



# Insect Pest Control Laboratory

*Fighting key insect pests that endanger crops, livestock and human health*

## General Lab Activities

Five agriculture and biotechnology laboratories in Seibersdorf, Austria, support the Joint Food and Agriculture Organization of the United Nations (FAO)/International Atomic Energy Agency (IAEA) Division of Nuclear Techniques in Food and Agriculture in its core activities. One of these is the Insect Pest Control Laboratory (IPCL), which is a centre of excellence that assists Member States in the use of the Sterile Insect Technique (SIT) to control insect pests that can endanger crops, livestock and human health. The SIT is a form of birth control for insects that has been used successfully in many countries to control populations of key insect pests.

The IPCL conducts R&D to develop, improve and adapt technologies and methods for the application of the SIT to control pests such as fruit flies, tsetse flies and mosquitoes. It transfers these technologies and methods to Member States and trains Member State scientists to build their capacities to use the SIT. Through these activities, the IPCL helps Member States to increase food security, reduce pesticide use, protect animal and human health, and promote international trade by allowing farmers to meet importing nations' regulatory requirements for the entry of agricultural goods.

## The New IPCL

The IPCL is currently being rebuilt as part of the Renovation of the Nuclear Applications Laboratories (ReNuAL) project, an initiative to modernize the five FAO/IAEA laboratories and three additional nuclear science and applications laboratories managed by the IAEA in Seibersdorf. Construction of the new IPCL is fully funded and began in July 2016. The building's foundation and concrete structure are complete, the interior outfitting is well underway and the building is scheduled for completion in the first quarter of 2018.

The new IPCL will consist of dedicated areas for plant pests, livestock pests, human disease vectors, molecular biology and genetics, and a new environmentally-controlled insect greenhouse for behavioural studies. The new building will have more and better quality space and equipment



*The exterior of the Insect Pest Control Laboratory in May 2017.*

# By the Numbers

**58** MEMBER STATES

PARTICIPATE IN PROJECTS WITH THE INSECT PEST CONTROL SECTION



The Section currently researches

**70** SPECIES OF INSECTS

The Section currently supports

**53** TECHNICAL COOPERATION PROJECTS

The Section currently leads

**8** COORDINATED RESEARCH PROJECTS



THE NEW IPCL WILL PROVIDE

**1776**

M<sup>2</sup> OF LABORATORY SPACE

A

**72%**

INCREASE IN SPACE COMPARED TO THE CURRENT BUILDING



Rendering of the Completed IPCL

to improve workflow and efficiency and to provide more and better services for Member States. These will include enhanced R&D for the further development and improvement of the SIT, including for use against additional insect pests that may be of concern to Member States.

The extra space and capabilities will enhance the IPCL's training capacity and increase the number of fellows that are hosted each year, and better support the transfer of technology and expertise to Member States.

## Equipping the Insect Pest Control Laboratory



As part of the laboratory modernization, financial and in-kind contributions for new equipment are being sought for the IPCL. These items will either replace existing equipment that is no longer functioning or that is beyond its useful life, or will provide new laboratory capabilities to the IPCL to increase efficiency and the support that can be provided to Member States.

Support from the IPCL's stakeholders in Member States to help meet these needs and complete the modernization of this laboratory would be welcomed. The IPCL's remaining equipment needs are indicated below, and further information regarding these needs can be provided upon request.



**Cryopreservation equipment:** A technology where insect eggs are preserved by cooling to very low temperatures to be revived at a later time.

**X-ray tubes replacement (4):** The crucial piece of the X-ray machine used for irradiation work, actually emitting the x-rays.

**Insect incubators (7):** Used to maintain insects at very specific temperatures and humidity conditions. Often used to assess the impact of climatic conditions on the performance and fitness of insects.

**Bioclimatic chamber for specific experiments on fruit fly rearing (2):** An incubator for the preparation of the biological materials used for specific experiments on fruit fly rearing.



**Tsetse production unit 4:** A device used for the semi-automatic rearing/maintenance of tsetse flies.

**Food mixer with pumps to automatically dispense insect diets into trays:** A ribbon blending mixer machine used to prepare diet for fruit flies.

**Ultra-centrifuge:** A device that can spin at a very high speed to sediment very small particles such as viruses and protein components.