

Lettuce and cauliflower case study

Type of Farming System

The Velisha family farm is recognised for the production of quality vegetables for the fresh market in Melbourne. Field vegetables are farmed in a traditional style with conventional fertiliser and chemical programs.

Further to this, they have a nursery raising vegetable seedlings for sale and for their own use. The nursery has been managed using principles of Integrated Pest Management to produce seedlings of the highest quality and to reduce reliance on chemical pesticides. It is well understood by the Velisha brothers that strong and healthy seedlings are the foundation for the development of healthy crops.

Products used in trial

 **Bactivate**

 **BactivateShield**

 **Bactivate
BioBoost+**

**Bactivate
SeaweedSolution** 

Background

The Velisha brothers were seeking a sustainable solution to controlling soil-borne diseases in the field and nursery. A key factor was that they were looking for products and systems that integrated into their IPM program and their commitment to reducing the reliance on chemicals and to reduce costs. We initially started the program to improve the soil structure and see the effects the Bactivate Program would have on the root structures and overall crop yields and health.

Key performance indicators that the Velisha brothers were seeking to improve include:

- improved yields through minimising losses through combatting the effects of pathogens and soil disease;
- growing and supplying the highest possible quality of seedling and vegetables by using latest technology and reducing reliance on chemical inputs; and
- reducing input costs in the medium to long term.

Outcomes and Benefits

Aim: as soil-borne diseases were a significant barrier to sustainable production this trial was designed to assess the efficacy of the Bactivate Program in combatting the effects corky root & sclerotinia and reduce chemical inputs. Prior to the trial up to 1 ton of fertiliser was used.

The program consisted of 450Kg Bactivate with 2.5L BioBoost+ per crop planting. After 4 crop rotations, the Bactivate input was reduced to 300Kg and then at crop 5 to 250Kg with the same BioBoost. They also use the Seaweed solution on a 4 week rotation throughout the crop cycle at 2L per Ha.

Farmer's Name: Velisha Bros

Business Name: Velisha Brothers Vegetables

Crops grown: 1) Lettuce
2) Cauliflower
3) Celery

Farm Data

Location: Werribee South, Victoria

Werribee is one of Australia's most prominent and productive horticultural regions.

Area: 40ha

Between 70%-80% of the farm under the Bactivate Program



Agronomic management, following a comprehensive soil chemical and biological analysis, meant the fertiliser program was cut by 40-60%. Due to the high in-field disease and pest pressure, the decision was made to maintain the standard pest management program. It was felt by the Velishas that the risks were too high to cut back the pest management program.

Farmer Observations:

There was a significantly enhanced root system possibly a key feature in the improved performance under high soil disease pressure.

They had significant reservation that a reduction on 40% of the fertiliser program would deliver the desired results but the trial supported the reduction and savings associated with the Bactivate Program. After three years of trials the fertiliser program has been cut by a sustainable 60 – 70%.

There was a 100% pack-out under the Bactivate program in the first row.

Although the trial was conducted under difficult conditions including poor planting (planted too deep) and the difficult seasonal conditions, the Velisha brothers yield under trial was higher than the district average.

Over the past 2.5 years, we have seen visible signs of better root systems and greater yield results, coupled with a major improvement in the soil outlined with independent soil analysis conducted by SWEP.

TRIAL 1

Crop: Lettuce - toscani

Treatment: Bactivate soil management program, including 40% reduction in conventional fertiliser program. The trial utilised: Bactivate, Bactivate Shield/ Bactivate (first bed only), Bactivate Bioboost, Bactivate Seaweed Solution.

Results: the trial produced significant outcomes that met the core objectives of the Bactivate Program, including:

- Corky Root was observed but was controlled to a level that did not impact crop yield or quality;
- signs of Sclerotinia present but losses were minimal, measurably less than under the conventional program; and
- reduction of 50% on the normal fertiliser program showed no change in crop quality and production.

Farmer Observations

There was a significantly enhanced root system possibly a key feature in the improved performance under high soil disease pressure.

Furthermore, they had significant reservation that a reduction on 40% of the fertiliser program would deliver the desired results but the trial supported the reduction and savings associated with the Bactivate Program.

There was a 100% pack-out under the Bactivate program in the first row.

Although the trial was conducted under difficult conditions including poor planting (planted too deep) and the difficult seasonal conditions the Velisha brothers yield under trial was higher than the district average.

After three years of trials on this block the fertiliser program has been cut by a sustainable 50 – 60%. Prior to the trial up to 1 ton of fertiliser was used.

The program consisted of 450Kg Bactivate with 2.5L BioBoost+ per crop planting. After 4 crop rotations, the Bactivate input was reduced to 300Kg and then at crop 5 to 250Kg with the same BioBoost. They also use the Seaweed solution on a 4 week rotation throughout the crop cycle at 2L per Ha.



Root systems showing healthy fibrous structure



Root systems showing healthy fibrous structure

TRIAL 2

Crop: Cauliflower

Treatment: Bactivate soil management program, including 40% reduction in conventional fertiliser program. In this trial pesticides were cut significantly and insecticide was not applied to seedlings in the Nursery. The trial included: Bactivate, Bactivate Shield/Bactivate (first bed only), Bactivate Bioboost, Bactivate Seaweed Solution.

Results: the trial was conducted on a block where the Bactivate program was in-place for the previous three seasons (4th rotation using the Bactivate Program). For this reason comparative trials could not be undertaken.

Farm Observations

There has been a cumulative benefit on the block where the reduction in the fertiliser has been demonstrated to be sustainable.

The site was free of the effects of soil-borne disease including Sclerotinia and bacterial wilt, leading to a significant reduction on the reliance and use of chemical pesticides.

At harvest there was a 100% head harvest and pack-out where the quality was exceptional. This is a significant outcome when compared to other blocks on the farm that are still struggling and the client is using the full chemical program in those areas.

Based on trials over 3 - 4 years, the Velisha brothers have decided to adopt the Bactivate Program across the entire property and all crops.