

EDUCATION AND TRAINING FOR PEST CONTROL: PERSPECTIVES AND SIGNIFICANT POINTS

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The latest survey on the problems associated with urbanization in Brazil, conducted by the Center for Social Policies of the Getulio Vargas Foundation (FGV) and Instituto Trata Brasil (NERI, 2007), points to the fact that 53% of the population does not have access to sanitation appropriate and the current pace of expansion, the universal access would take 115 years.

Poor sanitation and housing, coupled with low coverage and quality of health services, leading to deterioration and worsening of the nutritional conditions of people. Without clean water and proper handling of waste in urban areas, increases the incidence of diarrhea and other infectious and parasitic diseases, and diseases caused or transmitted by arthropods. These animals are the ones that affect the quality of life of men through its mere presence, the ability to cause damage to agriculture and food storage, affecting residential structures, or by causing constant threat to public health.

As in any natural environment, artificial ones, including urban areas, can be colonized and exploited by many species, especially those that are associated with human behavior, called synanthropic. Unwanted animals that infest buildings or surrounding areas can pose serious risks to health and safety. Pest control workers remove these animals from households, apartment buildings, hospitals, places of businesses, and other structures, to protect people and maintain structural integrity. Common pests include roaches, rats, mice, spiders, termites, ants, bedbugs and scorpions. Using information about pests' biology and habits, along with pest management techniques, pest control workers locate, identify, and remove pests. They can set traps, apply pesticides, and even modify structures at the discretion of the customer.

In some special cases, pest control workers use a combination of pest management techniques that is called integrated pest management. Methodology involves adequate sanitation and the creation of physical barriers, like keeping windows and doors tightly sealed and insect screens in good repair. Another method utilizes baits that kill the pests or prevent them from reproducing. Mechanical devices, such as traps can also remove pests from the immediate environment.

Pest-management technology is applied to make home inspections more efficient. This technology, which uses microchips to identify areas of pest activity, is used most frequently for termites. The chips, which are placed in baiting stations, emit signals that can tell pest control workers if termites are present. Workers pick up the signals using a device similar to a metal detector, allowing them to quickly evaluate an entire building.

Pest control workers generally can be divided into three categories: technicians, applicators, and supervisors. Pest control technicians are usually entry-level workers who identify potential pest problems, conduct inspections, and design control strategies. They work directly with the customer and are permitted to apply a limited range of pesticides. Applicators perform more complex tasks, are able to use a wider range of pesticides, and may specialize in a certain area of pest control, like termite control technicians or fumigators. In Brazil, generally, technicians and applicators are not divided categories. They are represented by low education workers, called operators, which are licensed through training and examination. There are courses with 10- 16 hours of duration and they are offered by the Controllers Association for Control Vectors and Pests (APRAG), and technical actualization courses (CATs), offered by APRAG, Biological Institute – Sao Paulo and ABCVP- Brazilian Association of Vectors and Pests Control.

Pest control supervisors direct technicians and applicators. Supervisors are licensed to apply pesticides, but they usually are more involved in running the business. Many supervisors own their own business and a high school diploma generally is the minimum educational requirement. Supervisors are responsible for ensuring that employees obey rules regarding pesticide use and resolving any problems that arise with regulatory officials or customers. In Brazil pest control supervisors direct the technicians or operators and generally they start working as technicians and acquire experience to work as supervisors with the time. Supervisors that own their business generally are graduated in biological sciences, chemistry or agronomy. Pest control methods change all time and because of this, workers and supervisors are often attending continuing education classes, which are frequently provided by product manufacturers.

The Universidade Estadual Paulista-UNESP, through the Center for the Study of Social Insects - CEIS, part of Institute of Biosciences of Rio Claro, with the participation of the Biological Institute - Sao Paulo and supported by the Controllers Association to Control Urban Pests, are promoting since 1999, the Specialization Course - Postgraduate "*Latu Sensu*" - Urban Entomology: Theory and Practice (360h).

This initiative came from researchers from different institutions that participated in the First Brazilian Congress of Vector Control and Urban Pests (FEPRAG), by the necessity of forming a professional expertise to act transferring the knowledge between scientific researchers and urban pest controllers, from government agencies and the private sector. The course aims to improve basic knowledge for the training of human resources in the control of insect pests in urban environments. The proposal involves empowering participants to understand aspects of identification, biology and monitoring of the main insects that occur in urban areas and within the current knowledge, provide technical solutions for appropriate handling.

Until 2010, the Specialization Course in Urban Entomology has trained over 100 professionals who continue to work primarily in business of pest control and pesticides large companies. To extend the career specific for pest control would be appropriate to create a professional master's degree course. A professional master's degree programs are generally similar to those for the MA and MS except that they emphasize instruction in professional affairs on this same subject, continuing professional training. In this course program, could be added other disciplines aimed to other pests, besides insects, such as other arthropod, rodents, pigeons and also issues in administration, human resources, biosafety, waste management and environmental legislation.

Demand for pest control workers is projected to increase for a number of reasons, especially considering the neotropical climate that is warm and wet. More people are expected to use pest control services as environmental and health concerns and improvements in the standard of living convince more people to hire professionals, rather than attempt pest control work themselves. Growth in the population also will generate new residential, commercial, and government buildings that will require treatment by pest control workers. Therefore, pest control is widely quoted in our legislation.

Because work must be done on site, pest control workers travel to visit clients and being in many places difficult to measure the expected results in all them. Therefore, based on the example of a large hospital in São Paulo, it is believed that a management system of integrated pest management can be adopted as a measure that will assist the work of PCOs. In these cases there is a new worker helping to achieve the proposed goals: the control pest assistant, which is an employee or officer of the institution itself. Manage a single location or even three places makes the job more individualized, focusing on the peculiarities of each activity, pointing to wards in a hospital or a particular industry sectors with different working shifts.

The management mentioned above was developed at the hospital at Botucatu - Sao Paulo, which is part of a University Campus and has approximately 400 beds. The buildings are from sixty decade and all campus is surrounded by green areas. The control pest assistant aims to monitor the presence of the vector through spreadsheet pest reporting, which is forwarded to the control infection commission. The sites are inspected for indication of appropriate procedures and results are evaluated over time. The management requires the identification of species present, training the staff, indicating structural modifications on buildings and coordinating the insecticide applications, according to hospital routine.

The management of pest control at the hospital was awarded in the last regional congress of the Biology Board (CRBio -1) as a new field to the professional biologist. Likewise, assistant to the pest control can be of great importance for improving the control in urban environments, performing in public and private institutions, as hospitals, food industries and companies.