at 2 weeks - AB treated on right
Denser and more colourful

Dill at 2 weeks - AB treated on right
Root growth longer, more dense, whiter, and healthier

Signature: P. Rykoff

Peter Rykoff

Summary of observations of trial of Anti Bio Systems

Industry:	Hydroponics
Client:	Silky Oak Park P/L
Observer:	Ray Norbury - client
Trial start date:	14th November, 2006

Document date: 14th May, 2007

The observations outlined below apply to a hydroponic system with only 1000 plants (50% of which are mature) and water cooling.

- root masses are substantially whiter and healthier in appearance (refer attached photos)
- substantial reduction in biofilm in tables reflected in state of plant roots
- balance of NPK (Nitrogen - Phosphorus - Potassium) uptake by plants has improved dramatically resulting in the reduction of use of additional nutrients to maintain the balance required for the promotion of healthy plant growth. Correction of N, P, or K is only required once every 3 - 4 weeks as compared to every 3 - 4 days.
- pH requires far less correction ie., once per month
- the addition of beneficial bacteria is not required
- a pick out rate of 95% + was observed right throughout the hottest summer period

Once the system is loaded up with 6,000 – 8,000 plants (50% of which are mature) then observations are quite different.

- root growth of plants did not change substantially relative to the type of beneficial bacteria used prior to sound treatment
- colour and appearance of the roots is similar to systems previously treated with beneficial bacteria on this site
- no effect on the balance of NPK (Nitrogen - Phosphorus - Potassium)
- there is no difference between the amount of pH correction required under either of the regimes of beneficial bacteria used on this site or Anti Bio
- during prolonged periods (say 5 days or more) where ambient daytime temperatures average 32ºC or more, large doses of beneficial bacteria were required to adequately control pythium and the Anti Bio systems were switched off. Once temperatures had cooled again, tables were able to run using Anti Bio only and the use of beneficial bacteria was withdrawn
- a pick out rate of 95% + was observed with the alternative strategy required

1,000 plant table
Anti Bio treated on right, beneficial bacteria treated on left - note whiter and healthier root mass on right

Signature: Ray Norbury

Ray Norbury