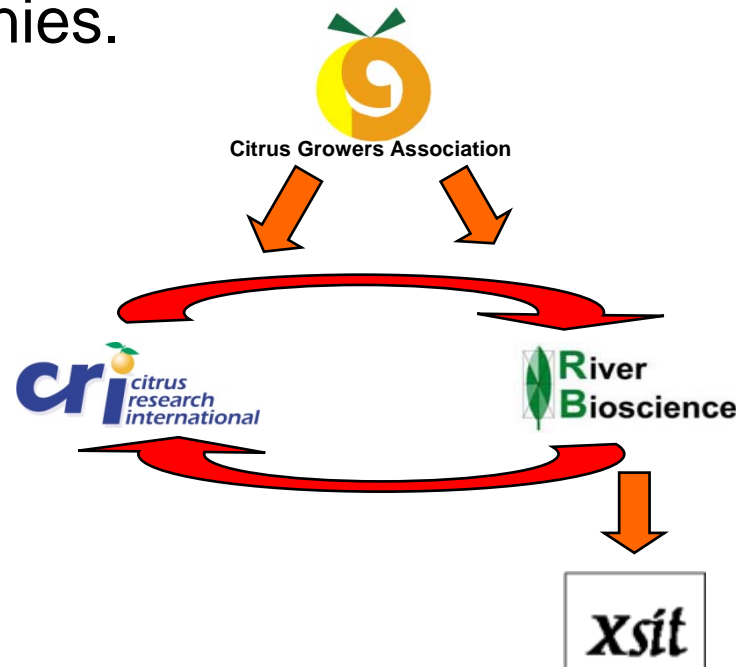


River Bioscience: Overview of a South African Agri-biotech business

Sean Moore (PhD)
General Manager

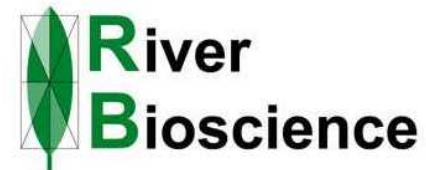
RIVER BIOSCIENCE: BACKGROUND

- Established in 2004.
- Situated in the Eastern Cape Province of South Africa: Port Elizabeth and Addo.
- Owned by the Southern African Citrus Growers Association.
- Spin-off company of Citrus Research International; now sister companies.



River Bioscience

- **Spring board market is citrus, but reaching out to all of agriculture in South Africa, Africa and beyond...**
- **Focussing on innovative development of biological, biorational and biotechnological products for pest and disease management**
- **Main objectives:**
 - **To provide farmers with novel products at competitive prices**
 - **To create incentives for researchers to develop innovative products**
 - **To plough profits back into research**
- **Currently six products and one new company:**

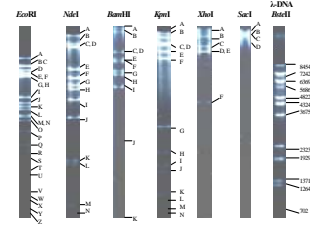


PRODUCTS:

- **Cryptogran - *Cryptophlebia leucotreta* GV**
- **Helicovir - *Helicoverpa armigera* NPV**
- **M3 fruit fly bait station**
- **Sensus fruit fly trap**
- **Capilure male fruit fly (medfly) attractant**
- **Questlure female fruit fly attractant**

History of development of CRYPTOGRAN™

1997: Isolate discovered & identified – novel South African isolate.



1998: Lab study of virus began – leading to production & formulation trials.



2000: Field trials initiated.



2004:

- Registration of CRYPTOGRAN.
- Start of commercial production & sales.

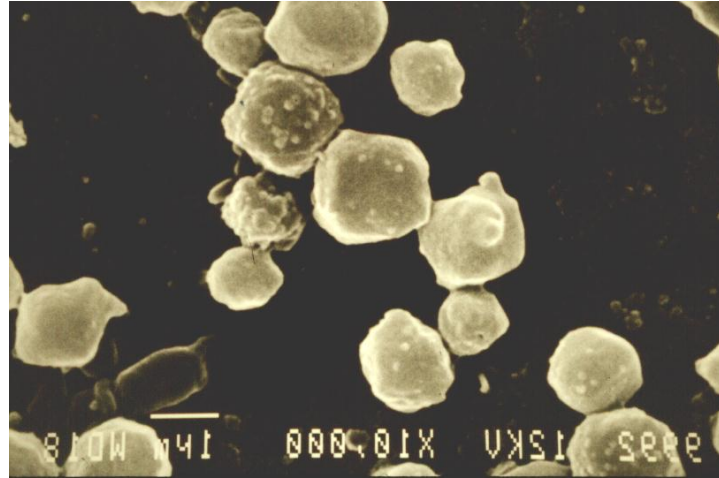


2008:

- Now used on citrus, avocados, peppers, grapes, persimmons, pomegranates.



HELICOVIR – *Helicoverpa armigera* nucleopolyhedrovirus



- For control of bollworm on many agricultural crops: wheat, maize, cotton, legumes, citrus ...
- To be launched this year (2008).
- Bollworm regarded as the no. 1 moth pest of agriculture in Africa. Also a pest in Europe, Asia and Australia.



M3 BAIT STATION FOR FRUIT FLY CONTROL

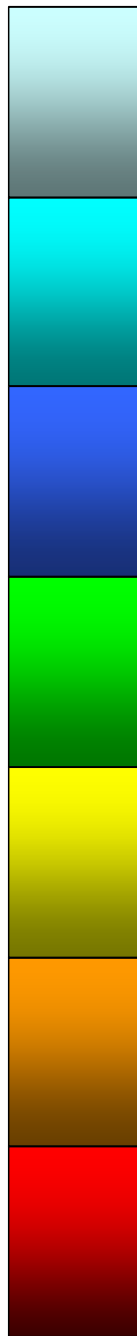


- Stations are impregnated with protein hydrolysate, plant extracts and a toxin.
- Flies are attracted to stations, feed on them and die.
- Results in a reduction in fruit damage.
- Commercialised on a number of fruit crops for several years.

XSIT

(X Sterile Insect Technique) (Pty) Ltd

- River Bioscience established XSIT in 2007 in conjunction with Plantbio – 50:50.
- Objective: to commercialise the sterile insect technique for control of false codling moth on citrus.
- Emerged from CRI research.
- Currently commercialised over 1500 ha – to grow to 6500 ha in the medium term



Radio waves
30 km – 10 m

Microwaves
10 m – 1 m

Infrared
1 mm – 0,8 μm

Visible light
0,8 μm – 0,4 μm

Ultraviolet
0,4 μm – 1/100 μm

X-rays
1/100 μm – 1/1 000 000 μm

Gamma rays
1/1 000 000 μm – 1/1 000 000 000 μm

ELECTROMAGNETIC
SPECTRUM

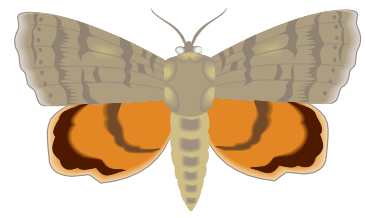


**DO NOT Stand
On This Table**

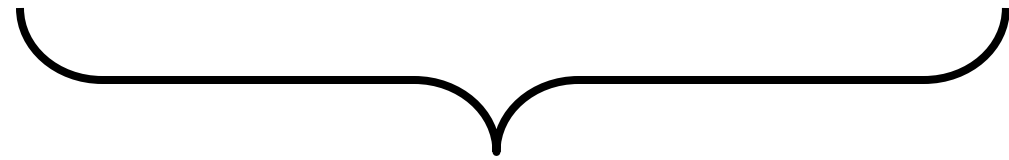
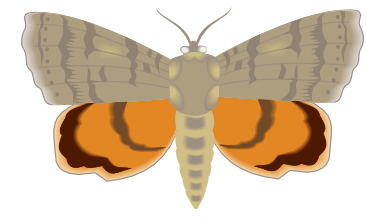
Irradiated
(partially sterile)
male

Wild
female

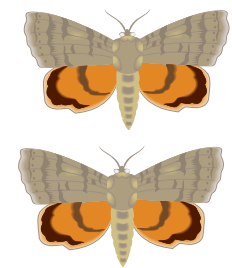
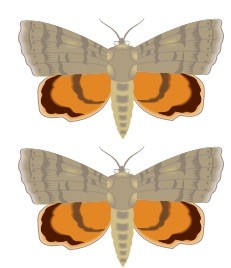
Parents
(P)



X



Offspring
(F₁)

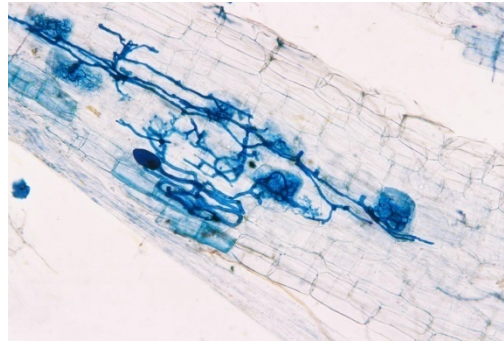


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STERILE MALES AND FEMALES

MYCOROOT



- **River Bioscience and Mycoroot currently looking at a closer relationship.**
- **Mycoroot produces mycorrhizal (beneficial) fungi.**
- **These fungi improve a plants capacity to take up nutrients.**
- **Markets: agriculture, home garden, lawns.**

WHAT DOES RIVER BIOSCIENCE WANT TO GET OUT OF SUCH MEETINGS AS THIS?

- Technical investment/synergism.
- Gateway to foreign markets.