USA lift ban on the importation of Indian mangoes

Researchers in the Indian Institute of Horticultural Research, Bangalore, have reported in a recent paper in Current Biotic that India is the world’s second largest producer of fruits and vegetables after China but its contribution to world trade in the form of exports is quite unimpressive. Fruit flies such as Bactrocera sp. are the major hindrance for export of Indian fruits, especially mangoes.

“the lifting of ban on the importation of Indian mangoes that were treated with recommended doses of gamma radiation by the USA is the recent most example of the applicability and acceptance of irradiation technology as an ideal phytosanitary treatment”, Reddy and his co-workers reported. “Under the Montreal Protocol, methyl bromide (MB), because of its ozone-depleting property, has to be banned in all the countries by the year 2015”.

A demonstration facility for low dose application, of radiation was set up by the Bhabha Atomic Research Centre (BARC) during IX plan period (1997-2002) and in 2004 the plant quarantine regulations were amended to include irradiation as a phytosanitary treatment. “This paved the way for convincing the USDA-APHIS to import mangoes from India in 2007”, they reported. “The USA listed 14 insect species as potential quarantine pests of mangoes imported from India. They include seven species of fruit flies viz., Bactrocera caryae, B. correcta, B. cucurbitae, B. diversa, B. dorsalis, B. tau and B. zonata”.

“A minimum absorbed dose of 400 Gy has been determined by APHIS to be adequate to neutralize or mitigate risks of all insect pests associated with Indian mangoes excluding adults and pupae in the order Lepidoptera”, Reddy and co-workers reported. “None of the 14 pests listed belong to Lepidoptera and hence the generic treatment is a valid treatment for all of these pests”.

BARC demonstration facility for low dose application of radiation succeeded in enabling the export of fresh mangoes from India to the US after a gap of 18 years.

News

**USDA allows papayas from Colombia and Ecuador into the United States**

The U.S. Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) is amending the fruits and vegetables regulations to allow, under certain conditions, the importation of commercial shipments of fresh papayas from Colombia and Ecuador into the continental United States. The conditions for the importation of papayas from Colombia and Ecuador include requirements for field sanitation, hot water treatment and fruit fly trapping in papaya production areas. This action allows for the importation of papayas from Colombia and Ecuador while continuing to provide protection against the introduction of plant pests into the continental United States.

Source:
United States Department of Agriculture
Animal and Plant Health Inspection Service
Legislative and Public Affairs

**Japan to take Taiwanese dragon fruit**

After almost ten years of negotiations, Taiwanese dragon fruit will finally be available in Japan. Taiwanese dragon fruit plays host to both, the Oriental fruit fly and melon fly, a factor which made it tough for Taiwan to obtain export approval. In 2001, Taiwanese quarantine authorities developed a dragon fruit disinfestation technology and in 2003 developed a high-temperature steaming technique to kill fruit flies on dragon fruit.

Source: Greig Johnston
http://www.fruitnet.com

Cactus producing the dragon fruit

The Pitaya commonly known as the dragon fruit
Resolving mechanisms of competing sperm in fruit flies

Researchers from Syracuse University, Syracuse, New York, reported that “Our understanding of postcopulatory sexual selection has been constrained by an inability to discriminate competing sperm of different males, coupled with challenges of directly observing live sperm inside the female reproductive tract”. “Real-time and spatiotemporal analyses of sperm movement, storage, and use within female Drosophila melanogaster inseminated by two transgenic males with respectively green (GFP) and red (RFP) sperm heads allowed us to unambiguously discriminate among hypothesized mechanisms underlying sperm precedence, including physical displacement and incapacitation of “resident” sperm by second males, female ejection of sperm, and biased use of competing sperm for fertilization”.

“We find that competitive male fertilization success derives from a multivariate process involving ejaculate-female and ejaculate-ejaculate interactions, as well as complex sperm behavior in vivo”.


Isolating, amplifying and quantifying sperm DNA in Anastrepha suspensa

A major obstacle for many studies examining sperm competition and cryptic female choice in insects has been the identification and quantification of sperm stored in the sperm storage organs of females that have mated with two or more males. Historically, sexual selection studies have focused primarily on paternity outcomes for inferring potential underlying mechanisms (e.g., sperm competition and cryptic female choice).

We describe a technique for isolating, genotyping and quantifying sperm in Anastrepha suspensa Loew, a species that has four sperm storage organs (three spermathecae and a ventral receptacle) that are minute (approximately 80 micrometer) and exhibit complex interior structures restricting sperm recovery through simple dissection. With our protocol, we were able to isolate and amplify sperm DNA (PCR of microsatellite loci) without contamination from female cells, and quantify sperm contributed to a storage organ by one or more males. More.

Potential use of larval diet disposal from Medfly mass-rearing as alternative livestock feed

Several Sterile Insect Technique facilities for national programs against fruit flies are being constructed around the world. Along with the mass-rearing of millions of sterile fruit flies per week, large amounts of larval diet are wasted every day and environmental problems could be diminished with its re-utilization as alternative feedstuff for small ruminants. The objective of this work was to characterize the nutritional composition of the larval diet used for the Medfly reared in Brazil and to evaluate its in vitro degradability, also comparing the results to others tropical by-products.

There was no significant decrease in any of the nutritional constituents between the initial and wasted diet due to Medfly larval feeding. The diet presented mean levels of DM, CP, EE, NDF, ADF, CF, ash and OM of 925, 175, 24, 337, 210, 89, 40 and 967 g/kg DM respectively. Phenolic and tannin contents were very low and the larval diet could be safe for the ruminal digestion. In vitro fermentation was higher during the first 6-8 h post-incubation and the linear curves for cumulative gas production for either initial and wasted diets did not differ. Therefore, the larval diet disposal from the mass-rearing of Medfly has potential as an alternative livestock feed.

Source:

XX International Training Course on Fruit Flies Mexico

XX CURSO INTERNACIONAL SOBRE MOSCAS DE LA FRUTA (XX CIMF)

16 - 27 August 2010

Organized by
PROGRAMA MOSCAMED MOSCAFRUT
CAMPAÑA NACIONAL MOSCAS DE LA FRUTA
SENASICA-SAGARPA

Metapa de Domínguez, Chiapas, Mexico

The call for the XX International Training Course on Fruit Flies

Source: Pablo Montoya
(The course will be in Spanish)

The Tephritid Workers of Europe Africa and the Middle East

Send your news to be included in the next TEAM Newsletter issue to: Nikos Papadopoulos
Quality testing of three species of tephritid fruit flies after embryo cryopreservation

This study evaluates characteristics commonly used to define insect quality or fitness by using a complement of three species of tephritid fruit flies (Diptera: Tephritidae) obtained from cryopreserved embryos.

Anastrepha ludens (Loew), Anastrepha suspensa (Loew), and Ceratitis capitata (Wiedemann) were used to assess embryo to adult emergence and adult longevity, flight ability, mating ability, fecundity, and genetic variability after cryopreservation. With the three species tested, embryo survival was reduced by 50-70% whereas adult eclosion seemed unaffected by cryogenic treatment. More.


Review of the FAO/IAEA/USDA Manual for
"Product Quality Control and Shipping Procedures for Sterile Mass-reared Tephritid Fruit Flies"


The Consultants’ Meeting to Update the International FAO/IAEA/USDA Manual on “Product Quality Control and Shipping Procedures for Sterile Mass-reared Tephritid Fruit Flies will be held on 18-22 October 2010, in Vienna, Austria.

Fruit fly workers valuable inputs in terms of possible changes and improvements, including suggestions to include missing relevant areas, will be much appreciated.

The objective is to produce a version 6.0 of a higher quality, so that this international manual becomes more useful to fruit fly programmes and the community of fruit fly quality control workers.

Please send your comments to R.Cardoso-Pereira@iaea.org.
Potential for Spinosad resistance in populations of *Bactrocera dorsalis* in Hawaii and in wild olive fruit fly *Bactrocera oleae* populations in California

**Spinosad** active ingredients are produced from the fermentation of a naturally occurring soil bacterium called *Saccharopolyspora spinosa*, a rare actinomycete.

The investigations conducted in both California and Hawaii document that spinosad tolerance has increased in areas where the insecticide has been more extensively used. However, the results suggest that at the present time, these resistance values are relatively low and do not yet pose a serious problem for the field control of the populations of *B. dorsalis* in Hawaii and olive fruit fly in California.

**Source:**

**Odorant receptor in fruit fly detects sex pheromone of silkworm moth**

Researchers in the Department of Entomology, University of California, Davis, have discovered that the fruit fly has a native odorant receptor that detects the silkworm moth's sex pheromone, and that it's amazingly more sensitive than the moth's odorant receptor. Their work could open research doors for insect-inspired biosensors. [More..](#)

[Watch the video](#) of a silkworm moth attraction to pheromone (bombykol) in a y-tube olfactometer.

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**News**
Recovering full DNA barcodes from natural history collections of Tephritid fruitflies using mini barcodes

The family of Tephritid fruit flies (Tephritidae, Diptera) is composed of more than 4000 species and more than 350 are of economic importance (EI). The Tephritid Barcoding Initiative (TBI) aims at obtaining DNA barcodes for all EI species and the majority of their congers. Dry pinned specimens from natural history collections are an important resource for reference material, but were often collected decades ago. We observed a strong decrease in the success rate of obtaining a full COX1 DNA barcode (658 bp), with an increasing age of the specimens. Obtaining full barcodes is often not possible using standard protocols. We developed a universal Tephritid primer set for multiple overlapping mini-barcodes that allows reconstructing the full COX1 DNA barcode. These newly developed primers and the corresponding protocol will facilitate the utilization of the extensive natural history collection by the TBI consortium.

Source:
Fruit fly outbreaks in Australia

Mediterranean fruit flies have been found in a backyard at Seaton in Adelaide's western suburbs and an outbreak of Queensland fruit fly was reported near Cobram, in Victoria's north and in Thoona, near Wangaratta in north-east Victoria, about 230 km from Melbourne. A suspension zone around the detection sites was declared and eradication measures are carried out by The Department of Primary Industries.

On March 2010, Primary Industries and Resources of South Australia (PIRSA) declared a fruit fly outbreak at South Brighton, Woodville North, and Wingfield. The outbreak was confirmed following detection of Mediterranean fruit fly larvae in home grown peaches and nectarines at properties in the above sites. A 1.5 kilometre quarantine area has been declared around each detection site. The bait spotting phase of the program has been completed and the next stage of sterile fruit fly release is being implemented.

The eradication program involves the release of one to two million sterile fruit flies into the quarantine zone every week for up to 10 weeks. The quarantine period may be extended if additional "wild" flies or infestations are detected.

In South Australia’s Riverland, citrus growers will be at an export advantage this season. Their fruit fly free status means South Australian growers can continue to export fruit to the United States. Fruit fly outbreaks in Mildura and Sunraysia (map) have meant growers will not be able to send fruit to the US until November, unless the fruit is cold-treated.

Executive officer of the South Australian Citrus Board, Andrew Green says the fruit fly free status can also save growers money. "While Sunraysia and the Riverina can’t access a number of markets, or if they do they have to cold-treat, we can actually send there without the additional costs." Mr Green says Riverland growers could be saving about $150 per packed tonne.

Source:
ABC Rural 29/04/2010
Weekly Times
ABC News
Synergizing biological control: Scope for sterile insect technique, induced plant defences and cultural techniques to enhance natural enemy impact

When used alone, only a minority of biological control programs succeed in bringing the target pest population under sufficient control. Biological control is, therefore, usually employed with chemical, cultural, genetic or other methods in an integrated pest management (IPM) strategy. The interactions between different pest management methods, especially conventional pesticides and host plant resistance, is an area of growing research interest but relatively little consideration is given to novel combinations.

This paper reviews the interactions between biological control and other forms of pest management, especially induced plant defences and the novel, non-toxic plant protection compounds that may boost these defences; and sterile insect technique. We also cover the cultural methods that offer scope to support synergies between the aforementioned methodological combinations. We conclude that despite the sometimes negative consequences of other pest management techniques for biological control efficacy, there is great scope for new strategies to be developed that exploit synergies between biological control and various other techniques. Ultimately, however, we propose that future use of biological control will involve integration at a greater conceptual scale such that this important form of pest management is promoted as one of a suite of ecosystem services that can be engineered into farming systems and wider landscapes.

Full article

(Note: Olivia Kvedaras = Olivia Reynolds, one of our editors on FFN)

Visit

Tephritid Workers Database

www.tephritid.org

With more than 2400 recent references on fruit flies
Dear Fruit fly Workers:
I'd just like FFN readers to know that, though I retired from USDA/ARS, I'm still active with consultancies on fruit fly research now and then around the world (the next one is to Perth, Australia in June/July to work with Bill Woods and his team), and would welcome further opportunities there. I'm also staying active writing and reviewing papers on our dear fruit flies. I work mostly out of my home address, but I also have an office at the USDA/PPQ fruit fly factory in Waimanalo where I can visit and work with Stuart Stein and Todd Shelly. I welcome any contacts at my email address, moscamed@aol.com. I hope to catch up with many fruit fly friends at the upcoming meeting in Valencia, Spain in September.

Aloha,

Don
A New Generation of X-Ray Irradiators for Insect Sterilization

Recent fears of terrorism have provoked an increase in delays and denials of transboundary shipments of radioisotopes. This represents a serious constraint to sterile insect technique (SIT) programs around the world as they rely on the use of ionizing radiation from radioisotopes for insect sterilization. To validate a novel X-ray irradiator, a series of studies on Ceratitis capitata (Wiedemann) and Anastrepha fraterculus (Wiedemann) (Diptera: Tephritidae) were carried out, comparing the relative biological effectiveness (RBE) between X-rays and traditional gamma radiation from 60Co. Male C. capitata pupae and pupae of both sexes of A. fraterculus, both 24-48 h before adult emergence, were irradiated with doses ranging from 15 to 120 Gy and 10-70 Gy, respectively.

Estimated mean doses of 91.2 Gy of X and 124.9 Gy of gamma radiation induced 99% sterility in C. capitata males. Irradiated A. fraterculus were 99% sterile at about 40 - 60 Gy for both radiation treatments. Standard quality control parameters and mating indices were not significantly affected by the two types of radiation. The RBE did not differ significantly between the tested X and gamma radiation, and X rays are as biologically effective for SIT purposes as gamma rays are. This work confirms the suitability of this new generation of X-ray irradiators for pest control programs that integrate the SIT.


The clock gene of Bactrocera cucurbitae strains with different mating times

According to recent research from Okayama University, Japan, "Differences in mating time between populations can give rise to premating reproductive isolation. Tephritid fruit flies exhibit large variation in mating time among intra- or inter-specific populations."

"We previously cloned the clock gene period from two strains of melon fly, Bactrocera cucurbitae; in one the individuals mate early during the day, whereas in the other the individuals mate later. These strains were originally established by divergent artificial selection for developmental time, 'short' and 'long', with early and late mating times, respectively.

The deduced amino acid sequences of.. More..

Library

- References

TWD bibliographic references can be retrieved from [here](#). Current year publications can be retrieved by clicking on the link "List current year publications" within the "Find Publications" search form of TWD. Please try to contact the authors first for full paper request.

- Books

**Use of Radiation in Biological Control**

Special Issue of *Biocontrol Science and Technology*  
Volume 19, Supplement 1, 2009, Print ISSN: 0958-3157 Online ISSN: 1360-0478

This Special Issue of *Biocontrol Science and Technology* contains 25 papers that have resulted from a 5-year cooperative research project sponsored by the joint Food and Agriculture Organization of the United Nations (FAO) and the International Atomic Energy Agency (IAEA) Programme of Nuclear Techniques in Food and Agriculture, Vienna, Austria, on the use of radiation in biological control.

In this Special Issue are presented numerous innovative ways to apply radiation technology to biological control, from expanding the period of host suitability for parasitoids, increasing shelf life, studying host-parasitoid physiological interactions, and stimulating reproduction, to eliminating the risk of shipping fertile non-indigenous hosts/prey among others.

**Guidance for Packing, Shipping, Holding and Release of Sterile Flies in Area-Wide Fruit Fly Control Programmes.**

Edited by Enkerlin W.  
FAO, Rome, 2007

[Download pdf (3.5 Mb)](#)

**Fighting fruit flies regionally in Sub-Saharan Africa**

This [COLEACP](#) information letter produced in collaboration with [CIRAD](#) is intended for all public and private operators concerned with the fruit fly issue in Africa.

[Letter N°4 - 2010](#)

Check the latest Newsletter of the [Insect Pest Control](#) for many relevant announcements on tephritid fruit flies.

[No. 74, January 2010](#)
Opportunities

Job Opportunities

- Check Jobs on ESA website
- Post-doc and research positions at ECOSUR. For more information go to: www.ecosur.mx under “Convocatoria para puestos académicos y estancias postdoctorales en ECOSUR”.

Event Calendar

May 2010

4TH IOBC/WPRS WORKING GROUP MEETING, GMOS IN INTEGRATED PLANT PRODUCTION

Rostock, Germany, 14-16 May 2010.

Contact: J. Romeis,
mailto:Joerg.Romeis@art.admin.ch

INTERNATIONAL COURSE: INTEGRATED PEST MANAGEMENT (IPM) AND FOOD SAFETY


Contact: H. Stoetzer,
Mailto:Huub.Stoetzer@wur.nl
Fax: 31-317-486801.
Tel: 31-317-481396.
Http://tinyurl.com/3offft.

61ST INTERNATIONAL SYMPOSIUM ON CROP PROTECTION

Gent, Belgium, 19 May 2010.

Contact: P. Spanoghe,
Dept. of Crop Prot., Univ. of Gent, Gent, BELGIUM.
Mailto:Pieter.Spanoghe@ugent.be
Fax: 32-926-46249
Tel: 32-926-46009

SYMPOSIUM ON CLIMATE CHANGE AND THE IMPLICATIONS FOR PLANT PROTECTION

Guelph, ONT, Canada, 25-27 May 2010
August 2010

28th INTERNATIONAL HORTICULTURAL CONGRESS

Lisbon, Portugal, August 22-27, 2010
http://www.ihc2010.org/

Ninth European Congress of Entomology
Budapest, Hungary

22 and 27 August 2010
http://www.ece2010.org/index.html

Congress Secretariat c/o SCOPE Ltd
Kende u. 13-17.,
H-1111 Budapest, Hungary
phone: +36-1-209-6001, 279-6188
fax: +36-1-386-9378,
e-mail: budapest@ece2010.org

September 2010

IOBC/WRS Working Group "Integrated Protection of Fruit Crops",
Vico del Gargano, Italy.
12-17 September 2010
www.iobcfruits.unimol.it

Contact: Dr. Claudio IORIATTI,
Istituto Agrario San Michele all'Adige,
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**20-23 September 2010**

**Second announcement**

Contact:
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- Local organizer: Gábor Vétek, Corvinus University of Budapest, Faculty of Horticultural Science, Department of Entomology, Villányi út 29-43, H-1118, Budapest, HUNGARY,
  Tel.: +36 1 482 6518, Fax: +36 1 482 6072,
  e-mail: gabor.vetek@uni-corvinus.hu,
  [http://horticulturalscience.uni-corvinus.hu/](http://horticulturalscience.uni-corvinus.hu/)

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**8th INTERNATIONAL SYMPOSIUM ON FRUIT FLIES OF ECONOMIC IMPORTANCE (ISFFEI)**

Valencia – Spain

**September 26th to 1st October, 2010**

Find out more at: [http://www.fruitflyvalencia2010.org](http://www.fruitflyvalencia2010.org)

Contact: **Beatriz Sabater**

8th ISFFEI Secretariat
fruitfly2010@gva.es

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**October 2010**

**PRINCIPLES AND PROCEDURES FOR REARING QUALITY INSECTS**

A Five-Day Workshop for Insectary Managers and Insect Rearing Specialists

**October 10-15, 2010**
Mississippi State University
Department of Entomology & Plant Pathology
http://www.irc.entomology.msstate.edu/workshop/

Contact: Barbara Perrigin at (662) 325-2086 or bep2@msstate.edu

AMRQC

12th Workshop of IOBC Global WG on Arthropod Mass Rearing and Quality Control (AMRQC)
Vienna, Austria
19-22 October 2010
www.AMRQC.org/announcements.htm

Contact: Andrew Parker, Workshop Host, IAEA, Insect Pest Control Laboratory, Austria
Email: a.parker@iaea.org

Previous Fruit Fly News (FFN) issues

- FFN #7_1983
- FFN #8_1985
- FFN #9_1987
- FFN #10_1989
- FFN #11_1992
- FFN #12 February 2009
- FFN #13 May 2009
- FFN #14 September 2009
- FFN #15 February 2010

N.B. If you do have any of the following issues of Fruit Fly News that you'd like to share, kindly email them to bakri@ucam.ac.ma:

*IBP Fruit Fly News n°1 (1972)
*IBP Fruit Fly News n°2 (1973)
*IBP Fruit Fly News n°3 (1974)
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We welcome your feedback and contributions for future editions. Submit materials, publications, notice of events, news, documents, grant or job opportunities to: A. Bakri; P. Liedo; or O. Reynolds

You can also contribute by spreading the word about Tephritid Databases (www.tephritid.org) and encourage your colleagues to join. With many thanks in advance for your collaboration.

Acknowledgments:
Special thanks to all contributors for their valuable input

Your team editors:
Abdel Bakri, Pablo Liedo and Olivia Reynolds

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