

Effective and Ecologically Friendly Biopesticides



AgroGreen

- **Mission- Develop, manufacture and market Effective, easy to use and safe microbial products for agricultural use.**
- Owned by Minrav-One of the leading developers and building contractors in Israel
- Minrav acquired technology from“Ecogen Israel Partnership”, and recruited its former employees in 1997
- 21 employees, most of them have strong academic background in life science.
- Implementing a wide range of disciplines required for product development and manufacturing

BioNem WP
(for conventional farming)

BioSafe WP
(for Organic farming)



Biological control of various phytopathogenic nematodes

Trade Names: BioNem WP , BioSafe WP, Chancellor

Active Ingredient: *Bacillus firmus*

Mode of action: Persistent reduction of nematode population.

Mode of application: Injection to irrigation system

Shelf life: Over two years at ambient conditions

Patent: worldwide protection

Potential WW market: 550 million \$

SHEMER

(for conventional
and Organic farming)



Biological control of Pre and Post harvest diseases of fruits and vegetables

Product name: SHEMER

Active ingredient: *Metschnikowia fructicola*

Formulation: WDG (Water dispersible granules)

Mode of action: Preventive suppression by competition for nutrients

Mode of application: Spraying, dipping

Shelf life: Over one year at ambient conditions

Patent: Worldwide protection

Wide Range of Pathogen Control



Strawberry



Botrytis
Rhizopus



Botrytis



Grape



Aspergillus

Citrus



Penicillium



Sweet potato



Rhizopus

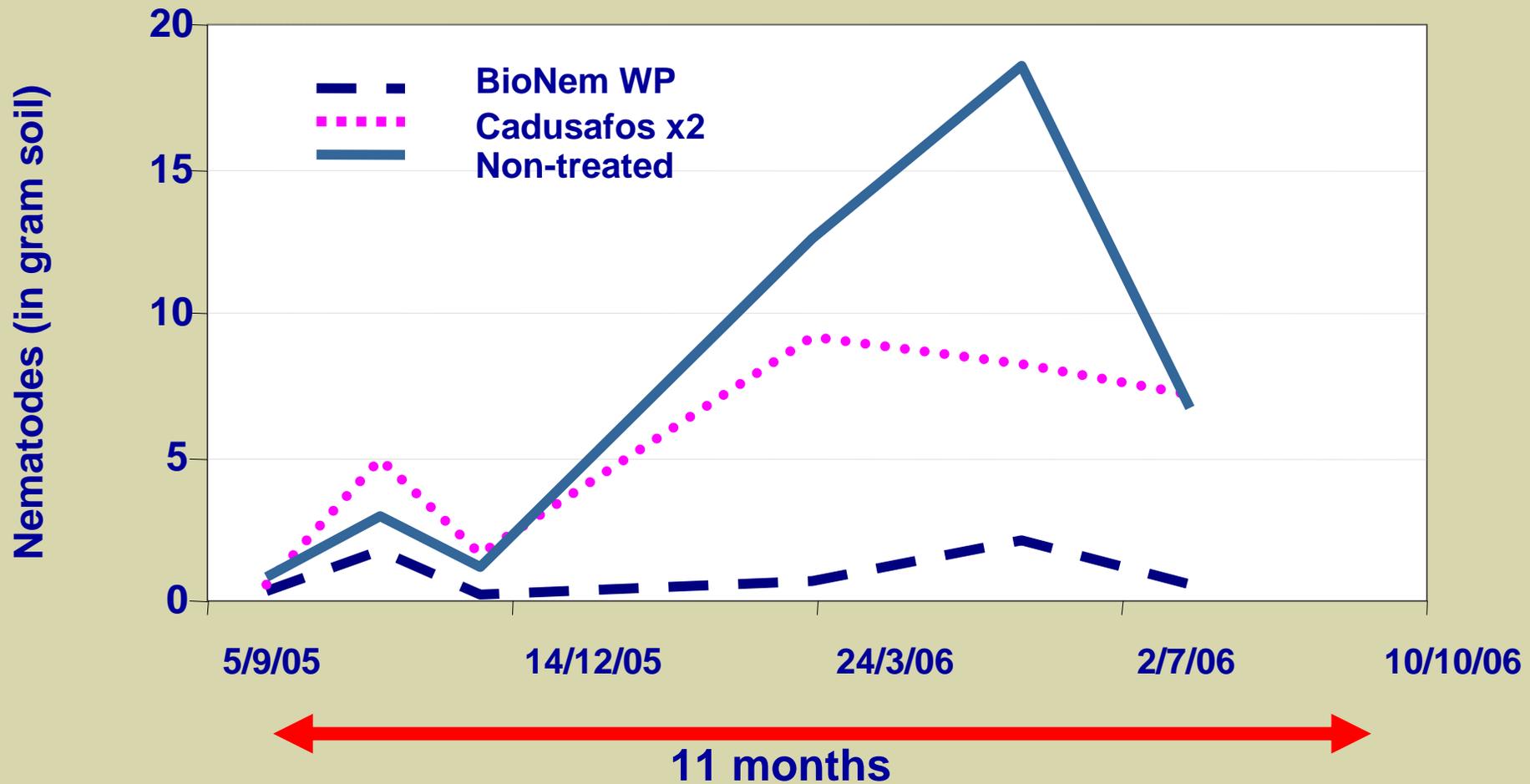
- Efficacy
- Cost
- Ease of use
- Safety

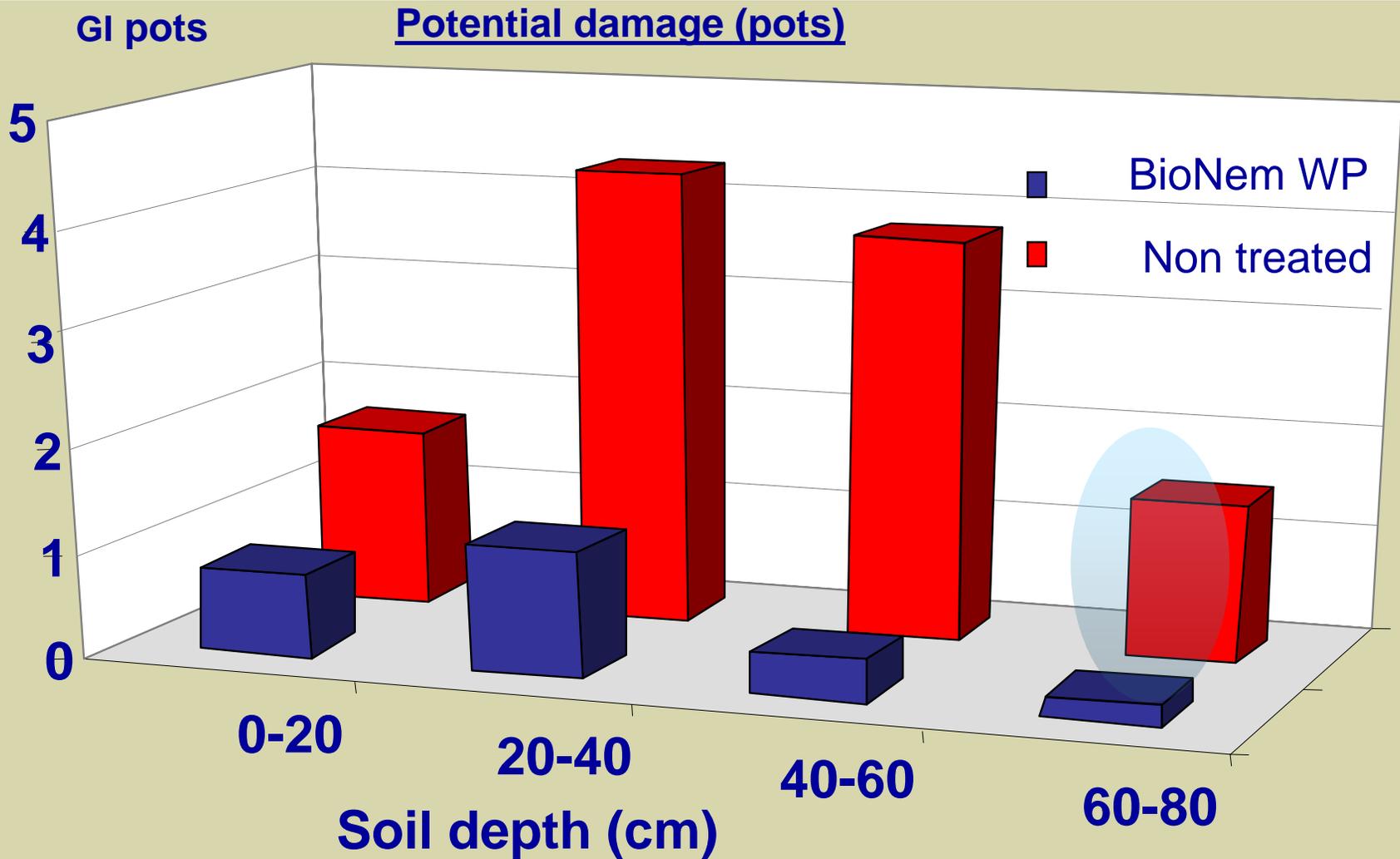
New products should show efficacy
comparable to standard pesticides

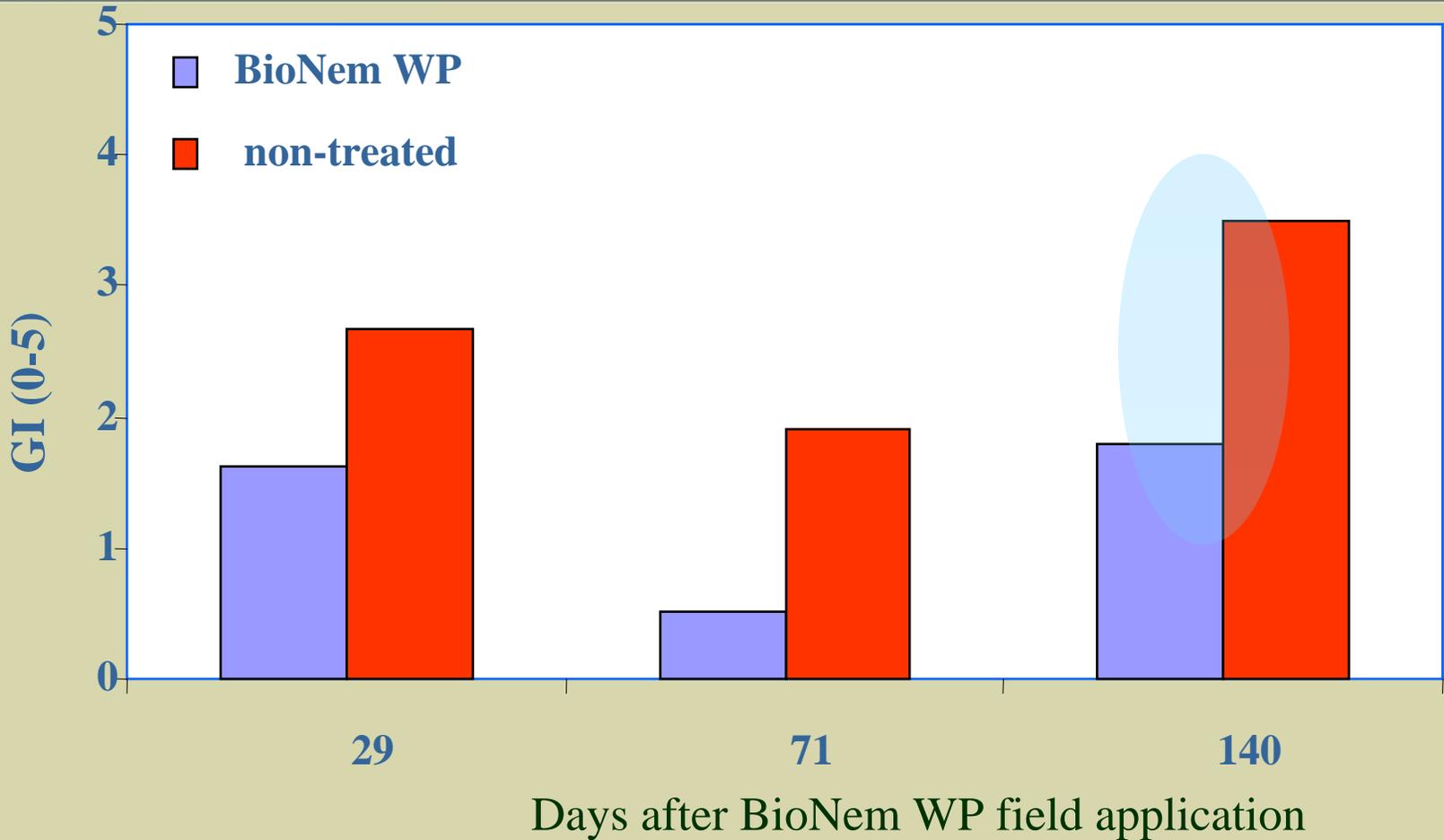
Clear benefit to grower



Effect of one application of BioNem WP on RKN in Hypericum

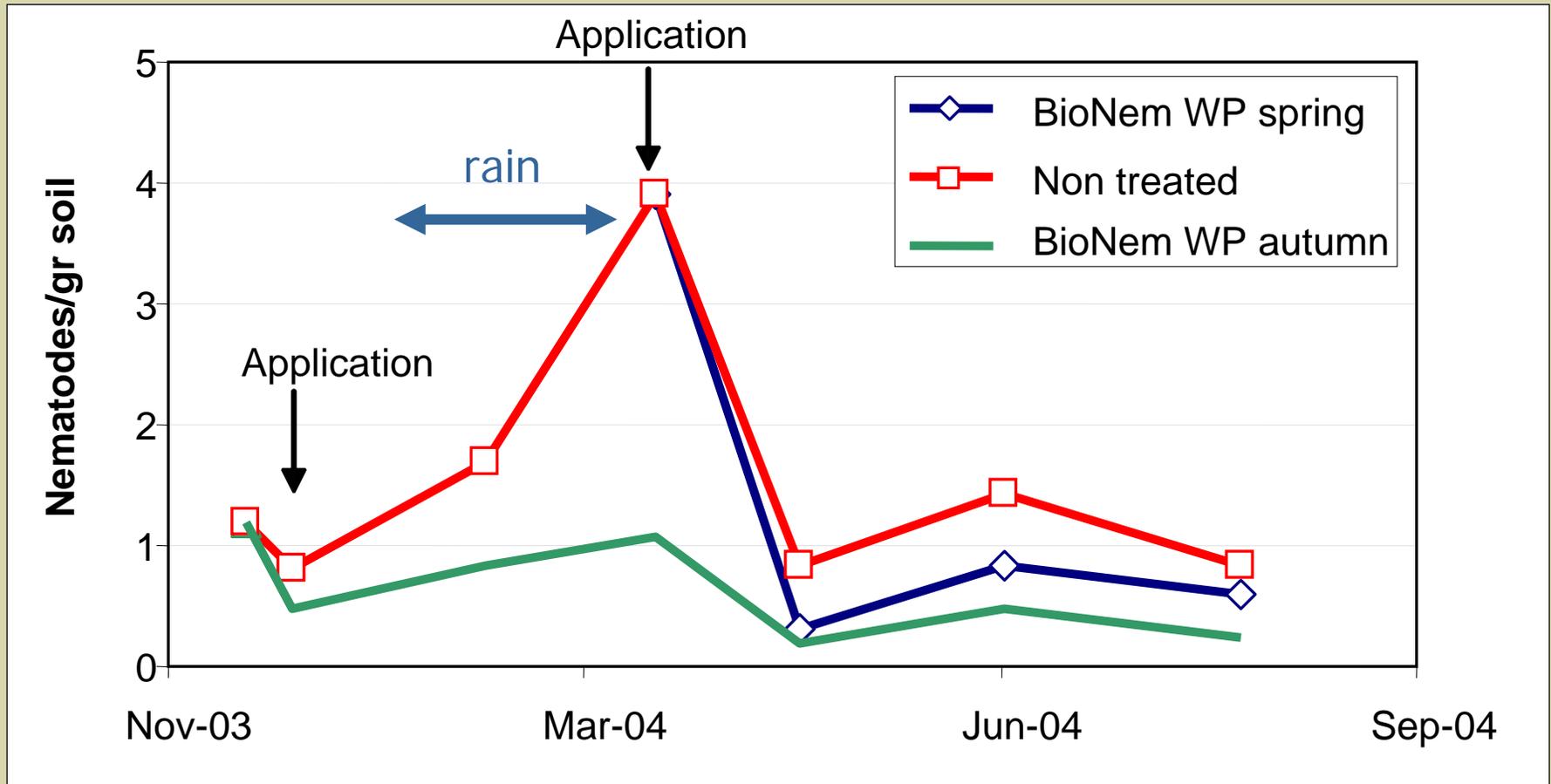




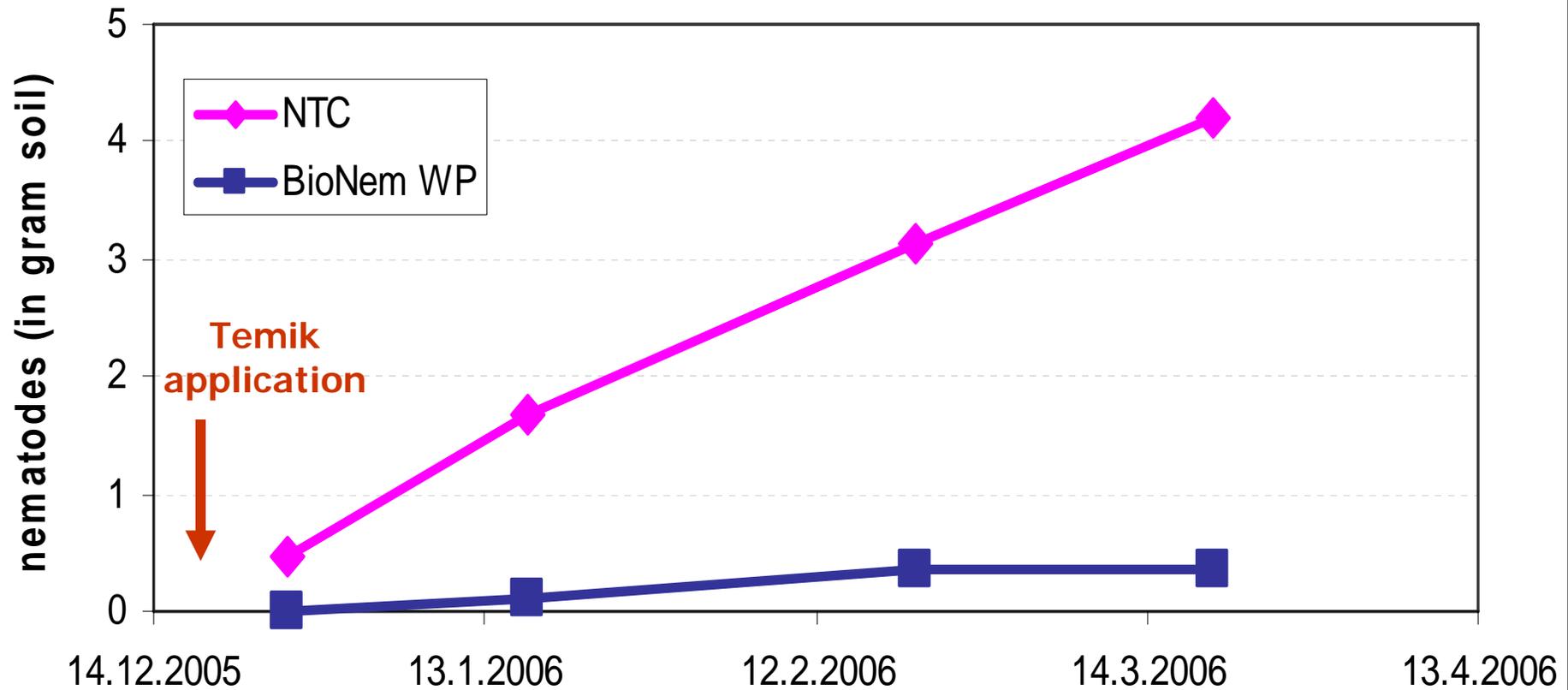


- Non infested soil from the field was mixed with nematode infested soil.
- Damage was assessed on bait plants

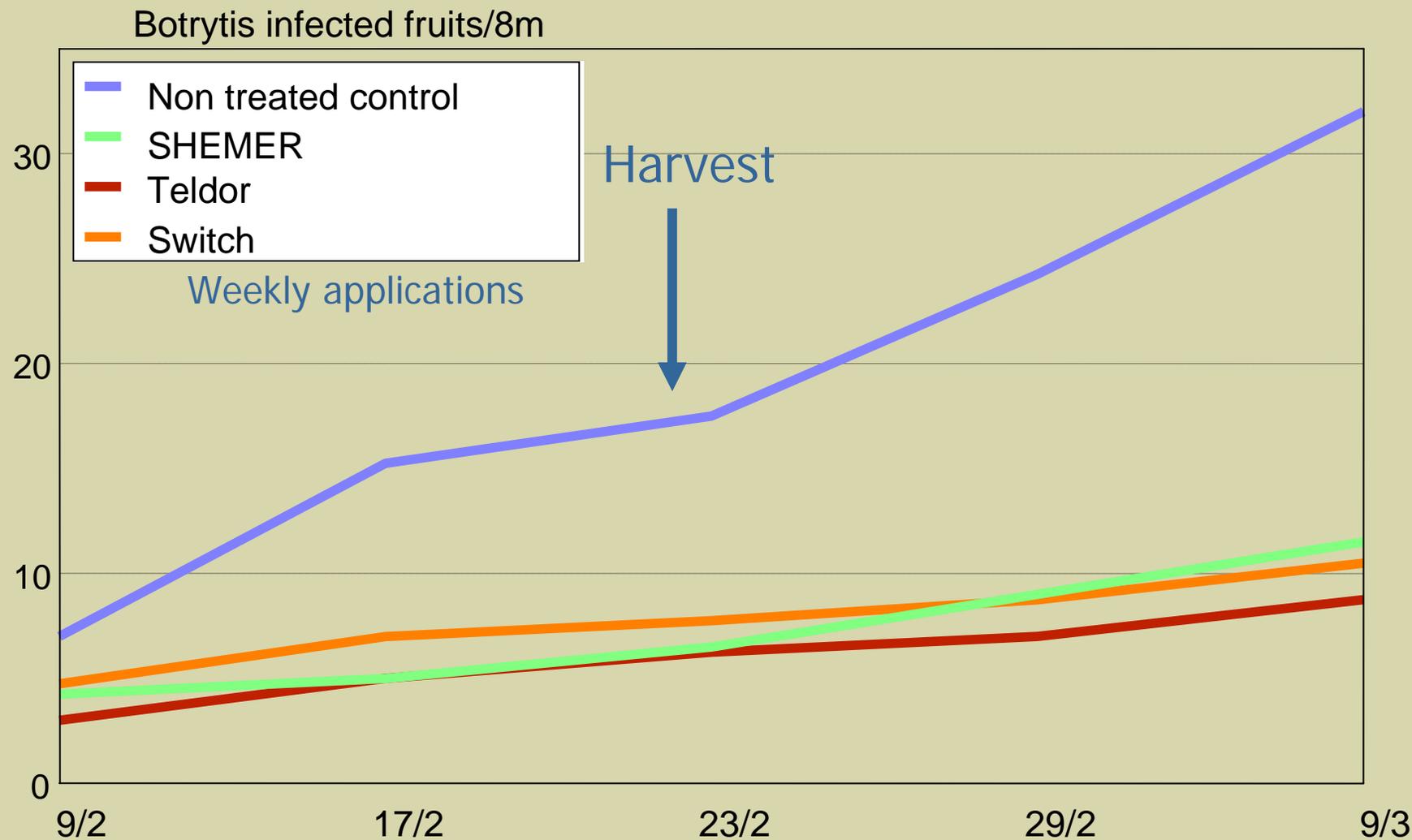
Timing of application



Control of nematodes in roses irrigated by circulating water

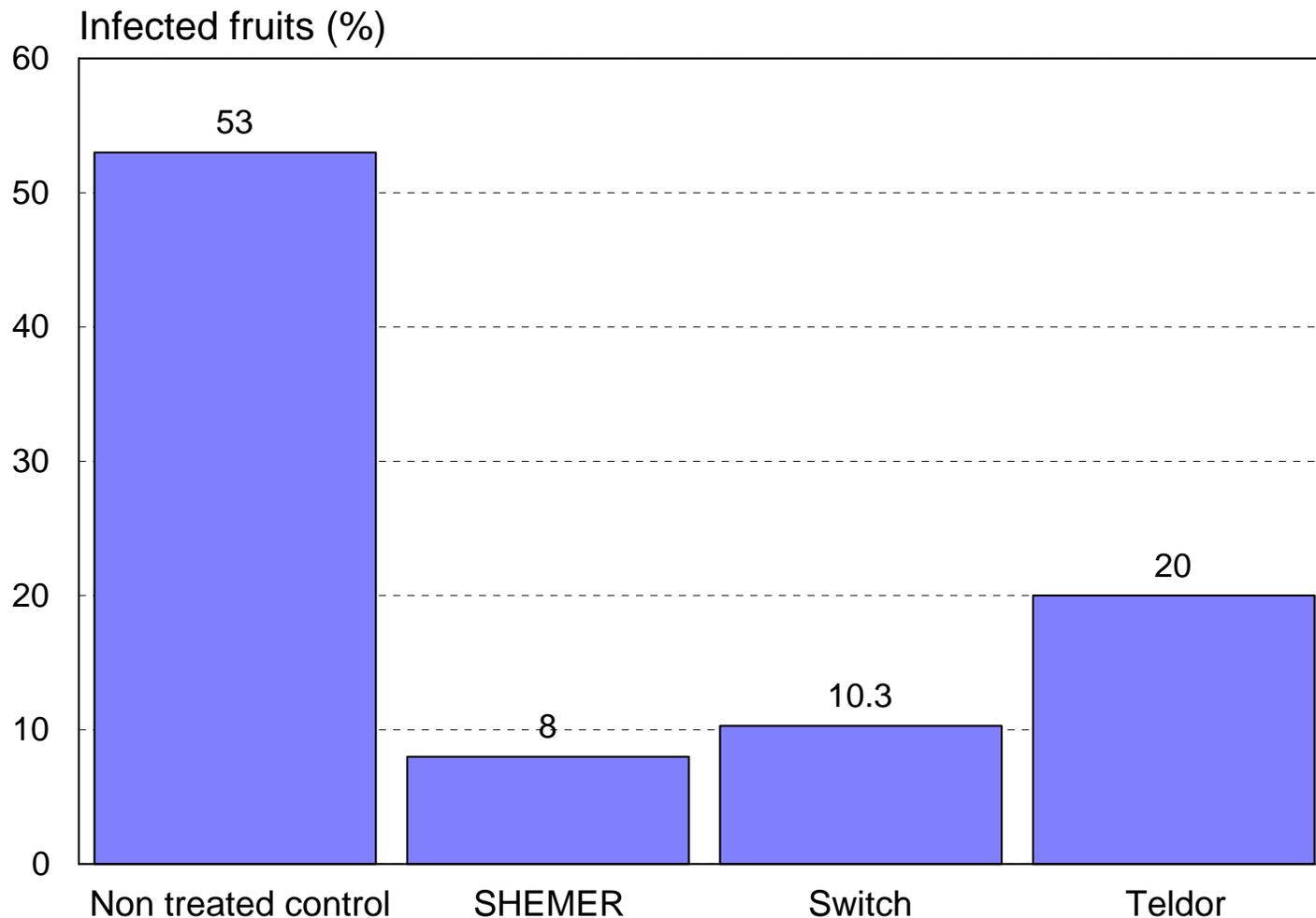


Prevention of *Botrytis* rot on Strawberries in the field



Prevention of rot development on stored Strawberries

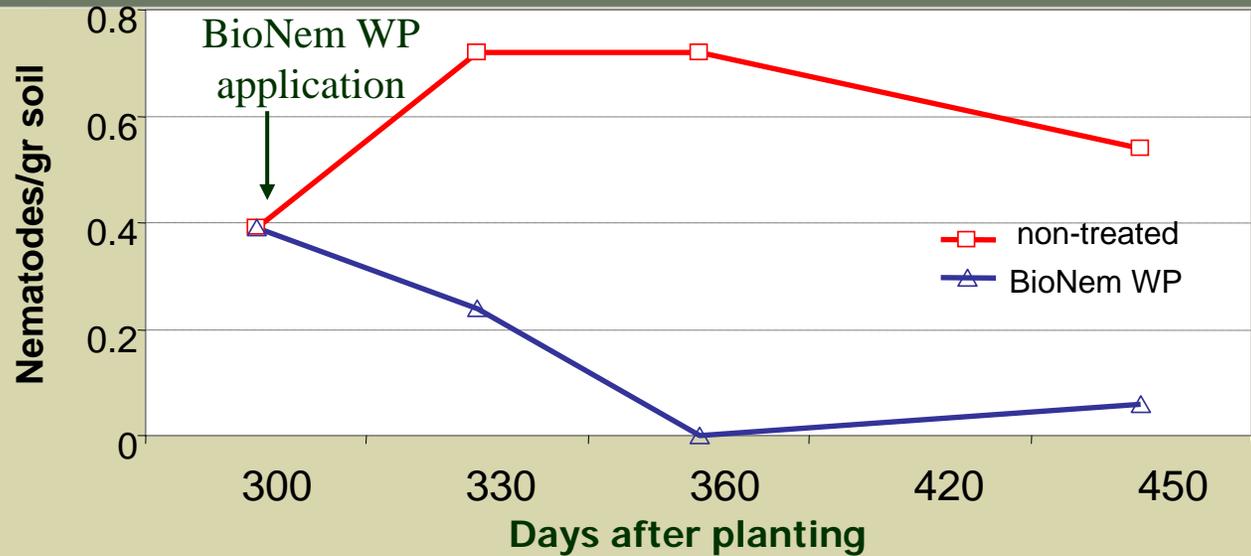
Pre-harvest field treatment



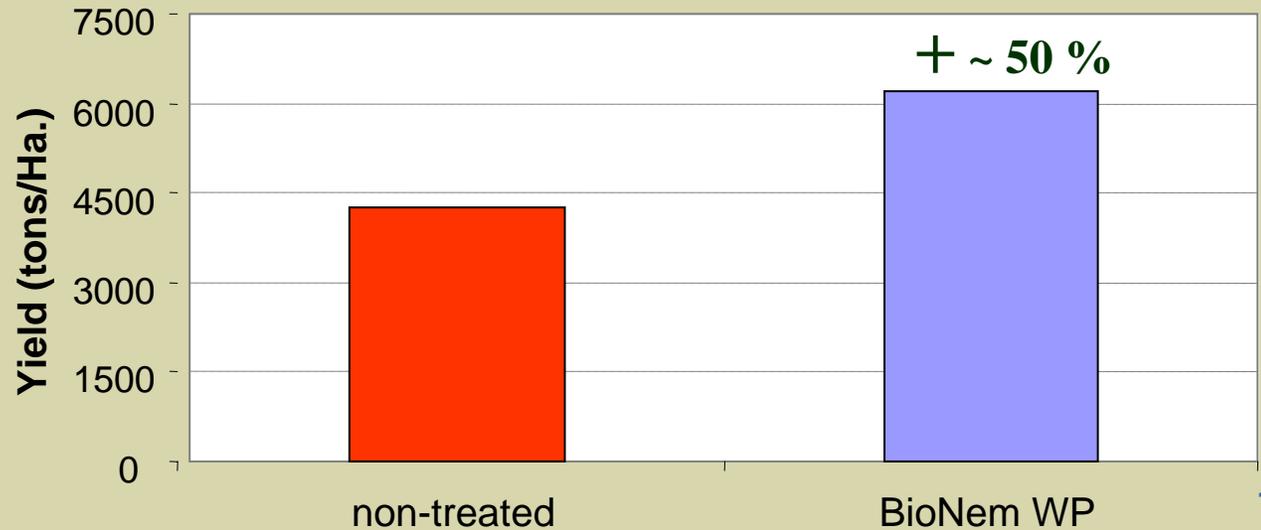
Product safety along with tougher regulations
expand market opportunities for
biopesticides

Nematode control on chive during harvest

Nematode population



Marketable yield



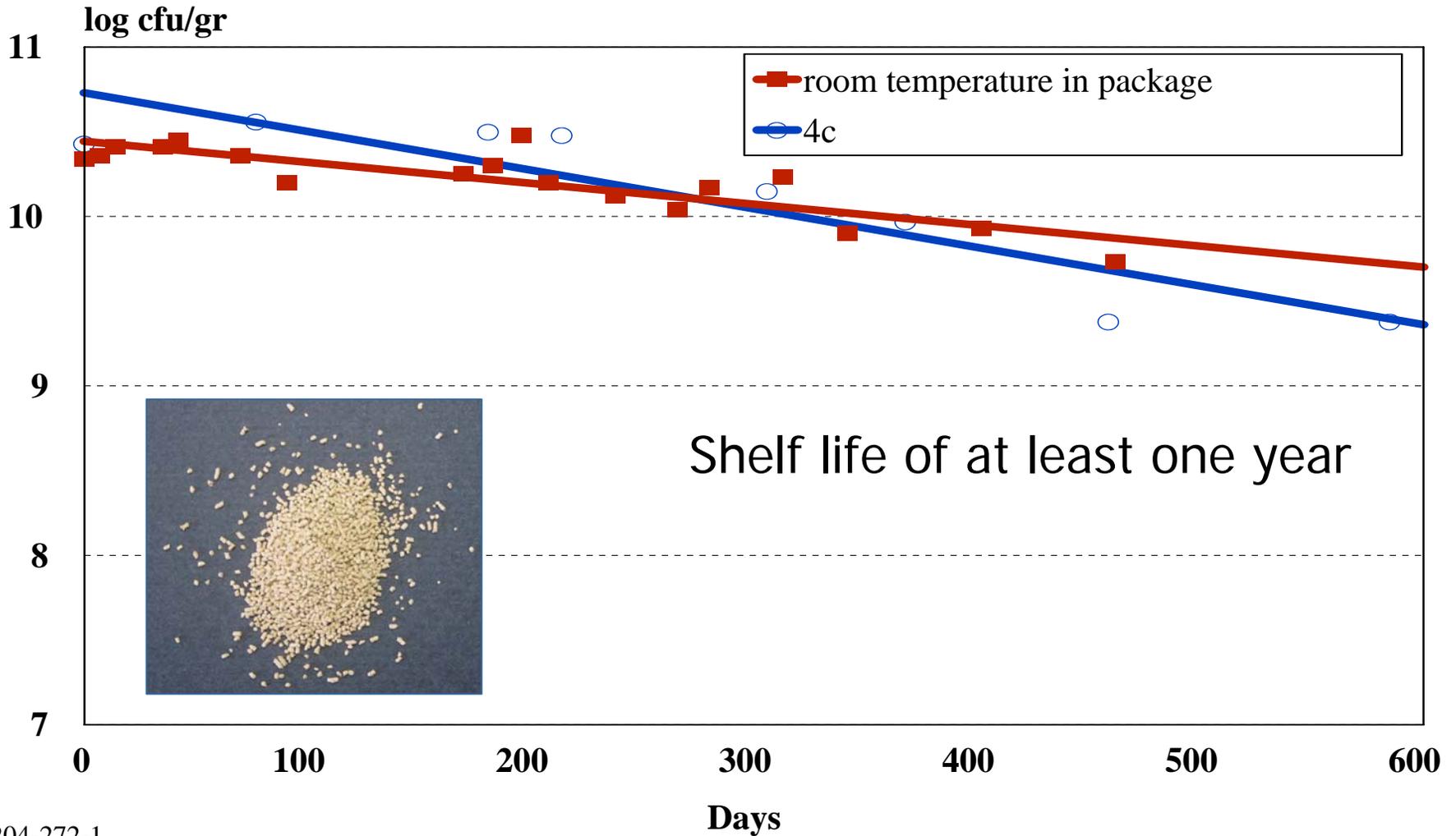
Prevention of *Rhizopus* rot in Sweet-potatoes



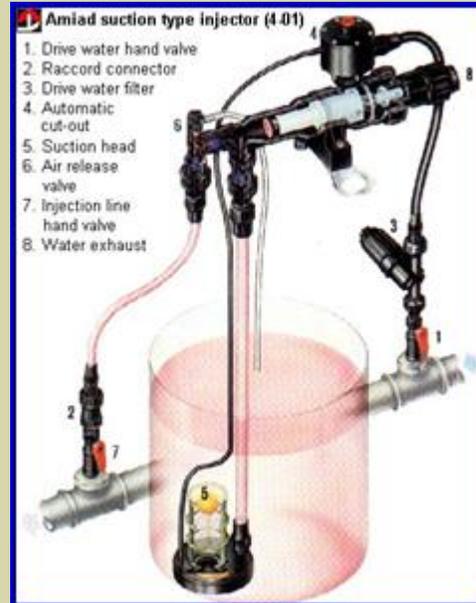
SHEMER

Non-treated

Can biologicals be made easy to use?



BioNem WP application by fertigation (via drip-irrigation)



Advantages of fertigation delivery method:

Precise (the product delivered with water reaches the soil profile explored by the roots)

Easy to carry out (Less labor consuming)

Multiple applications can be made throughout a long growing season and on perennial crops whenever necessary

For field crops,
cost becomes a real issue...

Wheat seed treatment effect of *B. firmus* in *H. avena* infested Soil

Seed treatment	Nematode damage		Plant height (cm)	Dry matter (gr)
	T/root	Hits/Root		
Non treated	4.1	12.7	19.4	1.5
Thiametoxam	3.9	11.1	19.3	1.5
<i>B. f.</i> low	3.6	11.9	19.9	1.7
<i>B. f.</i> high	2.4 (-41%)	10.7 (-16%)	23.3* (+20%)	1.9 (+26%)

*Sown after rain

D. Bonfil, ARO Gilat 2006

- Bionem WP and SHEMER address End-user requirements for efficacy, ease of use and cost
- Safety of biopesticides alone will not assure sales
- Unique control features of biopesticides can pave their way to market

Thank you

