Valagro®

Where science serves nature

KENDAL NEM

July 16, 2014

KENDAL NEM

- Which kind of product
- How does KENDAL NEM work?
- Kendal Nem vs Radifarm or Viva
- Field Trials

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KENDAL NEM

- **WHICH KIND OF PRODUCT**
- How does KENDAL NEM work?
- Kendal Nem vs Radifarm or Viva
- Field Trials

KENDAL NEM

A CLEAR POSITIONING

«IT IS A SPECIFIC BIOSTIMULANT THAT, IN PRESENCE OF SOILS AFFECTED BY NEMATODES WORKS DIRECTLY ON PLANT ROOT SYSTEM INCREASING PLANT DEVELOPMENT AND ROOTS VIGOUR»

ROOT SYSTEM IMPROVEMENT MEANS A BETTER PLANT DEVELOPMENT AND BETTER PRODUCTIVE PERFORMANCE

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KENDAL NEM

SOME CONSIDERATIONS WHEN WE SPEAK ABOUT KENDAL NEM:

WE ARE NO THINKING ABOUT NEMATODES

WE THINK ONLY ON PLANT..

KENDAL NEM WORKS DIRECTLY ON PLANT PHYSIOLOGY

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KENDAL NEM

- Which kind of product
- **HOW DOES KENDAL NEM WORK?**
- Kendal Nem vs Radifarm or Viva
- Y2014 – Next Steps

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KENDAL NEM

HOW DOES IT WORK?

	GEA 099	Mineral fraction
1. Helps plants to remain vigorous in presence of nematodes	o	
2. It increases the physical strength of the roots	o	o
3. It reinvigorates the roots	o	o

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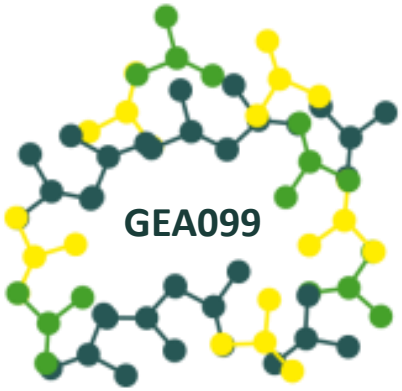
1. HELPS PLANTS TO REMAIN VIGOROUS IN PRESENCE OF NEMATODES

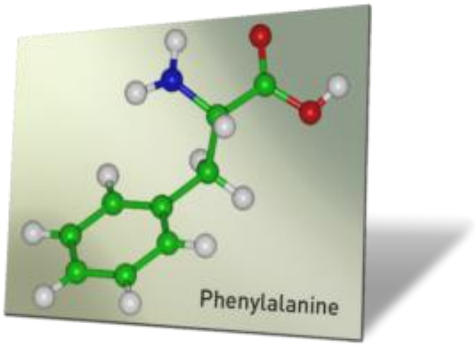
GEA 099 components like aminoacids and proteins, assures **PROMPT ACTIVATION OF METABOLIC PROCESSES.** This activity helps the plant to maintain high levels of nutrition in presence of soil affected by nematodes.

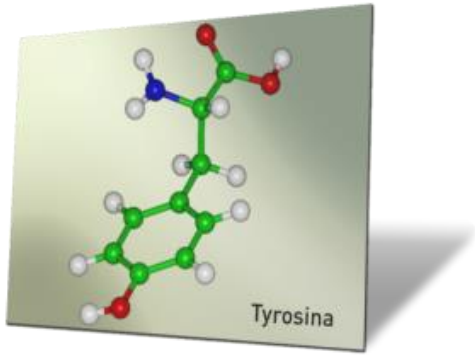


Valagro's specifics nutrients components

2. IT INCREASES THE PHYSICAL STRENGTH OF THE ROOTS

PLANT "CELL WALL" THICKENING - SYNTHESIS OF SALICYLIC ACID





The components present in GEA099 – our own specific nutrient - increase root physical *stamina.* Amino acids such as Tyrosine and Phenylalanine are directly involved in:

1a. the synthesis of phenolic substances such as lignin, responsible for increased lignification of root tissue

1b. synthesis of salicylic acid, involved in the mechanisms of plant robustness

1c. Reduces root morphological defects

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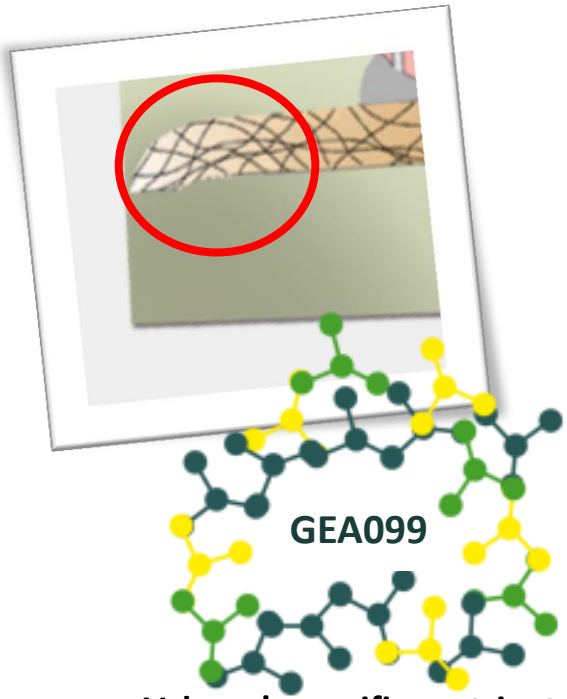
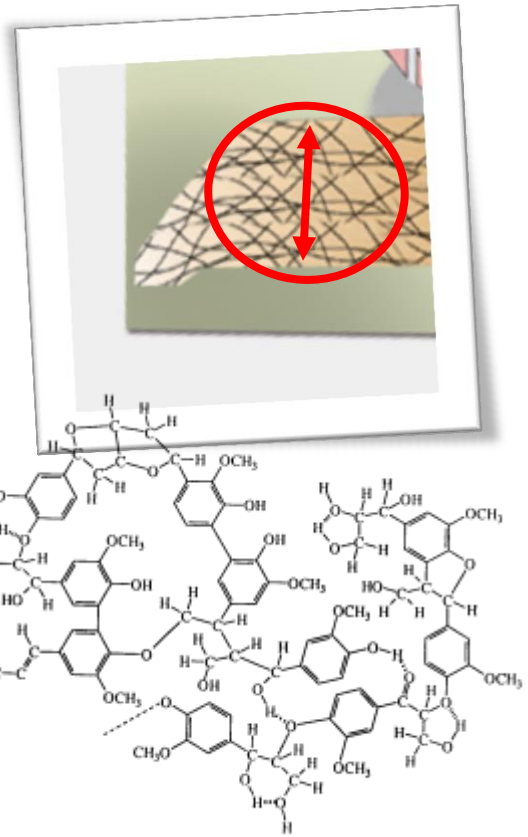
2. IT INCREASES THE PHYSICAL STRENGTH OF THE ROOTS

1a. the synthesis of phenolic substances such as lignin, responsible for increased lignification of root tissue



Valagro's specifics nutrients components



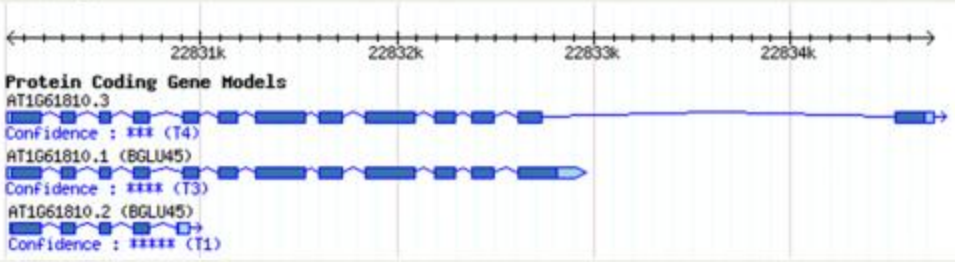
2. IT INCREASES THE PHYSICAL STRENGTH OF THE ROOTS

1a. the synthesis of phenolic substances such as lignin, responsible for increased lignification of root tissue

2010-11-17
Locus:2036798
AT1G61810.3
protein_coding
BGLU45, T13M11.19, T13M11_19, BETA-GLUCOSIDASE 45

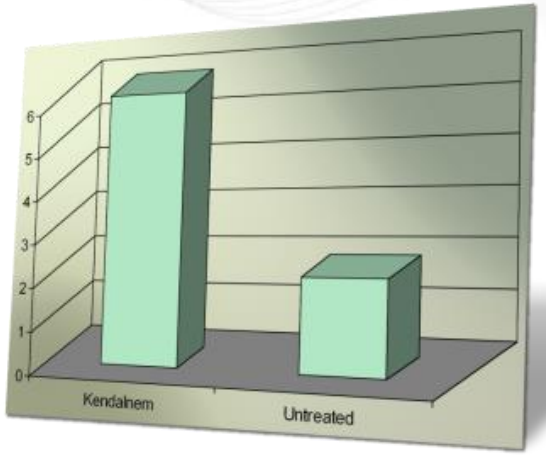
beta-glucosidase 45 (BGLU45); FUNCTIONS IN: cation binding, hydrolase activity, hydrolyzing O-glycosyl compounds, catalytic activity; INVOLVED IN: lignin biosynthetic process; LOCATED IN: endomembrane system; EXPRESSED IN: 18 plant structures; EXPRESSED DURING: 9 growth stages; CONTAINS InterPro DOMAIN/s: Glycoside hydrolase, family 1 (InterPro:IPR001360), Glycoside hydrolase, family 1, active site (InterPro:IPR018120), Glycoside hydrolase, catalytic core (InterPro:IPR017853), Glycoside hydrolase, subgroup, catalytic core (InterPro:IPR013781); BEST Arabidopsis thaliana protein match is: beta glucosidase 46 (TAIR:AT1G61820.1).

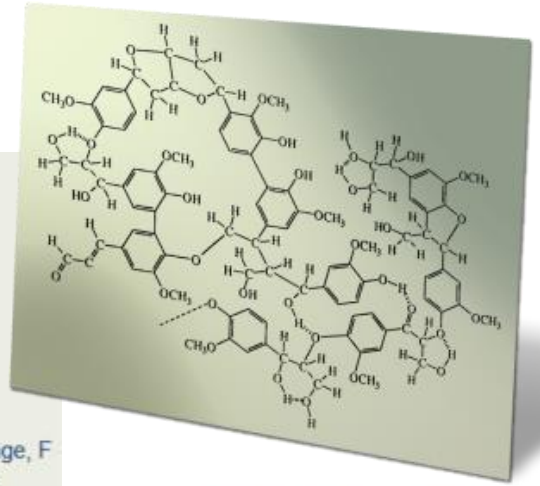
AT1G61810.2 AT1G61810.1
(splice variant)



category	relationship type	keyword
GO Biological Process	involved in	lignin biosynthetic process
GO Cellular Component	located in	endomembrane system
GO Molecular Function	functions in	cation binding
GO Molecular Function	has	catalytic activity, hydrolase activity, hydrolyzing O-glycosyl compounds
Growth and Developmental Stages	expressed during	4 anthesis, C globular stage, D bilateral stage, E expanded cotyledon stage, F mature embryo stage, LP.04 four leaves visible, LP.06 six leaves visible, LP.08 eight leaves visible, petal differentiation and expansion stage
Plant structure	expressed in	carpel, cauline leaf, collective leaf structure, egg cell, embryo, flower, hypocotyl, inflorescence meristem, male gametophyte, pedicel, petal, root, seed, sepal, shoot apex, stamen, stem, vascular leaf

www.arabidopsis.org





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2. IT INCREASES THE PHYSICAL STRENGTH OF THE ROOTS

1b. synthesis of salicylic acid, involved in the mechanisms of plant robustness

There's an inverse correlation between root basal PR-1 expression and plant susceptibility to nematodes

Kendal Nem : gene markers

Locus Identifier	Annotation	KENDAL NEM	Name
AT2G19990	PR-1-LIKE (PATHOGENESIS-RELATED PROTEIN-1-LIKE)	27	pathogenesis-related protein 1 (PR-1), identical to pathogenesis-related protein 1
AT2G19970	pathogenesis-related protein, putative	13	pathogenesis-related protein, putative, similar to pathogenesis-related protein 1 {*Arabidopsis thaliana*} GI:166805; contains Pfam profile PF00188: SCP-like extracellular protein
AT1G50060	pathogenesis-related protein, putative	3	pathogenesis-related protein, putative, similar to prb-1b (Nicotiana tabacum) GI:19970; contains Pfam profile PF00188: SCP-like extracellular protein

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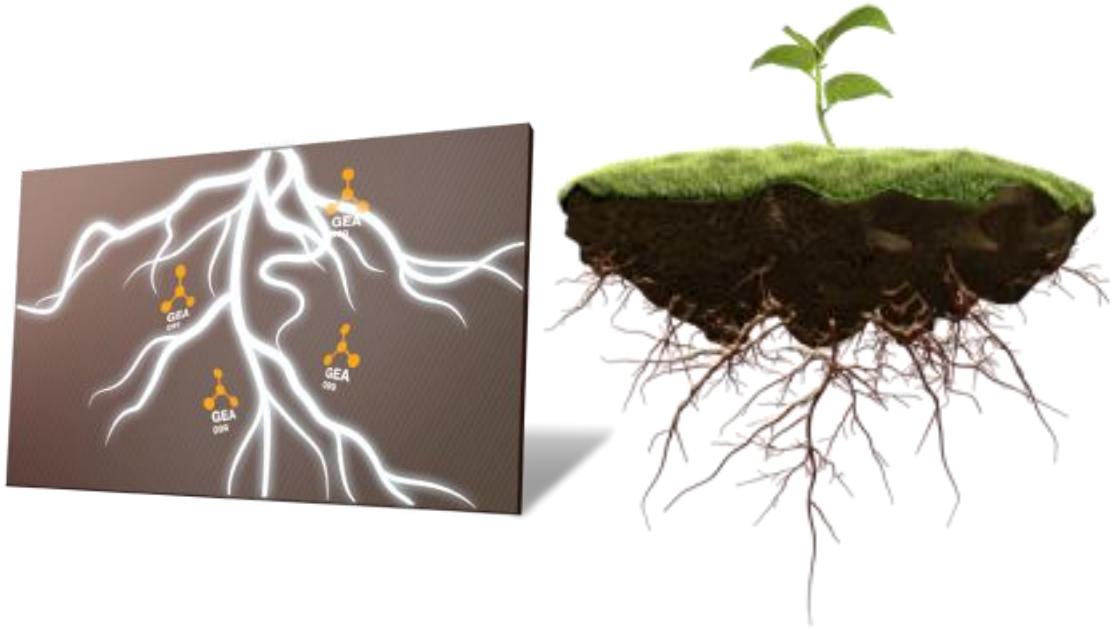
2. IT INCREASES THE PHYSICAL STRENGTH OF THE ROOTS

1c. Reduces root morphological defects

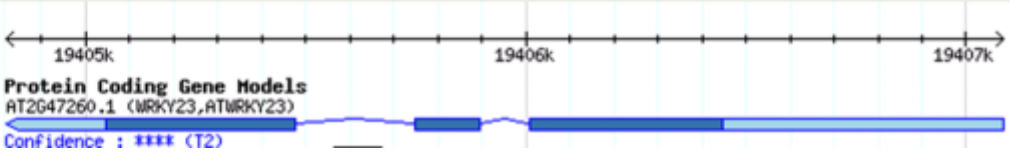
The Gea active099 ingredients glycine betaine, aminovaleric acid δ- and γ-aminobutyric acid induce an increase of specific compounds in root tissue which maintain on harmonic root architecture reducing malformations. **THE RESULT IS A VIGOROUS ROOT SYSTEM DEVELOPED IN THE RIGHT WAY.**

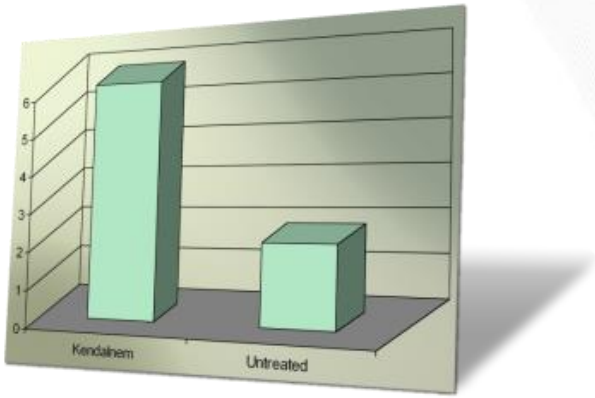


2. IT INCREASES THE PHYSICAL STRENGTH OF THE ROOTS

1c. Reduces root morphological defects

Locus: AT2G47260

Date last modified	2009-11-02
TAIR Accession	Locus:2065124
Representative Gene Model	AT2G47260.1
Gene Model Type	protein_coding
Other names:	WRKY23, ATWRKY23, T8I13.10, WRKY DNA-BINDING PROTEIN 23
Description	Encodes a member of WRKY Transcription Factor; Group I. Involved in nematode feeding site establishment.
Map Detail Image	



Annotations	category	relationship type	keyword
	GO Biological Process	involved in	regulation of transcription, DNA-dependent,
	GO Molecular Function	has	sequence-specific DNA binding transcription factor activity
	Growth and Developmental Stages	expressed during	4 anthesis, 4 leaf senescence stage, C globular stage, D bilateral stage, E expanded cotyledon stage, F mature embryo stage, LP.02 two leaves visible, LP.04 four leaves visible, LP.10 ten leaves visible, LP.12 twelve leaves visible, M germinated pollen stage, petal differentiation and expansion stage
	Plant structure	expressed in	carpel, cauline leaf, collective leaf structure, embryo, flower, hypocotyl, inflorescence meristem, leaf apex, leaf lamina base, male gametophyte, pedicel, petal, petiole, root, seed, sepal, shoot apex, shoot system, sperm cell, stamen, stem, vascular leaf

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3. IT REINVIGORATES THE ROOTS

The GEA099 component plays a crucial role in maintaining constant energy for the roots. Nutritional imbalances in fact can occur due to loss of efficiency of the damaged roots. The various components present in GEA099, Aspargina and Arginina identifyed as factors of rooting and Thiamines are directly involved in stretching and architecture of the roots, and **ENSURE THE FORMATION OF NEW ROOTS AND IMPROVING THE ROOT SYSTEM**

Valagro's specifics nutrients components

KENDAL NEM

SOME CONSIDERATIONS WHEN WE SPEAK ABOUT KENDAL NEM:

WE ARE NO THINKING ABOUT NEMATODES

WE THINK ONLY ON PLANT..

KENDAL NEM WORKS DIRECTLY ON PLANT PHYSIOLOGY

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KENDAL NEM

WORKS DIRECTLY ON PLANT PHISOLOGY TO INCREASE PLANT DEVELOPMENT

KENDAL NEM INCREASES PLANT DEVELOPMENT IN SOIL AFFECTED BY NEMATODES

PLANT >>

TRANSPLANT	POST TRANSPLANT	PLANT GROWTH	FIRST FLOWERING	FIRST TRUSS FRUIT SET	FRUIT ENLARGEMENT	FIRST FRUIT RIPENING	AFTER 1° HARVEST UNTIL THE END OF THE CROP CYCLE

INTEGRATED CROP MANAGEMENT >>

HP.1

CHEMICAL NEMATOCIDE Ex.Fenamifos, Oxamyl, Etoprofos

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KENDAL NEM

WORK DIRECTLY ON PLANT PHISOLOGY TO INCREASE PLANT DEVELOPMENT

KENDAL NEM INCREASES PLANT DEVELOPMENT IN SOIL AFFECTED BY NEMATODES

PLANT >>

TRANSPLANT	POST TRANSPLANT	PLANT GROWTH	FIRST FLOWERING	FIRST TRUSS FRUIT SET	FRUIT ENLARGEMENT	FIRST FRUIT RIPENING	AFTER 1° HARVEST UNTIL THE END OF THE CROP CYCLE

INTEGRATED CROP MANAGEMENT >>

HP.2

BIO-NEMATOCIDE Azadiractina, *Paecilomyces lil, Tricoderma spp.*

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KENDAL NEM

DOSE AND USAGE	CULTIVAR	APPLICATION RATE AND PERIOD
FERTIGATION	ALL CROPS	0,5 – 2,0 Gal/Acre depending on severity of root damage and frequency of application 7 - 20 days or as needed
FOLIAR*	VEGETABLE CROPS INDUSTRIAL CROPS	0,5 – 2,0 Gal/Acre depending on severity of root damage and frequency of application 7 - 20 days or as needed

*** Use a sufficient volume of water to wash the foliage so the product can reach the soil and roots.**

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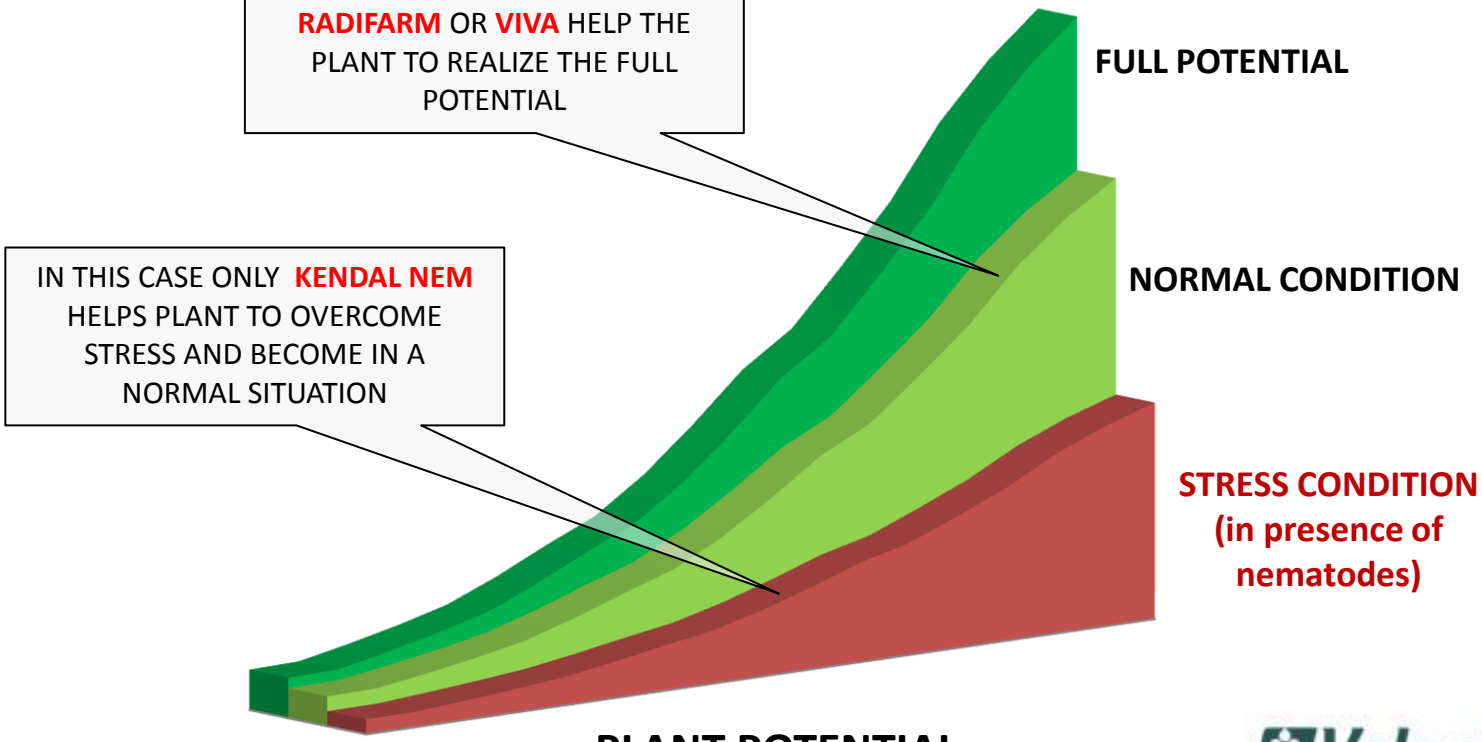
KENDAL NEM

- Which kind of product
- How does KENDAL NEM work?
- **KENDAL NEM VS RADIFARM OR VIVA**
- Field Trials

KENDAL NEM

KENDAL NEM vs RADIFARM or VIVA



CAN I USE KENDAL NEM INSTEAD OF RADIFARM/VIVA?

SOIL AFFECTED BY NEMATODES

KENDAL NEM

Plant Recovery **UNDER NEMATODE ATTACK** to achieve and guarantee good production

NORMAL CONDITION

RADIFARM **VIVA**

They work **UNDER NORMAL CONDITION** their effects is reduced or not the best under nematode attack

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- Which kind of product
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- Kendal Nem vs Radifarm or Viva
- **FIELD TRIALS**

TRIAL CODE	TITLE	LOCATION
1	PSHQ009IF1_pomodoro_bisaccia_nobile.doc	SOUTH OF ITALY
2	PSHQ009IF1_pomodoro_ferrera_nobile.doc	SOUTH OF ITALY
3	PSHQ009IF1_pomodoro_riquadro_nobile.doc	SOUTH OF ITALY
4	PSHQ009IF1_pomodoro_rimaudo_nobile.doc	SOUTH OF ITALY
5	PSHQ009IF1_pomodoro_scritto_nobile.doc	SOUTH OF ITALY
6	PSHQ009IF1_pomodoro_paca_nobile.doc	SOUTH OF ITALY
7	PSHQ009IF1_pomodoro_forbedi_nobile.doc	SOUTH OF ITALY
8	PSHQ009IF1_pomodoro_pesantu_nobile.doc	SOUTH OF ITALY
9	PSHQ009IF1_pomodoro_pep_nobile.doc	SOUTH OF ITALY
10	PSHQ009IF1_pomodoro_laicata_nobile.doc	SOUTH OF ITALY
11	PSHQ009IF1_pomodoro_disca_nobile.doc	SOUTH OF ITALY
12	PSHQ009IF1_pomodoro_tecno_nobile.doc	SOUTH OF ITALY
13	PSHQ009IF1_pomodoro_buoncuore_nobile.doc	SOUTH OF ITALY
14	PSHQ009IF1_zucchino_caparzano_nobile.doc	SOUTH OF ITALY
15	PSHQ009IF1_melanzana_laicata_nobile.doc	SOUTH OF ITALY
16	PSHQ009IF1_cetriolo_riquadro_nobile.doc	SOUTH OF ITALY
17	PSHQ009IF1_pomodoro_pannizzo_nobile.doc_2009	CENTRAL ITALY
18	ITALIA_LEGGIUP	SPAIN
19	prova_SPAGNA_PEDRO_SANCHEZ	SPAIN
20	prova_SPAGNA_PEDRO_SANCHEZ	SPAIN
21	prova_SPAGNA_PEDRO_SANCHEZ	SPAIN

FIELD and EXPERIMENTALS

TRIALS

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Tab.1 General information

Location	Vittoria (RG) sicily
Variety	Belize
Distance beetween rows	0,80/1,20 metre
Distance on the row	0,35 metre
Invest. (p/ha)	30000

Fenamifos

KENDAL NEM

Tab.2 Date and growth stage of the applications

N°	*Treatment*	*Date*	*Grouwth stage*
1	A	29-jul	Transplant
2	B	20-agu	Flowering of the 1° truss
3	C	10- set	Flowering of the 3° truss
4	D	30-agu	Flowering of the 5° truss

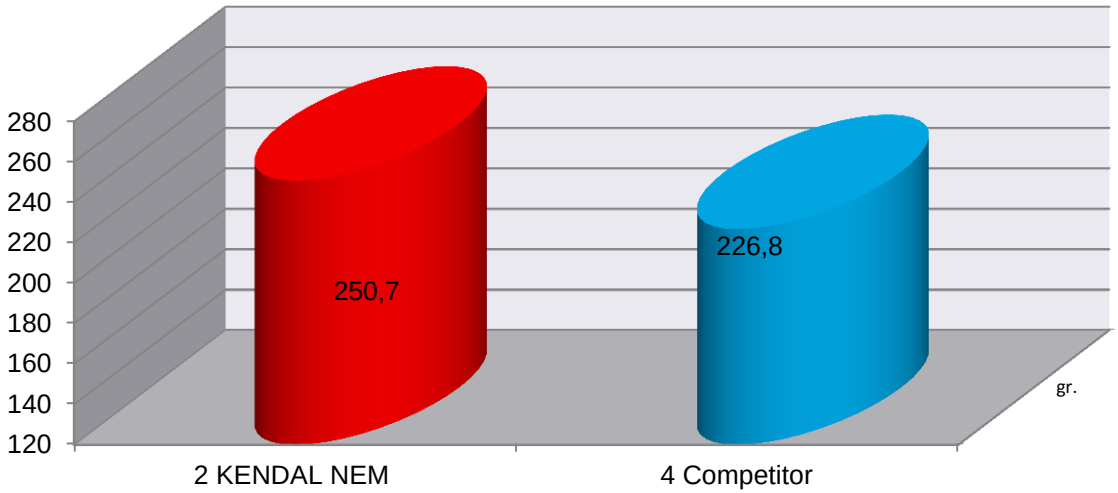
Tab.3 Treatments

treatment	Product	Rate	Volume of water	Treatment
1	KENDAL NEM and Fenamifos	20 lt/ha	1000 lt/ha	A (Fenam.) B (KENDAL NEM) C (Fenam.) D (KENDAL)
2	Fenamifos (standard)	20 lt/ha	1000 lt/ha	AC

Tab. 7 Average fruit weight (4-15 oct, ripening)

treatment	Average fruit weight 2 harv.		
	gr.		diff%
treat 1 (KENDAL NEM)	251	a	10,5
treat 2 (competitor)	227	b	0,0

Graf. 2. Average fruit weight (g)



Tab.1 General information

Location	*Manolada (West Peloponnese)*
Crop	Melon
Cultivation environment	Greenhouse
Distance beetween rows	2,80 m
Distance on the row	0,80 m
Transplant date	01/07/2011
Invest. (p/ha)	4800 plants/ha

Tab.2 Date and growth stage of applications

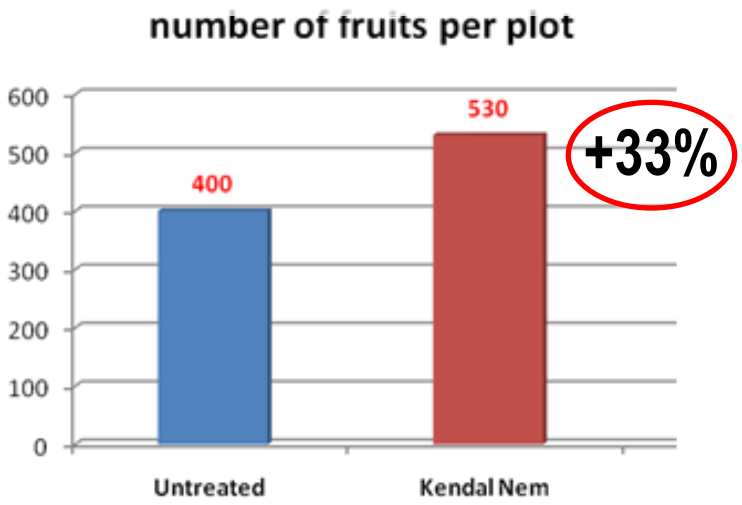
N°	*Treat.*	*stage*
1	A	8 days after transplant (09/07)
2	B	24 days after transplant (25/07)
3	C	41 days after transplant (12/07)

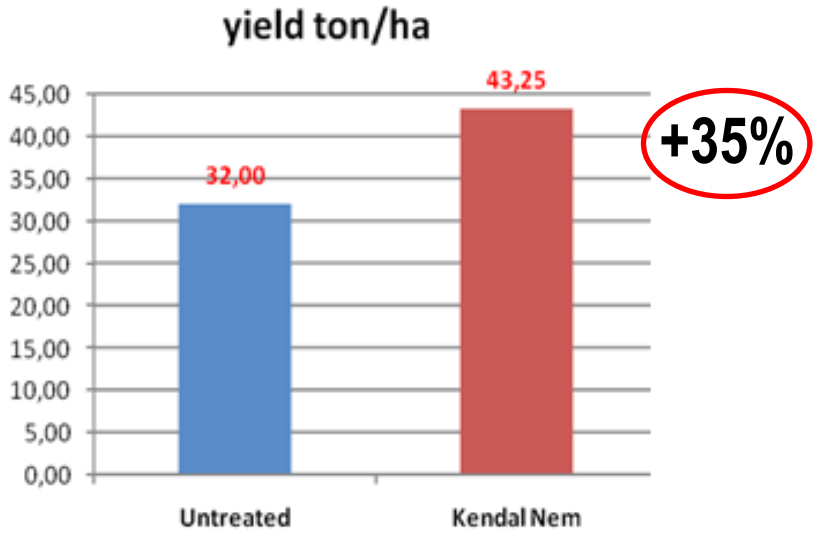
Treat.	Product	Rate	Ref.Units	Growth stage of application
1	KENDAL NEM	20	lt/ha	ABC
2	Untreated		-	-

*Nemacur **Exel

Tab.6 Data collected: productive parameters

Treat.	Product	N° Fruit/plot	Difference %	Production ton/ha	Difference %
1	KENDAL NEM	530	33	43,25	35
2	Untreated	400	0	32,00	0





Tab.1 General information

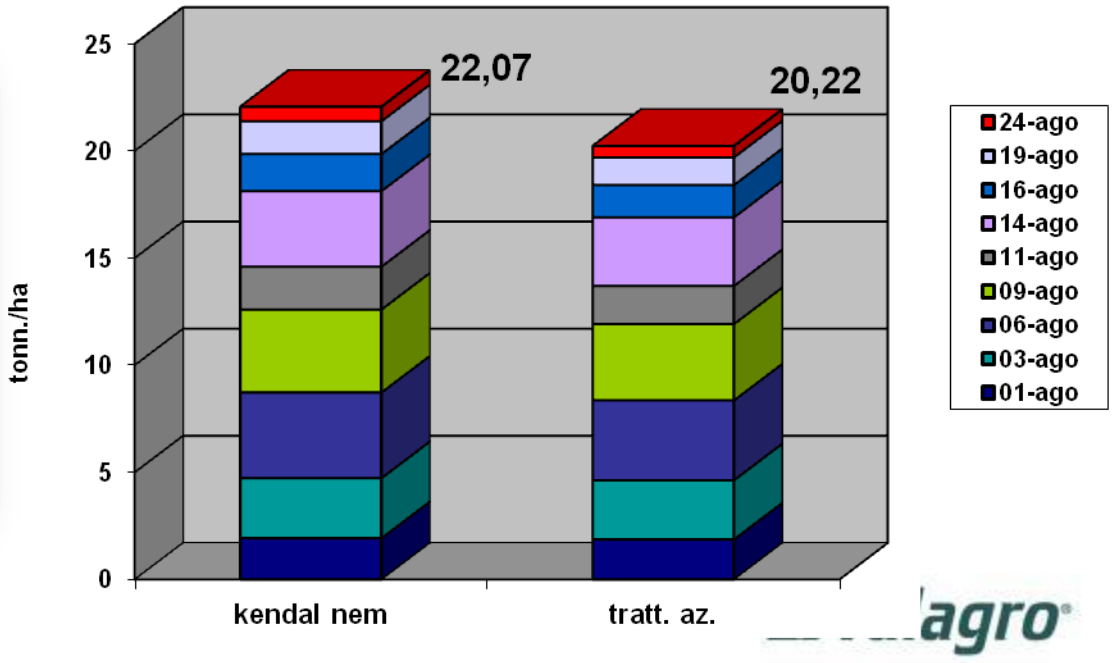
Location	**Vittoria(RG)**
Crop	**Cucumber**
Variety	**Enki**
Distance beetween rows	**1,20/0,80 m**
Distance on the row	**0,33 m**
Plants/ha	**30000**
Cultivation environment	**Green house**
Level	***I screening***
Date of transplant	**24/06/2010**

Tab. 3 - Average fruit weight and Spad index

Treat.	Fruit weight			Spad		
	Gramms		Dif %	Spad		Dif.
KENDAL NEM	275	a	9,65	46,6	a	2,9
Sdandard defense	251	b	0,00	43,7	b	0,00

Tab. 4 Cumulative production at 24/08

data	1/08	3/08	6/08	9/08	11/08	14/08	16/08	19/08	24/08	Tot.
KENDAL NEM (t/ha)	*1,93*	*2,80*	*4,00*	*3,87*	*2,00*	*3,53*	*1,73*	*1,53*	*0,67*	*22,07*
Untreated (t/ha)	*1,87*	*2,76*	*3,73*	*3,56*	*1,78*	*3,20*	*1,51*	*1,29*	*0,53*	*20,22*
dif. %	*3,57*	*1,61*	*7,14*	*8,75*	*12,50*	*10,42*	*14,71*	*18,97*	*25,00*	*9,12*

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STANDARD

THANK-YOU
FOR YOUR ATTENTION

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