

**Spinosad bait, an organic green bio-insecticide to combat the Cucurbit Fly, *Dacus ciliatus* (Loew) and the peach fly, *Bactrocera zonata* (Saunders) (Diptera: Tephritidae) in Egypt**

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**LET US GO**



*Silver*

*Actinomycefe*

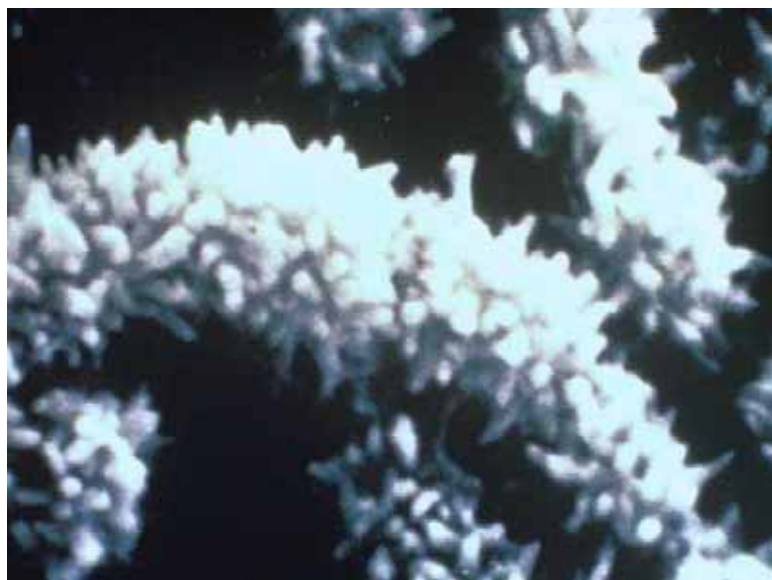
WATER

GOLD

PETROL

## *Saccharopolyspora spinosa*: BACTERIA

- Belongs to the order of *ACTINOMICETALES*



Surface of bacteria



Transversal view of vegetative stage

# Actinomycete

*Sccharopolyspora spinosa*

**Spinosad**

**Tracer 24 % SC**

**GF 120 0.024% CB**

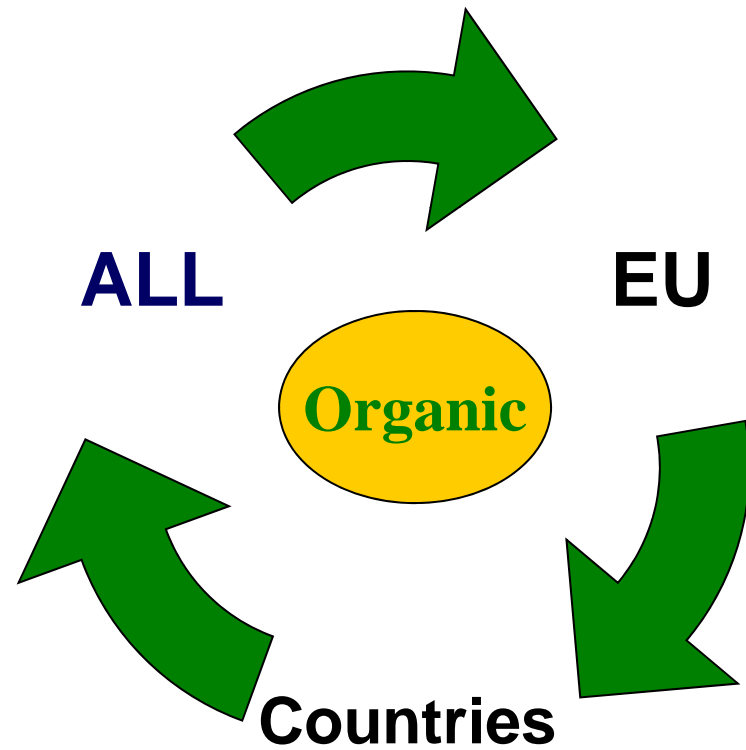
**Spinetoram**

**Radiant 12 SC**

# *Spinosad( tracer-conserve)*



2002 *Spinosad* 2008

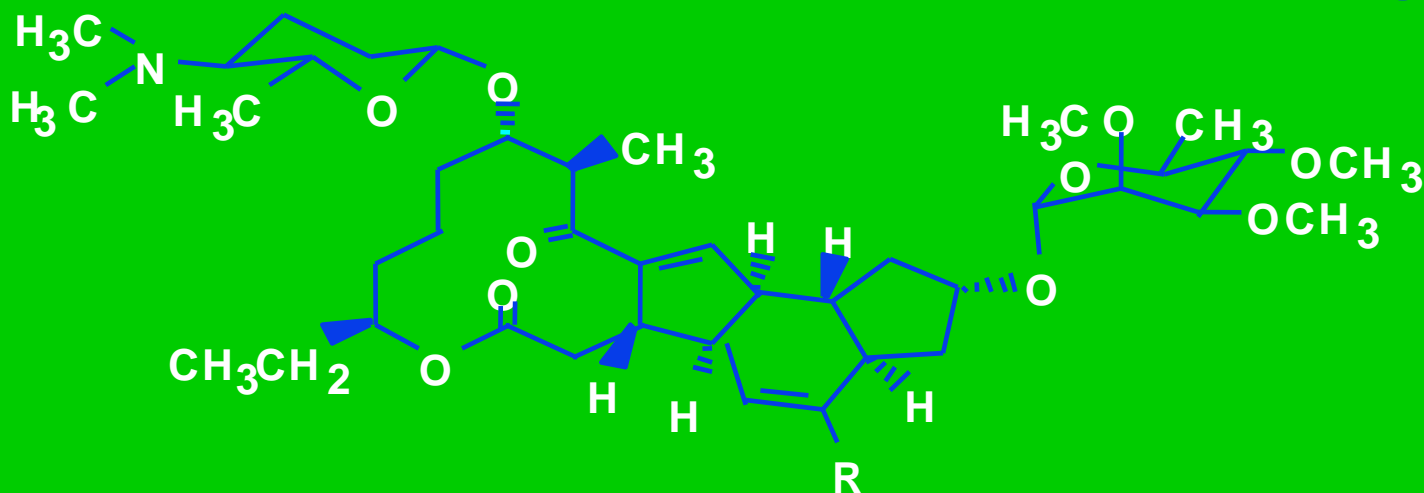


# Spinosad

## *Unique structure*

Forosamine sugar

Rhamnose sugar



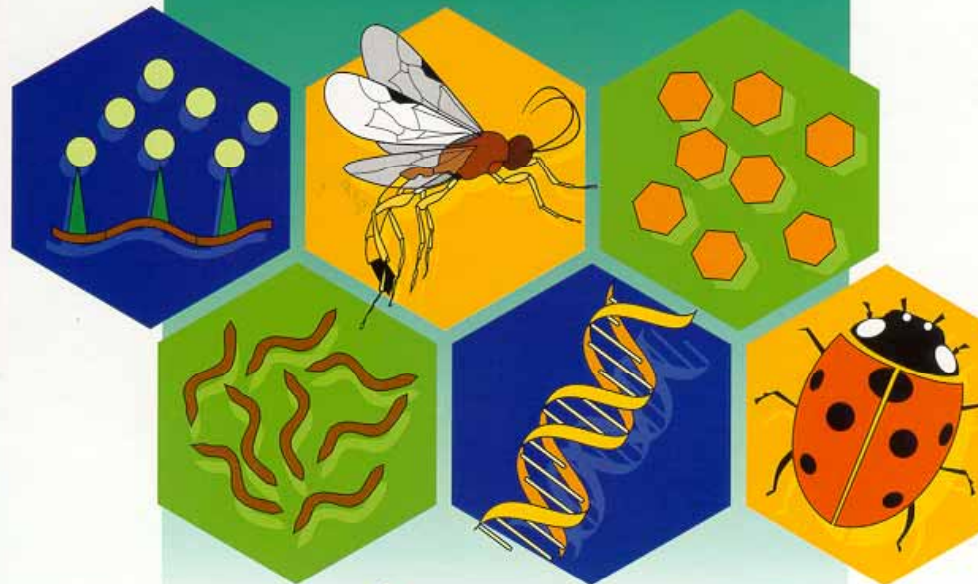
Tetracyclic ring system

A WORLD COMPENDIUM

# The BioPesticide Manual

First Edition

Editor: L G Copping



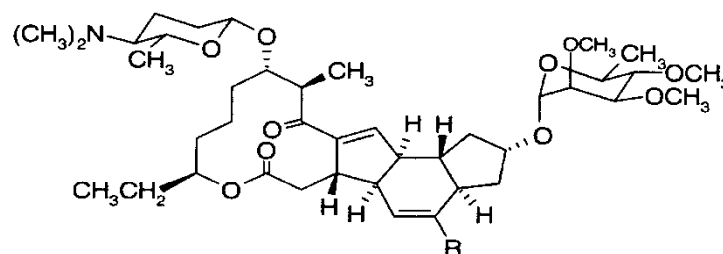
BRITISH  
CROP  
PROTECTION  
COUNCIL



# 1:27 spinosad

Microbial insecticide

The Pesticide Manual - 11th edition; Entry number 754



spinosyn A,  $\text{R} = \text{H}$ -

spinosyn D,  $\text{R} = \text{CH}_3$ -

**NOMENCLATURE:** Approved name: spinosad (ANSI, ISO pending).

**CAS RN:** [131929-60-7] spinosyn A; [131929-63-0] spinosyn D.

**Development codes:** XDE-105; DE-105.

**SOURCE:** The commercial product is a mixture of spinosyn A and spinosyn D. Both compounds are secondary metabolites of the soil actinomycete, *Saccharopolyspora spinosa*. The organism is composed of long, yellowish-pink aerial chains of spores encased in distinctive, spiny spore sheaths. The bacterium is aerobic, gram-positive, non-acid fast, non-motile, filamentous and differentiated into substrate and aerial hyphae. The aerial mycelium is yellowish-pink and the vegetative mycelium is yellow to yellowish-brown. The parent strain was originally isolated from an abandoned rum still in the Caribbean.

**PRODUCTION:** Spinosad is obtained from a whole broth extraction following fermentation of the organism on a feedstock of water, vegetable flours, sugar and animal fat.

**TARGET PESTS:** Recommended for the control of caterpillars, leafminers, thrips and foliage feeding beetles.

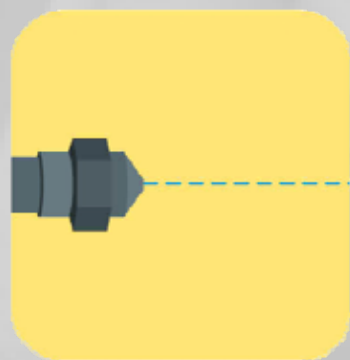
**TARGET CROPS:** May be used on row crops (including cotton), vegetables, fruit trees, turf, vines and ornamentals. No crop phytotoxicity has been observed.

**BIOLOGICAL ACTIVITY:** **Mode of action:** Spinosad effects on target insects are consistent with the activation of the nicotinic acetylcholine receptor but at a different site than nicotine or imidacloprid. Spinosad also affects GABA receptors but their role in the overall activity is unclear. There is currently no known cross-resistance to other insecticide classes.

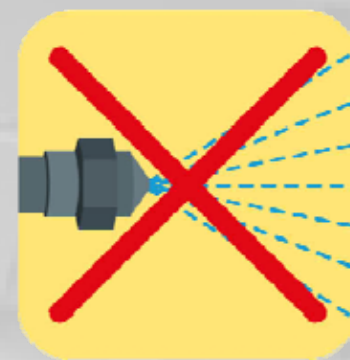
**Efficacy:** The mode of action causes a rapid death of target phytophagous insects. Its

# Conserve in Spain terrestrial application

The use of conical spray nozzles with a diameter of **0,8 - 1 mm, without difusor** is recommended



Conical nozzle without difusor

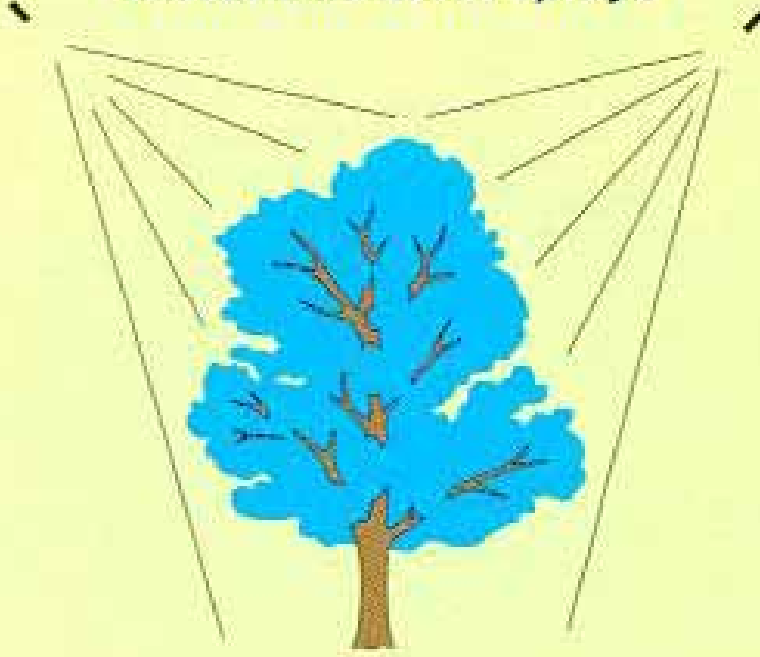


Conical nozzle with difusor

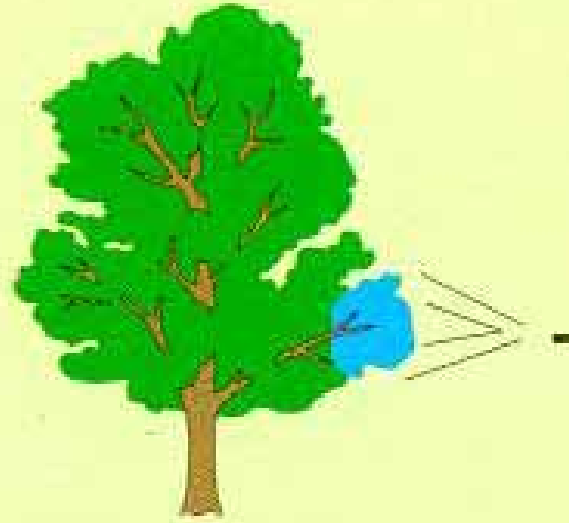
رش كامل

رش جزئى

Insecticide cover sprays



Bait sprays



Bait sprays minimise insecticide usage.

DOW RESTRICTED - For internal  
use only

# *Droplet distribution of foliar application*



## Last sample infestation by *D.ciliatus*

Products	ml / L/ Fed	squash		cucumber		Snake	
		Infest.%	% adults	Infest.%	% adults	Infest.%	% adults
Gf120	500/ 4 L	0	0	11	25	13	55
	500/ 6 L	0	0	16	50	19	56
	500/ 8 L	1	0	18	62	21	58
malathion	500 / 200 L	63	88	28	86	50	90
Untreated		100	94	63	87	81	89

partial spray every 5 meter except malathion full spray

All 3 prays with 7 days interval

## Last sample fallen and non fallen fruit infestation % by *B.zonata*

Product	Rate	Average Infestation %		General
	ml /v.water	fallen	uptree	average
GF-120	400 /4 L	4	1	5
	500 / 4L	2.6	1	3.7
Gf 120	500 /10L	4.6	1.3	6
Untreated		15	4.6	19.6

All 3 prays with 7 days interval

partial spray malathion full spray

# Conclusion

- The spinosad bait ( GF-120) proved to be a very effective and viable alternative to malathion, and could be a valuable tool within IPM programs for the control of both fruit fly moths in Egypt.