



Achieve an exceptionally high level of control with low-cost and environmentally friendly products

Programme overview

Outline

Disease management is a persistent issue for protected ornamental production – with the wide variety of plants grown meaning that a whole range of diseases must be managed to avoid damage to the crop.

Biopesticides, with their biological modes of action, are the perfect products for achieving control of disease as they harness natural plant defence processes to deliver exceptionally broad-spectrum protection. This level of control is achieved whilst limiting exposure of operators to hazardous chemicals and massively reducing the risk of negatively impacting the environment. However, only a correctly nourished plant is able to effectively undertake these processes, and so it's vital to ensure that fertilisation works in tandem with any of these products.

This programme will explain how you can utilise a combination of biopesticides that complement one another to achieve control over disease.

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The programme has been tested on a variety of crops and diseases but there may be some crops or diseases which the programme may not provide control for. If you are unsure about whether control can be achieved please contact technical@fargro.co.uk before beginning application.

Products

Plant Protection Products

Romeo

Active Ingredient: Cerevisane (purified yeast extract)

Mode of Action: Purified yeast extract cells are recognised as fungus by the plant and elicit natural plant anti-pathogen defences.

MAPP number: 19170

Taegro

Active Ingredient: *Bacillus amyloliquefaciens* strain FZB24

Mode of Action: Bacteria colonises plant surface and secretes anti-microbial compounds to inhibit establishment of spores of pathogens.

MAPP number: 19204

Pesticides (Physical Activity)

SB Plant Invigorator

Contents: A unique blend of plant safe, physical pest and disease control surfactants

Mode of Action: Surfactants will degrade fungal hyphae and spores

THE PESTICIDAL ACTIVITY OF THIS PRODUCT IS ACHIEVED BY A PHYSICAL MEANS. PHYSICAL MODES OF ACTION ARE CLASSED AS NON-BIOLOGICAL AND NON-CHEMICAL FOR WHICH NO SPECIFIC ACTIVE INGREDIENTS ARE IDENTIFIED WITHIN THE PRODUCT.

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How does it work?

This programme is preventative and so must be started before symptoms of disease are present.

For the first round of spraying, Taegro and SB Plant invigorator are used in a tank mix. SB Plant invigorator will create clean plant surfaces that the *Bacillus* bacteria in Taegro is able to establish a population on. This population will provide a protective barrier for the plant to combat disease.

For the second round of spraying, Romeo is used. The purified yeast extract in Romeo will simulate a pathogen attack – causing the plant to upregulate its natural defences to improve its resilience to disease. These changes include alterations to leaf structure and secretion of metabolites, which enable improved establishment of the *Bacillus* bacteria in Taegro – prolonging the efficacy of each application.

These two rounds of sprays should be repeated with a spray either each week, if during a high disease risk period, or each fortnight, if during a lower disease risk period.

These biopesticides operate on natural processes and so require daytime temperatures of at least 15°C in the growing facility to be effective and this efficacy is greatly enhanced by correct fertilisation.

Required cultural controls to ensure efficacy

- Clean plant selection
- Correct fertilisation
- Correct irrigation
- Appropriate growing area environmental conditions

If an infection of disease develops then use an approved curative fungicide and return to the spray programme. For advice on selection of product contact technical@fargro.co.uk

Spray Programme

Plant Protection Products

Product Overview

PRODUCT	MAPP NUMBER	ACTIVE INGREDIENT	LEGAL NO.APPLICATIONS	RATE
Taegro	19204	<i>Bacillus amyloliquifaciens</i> strain FZB24	10	0.37kg/ha
Romeo	19170	Cerevisane	8	0.75kg/ha

Approvals on ornamentals are extensions of authorisation for minor use (EAMU) and so use in these cases is undertaken at the user's choosing, and the commercial risk is entirely theirs.

Taegro EAMU 20222404, Romeo EAMU 20211455

Pesticides (Physical Activity)

PRODUCT	CONTENTS	LEGAL NO.APPLICATIONS	RATE
SB Plant Invigorator	A unique blend of plant safe, physical pest and disease control surfactants	N/A	1mL/L

Template Spray Schedule

High Disease Pressure Spray Schedule

SPRAY PROGRAMME WEEK	TAEGR0	SB PLANT INVIGORATOR	ROME0
1	●	●	
2			●
3	●	●	
4			●
5	●	●	
6			●
7	●	●	
8			●
...	Repeat ☞		

Low/Medium Disease Pressure Spray Schedule

SPRAY PROGRAMME WEEK	TAEGR0	SB PLANT INVIGORATOR	ROME0
1	●	●	
2			
3		●	●
4			
5	●	●	
6			
7		●	●
8			
...	Repeat ☞		

10L Knapsack Rates

Taegro	SB Plant invigorator	Romeo	Area treated: 100m ² Water rate = 1000L/ha
3.7g	10 ml	7.5g	

Notes:

- Apply in tank mix and always add SB Plant invigorator first
- For best results apply in late afternoon/evening
- Amount of applications is liable to change depending on development of crop
- Programme can be extended should harvest dates change – but please be conscious of harvest Intervals and application limits on production labels

THE PROGRAMME IN PRACTICE

Ferring Nurseries and Firewood

Littlehampton Rd, Ferring, Worthing, BN12 6PN

Crop: Cyclamen

(12,000 plants)

Growing Environment

Unheated greenhouse

Application Method

Hand held spray

Water Rate

1000L/ha

Growing Media

Peat-free mix (combination of wood fibre, bark, coir, green compost, perlite and clay)

Fertilisation

Integrated Organic Granules

- 3g/L DCM ECOR5 (NPK 8-5-6)
- 1g/L DCM Vivifos (NPK 4-30-0)
- 0.7g/L DCM Micromix

Integrated Mineral Granules

- 0.7kg/L Base fertiliser (NPK 17-10-14)
- 0.3g/L N fertiliser (NPK 31-0-0)

Liquid Mineral Fertiliser

- Calcium nitrate (1kg/10L dosed at 1% - every 3-4 days)



Spray Schedule

WEEK (YEAR)	COMMENCING	WEEK (CROP)	TAEGR0	SB PLANT INVIGORATOR	ROME0
27	03/07/2023	1			
28	10/07/2023	2			
29	17/07/2023	3			
30	24/07/2023	4			
31	31/07/2023	5	•	•	
32	07/08/2023	6			•
33	14/08/2023	7	•	•	
34	21/08/2023	8			•
35	28/08/2023	9	•	•	
36	04/09/2023	10			•
37	11/09/2023	11	•	•	
38	18/09/2023	12			•
Sale	25/09/2023	13		-	

A correctly fertilised crop will increase efficacy of the spray programme

THE PROGRAMME IN PRACTICE

Ferring Nurseries and Firewood

Littlehampton Rd, Ferring, Worthing, BN12 6PN

‘The spray programme was easy to apply and achieved complete control. We lost no plants to disease.’

DAVID COURTENAY LUSCOMBE
GROWER MANAGER, FERRING NURSERIES AND FIREWOOD

Taegro MAPP Number 19204

Romeo MAPP Number 19170

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Results

Botrytis spotting of flowers is the primary disease concern with Cyclamen crops. We achieved 100% control with no flower damage observed in the crop – this is despite an unseasonably cool and humid July and August and no heating of the crop.

CONTROL LEVEL 100%



No *Botrytis* damage was observed on the foliage or flowers

Costings

PROGRAMME
TOTAL COST*

£0.0006 per plant (£0.60 per 1,000 plants)

*Product only

Benefits of Programme

- Lower cost than conventional programme
- Limits exposure of staff to hazardous chemicals
- No chemical residues on product
- Application is easy and practical
- Products work on natural plant processes and create stronger and more resilient plants – improving customer success when planting at home

USE PLANT PROTECTION PRODUCTS SAFELY.
ALWAYS READ THE LABEL AND PRODUCT INFORMATION BEFORE USE. FURTHER DETAIL ON WARNING SYMBOLS AND PHRASES IS INCLUDED ON THE LABELS AND LEAFLETS.