

Botanic Garden Santa Elisa: Agriculture environmental education

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The Botanic Garden Santa Elisa situated in the Instituto Agronômico de Campinas (IAC), has undergone improvements concerning educational activities. IAC develops many meaningful scientific researches in different agricultural botanic fields and it also has important collections of plant Germoplasm, but its activity in education is still initiating.

The new educational project encompasses both agriculture practice and landscape aspects as the fundamental base of the educational activities, focusing on enlarging the debate and also generate knowledge related to environment both locally and globally.

The aim of this paper is to publicize the characteristics of the Botanic Garden Santa Elisa situated in IAC as well as the educational project which is intended to be established.

One of the goals of the new educational project is to create a trail inside of the farm where the Botanic Garden is located. Along this trail, “Estações de Cultura” will be built with characteristics from the landscape and from the agricultural cultivation fields which will be experienced by visitors strolling along the path while being coordinated by researchers from the Institute who will be responsible for all the technical and educational assistance IAC can provide.

The Botanic Gardens

The collections of medicinal plants were the first Botanic Gardens of history; though they were not called like that, they represented classified and identified vegetal collections which had a well known specific use that could be spread along the time. The first quotes date from the 16th Century when the word Botanic Garden appears and many gardens were founded in Europe. The spice trade was, perhaps, a relevant evidence of the economic role that plants found in other continents had for Nations as Portugal, Spain, Holland and England.

The Botanic Gardens had a significant contribution in the cultivation and diffusion of vegetal species around the Planet. As time went by, many different activities were combined to the Botanic Garden activity, always related to its geographic localization and scientific and educational interest and compatible with the international directness of vegetal conservation. Many of these institutions started to focus their attention on the particularities of its regional Flora, generating researches on cultivation of native plants with economic potential. This extension of the scientific research is particularly connected to the Tropical Botanic Gardens.

In 1991 the Brazilian Botanic Gardens Network was created. It has the purpose of organizing Environment Education projects, directs and supports the creation of institutions alike and

publicizes the Brazilian Botanic Gardens report. In this year there were only thirteen Botanic Gardens in the country; nowadays there are thirty two (the majority of them situated in the southeast of Brazil and still being established). This number is still small considering the total biodiversity Brazil has, mainly inside Tropical Flora.

The distribution of Brazilian Botanic Gardens follows the international criteria. They are situated in historic more developed regions where the educational and financial standards are higher and not where there are more native vegetation resources. The non-existence of Botanic Gardens in areas such as Cerrado and The Amazon basin which represents a major part of Brazilian Flora is an evidence of that. The possibility of development of new Botanic Gardens in Brazil is enormous owing its diversity of Flora and mainly to some states as the North where the vegetation is still native and threatened.

Campinas area

Campinas municipality is situated in the middle east of the state of São Paulo, 674 meters of altitude, between latitudes 22° 46'10''S to 23°03'11''S and longitudes between 46°50'19''W to 47°13'05''W. It stays in an area of 795Km² and its population is around a million inhabitants. The climate is classified as CWA (Köppen), with annual precipitation of 1.380mm.

Campinas presents a diverse and important economy; the metropolitan area has 22 municipalities and urban index superior to 80%. In these municipalities the agricultural and industrial production, commercial network and services offer stand out. Considering agriculture, some important crops stand out such as different horticultural products, tropical fruits and flowers. There are numerous small rural properties in this region, using agricultural machinery which shows better financial situation of its owners.

The Agriculture Institute of Campinas (IAC)

The IAC was founded in 1887 with the aim of helping the development of the agricultural production of the State of São Paulo, mainly the coffee cultivation, the country economic base. The research in IAC has diversified in its 119 years.

The agricultural and scientific policy produced by IAC is based in the improvement of productivity and quality of cultures. The major area of research of the institution include genetic improvement of plants, vegetal products quality, efficiency of plants towards nutrients and tolerance of toxic metals, methods of soil evaluation, plants, micro organisms, and water analysis, soil biology applied towards the productivity of cultivated plants, sustainable environmental planning, deteriorated areas recovery, management systems of soil and water, integrated systems of vegetal nutrition, handling agricultural residue and soil pollution. IAC has graduation courses (master degree) in the following fields: Tropical and Sub tropical agricultures, genetic improvement, agriculture production, soil and environment resources.

The Institution has around 220 researchers, 280 research assistants, among other workers who develop its scientific activities, it has five scientific research farms spread along the State and also Santa Elisa farm in Campinas where the botanic garden is located.

Santa Elisa farm is situated in the northeast area of the city and is totally inserted in the urban area of Campinas. It has 700 hectares with wild Flora of Cerrado and Rainforest, as well as

botanic collections of ornamental plants and economically important crops such as coffee, rubber tree among others. The biggest part of the farm area is used for agricultural experiments.

IAC owns around 60 thousand data (from a national total of 200 thousand) divided in Germoplasm collections, economically important crops and sustainable development projects. Its central and secondary library owns a total of 82 thousand offprint, 32.751 books and thesis and 3.300 magazines and articles.

Approximately 500 cultivars were put at service for the national agriculture in the last sixty years, showing the pioneering introduction and genetic improvement of the majority of the Brazilian crops. IAC has a major role in the national agriculture and its subsidies have great impact in the results Brazilian agro business has reached.

Santa Elisa Botanic Garden Objective

The activity of a Botanic garden is attached to three main areas: scientific research, genetic plant resources conservation and environmental education. Santa Elisa is a reference in the first two topics but still insufficient in activities related to education.

The current proposal of IAC is to expand its educational projects, having the agriculture as its bigger attractive, using the landscape as reading base and project reference. The landscape in this sense is defined as:

“An holistic concept, in which, on a physical substratum, all living things live in a complex way, animals, plants and mankind, holding some knowledge, producing images. These images are, therefore, a lot more than what your eyes can see, having ecological and cultural meanings (witch includes social and economical aspects) (Magalhães 2001).”

The educational proposal

The educational model of Santa Elisa Botanic Garden comes from the view of the Brazilian educator Paulo Freire, applied to botanic garden that uses “in situ” e “ex situ” plant genetic resources, having agriculture as the main theme, and the landscape as written before.

The main aspect of the educational approach is the generation of knowledge and not simply the transference of the environmental concepts. The educational proposal presents the visitor as someone who participates, criticizes and produces knowledge. The use of practical examples, created by students and tutors together is one of the most important activities to be developed by IAC and it will be applied to botanic collections, scientific experiments, cultivation fields, culture and buildings.

Escorting around activities and agricultural experiments will be a distinctive aspect of the Botanic Garden. This activity should reach especially rural growers and members of agriculture communities, generating knowledge related to agriculture production and applying this knowledge to their reality. The same attitude must direct the activities, the construction of buildings and landscape design of IAC. The Botanic Garden should work with the research centers of the Institute, not hindering the development of scientific research but always when it is possible include it in the educational activities.

The plant resources, especially the botanic collections and the still existing wild Flora of Campinas should be included in the educational proposal, also generating knowledge between tutors and visitors. The botanic and agricultural preservation is the main theme of the Santa Elisa botanic Garden.

The landscape proposal

The landscape proposal incorporates the issues related to agricultural landscape (present in the farm) and also the urban area of Campinas. The intention of that is to create a main route for visiting the botanic garden. The visitor will receive a “passport” and will pass through many “Estações de Cultura” taking part of educational activities, following the agricultural experiments, establishing a closer contact with the botanic collections and appreciating the landscape of the farm.

In each “Estação de Cultura”(Coffee Station; Rubber tree Station), the visitors will be able to get to know different aspects of each crop production in the farm and will have their passports stamped, creating the need for returns when their passports will be stamped again until all the spaces are fulfilled, returning many times to the garden.

The idea is to encourage visitors to gather many different experiences related to botany, agriculture and environment. The audience will range from school children to rural growers and they will take part in the educational activities, debating several social environmental issues so that this created knowledge can be transferred to their real lives in urban or rural zones.

The leisure and contemplative activities of a botanic garden with its guided trails and cultural possibilities are not forgotten. The aim is to enlarge the participation of IAC using agriculture, botany and landscape of the farm, transforming the Institute in an important centre of environmental debates of the city and perhaps of the country.

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Biography

Mr. Graziano is a Landscape Architect graduated in 2001 at University of São Paulo – Brazil. He is working in São Paulo City Hall as a public space designer and also as a volunteer researcher at Instituto Agronômico de Campinas – IAC since 1998.