

Adermatt

Madumbi



Double Nickel[®] 55

Reg. No. L10053, Act 36 of 1947

Bio Crop Protection | Root Health | Plant Vitality



Double Nickel® 55

Reg. No. L10053, Act 36 of 1947

A biological fungicide for the suppression of powdery and downy mildew on table grapes and powdery mildew on cucurbits. Ideal in IPM, zero residue and resistance management programs.

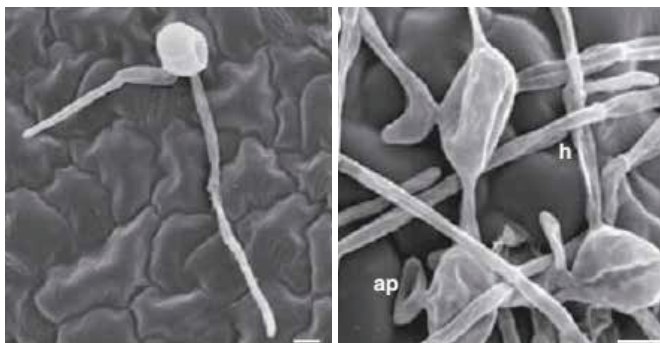
Why use Double Nickel® 55?

Features	Benefits
Broad spectrum biofungicide containing the active ingredient <i>Bacillus amyloliquefaciens</i> isolate D747 supplied by Certis Biologicals USA.	Well researched product of high quality delivering consistent results.
Bacteria based active ingredient.	Ideal resistance management option for IPM programs.
Multiple modes of action.	Good efficacy and low risk of resistance build-up. Ideal resistance management option in IPM program with conventional chemicals.
OMRI listed.	Suitable for use in organic production.
No Maximum Residue Limit (MRL).	Helps growers meet demands of export markets in terms of minimal/zero residue pest management programs.
Stable formulation with 2 year shelf life at room temperature.	Limited risk of expiring stock and more consistent results.

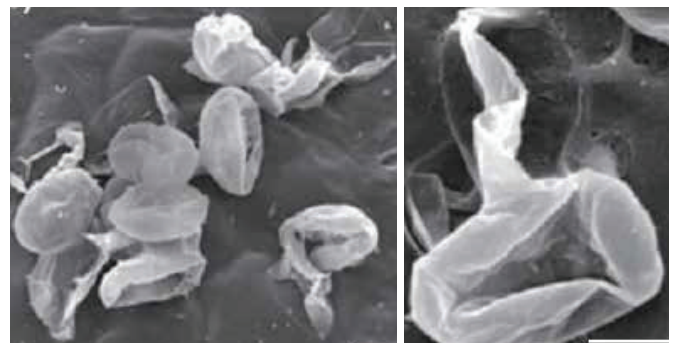
Mode of Action:

1. Production of antimicrobial metabolites

Double Nickel® 55 is capable of producing a number of antimicrobial metabolites such as Iturin and Surfactin which inhibit growth of fungi and bacteria.



Healthy, untreated conidia and hyphae of powdery mildew of cucurbits.



Shrinkage and loss of turgor of powdery mildew conidia after being treated with *Bacillus lipopeptide* extracts. (Images repro. from Romero *et al*, 2007. J app. Micro.)

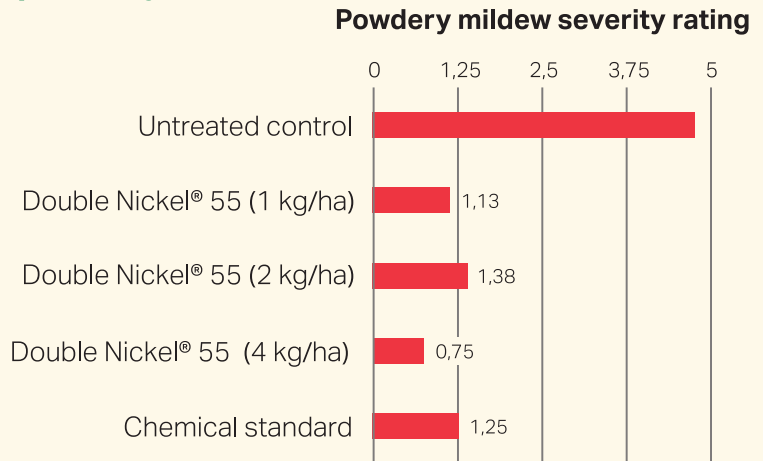
Trial data

Double Nickel® 55 management of powdery mildew on table grapes

Cultivar = Sugraone
Location = Paarl

Figures right:

3 applications at 7 day intervals as a full cover spray (1000 L/ha).
Evaluation at 14 days after application 3.
Evaluations based on leaf disease severity ratings.

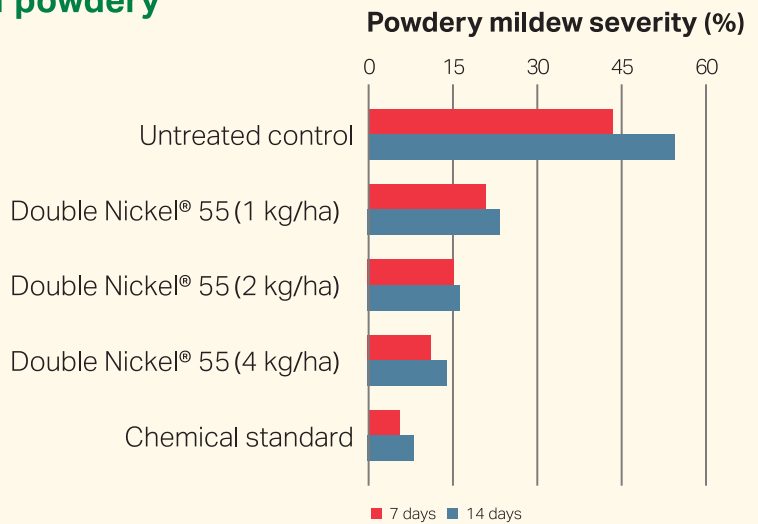


Double Nickel® 55 management of powdery mildew on cucurbits

Cultivar = Patty Pan – Sunny Delight
Location = Phillippi

Figures right:

6 applications at 7 day intervals (500 L/ha).
Evaluation at 7 and 14 days after last application.
Evaluations based on leaf disease severity (%).



2. Competition for space and nutrients

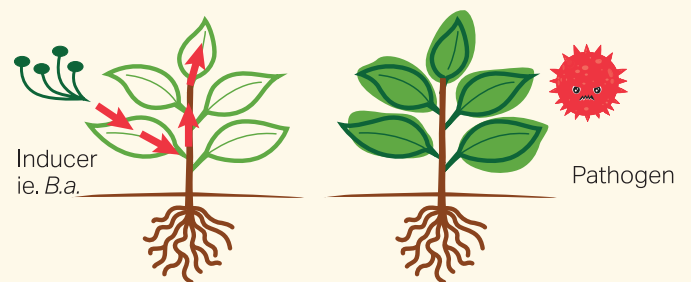
Double Nickel® 55 colonises plant surfaces, occupying space and using up nutrient sources at potential infection sites thus making it difficult for pathogens to get established.



Colonisation of kiwifruit by *B.a.* D-747 (spray application).
Source: G. Balestra et al. *L'Informatore Agrario* 22: 50-53.

3. Induced Systemic Resistance (ISR)

Double Nickel® 55 can help activate a plants natural defence mechanisms through ISR. ISR is a state of enhanced immunity to infection demonstrated by plants following an injury or presence of inducer organisms like *B. amyloliquefaciens* (*B.a.*).



In response, plants produce substances (represented by red arrows) which, over time, evoke resistance and make it less susceptible to pathogens.

Application instructions:

Crop/disease	Dosage rate	Recommendations
Cucurbits Powdery mildew <i>(Podosphaera fusca)</i>	1 - 2 kg/ha (Water volumes 200 - 1000 L)	<ul style="list-style-type: none"> • Apply full cover spray but not to runoff. • Start application at first sign of disease or during periods favourable to disease outbreak. • Repeat at 7-day intervals until disease is under control. • At least 3 applications are recommended.
Grapes (table and wine) Downy mildew <i>(Plasmopara viticola)</i> Powdery mildew <i>(Erysiphe necator)</i> Botrytis <i>(Botrytis cinerea)</i>	1 - 2 kg/ha (Water volumes 200 - 1000 L)	<ul style="list-style-type: none"> • Apply full cover spray but not to runoff. • Start preventative applications with onset of flowering. • Repeat every 7 - 10 days until harvest.

Available in 100 g, 1 kg and 30 kg

- Double Nickel® 55 is compatible with most fertilisers, adjuvants and pesticides but if uncertain check with your Andermatt Biospecialist before making tank mixes.
- Avoid the use of silicone spreaders (spreader-stickers and oil based products are preferred).
- Avoid extreme pH (between 6–8 is optimal).

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Manufactured by:



Healthy Food and Healthy Environment, for all

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