



STRATEGIC DIAGNOSIS FOR THE AGRICULTURAL AND FOREST DEVELOPMENT OF THE AGRICULTURAL COMPANY “CAMILO CIENFUEGOS”

Diagnóstico estratégico para el desarrollo agropecuario y forestal de la Empresa Agropecuaria “Camilo Cienfuegos”

María I. Pavón Rosales^{1✉}, María E. Domini¹,
Gicli M. Suárez Venero², Guillermo R. Almenares³, Ania Yong Chon¹
and Bárbara Benítez¹

ABSTRACT. The research was conducted at the Agricultural Enterprise “Camilo Cienfuegos” Jaruco municipality of Mayabeque province during the years 2012/2013 in order to determine the potential and the limitations of the company as well as define the main results for the implementation of the Plan strategic with the effective participation of producers in order to contribute to the agricultural development of the territory with a multidisciplinary approach. The study methodology was based on participatory strategic diagnosis with a comprehensive focus on four basic processes of social organization, strategic, technological and management. Three stages beginning with the agricultural characterization of the study area, along with the interpretation and evaluation of the main problems from the use of the FODA matrix were executed. The results allowed to identify the main constraints and potential of the company that made the projection, establishment and evaluation of strategic planning of Agricultural Enterprise “Camilo Cienfuegos” as part of the management for sustainable development. In this context, in addition to formulating the strategic objectives of the company, it was possible to analyze the main indicators of production taken to the full strategic integration and effective participation of social actors of the territory in order to establish the development strategy as a viable process to follow to achieve the objectives action.

RESUMEN. La investigación se realizó en la Empresa Agropecuaria “Camilo Cienfuegos” del municipio Jaruco provincia Mayabeque, durante los años 2012/2013 con el objetivo de determinar las potencialidades y las limitantes de la empresa, así como definir los principales resultados para la implementación de la Planeación Estratégica con la efectiva participación de los productores, con el fin de contribuir al desarrollo agroalimentario del territorio con un enfoque multidisciplinario. La metodología de estudio se fundamentó en el diagnóstico estratégico participativo con un enfoque integral sobre cuatro procesos básicos de la organización: social, estratégico, tecnológico y administrativo. Se ejecutaron tres etapas que comenzaron con la caracterización agropecuaria del área de estudio, además de la interpretación y evaluación de los principales problemas a partir de la utilización de la matriz FODA. Los resultados permitieron reconocer las principales limitaciones y potencialidades de la entidad que hicieron posible la proyección, establecimiento y evaluación de la planificación estratégica de la Empresa Agropecuaria “Camilo Cienfuegos” como parte del proceso de Gestión Empresarial para el desarrollo sostenible. En este contexto, además de formular los objetivos estratégicos de la empresa, se logró analizar los principales indicadores de producción, adoptando medidas para la plena integración estratégica y la efectiva participación de los actores sociales del territorio con el fin de establecer la estrategia de desarrollo como un proceso de acción viable a seguir para el logro de los objetivos propuestos.

Key words: participation, integration, extension strategy, extension approaches, diagnosis

Palabras clave: participación, integración, estrategia de extensión, enfoques de extensión, diagnóstico

¹ Instituto Nacional de Ciencias Agrícolas (INCA), gaveta postal 1, San José de las Lajas, Mayabeque, Cuba, CP 32 700.

² Universidad de Guantánamo.

³ Instituto de Investigaciones en Fruticultura Tropical.

✉ misabel@inca.edu.cu

INTRODUCTION

Everyday the world turns more unstable, turbulent and uncertain, noticing that the change has become a regularity. Phenomena that did not exist decades ago are already part of the distinctive features of the XXI century, where, as stated, the only thing really stable is the instability of the global context, whose changes cause unprecedented negative impacts in all countries (1).

This reality, particularly highlighted in underdeveloped countries, has brought about breaks, both in production relations and the superstructure, which has transformed the order of events and perceptions with a consequent change in the way of life, the way of thinking and act of people amidst a neoliberal globalization that strengthens individualism, excessive consumerism, the destruction of the environment, the worsening of inequalities, poverty, unemployment and underemployment, among other harms^A.

At present, several productive and service units of the agricultural sector, combine strategic planning, and objective management that comprehensively seen, involve a set of organizational and key individual interventions inherent in them. Such processes bring into line opportunities and threats of the environment with strengths and weaknesses of the organization, useful to define objectives and strategies that optimize, concentrate resources, efforts and will power (2).

In its projection to the future, strategic planning emphasizes on diagnosing the working environment without neglecting the evaluation into the organization. It leads to reasoning on the role the agricultural sector plays on the socio-economic development of the country where the analysis of the present scenario is implemented (3).

Strategic planning at the enterprise field is affected by values and expectations of entrepreneurs and those groups related to the enterprise which, with more or less power, try to influence this process, in addition to the uncertainty conditions, complexity and conflict where the strategic management process focuses on turning difficult the articulation of such process (4).

Thus, in Cuba, 75,9 % of the population lives in urban areas and 16,8 % of the population under working age, lives in rural areas. In the domestic context, 21 % of the occupied population works in the agricultural sector, contributing nearly 3,8 % to the Gross Domestic Product. Therefore, the development of expectations of the agricultural sector is great. However, the structural problems of agriculture

cannot be bypassed, some of them caused by its heterogeneous and wild geography (5).

The agricultural sector is under constant threat of climatic phenomena expressed in droughts, floods and those caused by man. These phenomena intensify even more global warming, which agriculture not only contributes to, but is also greatly affected by it (6).

Crops growth will be in danger as a consequence of the changes in the distribution of rains and the chemical composition of the atmosphere as well as by the increased ultraviolet rays incidence that claim for prevention and adaptation strategies (7).

In this regard, the managerial sector and particularly the "Camilo Cienfuegos", Agricultural Enterprise, as the leading organization of agriculture in the Jaruco municipality, has the responsibility of implementing strategic planning 2014-2018, from the targets, policies and strategies of the agricultural sector taking into account previous statements. This research aimed at achieving a strategic diagnosis for the Agricultural and Forest Development as an instrument of Business Administration.

MATERIALS AND METHODS

The research was done at the Agricultural Enterprise "Camilo Cienfuegos" located at the Jaruco municipality, Mayabeque province, during 2012 - 2013, based on the Participative Strategic Diagnosis with a comprehensive approach on four basic organizational processes: Social, Strategic, Technological and Administrative (8). Multi and interdisciplinary groups were created in order to determine the effective functioning mechanisms, execution priorities and key indicators in the execution of the diagnostic.

The Participative Strategic Diagnosis is useful to describe the situation of the organization at the time strategic planning was done, it also allows to make clear problems that should be solved during the process of change and identification of strengths and opportunities that can be used to ease for this process as well as the weaknesses and threats that can hamper it (9).

The strategy for diagnosis execution consisted in making a general characterization of the enterprise, considering planting and the production of multiple crops as well as the training needs and forms.

An analysis of soil surface and use was performed. According to the current use, the space distribution and quality of the lands and at the same time the use of such lands was projected for the next five years (2014 – 2018).

^AFerriol, F. *Modelo de planificación estratégica para el Ministerio de Educación Superior de la República de Cuba* [Tesis Doctorado], Universidad de La Habana, La Habana, Cuba, 2011, p. 120.

Manpower and its projection for the 2014 – 2018 period was also done from the surveys applied to know its tendency and features.

This general information was recorded from the proposed indicators, taking into account technical and productive issues related to technology and the organization of the productive process being executed at the enterprise. Seven execution stages were defined:

- ◆ Selection of the scenarios and coordination with social and executive actors of the enterprise.
- ◆ Design of the participant matrix looking for facilitators of the process.
- ◆ General information of the production unit (climate, soils, utilization of the available land, economic data and manpower).
- ◆ Workshops with groups of social actors.
- ◆ Socialization of the development program structured in the different production units based on the development program of the enterprise.
- ◆ Creation of an information system of agrarian and rural knowledge at the “Camilo Cienfuegos” Agricultural Enterprise.
- ◆ Continuous improvement to the development program of production units.

In order to compile the necessary information different tools were combined: semi-structured surveys and interviews to 25 growers chosen at the beginning of the research for their reputation as leaders in the territory. Six decision makers were also interviewed as well as six administrative leaders that influence on the agricultural development of the municipality; a total of 38 people were involved. Problems were designed as non-desired situation that needs to be changed to achieve a sustainable development in each process.

Surveys and interviews were subjected to the percentage analysis which facilitated a more representative and clear information.

The SWOT matrix was used to characterize, interpret and provide a hierarchical structure to the main problems through workshops and effective group works according to the methodological procedure in force. This procedure had a managerial, technical and human approach that eased for its influence on the system in addition to determine the restrictive factors for the sustainable development of the enterprise (10).

The analysis and evaluation of SWOT results allowed to reach an accurate knowledge of the positive and negative situation of the enterprise. From these results, strategic objectives and actions in which to focus organizational efforts were laid down to plan and project the development of the enterprise (11).

The design of the strategy is oriented to take advantage of the strengths to minimize the effects of the possible threats, the formulation of the strategy is not a conceptual process, it is a participative process that gradually emerges as the organization learns more, its not something individual. The formulation of the strategy is a process of power among conflicting groups within the organization and other agencies of the territory. It is in here where strategies are combined and structures are integrated into a unique setting outlook (12).

RESULTS AND DISCUSSION

Diagnostic results showed that the enterprise has a total geographical area of 9 438 ha and out of them, 8 478,8 ha (89,8 % of the total area), can be cropped and 100 % is under exploitation, though 160 ha were found with inadequate exploitation due to irregular management (Table I).

Most of the land is devoted to livestock followed by multiple crops. The above is closely related to land grant to growers through the Law 300 for efficient exploitation. The enterprise devoted a high amount of hectares to this type of use.

Table I. Use of the available land stock

Crops	Growing area (ha)	Total growing area (%)	Deficiently exploited surface area (ha)	Land delivered by the Law 300 (ha)
Rootscrops, vegetable and grains	1 240,4	14,63	10	516,9
Fruit crops and citrus	242,3	2,86	2	22,7
Forestry	134,9	1,59	4	
Livestock	6 861,2	80,92	144	1 593,1
Total	8 478,8	100	160	2 132,7

The Agricultural and Livestock Production Cooperatives (CPA) and Credits and Service Cooperatives (CCS) are forms of production that cover more lands as compared to the total area. However, the Basic Cooperative Production Units (UBPC) have only 13 %.

From the edaphological point of view, these lands have different characteristics, with different feasible production uses. Their agroproductive evaluation and diagnostic results showed four categories when considering the physical, chemical and morphological features of the soil, in addition to physiological requirements of the species cropped (Table II).

Table II. Agroproductive categories of the soils at the “Camilo Cienfuegos” Agricultural Enterprise

Agroproductive categories	Area (ha)	% of the total area
I	10,068	36,32
II	7,579	27,34
III	2 133,85	7,70
IV	7,133	25,73
Without soil study	402,25	1,45
Flooding area from dams	403,9	1,46
Total	27 710	100

Soils included in category I are less than 50 % of the total area, which means that the largest area shows limitations, needs and a higher demand of management practices. These features of soil suitability should be considered to formulate and program agricultural comprehensive development projects for this enterprise.

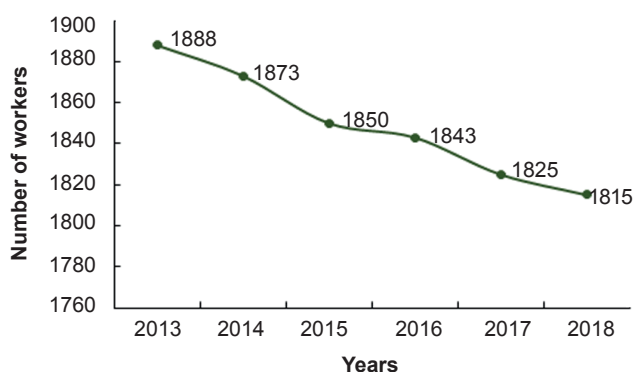
Out of the 100 % of the land stock, 9 438 ha, it was projected to maintain the annual use of 8 478,8 ha for agricultural purposes and out of them, 100 % cropped to avoid inadequate uses. Moreover, it was decided to keep 6 861,2 ha per year to meet livestock production programs by planting and managing natural pastures and provide care for the 134,9 ha annually for forestry exploitation.

The projection done included maintaining 959,2 ha of non-suitable lands for difficulties in recovering them, which means that the current deficiently exploited lands should be removed from the second year on and be incorporated to those adequately exploited.

An element that will complement the efficient use of lands within the current projection is the use of part of the land to water reservoirs as a way to collaborate with

the sustainability of the enterprise by incorporating other economic items like fish production. In so doing, 5 ha were chosen from the 2nd year of the project till reaching 20 ha in the last year within the 2014 – 2018 period.

As to manpower, the historical record of occupied payroll amounted to 2012 workers, a figure that surpassed the 2013's with 1888 workers, out of them 1459 men and 429 women. The projection till 2018 shows a downtrend, mainly due to the process of available workers, exodus to other jobs and retirement, as it is shown in figure.



Trend of the total number of workers 2013-2018

The annual reduction of the payroll is closely related to the form of production dealt with. In general, there is a tendency to reduce in all forms of production.

In general, the participative strategic diagnosis allowed to characterize different production units, circumstances, technologies, human talents, the capacity, intensity and mobility of the system, where restrictions affecting the functioning of the enterprise were also identified as well as their causes. Possible solutions to detected problems were put forward.

From the results mentioned above, internal and external analytical sessions were held to identify enterprise needs and also the available strengths through the SWOT matrix (Table III). These sessions allowed to make up a vision, mission and objectives of the enterprise. It was also possible to participatively define the social object of the organization, its reason of being, the current situation (diagnosis), the vision of the entity in future years and the definition of the strategy to follow. The following results were reached:

Mission. Organize the productive strategy and specialized technical services on the basis of a permanent growth and sell products in order to meet, first of all, the food needs of all workers and extend sale possibilities to the population under a regime of economic efficiency and sustainable agriculture.

Vision. Achieve diversified increased productions and better services by introducing new technologies, applied science and reach a sustainable development environmentally wise, turning the enterprise into a leader within the sector.

Sixteen major problems were identified as a result of participative workshops, distributed in five problems relative to human capital, three of these problems were related to training and eight to food production.

One of the problems identified by social actors of the municipality with a great impact on food production is the lack of resources. Reference was made to available seeds since both delivery systems were considered faulty, that is, the formal

one through the enterprise and its price (for the case of improved seeds), and the informal one dealing with the exchange between researchers and growers through projects.

Mention was also made to organic and nutritional alternatives related to soil productivity, production and commercialization of conserved foods and water, as other fundamental elements.

There was a general consensus as to the insufficiency of the agricultural extension system, however, growers need to adopt new technologies for innovation and training. This system influences the non-efficient management of available resources and the use of agroecological alternatives^B.

Strategic planning identified five strategic objectives and a total of 20 actions. This is a process to decide what kind of planning efforts should be done, when, how and by whom; and finally what to do with the results. It should not be confused with taking early decisions, but on the right time (13).

^B Pérez, T. *Propuesta metodológica para el análisis de la seguridad alimentaria a nivel local en Cuba. Experiencia en el municipio San José de las Lajas, La Habana, Cuba* [Tesis Doctorado], Universidad Agraria de la Habana, La Habana, Cuba, 2010, p. 100.

Table III. Results of the SWOT analysis

Managerial	Types of approaches Technical	Human
<p>Strengths: Having a humal capital with possibilities of increasing comprehensive culture and educational levels willing of working in agriculture.</p>	<p>Strengths: Available potential to multiple crops and livestock. Available leading growers with knowledge and experiences in agriculture and livestock production.</p>	<p>Strengths: Existence of the Science and Technology Forum as well as the Association and Innovation and Rationalizers with political and state will power to implement municipal development programs.</p>
<p>Weaknesses: Deficient attention to the grower, deficient incentive systems, high fluctuation indexes of workers, poor role of technicians in the productive process, exodus of professionals to other jobs and bad representation of the rabbit breeding and fish sectors.</p>	<p>Weaknesses: Inexperience in the production and sale of conserved foods, deficient links between leading growers to develop productive entities within prioritized sectors in the territory, rainfed crops are predominant because of the insufficient water dams, not enough irrigation systems, deficient seed production.</p>	<p>Weaknesses: The knowledge factor is not used in the quest for advanced solutions, the non application of Payment Systems according to Final Results of production, deficient cropped area in state-run farms and livestock sector so as to permit growth of the herd, nule production of green manure and compost.</p>
<p>Threats: Instability in the supply of inputs</p>	<p>Threats: Competence of other enterprises to recruit the best cadres and professionals</p>	<p>Threats: Competence from other more attractive sectors.</p>
<p>Opportunities: State will power to develop research, managerial improvement policy and update price policy for agricultural produce.</p>	<p>Opportunities: Safe domestic market, development of new technologies, diversification policy and high demand of agricultural commodities.</p>	<p>Opportunities: Existence of a legal base to back up training (Res 29 / 06) and creation of a Comprehensive Training System.</p>

This strategy is a viable action process to meet the targets and intentionally concentrate efforts and necessary resources according to the balance of forces of the organization^c.

Strategic objective 1: Organize and consolidate the management system.

Actions:

- a) To hold workshops to train experts of the enterprise and those of Strategic Target Management.
- b) To implement the strategic objectives at the production units level.

Strategic objective 2: Organize and guarantee the Comprehensive Livestock and Agricultural Development Program of the municipality.

Actions:

- a) Fortuitously projection of the enterprise-research centers link to promote the maximum introduction of investigation results and solutions from the Science and Technology Forum.
- b) Support the whole downsizing of the enterprise by providing solutions to the problems identified in the diagnosis.
- c) Definition of production volumes for root crops, grains, vegetables and fruits based on the self-supply needs of the municipality. Available areas, their composition, machinery, irrigation and other necessary resources should be considered as well.
- d) Proposition of diversification of small livestock in all sectors and units to achieve 100% of self-supply of these productions in the territory.
- e) Going with and controlling the Urban and Suburban Agriculture Movement by training growers, giving them access to scientific information and increasing the grower-researcher link.
- f) Increasing areas for grains (rice and beans) in order to replace imports.
- g) Evaluate the seed production system in the municipality.
- h) Introduction of bioinputs for food production.
- i) Fostering the use of agroindustries in the municipality.

Strategic objective 3: Promote and control training and a comprehensive workers attention.

Actions:

- a) Each unit projects manpower needs and their training.
- b) The training design should look at existing needs and link experts and decision makers with growers and research institutes.
- c) Conception of a training program to meet existing needs.

Strategic objective 4: Promote and control the application of science and technology.

Actions:

- a) The agricultural extension strategy is implemented.
- b) The soil use and conservation program is implemented.
- c) Solutions that introduce a higher quality and diversity of productions is promoted taking into account the supply and demand relationship of the domestic market.

Strategic objective 5: To achieve efficiency in the granting process and use of empty lands.

Actions:

- a) More than 90% efficiency is reached in the granting process of empty lands.
- b) Inspections and self-inspections to lands are increased to prevent illegal acts.
- c) A better function of the Municipal Commission for agricultural issues is achieved.

An innovating issue that is tried to replicate and spread in the future development of agricultural enterprises is the participative design of production plans among productive units. This design process is based on the active participation of growers as an alternative to the traditional design of enterprises vertically oriented till the farms. Participative design allows growers to let their voice be heard as to what they want to do with the farm, it adapts development to its capacities and vision, and permits to express clearer training needs according to the targets set (14).

Another important element is the action plan that links planning and execution (15). In this regard, the "Camilo Cienfuegos" enterprise, based on previous experiences, will project strategies for the future with the application of planned actions and the incorporation of other enriching technological elements in addition to the efficient use of science and technology (16).

^c Galarza, J. "Una herramienta informática para apoyar el seguimiento y control de los objetivos en las instituciones de educación superior adscritas al MES (SASCO)", *VII Congreso de Educación Superior «Universidad 2010»*, edit. MES, La Habana, Cuba, 2010.

CONCLUSIONS

- ◆ There are elements like the need of adopting new technologies, innovation and growers training that make the development system of this enterprise insufficient.
- ◆ The introduction of resistant varieties to drought, bioinputs and the boost of the agroindustry, are essential suggestions for the agricultural development strategy of the “Camilo Cienfuegos” enterprise.
- ◆ The deficient seed production is one of the main problems identified by growers, influenced by a deficit of resources and inputs to produce them. The production, packing and conservation infrastructure in addition to obsolete equipment, worsens the situation as well as the lack of a comprehensive system to produce seeds in the territory.

BIBLIOGRAPHY

1. Almuñías, R.J.L. y Galarza, L.J. “El proceso de planificación estratégica en las universidades: desencuentros y retos para el mejoramiento de su calidad”, *Revista Gestão Universitária na América Latina-GUAL*, vol. 5, no. 2, 2012, pp. 72–97, ISSN 1983-4535.
2. Idris, K.; Hamzah, A.; Uli, J. y Tiraieyari, N. “Importance of program development competencies for agricultural extension agents performance in process of technology transfer”, *American Journal of Agricultural and Biological Sciences*, vol. 5, no. 3, 2010, pp. 376–379, ISSN 1557-4989.
3. Alfaro, R.J. Elementos metodológicos para la planificación estratégica en programas de educación superior. [en línea], 1.a ed., edit. IICA, CECAP, San José, Costa Rica, 1997, p. 64, ISBN 0534-539, [Consultado: 14 de marzo de 2015], Disponible en: <<http://www.sidalc.net/cgi-bin/wxis.exe/?IsisScript=BINAI.st&formato=2&cantidad=1&expresion=mfn=010521>>.
4. Marzin, J.; López, T. y Cid, G. “Tendencias actuales en transferencia de tecnología y extensionismo: lecciones para la situación en Cuba”, en: Sablón, M., Salguero, Z., y Vallejo, Y., *Extensión Agraria: Selección de lecturas*, edit. Félix Varela, La Habana, Cuba, 2011, pp. 37-46, ISBN 978-959-7023-62-3.
5. Iturbide, F.M.J. Diagnóstico de Guatemala: Necesidades de capacitación para enfrentar los desafíos de la negociación internacional de actividades REDD+ [en línea], [Contrato 83105592], Programa Reducción de Emisiones de la Deforestación y Degradación de Bosques en Centroamérica y República Dominicana (REDD-CCAD/GIZ), Guatemala, 2012, p. 46, [Consultado: 2 de septiembre de 2015], Disponible en: <http://www.reddccadgiz.org/documentos/doc_423813522.pdf>.
6. Valdés, N. y Vargas, D. “Gases de efecto invernadero en la agricultura, un llamado a la acción”, en: Ríos, H., Vargas, D., y Funes, F., *Innovación agroecológica, adaptación y mitigación del cambio climático*, 1.a ed., edit. Ediciones INCA, Mayabeque, Cuba, 2011, pp. 15-23, ISBN 978-959-7023-52-4.
7. Ríos, H.; Vargas, D. y Funes, F. *Innovación agroecológica, adaptación y mitigación del cambio climático*, 1.a ed., edit. Ediciones INCA, Mayabeque, Cuba, 2011, p. 105, ISBN 978-959-7023-52-4.
8. Expósito, V.M. y Hidalgo, E.J. *Diagnóstico rural participativo: Una guía práctica [en línea]*, edit. Centro Cultural Poveda, Proyecto Comunicación y Didáctica, Santo Domingo, República Dominicana, 2003, p. 116, ISBN 99934-24-10-2, [Consultado: 2 de septiembre de 2015], Disponible en: <http://www.inducar.pt/cp/ow_userfiles/plugins/forum/attachment_44_507eea1fe8529.pdf>.
9. Geilfus, F. *80 herramientas para el desarrollo participativo [en línea]*, 8.a ed., edit. IICA, San José, Costa Rica, 2009, p. 217, ISBN 99923-77-27-5, [Consultado: 2 de septiembre de 2015], Disponible en: <<http://www.google.com/l?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CB0QFjAAahUKEWijnLb059jHAhXFq4KHVf3B8c&url=http%3A%2F%2Fevento.gencat.cat%2Fpermalink%2Faac2bb0c-2a0c-11e4-bcfe-005056924a59&usq=AFQjCNGzFHQYfU6qHPPMijALQMRLukSViw&bvm=bv.101800829,d.dmo&cad=rja>>.
10. Serrate-Alfonso, A.; Portuondo-Velez, A.L.; Sanchez-Puigbert, N. y Suarez-Ojeda, R. “Evaluación de la cultura organizacional y su incidencia en la efectividad grupal”, *Ingeniería Industrial*, vol. 35, no. 1, abril de 2014, pp. 2-12, ISSN 1815-5936.
11. Freedman, M. “The genius is in the implementation”, *Journal of Business Strategy*, vol. 24, no. 2, 1 de febrero de 2003, pp. 26-31, ISSN 0275-6668.
12. Martínez, M.F.Z.; Bakker, N. y Gómez, H.L. “Herramientas para la metodología campesino a campesino innovación pedagógica para construir saberes agroecológicos”, *LEISA Revista de Agroecología*, vol. 26, no. 4, 2010, pp. 3-10, ISSN 1569-8424.
13. Nieto, M. y Delgado, R. “El sector agrario y la seguridad alimentaria”, en: Funes, F., García, L., Bourque, M., Pérez, N., y Rosset, P., *Transformando el campo Cubano: avances de la agricultura sostenible*, edit. Asociación Cubana de Técnicos Agrícolas y Forestales, La Habana, Cuba, 2001, pp. 39-56, ISBN 978-959-246-032-4.
14. Pérez, M.M.E. y Clavijo, P.N. *Experiencias y enfoques de procesos participativos de innovación en agricultura: el caso de la Corporación PBA en Colombia [en línea]*, edit. FAO, 2012, p. 55, ISBN 978-92-5-307425-9, [Consultado: 2 de septiembre de 2015], Disponible en: <<http://www.fao.org/3/a-i3136s.pdf>>.
15. Poussart, C. “Equidad de género y su importancia para el desarrollo de las fincas forestales integrales”, *Agricultura Orgánica*, vol. 13, no. 1, 2007, pp. 33-36, ISSN 1028-2130.
16. Lage, A. “La empresa de alta tecnología y la gestión de discontinuidades”, *La economía del conocimiento y el socialismo*, 1.a ed., edit. Academia, La Habana, Cuba, 2013, pp. 243–265, ISBN 978-959-270-286-8.

Received: March 31st, 2014

Accepted: September 24th, 2014