Article

Teaching methods to grow (persea americana mill) obtained from seed in a family yard

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Abstract: In the National Strategy for the Conservation of Vegetable Species thinks about among their priorities that it is a necessity, to understand, to document and to recognize the Cuban vegetable diversity sufficiently, as well as their conservation, developing, work educational and public commitment for this way to contribute to the appropriate preservation of the traditional cultivares of Cuba. It is a necessity the solution of this problem keeping in mind that the production of foods from a perspective of alimentary and nutritional security, has in its base the integration of the actors from the local thing to the national thing. In this sense they exist political of government and educational established for potenciar the integration of the communities and the local actors with the educational centers. With the objective of conserving the variety of the avocado (American Persea Mill) and to favor the local agricultural administration by means of the integration of teaching methods, it was used the observation and the method of investigation action participativa and one kept in mind the selected describers of the list of the International Institute of Resources Fitogenéticos (IPGRI) and the International Union for the Protection of the Vegetable Obtaining (UPOV). the Franciss-green and Franciss-lived denominated avocado varieties were characterized for their conservation. As main conclusion you integrates the I diagnose of the resources fitogenéticos, to the programs of educational projects, of training for local producers and of university extension that embraces the knowledge of the community conception in the relationships university-society for the alimentary sovereignty and the execution of the calendar 2030 and ODS in a family patio of the municipality Güira of Mane.

Keywords: local cultivars; phylogenetic resources; community conservation

1. Introduction

The problems of the environment occupy a significant space, because they continue being one of the biggest concerns in the world contemporary society, inside those that are the conservation of the natural resources and inside them the conservation of the resources fitogenéticos.

They stand out for [1], two essential challenges for the education of the XXI century: the ecological challenge and the social challenge, as well as the existence of many educations. The author before mentioned he/she refers the necessity of an education model that is instrument for a practice social transformadora, in turn where the collaborative and creative learning constitutes its essential nucleus and that it looks for “to introduce in the heart of the educational act the problems of the society, from the local scale until the global one”, he/she also refers that the education can be part of the solutions if it favors three basic questions: “the critical attitude about the values
of the past and of the present; the scientific, ethical and creative capacities to help to
that the world is better every day something; and the prospective one that guides us
toward a future with intergenerational justness and harmony with the nature.”

In accordance with recent reports of the Organization of the United Nations for
the Feeding and the Agriculture [2], without the adaptation to the climatic change
won’t be possible to achieve the alimentary security for all and to eradicate the hunger,
the malnutrición and the poverty. After 2030, the negative repercussions of the
climatic change in the productivity of the cultivations, the cattle raising, the fishing
and the forest activity will be more and more serious in all the regions, the descents of
the productivity will have serious consequences for the alimentary security. In this
sense he/she stands out the necessity of the production of foods and of the preparation
of people to face this challenge.

From the educational point of view, the professor’s integral formation every more
necessary and more indispensable day ago keeping in mind that the same one can take
advantage of the potentialities of the diverse contexts where he/she acts. For it the
educational process should be characterized to be integral, renovating and
contextualizado, in which are articulated to the teaching contents, the resulting
learnings of the development scientific-technician and of the local history.

In this sense the limit 122 of the economic and social politics refer “to upgrade
the formation programs and investigation of the universities in function of the
necessities of the economic and social development” and the 157 dirigido to prioritize
the conservation, protection and improvement of the natural resources, among them,
the floor, the water and the resources zoo and fitogenéticos. To recover the production
of seeds of quality, the animal genetics and vegetable; as well as the employment of
national biological products” Limits of the Economic and Social Politics (2016–2021)
[3], with the result that the educational system has the responsibility and the social
responsibility of contributing to the gradual formation of habits, behaviors and values.

In this same order of ideas [4], refiere that in the current context assigned by the
climatic change, the economic, social, financial, alimentary and environmental crises
of the world made worse by the neoliberal globalization and in particular in the Cuban
context: the worsening of the blockade, the population’s decrecimiento, their growing
aging, they point to a change in the look toward the treatment of the agriculture in the
processes of formation of the different educational levels with the objective of
achieving the sovereignty and alimentary security guided to the sostenibilidad, starting
from the dialogue between the scientific knowledge and the traditional popular culture,
in the mark of the dynamic culture-nature.

The process of professional formation is given by its integration with the cultural
and environmental social, economic context in that you/they are related the processes
nouns of the university, the extension that embraces the relationships university-
society and the investigation process that he/she responds to the demands of the society.
In the plane of the formation of the qualified force for the agricultural production, it is
stood out the productive process intentionally that although it is not defined among the
processes nouns if it is the base of the professional’s formation that he/she should teach
to produce taking place. The fundamental actors that are integrated in the
professional’s formation are: the university, the investigation centers, the centers of
the technical education and professional and other centers where they are developed
and they implement training strategies to motivate the agricultural activity as: the entities productive point of the urban agriculture as sub urban and family, others that include cooperative of credits and services, cooperative, basic units of production cooperatives and peasants.

The treatment of the conservation of the Resources Fitogenéticos (RF) in the communities, it is an integrative topic where you can conjugate the professional formation, the investigations in the agricultural field, the pedagogic investigations, the methodological work and the productive processes and extensionistas like part of the integral formation to assure the sovereignty and alimentary security in their orientation to the sostenibilidad.

In the National Strategy for the Conservation of Vegetable Species thinks about among their priorities that it is a necessity, to understand, to document and to recognize the Cuban vegetable diversity sufficiently, as well as their conservation, developing, work educational and public commitment for this way to contribute to the appropriate preservation of the traditional cultivares of Cuba, Parrado [5], with the result that the objective of the investigation is to conserve the variety of the avocado (American Persea Mill) and to favor the local agricultural administration, by means of the relationships university-society.

2. Materials and methods

The applied methodology was the investigation action-participativa that allowed to investigate in the problems of the community and the conservation of the resources fitogeneticos. The used methods were: the observation and the prospecting.

Under the investigation action participativa characterized by their dynamic character and participativo of their activities, they were carried out activities that allowed to conserve the avocado varieties (American Persea Mill), in the community investigation object in the municipality Güiria of Mane of the county, Artemisa.

It was used fundamentally like sample the family patio mentions in street 94 Nro9710 %97 and final, it is adjacent to the front with house housing and the polytechnic Institute “José Manuel Torres Canals” and in its bottom and left with the Institute Preuniversitario “Eugenio María of Hostos”, the Municipal University Center belonging to the university of Artemisa and the Property Echezabal with areas belonging to the Urban, Suburban and Family agriculture of the municipality, all them favorable scenario for these and other activities of environmental intervention. The patio occupies a squared area of 176.95 m, located at 22048′8″ N of latitude and a longitude of 82030′17″ OR, to 20 m.s.n.m, on floor red ferralítico with flat topography. In the same one they are distributed in spontaneous way characterized as native genotypes of the area, five trees more than avocado (American Persea Mill) and other fruits like the mango (Mangifera L indicates), three varieties, the guava (Pisidium guajaba) three varieties and a mammee variety (Pouteria sapota Jacq). In this patio the plants are developed under the principles of the conservation agriculture [6].

In the investigation the collection and/or study was carried out in the family patio (in situ). they were integrated to the activity in the land to the students, professors and local producers of the centers before mentioned. The first activity consisted on the localization of this resource fitogenetico in the adjacent family patios using the process
denominated prospecting for the specialists dedicated to the work with the resources fitogenéticos. He/she was carried out on the part of the students, the gathering of seeds and/or vegetative material, with the objective of conserving, to multiply, to characterize, to describe and to use the seed of the avocado. Important the use of the principles of the popular education during the conservation actions and maintenance of the varieties in the patios of the neighbors and areas aledañas to the community.

The characterization was carried out with a group of 20 students that you/they are formed in half technician’s specialty and engineering in Agronomy and 10 of 10mo and 11no grade of the Institute Urban Preuniversitario (IPU) before mentioned, during the school course (2021–2022). The selection of students was carried out in an intentional way, with the intention of exchanging knowledge and knowledge among students of different educational levels and of teaching. To each group he/she was given materials and resources like: plastic bags, paper for notes, presses for the collection of plants, cardboards of used boxes, line to measure, scissors of pruning or similar, knives, a questionnaire and schedule where they had to pick up the data keeping in mind some indicators that settle down in the list of describers of the International Union for the Protection of the Vegetable Obtaining [7], and of the list of the International Institute of Resources Fitogenéticos [8], and Jimenez [9] for American Persea Mill. By means of the method of investigation action participativa the exchange of information was favored and of experiences among the students, professors and local producers as well as of practical orientation to identify the characters of the identified local varieties, and to introduce the results in the educational programs and of training.

The observation: it was applied in the visits to the family patios, school orchards of the community, what allowed to diagnose and to carry out an inventory of the resources existent fitogeneticos. This investigation method propitiated to other the conservation of the American Persea Mill like resource fitogenético to benefit the local agricultural system by means of the contribution of the community in the preservation of these plants in its patios, starting from the collection of its seeds and the assembly of nurseries and nurseries, also during the realization of extracurricular activities and of university extension as planting a tree and the diagnosis of the resources local fitogeneticos that it includes the gathering of data has more than enough types of describers of characterization of plants and trees.

In the characterization of the American Persea Mill under the guidelines of exam of the they were: evaluation of the distinction, homogeneity and stability, keeping in mind:
1) long and wide of the fruits and I release and wide of the seed,
2) external and internal coloration of the fruit,
3) presence of fibers in the pulp,
4) time of maturity of the fruit for the crop.

For the description and characterization of the avocado, keeping in mind the list of the International Institute of Phylogenetic Resources [10], it was used in this investigation like indicators for the description: behave of the tree, trunk, and color and it forms of the branches. Other describers used by the IPGRI and that they were of interest for the participants during the gathering of data and information they were: passport, handling, place and environment and evaluation [11].
3. Results and discussion

The society in its development, has necessities that are commended to diverse educational institutions among those that he/she is the University. In Guira of Mane the Municipal University Center and the other educational centers need to foment the interdisciplinary and multidisciplinary relationships that achieve the integration from the investigation results to the programs of study of the different subjects and it disciplines as well as to the programs of educational projects and of training.

The school like social institution, have the fundamental mission of conserving, to develop and to promote the culture, not including alone the scientific, productive and technological aspects, but the values, feelings, traditions and historical roots of that society.

In this address, as a result the conservation of the resources fitogeneticos was achieved and of the vegetable species in this case the American Persea Mill and the invigoration of the knowledge of the community that in this sense, he/she had its contribution to the preservation of these varieties for the local development by means of the selection and siembra of seeds in different places and directly in its patios and areas you forbid of the community.

Another of the results is the relationship university-community, by means of the realization of the characterization, inventory and I diagnose of you hoist them described where they were integrated methods of teaching that constitutes, essentially the surrender of general results of the investigation. In that same order of ideas it is contributed with the alimentary sovereignty and the ODS of the Calendar 2030 [12], when promoting the sustainable agriculture for the achievement of the alimentary security as well as to maintain the genetic diversity of the seeds by means of the conservation of the plants in situ, also with the participation of the students he/she makes sure that all acquire the necessary theoretical and practical knowledge to promote the sustainable development.

By means of the observation you could characterize the tree of lived avocado (American Persea Mill), described with rounded form or spheroid, of half size to big, the value of the long one went half of 15 to 75 cm and the width of 4.50 cm, the rounded seed, of half size, of rough and flat texture with a long of 7.31 cm and a width of 5.50 cm, masa of the thick bark and of the creamy and mash pulp, with a yellow coloration, the external coloration of the fruit is green and lived or purple in state soft maduro, textura, kneaded of pleasant flavor, it doesn’t contain fibras, época of half maturation among June, July and August. Tree of good not carries erecto, trunk very wide and green color of the hojas con forms lengthened and pointed, half limbo. This tree when it flourishes it loses the leaves partially. The vegetable material, branches and leaves presented a healthy appearance and it was not affected by illnesses or important plagues.

The tree of green avocado (American Persea Mill)se characterizes to have an open behavior, fruit with rounded form or spheroid, of half size to big, the rounded seed, of half size, of flat texture, mass of the thick bark and of the creamy and mash pulp, with a yellow coloration, the external coloration of the fruit is green and greenish yellow in mature state, soft, mash texture, of pleasant flavor, doesn’t contain fibers, time of late maturation among August, September and October. Tree of good behavior,
leafy, truncates wide and fibrous and clear green color of the leaves with oval and rounded form finished in tips, limbolargo. This tree when it flourishes it doesn’t lose the hojas. Los fruits of this tree of avocado sonatacados totally for bats or rodents in September good time of crop.

4. Discussion

In accordance with Valdés, Orestes & Llivina Miguel (s.f.), [13], they were also used as roads to favor the integration techniques as: The education on the land that had as objective to energize the knowledge and a change of attitude with relationship to the environment and the conservation of the resources local fitogenéticos, because it allowed the students to take conscience of the importance of the activity for the local agricultural development and the alimentary security.

Clarification of values favored the exam of own points of view and unaware with relationship to the carried out activity, it propitiated the taking of decisions when facilitating the objectivity in the carried out characterization and the roads proposed by the producers and neighbors of the community.

Shop of experimental demonstration propitiated to qualify the producers, students and professors technically for the action of characterizing, to describe and to conserve the resource fitogenético investigation object and to favor the bond university-community.

From this look it is valued the importance and the list of the University in the activities characteristic of the university extension for the conservation and preservation of the characterized avocado varieties as well as for the transformation of the community in which the involved fellows intervene in integration.

Therefore, to the University it corresponds him to define an appropriate communication system with the community in which is inserted their generating list and difusor of knowledge. This system should strengthen the slope of the linking with the communities, the productive agents and the local institutions, creating capacities at the same time to diffuse the knowledge and the local initiatives in the global spaces that you/they offer opportunities to contribute to the alimentary sovereignty and the objectives of sustainable development of the Calendar 2030.

The study of Franciss-green and Franciss-lived obtained of seed, in a family patio they show that potentialities exist for the maintenance of the resources fitogenéticos and to contribute to the alimentary sovereignty for the sustainable local development in the community.

The characterized trees and described, denominated Franciss-green and Franciss-lived, they present characteristic favorable that allowed their study and propagation among those producing of the Urban, Suburban and Family Agriculture in the municipality Güira of Mane.

In particular, the two characterized trees, they didn’t show genetic variability, keeping in mind the environmental factors (temperature and humidity), they produced a satisfactory crop of fruits in the cycle of the cultivation. It is worth to highlight that all the qualitative characterization was carried out for the authors’ visual inspection, with the participation of professors and students of the adjacent educational centers with the housing, as well as the technique and ingeniera of the municipal, old seed
property (School Orchard), belonging to the Suburban and Family Urban Agriculture.
The setting in practice of the activities (Figure 1) and the teaching methods in the community, shows an increase in the community, favorable participation the exchange of experiences between the producers and the University Center Municipal (CUM), it develops values in the students, it transmits and it socializes traditional knowledge as a form of fulfilling the objectives of the Calendar 2030.

Figure 1. Practices activities.

5. Conclusions

It was verified in the investigation that is insufficient the knowledge of the University and the other educational centers, in connection with the conservation of the resources fitogeneticos of the community.

The investigation action participativa was used to characterize the varieties of Avocado (American Persea Mill) green Franciss and lived Franciss, integrating teaching methods that were the base to transmit conceptions and traditional knowledge to the educational process and of training that you/they reveal different theoretical and practical knowledge with the purpose of contributing to the alimentary sovereignty and the local agricultural development.

It was favored the appropriation of students’ knowledge, professors and local producers in a coherent and logical way, using innovative methods taking advantage of the context, with an integrative vision that allowed to conserve the resources local fitogenéticos in a particular way the avocado varieties (American Persea Mill).
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