



The Crop Protection Specialists



**ORGANIC
PRODUCT GUIDE
2020-2021**

National Agrochemical Distributors Ltd.

Blake's Cross, Lusk, Co. Dublin

Tel: +353 1 8437808 (press 1 for sales team) Fax: +353 1 8437909

Email: sales@nadirl.com

www.nad.ie



The Crop Protection Specialists

TECHNICAL SUPPORT

01 8437808 (press 1 for sales team)

NAD in association with its suppliers and leading independent laboratories can provide a wide range of technical services and advice.

- Soil Analysis
- Nutrient Programmes
- Seed Selection
- Weed Identification
- Pest Identification
- Disease Identification
- Water Quality Testing
- Technical Presentations



Analysis Results (SOIL)

Customer: L BYRNE
E2948

Distributor: N.A.D.
BAYLES CROSS
LUGH
COUNTY DUBLIN
EIRE

Sample Ref: AUSTFALSTOWN
Sample No: D718551 / 82458
Crop: OILSEED RAPE

Date Received: 01/09/2014

Analysis	Result	Outlines	Interpretation	Comments
pH	7.8	6.5	Adequate	Adequate level
Phosphorus (ppm)	26.7		Adequate	Adequate level
Potassium (ppm)	123		Adequate	Below 30 kg/ha (20 units/acre) (Potassium 30) + Sulphate
Magnesium (ppm)	84	60	Adequate	Below 30 Adequate level
Calcium (ppm)	2818	1000	Adequate	Adequate level
Sulphate (ppm)	8	10	Low	CONSIDER TREATMENT
Manganese (ppm)	71	70	Adequate	Adequate level
Copper (ppm)	11.7	2.1	Adequate	Adequate level
Zinc (ppm)	1.25	2.30	Low	HIGH NUTRIENT RECOMMENDED.
Zinc (ppm)	7.6	4.1	Adequate	Adequate level
Iron (ppm)	620	650	Adequate	HIGH NUTRIENT RECOMMENDED.
Sodium (ppm)	30	60	Low	Not a problem for this crop.
C.E.C. (meq/100g)	17.6	15.0	Adequate	Cation Exchange Capacity indicates a soil with a good nutrient holding ability.
Organic Matter (%)	8.8		Adequate	Humus soil. Above 10% peaty soil.

Additional Comments:
Phosphorus and Potassium have been analysed by the Morgan's method as specified by the Nitrate Directive and the REPS Regulations. Fertiliser applications must take into consideration any nutrients supplied by the use of organic manures.

Important Note:
It is essential that the results from analysis are as accurate as possible. It is important to note that the analysis relates to the sample received by the laboratory and is representative only of that sample. No warranty is given for the laboratory that the results from analysis relate to any part of a field or growing area not covered by the sample received. It is important to ensure that any soil, leaf, sludge or fluid sample sent for analysis is representative of the area requiring analysis and that samples are obtained in accordance with established sampling techniques. A written statement of instructions on how to take soil, leaf, sludge, and fluid samples for analysis is available from the laboratory on request.

Works (p/n 1042)
The Hub at Galvin
Puckington, York, YO41 1EN
Tel: +44 (0)1752 255118
www.lancrop.com

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For technical support and advice please contact:

Colm Matthews B.Agr.Sc M.Sc
Area: Nationwide

087 2563391

colmm@nadirl.com

Trevor Cooke B.Agr.Sc
Area: Dublin, Kildare and Wicklow

087 9676777

trevorc@nadirl.com

Richard Lynch B.Agr.Sc
Area: North Dublin, Meath and Louth

087 2587844

richard@nadirl.com

Joseph Delaney B.Agr.Sc
Area: Soft Fruit and Vegetables

086 6014979

joseph@nadirl.com

BIOLOGICAL CONTROL

At NAD we have a range of beneficial insects, mites and other organisms to control pests. We supply to commercial horticulture throughout Ireland including commercial growers, botanic gardens, garden centres, plant display and research. The use of any pesticides mentioned here may be restricted to professional use.

Control of:

- **Vine Weevil**
- **Red Spider Mite**
- **Aphids**
- **Mealy Bug**
- **White Fly**
- **Slugs**



Use of beneficial insects with careful use of a few selective insecticides as a Biological Control with parasitoids, predators and pathogens is a vitally important element within a full Integrated Pest Management (IPM) programme. Integrated Crop Management (ICM) can result in excellent sustainable pest management at minimal cost. Please contact us for more information and advice.

- **Aphidius colemani**
- **Aphidoteles aphidimyza**
- **Chrysoperla**
- **Amblyseius californicus**
- **Encarsia Formosa**
- **FLIPPER**
- **Naturalis-L**
- **Nemasys L**
- **Nemaslug**
- **Lepinox Plus**
- **Prestop**
- **Serenade**
- **Sticky traps for attracting and monitoring various flying pests**



BIOLOGICAL CONTROL



The use of beneficial insects with careful use of a few selective insecticides as Integrated Crop Management (ICM) can result in excellent, sustainable pest management at minimal cost. Biological control with parasitoids, predators and pathogens is a vitally important element within a full Integrated Pest Management (IPM) programme. Cultural control, including good hygiene, the environment (as affected by temperature, humidity, ventilation, watering and spacing), use of ground cover materials, weed control, crop monitoring and recording from sticky traps should be the first step in an IPM programme.

Bio control agents invariably work better as a preventative measure or when introduced at the very first sign of pest damage. Selective IPM compatible pesticides that can be used to prevent pest damage are available for use within a complete programme.

Note: The use of broad-spectrum pesticides such as synthetic pyrethroids should be avoided if biological control is used, for up to 10 weeks before starting an IPM programme.

TRAPS

Traps are used to monitor pest populations and some offer a means of pest control. They take various forms from coloured sticky traps to pheromone lure attractant traps. Some of the most popular types are listed below.

STICKY TRAPS

How they work:

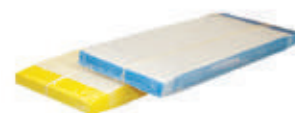
Used to detect pest populations early on, before they cause damage to the crop, to monitor the success of a control measure and to provide data on long-term pest problems. These traps have a dry glue covered surface with a paper sheet preventing traps sticking together in the pack. Traps remain sticky until the surface is covered in dust or dead insects. When monitoring, replace regularly – usually every 4 weeks.

Species attracted:

Use Yellow traps horizontally sticky side up for detecting activity of Leaf Miner and Sciarid Fly.
Use Yellow traps vertically for detecting Aphid, Leaf Hopper, Thrips and Whitefly.
Use Blue traps for Western Flower Thrips.

How to use: Suspend traps about 20cm above the height of the crop.

Rate of use: Use one trap /200m²



YELLOW EASISTICK TRAPS

10cm x 25cm

Pack of 10

code TRAP14

Box of 1000

code TRAP13

20cm x 25cm

Box of 500

code TRAP15

Hang one trap /100m² at height of 15–20cm above crop.
Adult Whitefly, Leaf Miner and Sciarid Fly detection.

BLUE EASISTICK TRAPS

10cm x 24cm

Pack of 25

code TRAP01

10cm x 25cm

Box of 1000

code TRAP03

Hang one trap /100m² at height of 15–20cm above crop.
Western Flower Thrip detection.

PHEROMONE LURE

Pack of 10

code PHER01

Pheromone Lure specifically for Western Flower Thrips.



OPTIROLL FOR APHID, WHITEFLY AND THRIP CONTROL

Whitefly, Aphids and Thrips are pests of major economic concern for greenhouse growers in the agricultural and horticultural industry. Russell IPM have developed the Optiroll series of products which provides the most advanced form of mass trapping available on the market today. The Optiroll range is a biorational, non-toxic and easy-to-use solution for controlling the three key pests.

Optiroll glue traps provide a simple and cost-effective solution for Whitefly, Aphid and Thrip control in glasshouses and polytunnels. The sticky traps, when used as part of an Integrated Pest Management programme, can significantly reduce crop damage and improve product quality.

OPTIROLL APHID AND WHITEFLY CONTROL STICKY TRAPS

The damage caused by Whitefly and Aphid larvae can result in stunted growth and poor fruit development. The Optiroll Yellow range of sticky roll traps have been optimised for use in Whitefly and Aphid control following large scale trials to determine the specific wavelength of colour most attractive to the insect pests.

OPTIROLL YELLOW

15cm x 100m

code TRAP12

- The specific colour matrix of Optiroll Yellow is highly attractive to Whitefly and Aphids.
- Scientifically optimised colour matrix to maximise pest catch rate whilst reducing attraction to beneficial insects.
- High tack adhesive layer.
- Complements biorational Integrated Pest Management programmes.
- Leaves 0% residue on fresh produce.
- Target Pests: Whitefly and Aphids.



OPTIROLL THRIPS CONTROL STICKY TRAPS

Thrips such as Western Flower Thrips (*Frankliniella occidentalis*) can cause severe damage in a range of crops. Understanding the biology of Thrips and how they respond to environmental cues such as colour wavelengths has enabled Russell IPM to develop the Optiroll Blue series of sticky roller traps.

OPTIROLL BLUE

15cm x 100m

code TRAP17

- The specific colour matrix of Optiroll Blue is highly attractive to Thrips.
- Scientifically optimised colour matrix to maximise pest catch rate whilst reducing attraction to beneficial insects.
- High tack adhesive layer.
- Complements biorational Integrated Pest Management programmes such as those utilising predatory mites to significantly enhance success rate.
- Leaves 0% residue on fresh produce.
- Target Pest: broad range of Thrip species inc. Western Flower Thrip.



BIOLOGICAL CONTROL



OPTIROLL BLUE SUPER PLUS

30cm x 100m

code TRAP19

In certain greenhouse environments a third layer of attraction can greatly enhance the effect of the specific wavelength of colour and patented design of Optiroll.

In some conditions the addition of a Western Flower Thrip pheromone significantly enhanced trap catch.

- Optimised wavelength of blue colour to maximise pest catch rate whilst reducing attraction to beneficial insects.
- Glue infused with Western Flower Thrip pheromone.
- Contrasting patterns of patented design to enhance catch rate.
- High tack adhesive layer.
- Complements biorational Integrated Pest Management programmes.
- Leaves 0% residue on fresh produce.
- Target Pest: Broad range of Thrip species including Western Flower Thrip.



SWD (SPOTTED WING DROSOPHILA) - FRUIT FLY TRAP

code TRAP18

Bait trap suitable for mass capture and monitoring of Fruit Flies.

- Sustainable and refillable
- For wide area application
- Simply plug it together, fill it, hang it up
- Affordable, 100% recyclable

All parts are made of weather-resistant polypropylene. The user can assemble the trap very easily and place it directly in the right place. The holes on the lid edge are designed in such a way that no larger insects are caught. The bright red cover colour attracts the Fruit Fly. It is easy to monitor the trap through the transparent cup without opening it.

- The SWD trap can be used several times and is recyclable.
- The trap is filled with approximately 75mls of bait liquid.
- It can simply be emptied, cleaned and refilled.
- The bait liquid is also available in 5L drums.



code TRAP20



VINE WEEVIL CONTROL (*Otiiorhynchus sulcatus*)

Black Vine Weevil is a major pest of nursery stock and pot plants. Leaf notches around the edge of leaves indicates damage by adult weevils; this is when egg laying begins. Adults are all female, approximately 10mm long, and can lay between 800 and 1000 eggs between June and October but over a longer period under protection. The larvae feed mainly on roots but they will also eat corms and soft fleshy stems. It takes several months to develop from egg to adult resulting in one cycle per year on outdoor crops but multiple generations may occur on indoor crops.

NEMASYS L (*Steinernema kraussei*)

Nemasys L controls Vine Weevil Larvae in a wide range of crops including ornamental trees and shrubs and perennial flowers. It contains a unique low temperature nematode (*Steinernema kraussei*) which provides superior performance in outdoor situations. No other insect parasitic nematode provides this benefit.

Other benefits include:

- Curative control of vine weevil larvae.
- Active at low temp. (5°-15°C) providing control when pest is active.
- Simply applied as a drench or spray.
- No pest resistant issues.
- Compatible with many chemical pesticides / IPM systems.
- Natural product - safe to crops, users, consumers and environment.

Type:

Microscopic nematodes.

How it works:

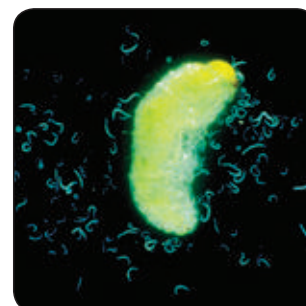
The nematode worms seek vine weevil larvae in moist soil and compost, larger weevil grubs are more easily located. Nematodes enter the weevil larvae and release a small pellet of bacteria that kills the host after a few days. The parasitic worms begin to reproduce, releasing several thousand more juvenile infective nematodes able to find and kill further weevil grubs.

When to use:

Autumn and spring are the main seasons for nematode application, although additional treatments may be needed for heated or protected crops. It is important that the soil or compost is kept moist (not water logged). Nemasys L will work as low as 5°C allowing applications to be made whenever the pest is active.

How to use:

Apply as a drench using a conventional sprayer, a Dosatron dilutor, watering can or through most irrigation lines. In all cases remove any fine filters and ensure water temperature is between 5°C and 15°C. If the nematode packs are not being used immediately, remove them from the transit box and place directly in a cold room/refrigerator at 2-5°C. Use before expiry date on package.



BIOLOGICAL CONTROL



Rate of use:

Container Plant Treatment - 50 million treats up to 100m² and 250 million up to 500m².
 Open Ground Treatment - 50 million treats up to 50m² and 250 million up to 250m².

NEMASYS L

pack size: 50 million

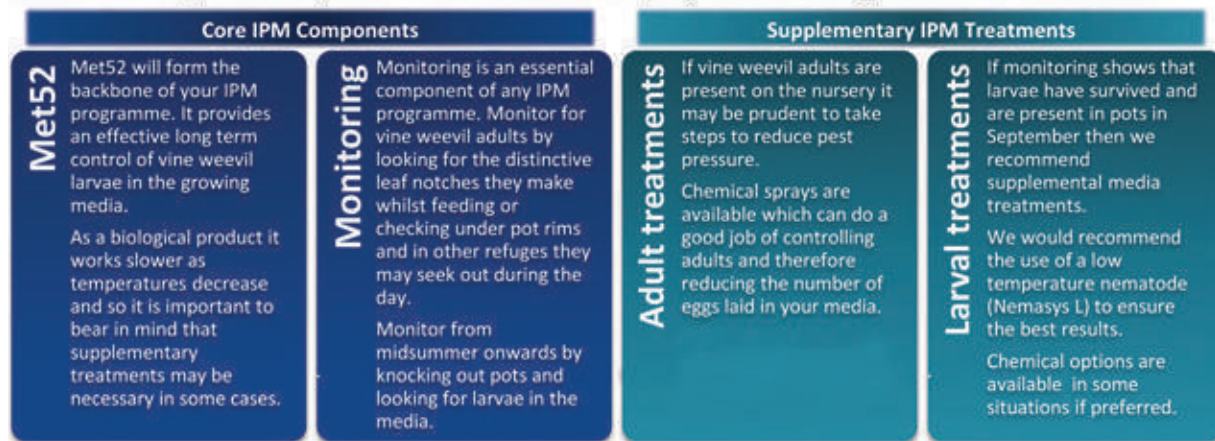
code NEMA05

pack size: 250 million

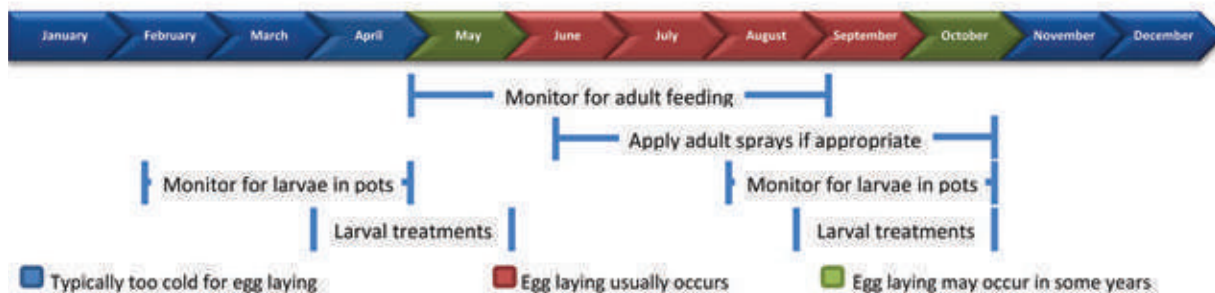
code NEMA07

Vine Weevil IPM: An Example Programme

The below example of an IPM programme includes four components. It will not always be necessary to resort to the supplementary adult and larval treatments, regular monitoring will inform that decision.



The timetable below highlights the key decision points in this programme.



MET52 (IPM)

Based on *Metarhizium anisopliae*

Bio-insecticide for incorporation into growing media for Vine Weevil larvae control in protected and outdoor soft fruit, ornamentals including trees.

2.5kg
10kg
500g/m³

code MET503
code MET502



**MET52 DISCONTINUED
BY MANUFACTURER
IN SEPTEMBER 2020**

BIOLOGICAL CONTROL



WHITEFLY CONTROL (*Trialeurodes vaporariorum*)

Adults are usually found laying eggs on the underside of the youngest leaves. Newly hatched larvae are mobile for a few hours before settling as immobile 'scales' where they suck plant sap.

High numbers of Whitefly produce large quantities of honeydew encouraging black sooty mould growth on plants.



ENCARLINE F (*Encarsia formosa*)

Type:

Parasitoid wasp.

How it works:

Adult wasps lay 60-100 eggs singly into Whitefly scales, which turn black as the parasite develops.



Species controlled:

Glasshouse Whitefly (*Trialeurodes vaporariorum*)
and to a lesser extent Cotton Whitefly (*Bemisia tabaci*)

How to use:

Encarsia are introduced as parasitised scales attached to cards, which are hung in the crop from where they hatch out and attack the Whiteflies. Place or hang the cards in a shady position level with the lower leaves. Avoid contact with the growing medium. Distribute the cards uniformly throughout the crop.

Rate of use:

Cool Grown Crops: 3-5 wasps per 1m² until week 12 and then 1-2 wasp per 1m² per week.
Heated Crops: 1 wasp per 1m². If Whitefly are present increase rate to 5 wasps per 1m² for 6 weeks.
Poinsettias: Preventative is 1 wasp per 3 plants per week; curative or where Cotton Whitefly (*Bemisia tabaci*) is suspected then 1 wasp per plant per week.
Alternatively see Eretline E (*Eretmocerus eremicus*).

ENCARSIA

Encarsia pack size: 3,000

50 cards x 60 black scales

code ENCA07

Encarsia pack size: 6,000

100 cards x 60 black scales

code ENCA04

Encarsia pack size: 10,000

loose

code ENCA06

Encarsia pack size: 15,000

250 cards x 60 black scales

code ENCA08

BIOLOGICAL CONTROL



ERETLINE E (*Eretmocerus eremicus*)

Type: Parasitoid wasp.

How it works:

Adult wasp lays 50-80 eggs singly, next to individual Whitefly scales, the egg hatches to produce a minute larva which eats into the young Whitefly scale.

Eventually (5-10 days) it kills the Whitefly and pupae within the scale. Unlike *Encarsia formosa* the pupal stage remains creamy white and does not turn black.

Adult *Eretmocerus* are also active predators of Whitefly larvae scales and eat 1-2 each day, resulting in rapid pest control.

Species Controlled:

Glasshouse Whitefly (*Trialeurodes vaporariorum*) and Cotton Whitefly (*Bemisia tabaci*)



How to use:

Eretmocerus can be introduced in blister packs or loose scales either alone or mixed with *Encarsia formosa*.

Rate of use:

1-2 wasps per m² per fortnight for a light infestation; up to 10 wasps per m² for 4-8 weeks as a curative. Better under warm to hot conditions, ideal for herbs and Poinsettia.

ERETMOCERUS

Eretmocerus pack size: 3,000

50 cards x 60 per card

code ERET03

Eretmocerus pack size: 10,000

200 cards x 50 per card

code ERET04

Eretmocerus pack size: 15,000

250 cards x 60 per card

code ERET06

Orders for Biological Control:

All Biological products are 'Live products' and are supplied to special order. Please allow 10 working days. Cut-off point for orders is Wednesday midday for delivery for the following week. Tel: 01 8437808 (press 1 for Sales Team). All orders must be used immediately on receipt.

Note:

The use of IPM (Integrated Pest Management) is now mandatory under SUD (Sustainable Use of Pesticides Directive) regulations.



BIOLOGICAL CONTROL



SPIDER MITE CONTROL (*Tetranychus urticae*)

The Glasshouse Red Spider Mite, also known as Two-Spotted Spider Mite is a common pest of protected crops. Mobile stages suck the contents out of plant cells and produce characteristic leaf damage of white or silvery speckled patches.

PHYTOLINE (*Phytoseiulus persimilis*)

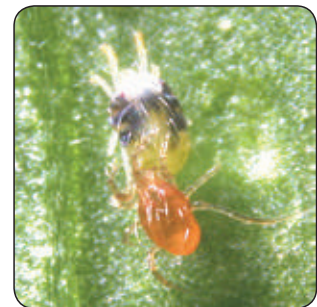
Type: Small orange/red predatory mite.

How it works: Predator actively hunts and attacks all stages of Spider Mites.

Species controlled: Two-Spotted Spider Mite (*Tetranychus spp.*)

When to use: Phytoline cannot establish in the absence of Spider Mites and performs best in warm, relatively humid conditions but may fail in very hot, dry conditions.

Rate of use: 5 -10 mites per m²



PHYTOSEIULUS

Phytoseiulus pack size: 2,000 (200m²)
Phytoseiulus pack size: 10,000 (1,000m²)

code PHYT01
code PHYT02

THRIP CONTROL

AMBLYSEIUS

Amblyseius spp. is the predatory mite which controls the juvenile stages of the Thrip.

AMBLYSEIUS

Amblyseius 100 sachet (250 bug per sachet). Use 1 sachet per 1-2m²
Amblyseius 50,000 in 5L bag. Use 50-250 mites per m²

code AMBL08
code AMBL06

HYPOASPIS

A soil borne predatory mite will predate Thrip pupae in the growing media. For more details please see Hypoline M, page 83.



BIOLOGICAL CONTROL



SCIARID FLY CONTROL

The adult flies (generally known as Fungus Gnats) are commonly found making short hops over the compost surface. Adults can spread fungal diseases but most damage is caused by the larval stage feeding on the plant roots making them vulnerable to disease infections such as Pythium and other Damping-off diseases.

HYPOLINE M (*Hypoaspis miles*)

Type:

Predatory Mite

How it Works:

A soil borne predatory mite which feeds on Sciarid Fly larvae and other 'soil' pests including Springtails, Thrip pupae and root Mealybug. At night they move a short distance up on to the plant foliage and will feed on Mealybug and other soft bodied prey. Mites are very mobile and soon distribute themselves throughout the crop. Adults are reported to live for several months and survive up to 50 days without food, making them ideal in situations of very low pest populations.

Species Controlled:

Sciarid Fly (*Bradysia spp.*) and other insect or mite pests.

When to use:

Introduce into most growing media including rock wool.
Use as a preventative or at first sign of Sciarid adults or larvae.

Rate of use:

100 per m² usually as a single application. For permanently planted areas (interior landscapes, botanic gardens etc.) re-introduce every 10-12 weeks.

HYPOASPIS

Hypoaspis pack 10,000 (100 m²) in 0.5L tube

code HYP004

Hypoaspis pack 25,000 (250 m²) in 1L tube

code HYP002

Hypoaspis pack 125,000 (1,000 m²) in 5L bag

code HYP003

NEMASYS (*Steinernema feltiae*)

Nemasys Biopesticide provide control of Glasshouse Sciarid Fly (fungus gnats), Western Flower Thrip and Leaf Miner in a range of cropping systems including propagation and ornamentals. Nemasys is based on a unique strain of the insect pathogenic nematode (*Steinernema feltiae*) and provides the ideal biological solution to the problem of Glasshouse Sciarids. (Nemasys contains nematodes in their vigorously infective stage). These nematodes attack Sciarid larvae by entering their natural body openings. Once inside, they release bacteria that will quickly kill the host insect.

BIOLOGICAL CONTROL



Benefits

- Quickly controls pest larvae at the time of application.
- Controls the problem before it appears.
- Persistent in the growing medium providing protection against pest larvae re-infection.
- Easy application using sprayers, overhead irrigation or sprinkler systems
- Compatible with a large range of chemical pesticides.
- No pest resistance problems.
- Natural product that is safe to users, consumers and the environment.

NEMASYS

Nemasys pack size: 50 million (100m²)
Nemasys pack size: 5 x 50 million (500m²)

code NEMA08
code NEMA12

APHID CONTROL

Most crops can be affected by Aphids. Damage is caused in 3 ways: sucking plant sap when feeding, excretion of honeydew leading to unsightly sooty mould growth on plants and some species can transmit plant viruses.

APHIDIUS COLEMANI

Rate of use: 1 wasp per 2m² per week.



APHIDIUS COLEMANI

Aphidius colemani pack size: 1000 Pack

code APHID06

ACE MIX

A mixture of 3 types of parasitic wasps which reduces the need for accurate pest species identification, used for most aphid species. The mixture is ideal on mixed cropping ranges in Nurseries, Botanic Gardens, Conservatories and Plant Retail Outlets.

Rate of use: 1 wasp per m² per fortnight



ACE MIX

ACE Mix pack size: 500

code ACEM

MACE MIX

Contains a mixture of 4 types of parasitic wasps to control a broad range of Aphid species.

Rate of use: One pack of 240 treats 200m²

MACE MIX

MACE Mix pack size: 240

code MACE

BIOLOGICAL CONTROL



MEALYBUG CONTROL

Mealybugs are related to Aphids and feed by sucking plant sap, causing direct feeding damage by production of honeydew and associated sooty moulds. Several species are found, all have the appearance of being covered in a white waxy layer. They are serious pests in botanic gardens, interior landscapes and in commercial ornamental and edible crops.

CRYPTOLINE (*Cryptolaemus montrouzieri*)

Small (4-5mm) Australian ladybird. The larvae looks like a large segmented Mealybug and may be seen walking over plants.

How it works: Adults lay eggs into Mealybug egg masses, larvae develop and are predatory on all stages of the Mealybug.

Species controlled: The larvae feed on all Mealybug species but adults need egg producing species for egg laying.

Rate of use: 2-3 ladybirds per 1m² on infested plants, repeat at 2 week intervals until predators are established.

When to use: Apply at first signs of infestation.



CRYPTOLAEMUS

Cryptoline Fightameal A

Tube of 500 adults

code CRYP04

BIOLOGICAL CONTROL IN PLANT PROTECTION

A colour handbook by Neil Helyer.

Biological control has come-of-age, with many growers increasingly seeing it as their first option in plant protection. This book provides the professionals with vital information on pest monitoring, setting up a biological control programme and how to make the programme work within the wider context of Integrated Pest Management (IPM).

This fully illustrated handbook includes 300 new photographs, chapters on the biology and lifecycles of major pests, parasitic and predatory insect controls and a greatly enlarged section describing beneficial pathogens.

code BOOK01



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BIOLOGICAL PEST & DISEASE CONTROL

AQ10

A bio-fungicide containing a naturally occurring hyperparasitic fungus for reducing powdery mildew on protected strawberry and vegetables.

Biomex Starter 1 ltr

Plant health product based on *Bacillus amyloliquefaciens*.

Flipper

A highly effective broad-spectrum contact insecticide /acaricide to control whitefly, aphids and spider mites on protected crops of tomatoes, cucumbers and strawberries.

Gard S 5 ltr

Concentrated garlic extract for the control of *aphids* and *root fly* in a wide variety of crops.

Lepinox Plus 1 kg

Highly selective biological insecticide containing *Bacillus thuringiensis* for the control of Lepidopteran caterpillars.

Naturalis-L 1 ltr

A bio-insecticide for the control of whitefly in all edible crops (protected) and ornamental plant production (protected). The product will also provide a reduction in thrips.

Nemaslug

Packs of 30 million and 250 million nematodes for the effective control of slugs.

Nemasys L

Packs of 50 million and 250 million for the effective control of Vine Weevil larvae.

Pyrethrum 1 ltr

Contains natural *Pyrethrum* for the control of green fly, white fly, aphids, flea beetle and caterpillars.

Prestop 1 kg

A biological fungicide for the control of Pythium, Phytophthora, Rhizoctonia, Fusarium Didymella and Botrytis.

Serenade 10 ltr

Based on *Bacillus subtilis* for the control of botrytis on a wide variety of fruit, vegetables and herbs.

Sluxx 20 kg

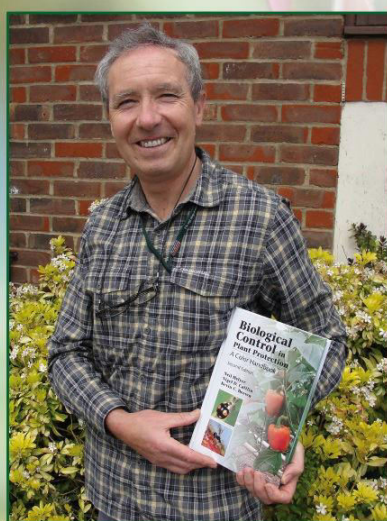
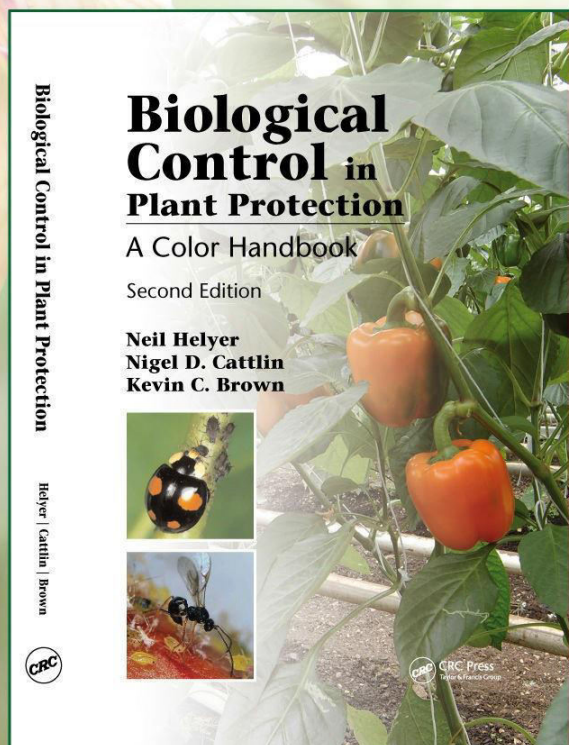
Slug pellets for use on all crops.

T34

Broad spectrum biofungicide based on *Trichoderma asperellum strain T34*.

NOW AVAILABLE

Biological Control in Plant Protection: Colour Handbook. Second Edition.



Designed to help the reader anticipate and recognise specific problems of pest management and then resolve them using the natural enemies of pests to parasites, predators and pathogens.

The text is illustrated throughout by over 560 colour photographs of the highest quality.

This new edition helps readers more fully understand the concepts and practice of biological control and integrated pest management (IPM).

"...high quality photographs and accurate information... a practical guide for gardeners and a textbook for students studying applied entomology... will also be appreciated by naturalists".

European Journal of Entomology.

Order your copy now by contacting NAD on
Tel: 01 8437808 (press 1 for sales team), or Email: sales@nadirl.com



Authors:
Neil Helyer, Nigel Cattlin and Kevin Brown.

Biological Control in Plant Protection: A Colour Handbook (Second Edition)

From Bugs to Books Helyer leads the way

‘Biological Control in Plant Protection: A Colour Handbook’, the world-wide best seller has just been published following its complete revision. This Second Edition takes into account the many developments in Integrated Pest Management (IPM) in the decade since it was first launched.

This fully illustrated handbook includes 300 new photographs, chapters on the biology and lifecycles of major pests, parasitic and predatory insect controls and a greatly enlarged section describing beneficial pathogens. The chapters on ‘cropping systems’ and ‘biological control in perspective’ bring this handbook to life and reinforces the notion that biological control has come-of-age, with many growers increasingly seeing it as their first option in plant protection.

The book provides the Professional with vital information on pest monitoring, setting up a biological control programme and how to make the programme work within the wider context of IPM. This ground breaking publication benefits from Neil Helyer’s experience, firstly, as an entomologist based at the Glasshouse Crops Research Institute (Littlehampton) and for the last 20 years as Fargro’s field based biological control expert. In his role at Fargro, Helyer collaborates with many of the leading Irish and UK growers, helping to design and then support the implementation of their IPM plans.

Paul Sopp; Fargro’s Technical Director commenting on its publications said ‘*The timing of the revision of the book could not have been better following the introduction of the Sustainable Use Directive at the beginning of 2014. It is certain to become an essential how-to, grower guide, while at the same time being an invaluable tool for all students.*’

Available from NAD 01 8437808 (press 1 for sales team) sales@nadirl.com

BIOLOGICAL CONTROL

IPM COMPATIBLE BIO-INSECTICIDES



FLIPPER (IPM)

10L

code FLIP01

FLIPPER is a highly effective broad-spectrum contact insecticide/acaricide to control Whitefly, Aphids and Spider Mites on protected crops of Tomatoes, Cucumbers and Strawberries.



LEPINOX PLUS (IPM)

1kg

code LEPI01

Contains *Bacillus thuringiensis subspecies kurstaki*
Bio-insecticide for the control of lepidopteran pests.
Highly selective and ideal for use as part of an Integrated Pest Management (IPM) programme. Approved for use on many crops including a range of top fruit, soft fruit, vegetables, salads, herbs and protected crops.



MET52 (IPM)

2.5kg
10kg
500g/m³

code MET503
code MET502

Based on *Metarhizium anisopliae*
Bio-insecticide for incorporation into growing media for Vine Weevil larvae control in protected and outdoor soft fruit, ornamentals including trees.

MET52 DISCONTINUED BY MANUFACTURER IN SEPTEMBER 2020



NATURALIS-L (IPM)

1L

code NATU01

Naturalis-L is an oil dispersion formulation containing *Beauveria bassiana*.
A bio-insecticide for the control of Whitefly including the Glasshouse Whitefly in all edible crops (protected) and ornamental plant production (protected).
Will also provide a reduction in Thrips including Western Flower Thrip.



SB PLANT INVIGORATOR

1L
5L

code SBPI07
code SBPI06

Double strength
Growth Stimulant and Insecticide.
Whitefly, Aphid, Spider Mite and Mealybug control.
Can be used on all edible and ornamental crops.

100mls/100L water



BIOLOGICAL CONTROL

IPM COMPATIBLE BIO-FUNGICIDES



AQ10 (IPM)

30g

code AQ10

Rate: See label for specifications

Bio-fungicide containing a naturally occurring hyperparasitic fungus *Ampelomyces quisqualis* for the reduction of Powdery Mildew. Can be used in a wide range of edible and ornamental crops. No chemical residue.



PRESTOP (IPM)

1kg

code PRES03

Rate: See label for specifications

Wettable powder containing the micro-organism *Gliocladium catenulatum*. A biological fungicide for the moderate control of *Didymella*, *Botrytis*, Damping-off and root diseases caused by *Pythium*, *Phytophthora*, *Rhizoctonia* and *Fusarium* spp. on all edible crops (including Strawberry) and all non-edible crops (protected) and outdoor Strawberry.



SERENADE (IPM)

10L

code SERE02

Bacillus subtilis

10L /ha

The chemical residue free solution for *Botrytis* control on a range of crops, Tomatoes, nursery stock, protected Strawberries. Foliar applied biological fungicide. Zero harvest interval. Ideal for use with Integrated Pest Management.



T34 BIOCONTROL (IPM)

250g

code T3401

500g

code T3402

Rate: See label for specifications

Bio-fungicide that contains conidia of the beneficial fungus *Trichoderma asperellum* strain T34 for the reduction of *Fusarium* broad spectrum disease control. No chemical residue.



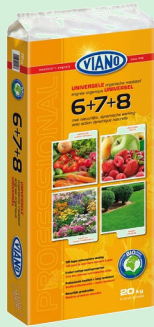
Professional solutions for the sustainable fertilisation for organic vegetable-, fruit- and greenhouse crops.



ORGANIC PLANT FOOD 10Kg 6-5-10 (+4MgO)

- Apply to vegetables, fruit and herbs
- Fertilises for up to 100 days
- Better tasting fruit and veg
- Easy to spread granules

At planting apply at 100g per sq mtr.
Maintenance apply at 50g per sq mtr.



BIO UNIVERSAL PLANT FOOD 20Kg 6-7-8 (+bacteria)

- An organic fertiliser for general use in ornamentals, kitchen herbs, fruit crops and vegetable gardens
- Fertilises for up to 100 days
- Offers the plant a wide range of essential trace elements
- Activates soil life, improves soil structure and increases the nutrients concentration
- Contains no chemical additives

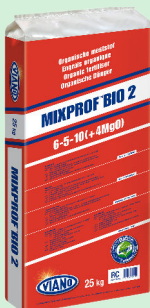
Apply at 100-150g per sq mtr.



MIXPROF BASE 25Kg 4-3-3

- A 100% organic fertiliser in pellet form
- Can be applied to a wide range of crops: small fruits, root crops, leaf vegetables, herbs and ornamental plants.
- Using MixProf BASE 4-3-3 leads to an increased microbiological activity in the soil. Or

Apply at 50-250g per sq mtr. depending on crops



MIXPROF BIO 2 25Kg 6-5-10 (+4MgO)

- 100% organic fertiliser, ideal for root vegetable crops and flowers
- Can be applied as a pre-seeder on lawns
- Rich in Potassium which extends the shelf life of crops after harvesting
- Extra Magnesium guarantees lush colours
- Ideal for preparation of non pre-fertilised soils



MIXPROF BIO 5 25Kg 4-3-3

- Organic soil improver with added nutrients
- The high percentage (+50%) of organic matter contributes better soil structure, more active soil life, and an ideal root and crop development
- Applicable in fruit and vegetable crops, lawn and ornamental garden

Sustainable Organic fertilisers made using solar energy!



Specialist Fertilisers

Solubor / Speedfol 12.5kg

Soluble Boron for the control of Boron deficiency in many crops

Epsom Salts 25kg

Control of Magnesium deficiency

Alga 30 (10L) or Kelpak (5L)

Highly concentrated natural seaweed extract

Blight Control

Burgundy Mixture

We stock Washing Soda crystals and Copper Sulphate





since 1948



VIANO ORGANIC PLANTFOOD 6-5-10 (+4MgO)

→ SPECIFICATIONS

RATE	50-100g/m ² (see detail below)
CONTENT	4kg net, 10 kg net
NUMBER / PALET	33x10kg on ½ pallet
FORM	Crumbs RC
WHEN TO USE	J F M A M J J A S O N D

→ DESCRIPTION

Viano organic plant food is an organic based natural fertiliser for general fertilisation of vegetables, fruits and herbs. The high potash content ensures increased formation of flower buds, more fruits, strong and healthy fruits with a longer preservation time after harvesting. With Viano organic plantfood fruits and vegetables become tastier. Can be applied during plantation or as a stock fertiliser during growing season. Works up to 3 months.

→ GUARANTEES

Compound organic based NPK fertiliser containing magnesium 6-5-10 (+4MgO)

6 % total nitrogen (N), of which

6 % organic nitrogen derived from feather meal, meat and bone meal and cocoa shells.

5 % total phosphorus pentoxide (P₂O₅)

10 % potassium oxide (K₂O) soluble in water

4% total magnesium oxide (MgO)

45 % organic matter derived from feather meal, meat and bone meal and cocoa shells.

Low in chlorine

Contains animal by-products, Cat II

Contains exclusively products allowed bij annex I of the Regulation (EC) No 889/2008 laying down detailed rules for the implementation of Council Regulation (EC) No 834/2007 on organic production, as changed - inspection TÜV Nord.

→ APPLICATIONS & RATES PER M²

	DURING PLANTING	MAINTENANCE FULL GROUND	POT / CONTAINER	PREFERRED TEMP.
TOMATOES	50g/plant	100g at start flowering	5g/1L substrate	12-15°C
	50g/plant	50-100g at red colouring stage	5g/1L substrate	12-15°C

→ PHYSICAL CHARACTERISTICS

- easy to use crumb formulation
- to spread by hand or with any kind of (centrifugal and drop) spreader
- hygienic in use
- density ca. 0,7kg / dm³
- MSDS available on demand

→ REMARKS

Applicable to following plants: grapes, blueberry, blackberry, bilberry, raspberry, cranberry, gooseberry, dewberry

Product authorized for organic farming

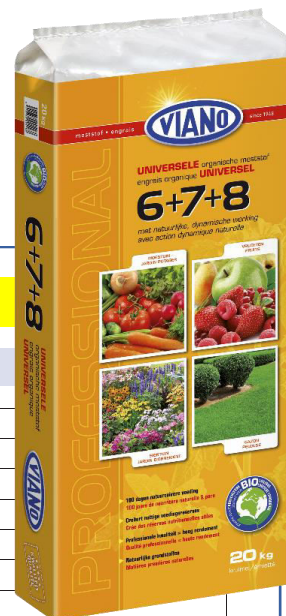
National Agrochemical Distributors Ltd.
Blakes Cross, Lusk, Co. Dublin
01 8437808
sales@nadirl.com
www.nad.ie

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The Crop Protection Specialists





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VIANO BIO UNIVERSAL PLANT FOOD 6-7-8 + bacteria

► SPECIFICATIONS

RATE	100- 150g /sqm
CONTENT	4 kg net, 10 kg net, 20 kg net
NUMBER / OUTER	5x4kg
NUMBER / DISPLAY	54x4 kg
NUMBER / PALET	66x10kg on pallet – 33x10kg on ½ pallet/ 39x20kg
FORM	Crumbs RC
WHEN TO USE	J F M A M J J A S O N D

► DESCRIPTION

An organic fertiliser for general use in ornamental, kitchen, herb – fruit crops and vegetable garden. It is authorized for use in organic farming (no chemical additives in this formula) and guarantees a long and soft action period (3 months). This well-established formulation is one of the oldest Viano products, still used by many real garden lovers. Can be applied in a wide range of crops and applications. It offers the plant a wide range of essential trace elements. It activates soil life, improves soil structure and increases the nutrients concentration. Can be applied in open air (full ground) or in greenhouse.

► GUARANTEES

Compound organic NPK fertiliser 6-7-8 with added bacteria
 6 % total nitrogen (N), of which
 6 % organic nitrogen derived from feather meal, meat and bone meal, cocoa shells.
 7 % total phosphorus pentoxide (P₂O₅)
 8 % potassium oxide (K₂O) soluble in water
 45 % organic matter derived from feather meal, meat and bone meal, cocoa shells.
 Bacteria: 106 (Bacillus subtilis sp.) per gram

► APPLICATIONS & RATES PER M²

	DURING PLANTING (spring)	MAINTENANCE (growth period)	CROPS:
LEAF VEGETABLES	100-150g	150g	lettuce, celery,...
ROOT CROPS	100-150g	150g	beet, carrot, radish,...
AROMATIC PLANTS	80-120g	80g	herbs
FRUIT VEGETABLES	100-150g	150g	tomato, cucumber,...
SMALL FRUIT	80-150g	150g	berries, grapes,...
FRUIT	100-200g	200g	Apple, pear,...
NURSERY FULL GROUND	100-250g	150g	trees, shrubs
NURSERY CONTAINER	100-250g	150g	trees, shrubs
LAWN CONSTRUCTION	100-150g	---	lawn
LAWN MAINTENANCE	---	100g	lawn
ORNAMENTAL GARDEN	100-150g	100g	general garden
Preparation soil (*)	2-6 kg/m ³ (this rate is only applicable on not pre-fertilised substrates!)		

Preferred temperature: 12-15°C (open air). In the greenhouse at 12°C minimal the whole year round. More detailed advice through soil analysis.

► PHYSICAL CHARACTERISTICS

- easy to use crumb formulation
- to spread by hand or with any kind of (centrifugal and drop) spreader
- hygienic in use
- density ca. 0,8kg / dm³
- MSDS available on demand

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FROST PROTECTION FLEECE

Frost protection fleece is available in a variety of sizes

1.5M x 250M

2.0M x 250M

8.5M x 250M

12.8M x 250M

16.0M x 250M

Other sizes available to order



CLEAR PERFORATED POLYTHENE

1.75M x 700M x 35 Micron

2.0M x 700M x 35 Micron

12.0M x 100M x 50 Micron



WEED CONTROL

Dense Black Polythene

1.4M x 600M x 50 Micron

2.0M x 600M x 50 Micron

24FT x 75FT x 125 Micron

36FT x 75FT x 125 Micron

42FT x 75FT x 125 Micron



PROTEX GROUND COVER

High quality, UV-stabilised, guaranteed for 5 years

Variety of sizes available (other sizes also available to order)

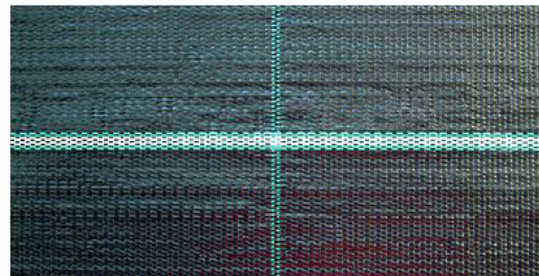
1.05M x 50M & 100M

2.07M x 50M & 100M

3.3M x 50M

4.15M x 50M

5.15M x 50M



MYPEX GROUND COVER PEGS

Pack of 100 or 1000

CROP PROTECTION – INSECT NETTING

INSECT NETTING

Designed to protect fruit and vegetable crops from insect attacks, but also gives protection from birds, rabbits and deer. The net creates a micro climate by giving shelter to the crop, but only increases the temperature by 1-2 degrees centigrade. Insect net must be laid slack as it does not stretch. Enough net must be left to secure it at the edges and for plant growth. Insect nets are best secured by soil as it creates a complete seal around the edges to exclude insects.

ROOT FLY/FLEA BEETLE NETS

(0.8mm mesh)

Works for flea beetle, cabbage and carrot root fly. Suitable for conventional and organic growing. Very durable fabric, will last up to 10 years.

3.65m x 50m

code NETT46

3.65m x 100m

code NETT47

13m x 50m

code NETT41

13m x 100m

code NETT48

13m x 200m

code NETT49

APHID/ORGANIC NET

(0.6mm mesh)

Controls the above plus aphids.

3.65m x 50m

code NETT34

3.65m x 100m

code NETT50

13m x 50m

code NETT42

ANTI-BIRD/ANTI-HAIL NETS

Extra strong lightweight net. Can be laid directly on top of the crop. Will last up to 10 years.

ANTI-BIRD NETTINGS

2m x 100m

code NETT06

4m x 100m

code NETT14

(2cm x 2cm mesh)

8m x 100m

code NETT13

ANTI-BIRD/ANTI-HAIL NETTINGS

13m x 50m

code NETT32

13m x 100m

code NETT30

(2mm x 8mm mesh)

13m x 200m

code NETT31





POLYTHENE FILM

Clear Cloche Film

2.8M x 200M x 80 Micron

Fumigation and General use

4.0M x 300M x 38 Micron, Clear

4.0M x 300M x 20 Micron, Clear

3.6M x 400M x 20 Micron, Clear



UVI Polythene Tunnel Cover – Cut to length available in the following standard widths:

9.2M, 11.1M, 14.0M, all 180 Micron thick

All tunnel covers are 5 seasons, thermal and anti-fog

With a very high puncture resistance

Other widths available to order

Dense White Polythene

3.6M x 300M x 70 Micron

Milky White Propagation Polythene

2.5M x 300M x 20 Micron

3.6M x 300M x 20 Micron



Specialist Tapes

Anti-Hot Spot Tape 25MM x 20M

UVI All Weather repair tape

Truss support tape (for strawberries) 45MM x 50M, Heavy Duty

GROUND COVER FABRICS

PERMATEX

Permatex is a black, multi-purpose, woven polypropylene ground cover, combining outstanding weed suppression with excellent water permeability.

Permatex is designed to provide weed-free growing areas for:

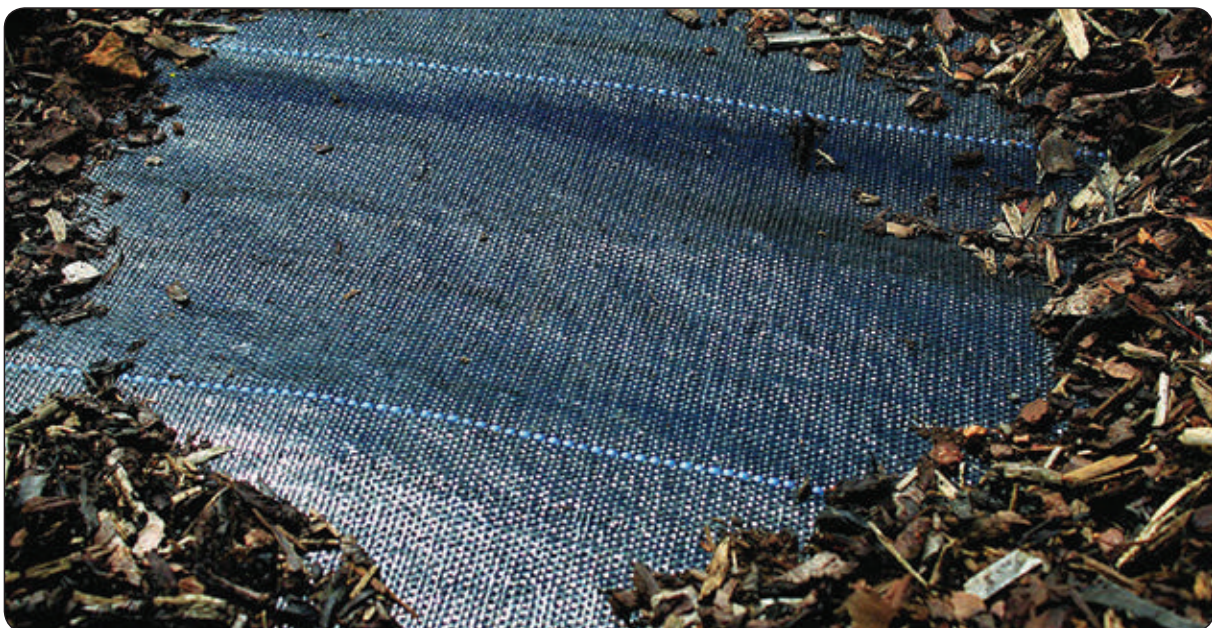
- Landscaping
- Planting
- The production of bedding, pot plants and container stock
- Use in Organic Growing Systems
- Outdoor, polytunnels, glasshouses and on benches
- Capillary, sand and gravel beds.

Features:

- 100g/m²
- Unbeatable weed suppression without spraying
- Water permeability of 10L/m²/second means no puddling and maintains subsoil moisture levels
- Permatex Ground Cover is UV resistant with 5 year guarantee
- Tested in desert conditions - unaffected by extremes of temperature
- Puncture and tear resistant. Can handle pedestrian and light vehicle traffic
- Maintains soil temperature to encourage strong root growth
- Improves presentation and positioning of pots and plants
- Shown to increase crop yields by up to 14%
- Reusable over many seasons
- Easy to maintain and clean.

Note:

Before applying Permatex to soil surfaces, ensure that all existing weeds are treated with an appropriate weed killer. Permatex should not be applied over sharp or coarse uneven surfaces. We are happy to advise on suitable weed control. Tel: 01 8437808 (press option 1 for Sales Team).



NAD

GROUND COVER FABRICS

PERMATEX GROUND COVER

1m x 50m

1m x 100m

2m x 50m

2m x 100m

3.3m x 50m

3.3m x 100m

4.2m x 50m

5.5m x 50m

code PERM01

code PERM02

code PERM03

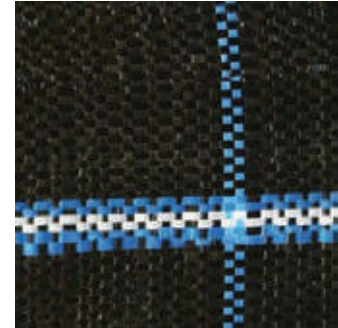
code PERM04

code PERM05

code PERM06

code PERM07

code PERM08



MYPEX PEGS

MYPEX PEGS

100 Pack



code MYPE03

MYPEX PEGS

1000 Pack

code MYPE33

14.5cm/6" long. Pegs used for fixing Mypex to the ground.

BIODEGRADABLE PEGS 6"

Box 500



code BIOG04

Green Stake Pegs are 100% biodegradable and are environmentally friendly.



NAD

POLLINATION



BEELINE BEEHIVES

Flowers need to be pollinated to maximise fruit quality and yield. Most tomato crops, indoor strawberries and soft fruit crops are pollinated using bumblebees because of the significant impact on yield and fruit set.

Bumblebees require sugar for flight energy and feeding their colony. They require pollen as a protein source for reproduction. Since tomato flowers have little nectar, a supplement is required in the hive to maintain colony growth. The efficiency of a hive in a greenhouse depends on the successful growth of the bee colony. The ability of the bumblebee to collect and transfer pollen, and the pollen content of flowers, are affected by cultivation techniques.

The Beeline Beehives are produced according to various specifications, depending on the target crop and growing system. The design of the Beeline hives has been continuously improved based on field experience. With a self-feeding sugar system and a simple bee-lock for flight management, no maintenance is required. Supplementary freeze dried pollen is available for feeding in case of delayed flowering or low pollen availability. A pollen feeding tray is built into the hive design. All hives have broods in all life stages. Hives are produced to suit different crops and situations: for example Strawberries, Tomatoes, Soft Fruit, Aubergine, Courgette or Pepper.



Placement of hives in the greenhouse

- Remove hive box from shipping box.
- Leave the restraining straps in place.
- Keep the hives upright at all times and place them immediately in their final positions in the greenhouse.
- Ensure there is nothing in front of the flight hole, never let the sun shine directly into the hive.
- Place the hives low in the crop where there is enough shadow
- Do not place hive in a cold place. Do not place hive high above the crop in the sun.
- Wait at least 2 hours for the bees to settle down before opening the flight holes.
- During hot and sunny weather wait until the sun is low in the sky before opening the flight holes.
- Place new hives early in the morning or in the evening if possible.
- Avoid placing hives directly above a CO₂ hose outlet, or below a dripping gutter.

At the end of the useful life of the colony, but not later than 10 weeks after the introduction, set the bee lock door to collect the bees into the hive, as you would do prior to applying a crop protection product. Once all the bees are in the hive close the bee lock completely. Then dispose of in a certified manner.



BEELINE SOFT FRUIT HIVE

80 – 100 bees

code BEEH01

BEELINE TOTAL SYSTEM HIVE

40 – 60 bees

code BEEH03

Beeline Bumblebee hives are a complete hive which contains bee food and pollen to ensure consistent performance over an extended period.

NAD

The Crop Protection Specialists

Other products also available from NAD



Sprayers and sprayer parts

Hoses, fittings, lances, sprinklers

Pots and seeding trays

Wheelbarrows, tools and equipment

National Agrochemical Distributors Ltd.

Blakes Cross, Lusk, Co. Dublin

T: 00353 1 8437808 F: 00353 1 8437909 E: sales@nadirl.com

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