



# Opportunities for biologicals in Forestry, Turf & Amenity, Home & Garden

# Overview

**Key global challenges are shaping the agricultural market**

**BASF is redefining crop care with a strategic focus on biologicals in agriculture**

**“Beyond agriculture” segments are also creating exciting and new opportunities**

**Dynamic markets in forestry, turf and home & garden**



# Global trends bring new challenges



Growing and aging world population



Urbanization



Energy demand and climate protection



Globalization and developing markets

*By 2050 global food production must double to meet demand*

# Global trends drive new demands on agriculture

## Demands on Agriculture

Increase of water and nutrient use efficiency

Yield and productivity increase

Addressing sustainability demands

## Complex Farming Environment

Pests

Labor

Weeds

Weather

Commodity prices

Water

Regulations

Environment

## Functional Crop Care Focus Areas

Soil Management

Seed Solutions

Crop Care

# BASF Functional Crop Care

- BASF Functional Crop Care *redefines crop protection*, harnessing scientific innovation in *chemistry and biology* to unlock agricultural potential from soil to seed to crop.
- For plant health and sustainable yield increases, BASF Functional Crop Care *anticipates farmers' challenges* to develop unique solutions in Soil Management, Seed Solutions and Crop Care.



# BASF Functional Crop Care focus areas



## Soil Management

- Nutrient management products
- Water management products



## Seed Solutions

- Conventional chemical seed treatments
- Biological seed treatments (including inoculants)
- Seed-applied polymers and colorants



## Crop Care

- Foliar biological products (including bioinsecticides and biofungicides)
- Biological and conventional plant health products
- Plant growth regulators

# Biological Crop Protection

- A portfolio of biofungicides, bioinsecticides, and bionematicides that:
  - Assists in reducing damage caused by fungi, insects, slugs and nematodes
  - Enhances nutrient availability and uptake
  - Improves overall productivity and health of the crop
  - Assists in managing resistance
  - Adds a tool to manage residues around harvest



*Important technology that complements chemistry-based solutions*

# Biologicals beyond agriculture





# Biologicals beyond agriculture

## Market drivers

- Loss of PPP registrations
- Market size vs. new registration costs
- Options for label extensions being reduced
- Directives promoting biological use
- Country law operating outside of EU regulation
- Consumers changing demands



# Forestry – the opportunity

- **Nemasys** Successfully used in population management of key insect pest (Pine Weevil *Hylobius abietis*)
- Directives to move to biological strategies
- Commercial forestry highly affected: clear felling provides abundance of breeding sites



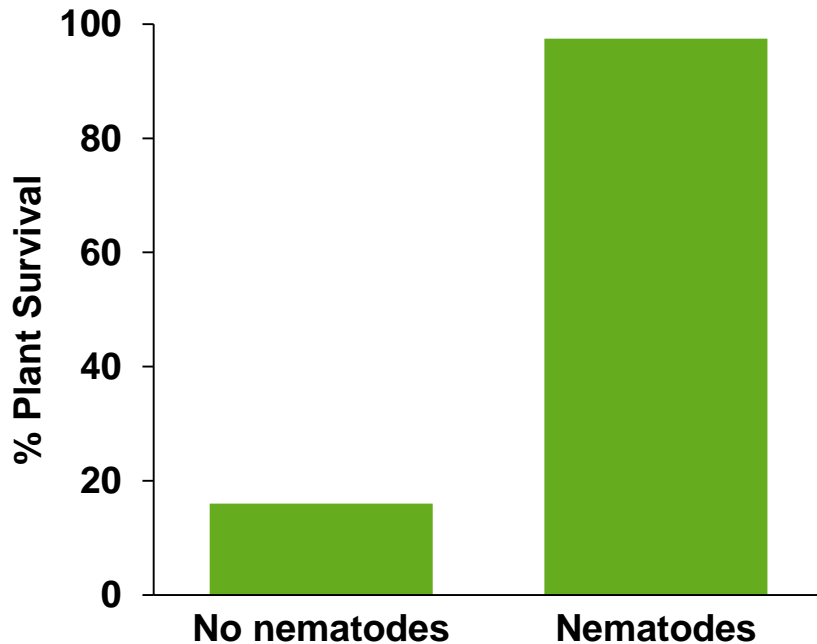
# Biocontrol in action – pine weevil

- Feeding adults cause damage to young transplants
  - Feed on bark and phloem tissue
  - Girdle stem resulting in plant death
- Application of Nemasys targeting the Pine Weevil larvae in felled stumps prior to replanting
- Challenging environmental conditions for biological treatments

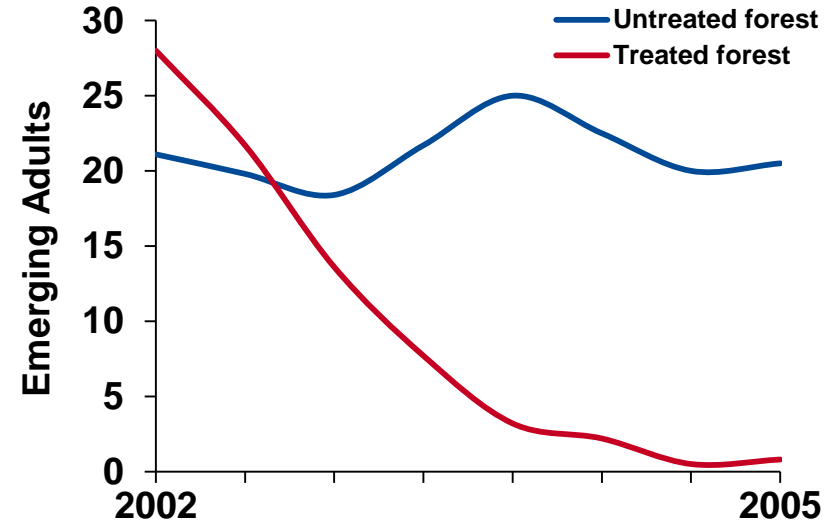


# Forestry – Experience with Nemasys®

Impact of nematodes on the survival of Sitka spruce planted after a previous crop of Lodgepole pine



Single applications of nematodes to each new site reduces the population within the forest



The populations within the forest area (as shown by the numbers of adults emerging from stumps) is reduced over four years

From Forest Research publication, Ref: nemb2006.

*Nemasys highly effective in population management and reduces damage to manageable levels*

# Turf – the opportunity

- Country registration authorities restricting PPP usage on non-essential applications
- Key market is golf courses
- Reduction in the availability of soil insecticides
  - Key pests are larval stages of chafer/white grubs and tipula sp.



# Biocontrol in Action – Turf

Beneficial nematodes like Nemasys<sup>®</sup> G are used extensively in Europe and North America



# Home and Garden – the opportunity

- Country registration authorities restricting PPP usage on non-essential applications
- January 23<sup>rd</sup> 2014 Law Labbé passed in France
  - By end 2020 a total ban on pesticides in public parks and home and garden use
  - Segolene Royal wants to accelerate to end 2016
- What will happen in rest of Europe?
- Requirements for all PPP applications to be made by registered users
- Amateur use restrictions on neonicotinoids
- Desire to grow vegetables at home free of chemical inputs both PPP and NPK



# Home and Garden

- Logistic challenge to service and supply individual homes
- Promotional challenge to communicate with the public
- The internet changed this:
  - Biocontrol products can be ordered online and delivered the next day
  - Beneficial nematodes like Nemaslug<sup>®</sup> are leading biologicals; establishing reputation, relative stability and consistent performance





# Slug control

- Nemaslug contains *Phasmarhabditis hermaphrodita*, a slug parasitic nematode
- Shelf life and concentrated pack size allows shipment by conventional post
- Strong reputation
  - Highly effective compared to all other solutions
  - Long lasting
  - Rain resistant
  - No sign of application



# Result – most talked about biocontrol product in home and garden

**PIPPA GREENWOOD**

HOME | GROW YOUR OWN | ASK PIPPA | PRODUCTS | BLOG | ABOUT PIPPA | CONTACT PIPPA

## ANTS, ANTS EVERYWHERE! NEMASYS NO ANTS TO THE RESCUE!

13 August 2012

This year ants seemed to be slow to build up their numbers...but all of a sudden everyone seems to be asking how to control them. Ants create mounds of soil on lawns, can certainly make it difficult to sit on your lawn for a picnic or have a meal or drink anywhere in the garden...and although they don't directly attack plants, their excavations can loosen the soil around plant roots so much that the plants then suffer from drought and may even be killed! So what can you do? The best solution I know is a nematode biological control, Nemasys No Ants by name, and the great thing is that it is very effective but also totally safe - no risk to wildlife, pets or humans...in fact nothing except the ants are sorted.

**NEW PRODUCTS AVAILABLE NOW!**

**SIGN UP FOR A FREE EBOOK**



### PEST OF THE MONTH

Vine Weevils seem to be on the up this year. I have found 1 have way up the back window and another nearing the top of the sitting room door.

Nematodes are available which will infect the grub with a bacteria which they carry. This is used between March and May and again in August and November. It will kill the grub. Brands include Nemasys.

**★★★★★ It works**  
Has kept our garden slug-free for most of the summer. Only now (Aug) have we seen any sign of the little pests

By Ed Cumming  
7:00AM BST 19 Apr 2013  
Twitter | 3,430 followers

### Most Helpful Customer Review

15 of 15 people found the following review helpful

★★★★★ Excellent  
By user1924 on 27 Jun 2013

**★★★★★ NEMASLUG**  
WORKS VERY WELL, THIS IS THE SECOND YEAR USED. ONLY SLUGS SEEN THIS YEAR ARE ONES HIDING BELOW THE GARDEN SHED. [Read more](#)

1 Comment  
The prolonged wet weather has been good news for some diseases. Check plants - especially roses - for black spot and mildew. Young slugs and snails will emerge to feed on green growth. Take preventative action, such as collars, beer traps or organic slug pellets. Products, such as Nemaslug, should be applied as soon as possible (14°C).

**A Gardener in France**  
Garden Design Academy - English garden designer in the Loire Valley

In my travels I discover that one of our Magnolias is struggling, ravaged by Vine Weevils. Finding an adult on a leaf and a grub in the ground, both killed and gorged at, drastic action was called for. Fortunately I have the answer in a packet of Nemasys nematodes in the drawer of the fridge, next to the yoghurt.

**Gardeners' World.com**  
From the heart of Gardeners' World Magazine

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## Nemasys Vine Weevil Nematodes

In Problem solving

Latest posts | New discussions | Hot threads | Forum topics | Help | Settings | Public profile

**Royal Botanic Garden Edinburgh**

**facebook**

Sneglekampen  
Patio/Garden

14,060 likes

Sneglekampen  
25. September

Hei alle sneglebekjempere! Hvordan er snegle-status der du bor nå? Har sneglene gått i dvale allerede?

**Slug Nematodes 12million (Treats 40sq.m)**  
Nemaslug

★★★★★ (54)

- Treats 40sq.m
- Control for up to 12 weeks
- Store in refrigerator

# Conclusions

## Opportunity

- Regulatory changes paves route for biocontrol solutions
- Industry drive to provide sustainable and long term solutions
- Biologicals provide solutions for consumer habits and desires



## Challenge

- Expertise with biologicals, use logistics etc.
- Develop IPM strategies that ensure robust performance
- Effective marketing approach



# Thank you!





The Chemical Company

# Application



# Home and Garden

**BASF**  
The Chemical Company

The image shows a composite of two web pages. On the left is the 'NORDIC GARDEN' website, and on the right is an Amazon.co.uk product page for 'Nemaslug Slug Killer Standard Pack'. The Nordic Garden page features a logo with a blue flower and green leaves, and text in Norwegian. The Amazon page shows the product box, customer reviews, and pricing information.

**NORDIC GARDEN**  
Her finner du oss  
Bli forhandler  
Kontakt oss

Arkiv    Tast inn søk her ...

FORSIDE    OM OSS    PRODUKTKAT

## Nemaslug - enkel og miljøvennlig

Bli kvitt brunskogsneglene med nematoder, naturens eget våpen.

Nematoder er naturlige organismer som allerede finnes i jorda. De er ikke skadedyr, men jakter på andre skadedyr og bidrar dermed til naturlig plantevern, miljøvennlig og trygt for barn, kjæledyr og dyreliv. Nematodene i Nemaslug finnes alt i norsk jord. Forskere har isolert den nematoden som kun dreper snegler, og mange millioner nematoder blir avlet frem så de enkelt kan brukes av gartneren og hageeieren. Når nematodene ikke lenger finner noe bytte vil de dø ut og reduseres til et normalt antall i jorda.

Les mer om snegler på [sneglekampen.no](#)

Våre forhandlere kan bestille Nemaslug her.

**GreenGardener.co.uk**  
THE NATURAL WAY TO KEEP YOUR GARDEN LOOKING GOOD

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**amazon.co.uk** Prime  
MJ's Amazon    Today's Deals    Gift Cards    Sell    Help

Shop by Department    Search    Garden & Outdoors

Garden & Outdoors    Deals & Offers    Garden Furniture    Gardening    Birds & Wildlife    Solar Lights    Sheds    Best Sellers    Home & Garden    DIY & Tools

Customers who viewed **Nemaslug Slug Killer Standard ...** also viewed:

- Slug Nematodes 12million (Treats 40sq.m)**  
Buy new: **£9.48**  
4 Used & new from **£9.48**  
★★★★☆ (163)
- Slug Nematodes 30million (Treats 100sq.m)**  
Buy new: **£19.20**  
4 Used & new from **£19.20**  
★★★★☆ (68)

Gardening > Plant Protection & Pest Control > Insect Control > Outdoor Insect Control > Slugs & Snails

### Nemaslug Slug Killer Standard Pack treats 40 sq m

by Nemasys  
★★★★☆ 292 customer reviews | 10 answered questions

Price: **£9.47** & FREE UK delivery

Note: Not eligible for Amazon Prime.

**In stock.**  
Dispatched from and sold by [green gardener](#).

5 new from **£7.02**

- Uses microscopic worms (nematodes) which prey on slugs and kills them
- Gives up to 6 weeks protection
- Totally organic and harmless to wildlife, pets and children
- Very easy to apply - just water in
- Same-day first-class despatch (Mon-Fri, excl. bank holidays)

**Nemaslug**  
The Simple Solution  
**SLUG KILLER**

- Treats up to 40m<sup>2</sup> (50 sq. yards)
- Control for up to 6 weeks
- Store in refrigerator