

## PRECISION IRRIGATION = INCREASED FINANCIAL RETURNS

### Reaping the financial benefits : a 20 hectare Case Study

This analysis is based on the following scenario:

- The grower has 20 hectares of substrate-grown strawberries producing 32 tonnes per hectare at an average selling price of £3,300 per tonne
- The grower purchases the 'Basic' Precision Irrigation Package which includes 8 days of NIAB EMR specialist support in the first year, and continues to purchase a further 8 days of support over the subsequent two years
- PIP delivers a 5% improvement in yields of Class 1 fruit compared with the grower's conventional scheduling method
- PIP reduces water, energy, fertiliser and pesticide costs by 20%

The following Cost:Benefit analysis demonstrates how the above input savings and yield improvements can significantly improve the grower's financial returns:

| ADDITIONAL COSTS / RETURNS   | Average £ per hectare | Total £ per annum | Total £ over 3 years |
|--|-----------------------|-------------------|----------------------|
| Variable Cost Savings (20%)<br>(water, energy, fertiliser, pesticides) | £2,400                | £48,000           | £144,000             |
| Cost of Precision Irrigation Package                                   | (£1,100)              | (£22,000)         | (£66,000)            |
| <b>NET COST SAVINGS</b>  | <b>£1,300</b>         | <b>£26,000</b>    | <b>£78,000</b>       |
| 5% Increase in Yields  | £5,300                | £106,000          | £318,000             |
| <b>NET INCREASE IN GROWER INCOME</b>                                   | <b>£6,600</b>         | <b>£132,000</b>   | <b>£396,000</b>      |

*In summary, adoption of the Precision Irrigation Package enables the grower to:*

- achieve an increase in average net income of **£6,600/hectare**
- generate additional income of **£132,000** per annum .
- improve net income by **£396,000** over the first 3 years
- free up management time and reduce labour costs compared with manual scheduling methods

*Over 5 years, the average cost of the Precision Irrigation Package reduces to £750 per hectare resulting in:*

- additional net income of **£6,950/hectare**
- a total increase in net income over the five years of **£695,000**

*Even if the cost savings and yield improvements were half of those indicated above, the Precision Irrigation Package would still enable the grower to achieve additional net income of £3,100 per hectare equivalent to £310,000 over 5 years.*



Further Information

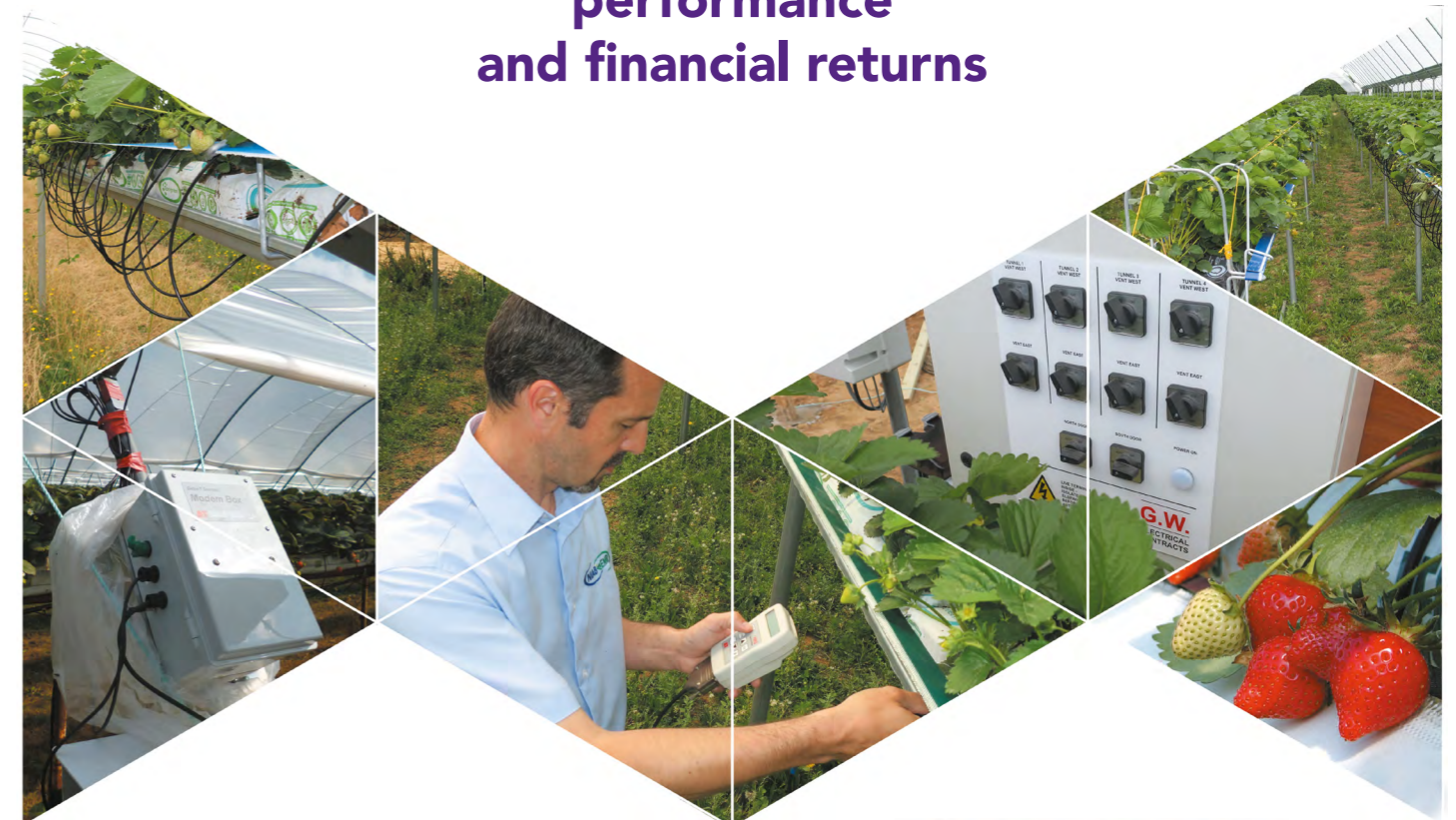
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## Precision Irrigation Package

### High Performance Irrigation System and Technical Support for Substrate Grown Soft Fruit

A major step towards better irrigation performance and financial returns



Consistency, Control & Confidence

## THE PACKAGE

The 'Precision Irrigation Package' (PIP) provides growers with the confidence to consistently apply and control precision irrigation.

PIP is a High performance, fully automated irrigation scheduling and monitoring system with 'Hands-on' technical support from NIAB EMR specialists. It provides:

- Reduced water, fertiliser and pesticide costs
  - Reduced labour costs
  - Optimised yields of Class 1 fruit
  - Improved fruit quality
  - Better shelf life
  - Improved water security
  - Better management control
- } = improved financial returns!

### Precision Equipment, Training and Crop Monitoring – 24/ 7

NIAB EMR specialists will conduct an initial audit to ensure the precision equipment fits with the grower's current irrigation and production practices. On-farm operators will then be given bespoke training on how to run and optimise the system at and after installation.

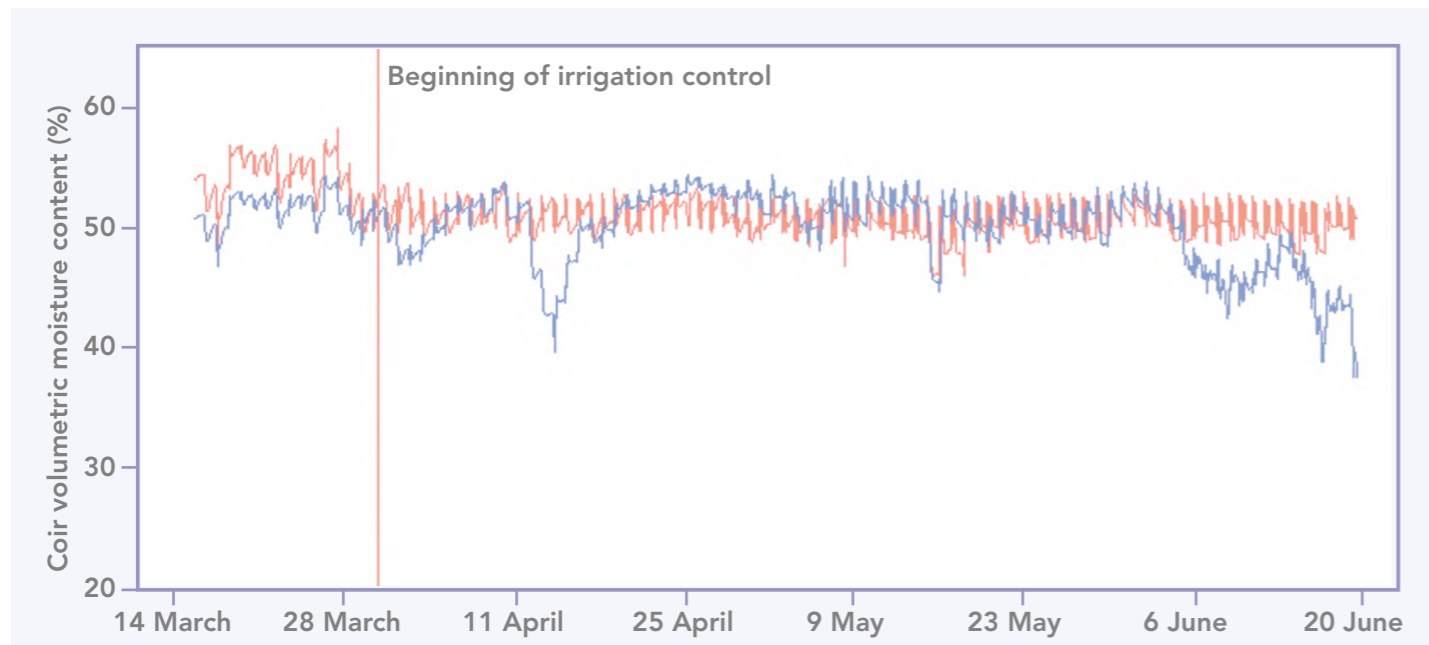
Highly accurate substrate moisture probes are installed and linked to Data Loggers, which automatically drive on-farm irrigation scheduling to ensure that coir moisture content is maintained within precise levels determined by the grower. The system can be programmed to achieve different moisture content or run-off targets at different times of the day, depending on weather conditions or other production considerations.

Irrigation performance is monitored by regular on-farm visits and through a 'real time' 24/7 online system which enables constant remote tracking of coir moisture content, pore E.C., and irrigation inputs and outputs.

## IMPROVED CONSISTENCY AND CONTROL = OPTIMISED YIELDS AND FRUIT QUALITY

### The Challenge of getting your irrigation right

Even short-term coir moisture deficits can have a significant impact on marketable yields per hectare. In the trial below, the grower aimed to maintain coir moisture content at 50%.



## PIP Trial: the graph shows -

**Red Line:** Moisture content achieved by the Precision Irrigation system, which was consistently maintained within a tight range of between 47 and 53%.

**Blue Line:** Control of moisture content achieved by the grower's usual method of irrigation scheduling. This was less consistent, and in mid-April an unplanned drop in moisture content occurred. Although this deficit only lasted for a short time, it occurred at a critical stage of fruit development.

The overall impact was that yields in the Precision Irrigated area were 7% higher than in the area irrigated using the grower's conventional method of irrigation scheduling.

For both yields and fruit quality, the PIP has either matched or outperformed the grower's normal method of irrigation scheduling in every commercial trial conducted over the past 3 years, with yield improvements of up to 10%.

## IMPROVED CONTROL = MORE WATER, LOWER COSTS AND BETTER CROP MANAGEMENT

### Getting ahead of new legislation... delivering better water security and lower costs

As an insurance against a crop drying out, and to 'flush out' E.C. build up, many growers currently aim for run-off volumes of 20%+.

The PIP can reduce overall water consumption by up to 30% and achieve far greater consistency in coir moisture content and E.C. management.

As a result of these savings, Precision Irrigation can significantly improve water availability and security. This will be particularly important when Abstraction Reform legislation is introduced which will bring trickle irrigation within the licensing system and restrict water availability to historical levels.

By reducing run off levels, PIP not only saves water but also delivers similar savings in energy and fertiliser costs. By reducing excessive crop canopies that can occur as a result of over watering, PIP can also reduce pesticide requirements.

Commercial trials indicate that PIP can reduce the cost of these key inputs by around 20%.

### Precision monitoring for better management control and lower labour costs

Precision monitoring '24/7' constantly tracks moisture content and scheduling performance – immediately alerting growers of unplanned moisture deficits or the need to alter irrigation settings.

Since its first 'deployment', PIP has always detected an irrigation 'anomaly' before the growers' technical staff have noticed!

On a typical 30-40 ha farm, one fewer full-time member of staff would be required for manual coir moisture monitoring. As well as delivering further cost savings, the system therefore provides the grower with valuable additional management time to ensure their irrigation and production systems are fully optimised.

By reducing water use, PIP will also help growers' expansion plans despite likely restrictions on the availability of water.