

## ANNOUNCEMENT

### Confirmation of the Centro Agricoltura Ambiente “G. Nicoli” as IAEA Collaborating Centre

The International Atomic Energy Agency (IAEA) has confirmed for a second period the CAA “G. Nicoli” as Collaborating Centre in the field of nuclear application against *Aedes* mosquitoes. CAA will cover the role of IAEA CC during the period 2018-2021.

This recognition is mainly because of the CAA’ strong involvement in the development and application of the sterile insect technique (SIT) as a method to suppress *Aedes albopictus* and others *Aedes* species on the international scenario.

SIT is rapidly developing as a breakthrough applicable method in the management of mosquitoes thanks to its effectiveness coupled with the absence of any environmental or public health risks. The males are sterilized by the most convenient dose of radiation (gamma or X-ray) to safeguard their performances when released in the field, such as dispersal and mating competitiveness with wild males. Specific trials confirmed the convenience to

radiate old pupae or young adults thus reducing to a minimum the somatic damages. Competitiveness studies conducted in large enclosures in field condition confirmed that the sterile males are highly competitive in comparison with males obtained from the wild and induce lifelong sterility in females.

The release of sterile males by air using drone technology is under development in order to achieve a more homogeneous distribution at lower cost, in urban condition difficult to ground access because of private properties. Following the successful results obtained on several agricultural and animal pest species (i.e. screwworm flies, several Tephritid fruit flies, codling moth, pink bollworm, tsetse flies), the building of large mass rearing facilities is under design to strongly reduce the cost of sterile males thus improving the cost benefit balance.

The role of insecticides in the control of mosquitoes vector of diseases is showing difficulties because of the rise of resistance, the environmental impact and the toxicological risks. Effective alternatives to insecticides are urgently needed to allow mosquito control to continue playing its useful role in the control of vector borne diseases.

Following the World Health Organization, urban *Aedes* species such as *Aedes aegypti* and *Aedes albopictus* are increasing their threat in many regions where the incidence of Dengue, Chikungunya and Zika is rising despite the efforts put in place by applying conventional methods.

Genetic based control approaches are opening the way to a safer and effective possibility in the long war against vector of diseases. Several genetic technologies are under evaluation, including the exploitation of the *Wolbachia* mediated effects and the application of transgenic manipulation, of which SIT is currently considered ready to use and included in the biological control methods.

Depending from the local condition and the desired objectives, SIT can be applied to suppress the target population density or to eliminate the invasive species, for example when at the beginning of the colonization process. By focusing on invasive species the risk of impacting the biodiversity by interfering in the ecological network is considered non-existent or even a possibility to restore the pre-existing situation.

For more information and the scientific publications produced see at <http://www.caa.it>.



Rui Cardoso Pereira, Head of Insect Pest Control Section, Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture (on the left) while delivering the IAEA Collaborating Centre plate to Paolo Ceccardi, President of the CAA “G. Nicoli” (on the right), at the ceremony hold on May 17, 2018 at the Farnese Hall, Palazzo d’Accursio, Municipality of Bologna, Italy.

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