

**Food Security,  
Sustainable Production  
and Climate Change:**

**The Role of Agrochemicals**

Host: Lord Wade of Chorlton



Sponsored by:

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**Peter Blezard – CEO**

# Major Agricultural Issues

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Today we are confronted by some serious challenges:

- ✔ Growing world population.
- ✔ Unsustainable agricultural practices.
- ✔ Climate change - increased drought and extreme weather.
- ✔ Increased cost of oil based agrochemical inputs.
- ✔ Increasing costs of new agrochemical product development.
- ✔ Rising cost of food.



In order to respond to these challenges we need to assess whether we can produce the agricultural inputs that will be required? This has to be done:

- ✔ Safely.
- ✔ Cost effectively.
- ✔ Profitably.
- ✔ In compliance with stringent environmental requirements.

## Market Issues

- ✔ Market is dominated by traditional products.
- ✔ Market growth is stagnating.
- ✔ Fewer Agrochemicals companies (12 in 1994 compared to 6 in 2008).
- ✔ More costly and difficult to develop new products now.



## Traditional Product Development

- ✔ Identify active ingredients of value as insecticides or fungicides.
- ✔ Now an increasingly large number of molecules must be screened in order to identify a new active ingredient.
- ✔ Takes 10 years to bring new product to market.
- ✔ Costs £80 - £100 million.

## Pi Approach

Plant Impact (Pi) takes a completely different approach:

- ✔ Pi looks for a problem and then innovates to manufacture a solution to that problem.
- ✔ Products meet the needs of climate change, sustainable use, safety, effectiveness, cost and ease of registration – right from the outset.
- ✔ Products are tailored to meet specific market needs.

# CaT



## The Calcium Issue

Calcium is crucial for ensuring the quality and human health value of fresh produce.

- ✔ Vital nutrient for crops.
- ✔ Difficult to get into the right places to maintain the health of the plant under drought stress.
- ✔ Aids plants to withstand physiological disorders.
- ✔ Adds nutritional value for humans.

## The CaT Solution

- ✔ A radically novel approach to triggering the plant's own calcium pump.
- ✔ Combines a mimic of one of the plants own hormones with a calcium salt that draws the nutrient to those areas of the plant that can most benefit from its presence.
- ✔ Moves calcium from cell to cell (world first).
- ✔ More effective than current calcium options.
- ✔ Moves calcium 20 - 50 times faster and more effectively than conventional treatments.
- ✔ Overcomes physiological disorders even in plants without calcium deficiency.
- ✔ Improves the plant's ability to produce quality fruit in stress conditions such as heat and cold.

## CaT Benefits

CaT creates higher calcium content of key food products.

- ✔ Stronger cell walls and a healthier plant help reduce the ingress of disease.
- ✔ Healthier higher yielding crops.
- ✔ Lower farmer operating costs.
- ✔ Improves shape and homogeneity of crops.
- ✔ Top quality produce with a longer shelf life.
- ✔ Improved profitability.



◀ Control



◀ Pi Treated

# PiNT

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## Fertilisers - The Nitrogen Issue

Nitrogen is central to increasing plant yields to feed the world's growing population.

- ✔ Fertilisers have proven essential to increasing crop yields.
- ✔ Excessive use of Nitrogen can cause major environmental problems.
- ✔ Nitrogen costs fluctuate with gas costs.
- ✔ Inefficient delivery leading to leaching and contamination of our waterways.

## The PiNT Solution

- ✔ Unique controlled nitrogen "uptake" system that slows down the breakdown of nitrogen.
- ✔ Nitrogen is taken up by the plant in its most useful form as amines and ammonia.
- ✔ Reduces the amounts converted to nitrates by soil micro-organisms.
- ✔ Decreases the ability to leach and hence run off into watercourses.
- ✔ It works well with high salinity in both soils and water.

## PiNT Benefits

PiNT is a nitrogen product that is innovative and designed for our 21st Century needs in agriculture.

- ✔ Greatly improves plant growth.
- ✔ Produces greater fruit yield.
- ✔ Greater tolerance of environmental stress.
- ✔ Lower inputs with more efficient uptake.
- ✔ Aids uptake of other nutrients.
- ✔ Environmentally sustainable

## PiNT on salt stressed pears



# Speedo

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## The Productivity Issue

An ever increasing world population requires more food.

- ✔ Agriculture needs to use existing cultivatable land more productively.
- ✔ Agriculture needs to generate more yields from the same land.

## The Speedo Solution

- ✔ Speedo is a natural plant extract which has the ability to increase the efficacy of nutrient products.
- ✔ Speedo accelerates reproductive growth without producing ethylene senescence.
- ✔ It also accelerates plant maturation and advances harvests.

## Speedo Benefits

Crops have produced higher yields with increased brix levels and greater intensity of vitamins, nutrients, tannins etc.

- ✔ Earlier flowering and harvesting.
- ✔ More intense fruit colour.
- ✔ Higher sugar levels.
- ✔ Increased class one fruit and overall quality.
- ✔ No reduction in shelf life.
- ✔ Enhances foliar nutrient penetration and efficacy.

Speedo technology can be incorporated in other crop nutrients.

### ▼ Untreated Pepper



### ▼ Pepper treated with Speedo after 48 hours



Speedo ® is a registered trade mark.

# BugOil

## The Pesticide Issue

- ✔ Completely safe pesticides are rare
- ✔ There is an increasing need for safe pesticides
- ✔ Safe for the environment, the farmer and the consumer

There is an increasing need for products that can make a contribution to sustainable agriculture, maintain biodiversity and improve human health.



## The BugOil Solution

- ✔ Based totally on food grade materials already in the human food-chain.
- ✔ Highly effective safe green pesticide.
- ✔ Controls harmful pest insects (whiteflies, aphids, mites and thrips) on some of our most important crops.
- ✔ Has no detrimental effect on higher organisms other than the target pests.
- ✔ Has both a preventative and curative action.
- ✔ Will reduce virus transmission in a wide range of crop systems.
- ✔ Leaves no harmful residues.

## BugOil Benefits

BugOil technology has both repellent and insecticidal activity.

- ✔ Non toxic with high level of efficacy
- ✔ Healthier farmers, their families and neighbours.
- ✔ Better for consumers of crop products
- ✔ Environmentally benign and can be integrated into sustainable practices.

Filed dossier with PSD (EPA to follow)

▼ **Untreated French bean leaves infested with red spider mite. (*Tetranychus urticae*) showing webbing**



▼ **French bean leaf treated with Bug Oil at 1000mL product/hL**



# Plant Impact

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Plant Impact (Pi) was formed in Spring 2003 and floated on AIM in October 2006.

- ✔ Plant Impact is an innovative green science company with new cutting edge technologies.
- ✔ We believe that crops can be grown in a way that is better for the environment, the grower, and the consumer whilst increasing marketable yield, quality, shelf life and profitability.
- ✔ Our technologies are designed to further the principles of sustainable agriculture.

## Pi Leading Edge Technology

Innovation through the intelligent design of sustainable 'green technologies' that can:

- ✔ Significantly improve crop health.
- ✔ Help plants withstand abiotic stresses caused by climate change.
- ✔ Increase crop yield and food quality, cost effectively.
- ✔ Reduce waste in agricultural practices.

## Pi Key Advantages

We provide technologies to improve crop productivity by combating the negative effects of environmental stress and provide effective solutions for major food issues:

- ✔ Increases yield in key crops to meet world demand.
- ✔ Ensures yield stability.
- ✔ Reduces risk to farmers during periods of drought.
- ✔ Reduces residues while enhancing food quality and food security.
- ✔ Less food wastage due to increased shelf life.
- ✔ Healthier food for consumers.

## Plant Impact – Transforming Agriculture

Pi offers clean technologies for agriculture which address global food issues.

These patented technologies:

- ✔ Genuinely combat the negative affects of climate change on agricultural production in a sustainable way.
- ✔ Provide an alternative to both biotechnology and conventional agrochemical solutions.
- ✔ Have generated very positive product trial data.





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