



The Global Aquaculture Alliance Innovation Award



Presented by:

Dr. Francisco Gomes

Novus International

Novus



- Novus is headquartered in St. Charles, Missouri, U.S.A.,
- Novus is a provider of health and nutrition solutions for aqua, livestock, pets and people.
- Employs more than 800 people in over 50 countries
- Serves more than 3,000 customers worldwide in over 100 countries
- Working from a strong base of scientific understanding and technological innovation
- More than 100 new products to market over the past decade, contributing consistently to sustainable animal agriculture production and global food security while growing our revenues and global presence.



SOLUTIONS SERVICE SUSTAINABILITY™

Amir Sagi, Ph.D.



Ben-Gurion University of the Negev

Dr. Amir Sagi is a professor in the Department of Life Sciences at Ben-Gurion University of the Negev in Beer-Sheva, Israel, where his research applies crustacean models in the study of genes related to processes of sexual differentiation and skeletal biomineralization.

A world-renowned crustacean researcher, Sagi has over three decades of experience in this field. He is a founder of Amorphical Ltd., a biotech company developing revolutionary dietary supplements and drugs; as well as Enzootic Ltd., an agro-biotech venture introducing advances in life science to crustacean aquaculture. His technology for monosex prawn culture without chemicals, hormones and genetic modifications is licensed to Tiran Ltd.

Sagi holds a doctorate degree in endocrinology and physiology from the Hebrew University, is the former dean of the natural sciences faculty, and Past President of the International Society for Invertebrate Reproduction and Development.



a novel biotechnology to produce all-male populations of the prawn *Macrobrachium rosenbergii* through temporal RNA interference

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Amir Sagi



Ben-Gurion University of the Negev, Israel

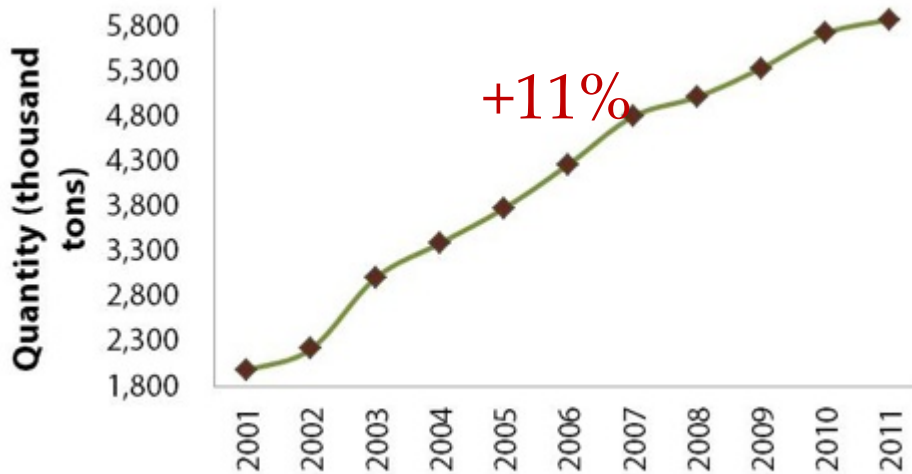


the Global Aquaculture Alliance's inaugural
Novus Global Aquaculture Innovation Award



October 9th 2013, Paris

Crustacean aquaculture



Continued growth will require assimilation of technologies that can:

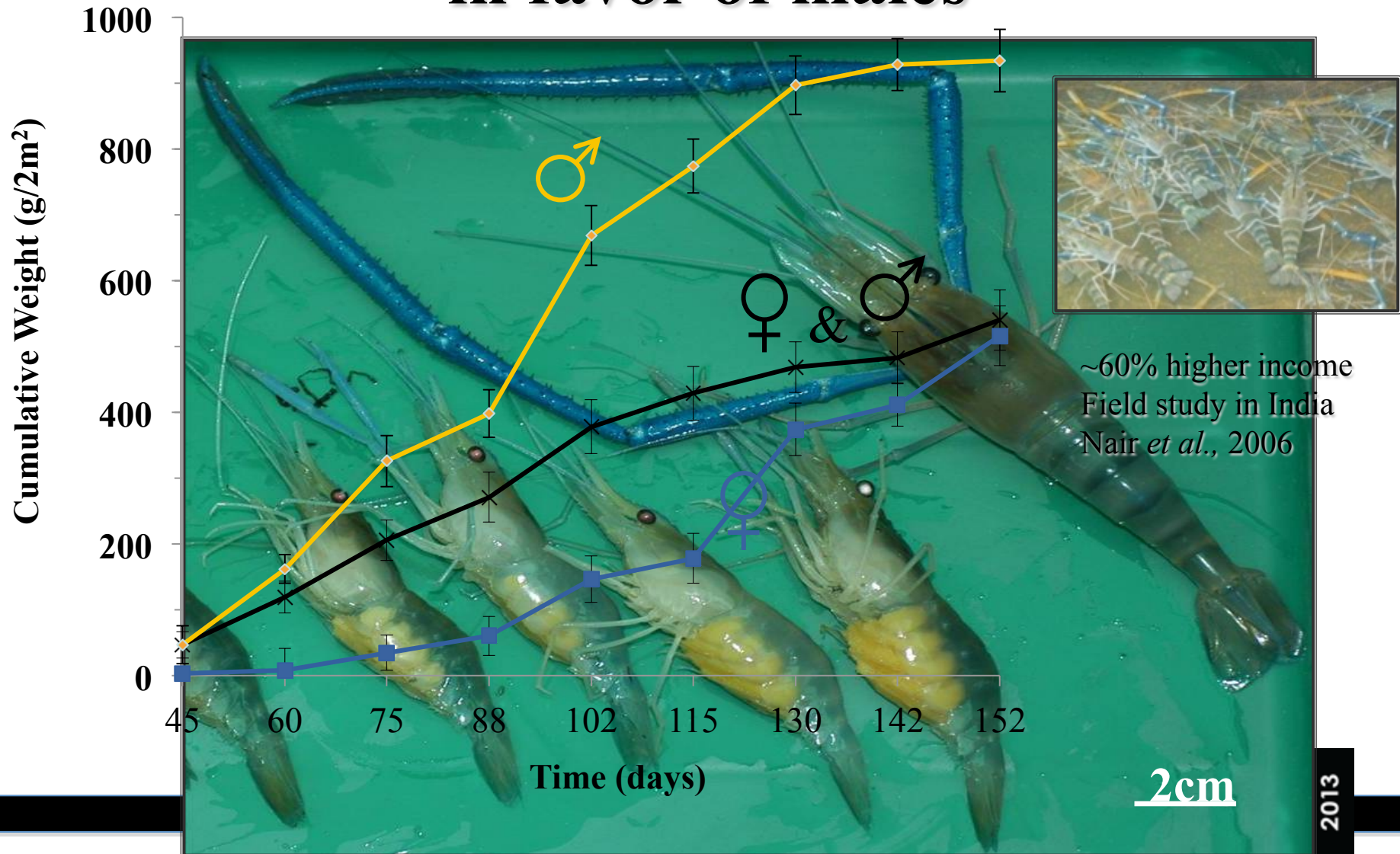
Increase efficiencies and yields

Promote sustainable aquaculture



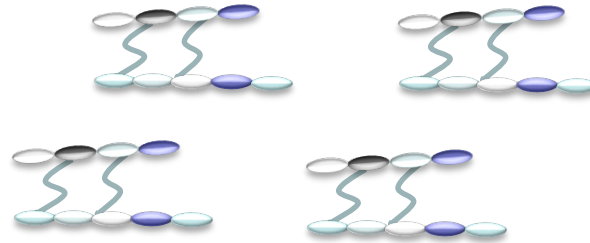
Biotechnological solutions

M. rosenbergii dimorphic growth pattern in favor of males

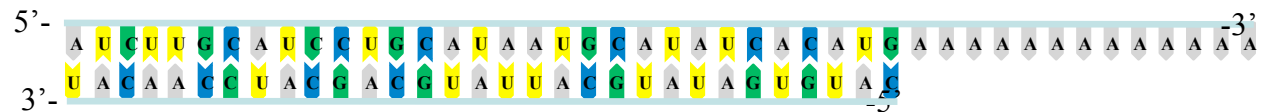


How is RNA interference (RNAi) working (non GMO)

Mr-IAG



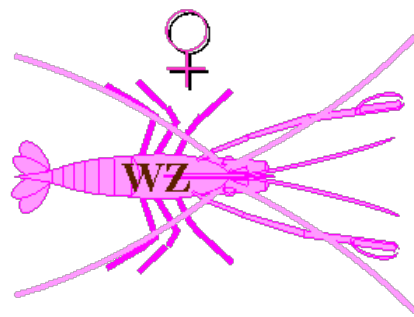
RNA
Temporal dsRNA
effect



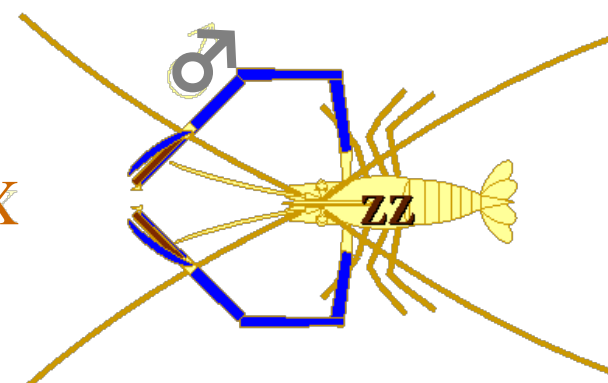
DNA



Monosex & Gene Silencing



X



AG

temporal
RNAi



All male



100 %
ZZ



The technology



Temporal RNAi

No hormone treatment

No chemicals

Non GMO



Aquaculture
production
enhancement

17.8 B \$

Environmental
Solutions
Bio-control

5.4 B \$



Thank You!