

Efficiency of Agricultural Upgrading as a Component of the Farming Extension System

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ABSTRACT

Evaluation was effected through a participative-diagnosis tool which integrates several techniques and the organizational work for agro producer training. Three participative exercises, i.e., brainstorming, questions, and the nine-square or the General Electric matrix, were performed. Deficiencies in the training process and how to solve them, the need of team work to diagnose demands, problems, program design, and program application were determined. Besides, the current situation of the School of Training for Agricultural Executives, affiliated to the Ministry of Agriculture division in Camagüey, was assessed, for capital and resource investment, and for introduction of new agro-products and services to the market.

Key Words: *agricultural training, qualification, analysis matrix*

INTRODUCTION

The broad economic, political and social changes of today are linked to increase in competitiveness. The need for innovation, the fast technological development, globalization and new demands for workforce, have compelled organizations to redesign qualified development of human resources from a different perspective, in order to enhance performance (Suárez, 2006; Guevara *et al.*, 2010).

The Training and Upgrading School is another element of farming extension introduced by the Ministry of Agriculture in Cuba. Training the workforce and extending the agricultural production (field days, workshops, seminars, lectures, training, academic stays, self-study and self-training, counsellorships and scientific exchanges, are common events at the school (Valdés and López, 2005; Guevara *et al.*, 2010).

In this sense, the use of new organizational assessing techniques is compulsory, meaning within the lapse of a year, or when conditions are ripe, self-analysis can be carried out by the institution, allowing staff to assess performance in livestock production in terms of efficiency and efficacy, and the factors that might affect yielding within the rural setting.

The aim of this paper is to assess the efficiency of organizational work with agricultural producers

at the Agriculture Training and Upgrading School in Camagüey, using a diagnostic-participative tool, in the framework of the provincial farming extension.

MATERIALS AND METHODS

The research was conducted at the *Mario Herrero Toscano* Agriculture Training and Upgrading School of the Ministry of Agriculture. The institution encompasses 42.77 ha (6.62 ha allotted to varied crops; 33.65, to livestock; and 2.5, to facilities, including classrooms for veterinary, agronomy, economics, irrigation and machinery, and a center for information management). The workforce is composed of 17 professionals, 4 graduate technicians and 25 with secondary level. The area for practices has 24 varieties of native and enhanced pasture; 4 varieties of sugar cane, arborescent and crawling legumes; 11 clones of sweet potato; and 6 varieties of plantain and banana. The area also includes seven units for teaching-productive assignments: avian, swine, ovine, aquaculture, mini-cowsheds, varied crops, machinery, and draft animal areas. Analysis of efficacy and efficiency of the school

Three continuous exercises were applied to conduct the study. Brainstorming and list deduction were the first techniques (Carnota, 1991) applied to the ten professors of the staff, the current principal and a former principals, and the secre-

tary. The main shortcomings affecting training and potentialities were presented. Then a ten-question survey was carried out.

Finally, the *General Electric* (GE) Matrix, described by Kotler (1992) for the analysis of schools as a product or as an opportunity for business, was used. Assessments of business strength and market appeal were made, with a 0-3 range. The values collected from the application of the matrix were included.

- Strong zone: quadrants I, II, IV. Business Strategic Unit (UEN), area for growth/investment.
- Mid zone: quadrants: III, V, VII. Area with mean appeal and selective benefit (choose profit)
- Weak zone: quadrants VII, VIII, IX. Area for less attractive business, no investment (harvest/uninvest).

Criteria from 39 farmers of different local organizations, who received training and services from the school in the last five-year period, were evaluated, as a validation exercise for the technique used. Consequently, a survey was applied with the following descriptors: positive, negative, and indifferent or without criteria.

RESULTS AND DISCUSSION

Brainstorming was used to determine the following shortcomings, determining aspects in the flaws found in the agricultural information devices in the Latin-American continent (Guevara *et al.*, 2006 and Altieri, 2010):

- Poor diagnostic and knowledge of training demands.
- Transportation problems
- No assessment of training efficiency.
- No record of impact assessment.
- No room and board for students at the institution.
- Need to improve program execution.

Difficulties were observed in the facilities for rural extension in terms of assistance for agricultural policy designing. Agricultural schools have trouble setting up and developing efficacy and efficiency assessment actions of extension-training programs, which hinders the solution of problems when creating human resources for agriculture, and further qualifying (Guevara *et al.*, 2006 and Altieri, 2010).

Limitations in training are known to be linked to unstable transportation conditions and the lack of room and board at the school for non-local students (EMATER-Río, 1989; Díaz, 2008).

The potentialities of the school rely on the probable use of information, though it is not completely built:

- There are problems from which to create training programs.
- Programs designed by the school.
- Project management.
- Working association with enterprises and other organizations.
- Training programs reviewed by the school.
- Experienced staff.
- Technical qualification of producers.
- Board of Directors committed to school development.
- Efficient line of command.

These factors have allowed the school to work properly for over 30 years, and develop its work in the overall productive scenario, playing an important formative role. It is reported in the literature as the creation of capacities for action, and it is the first link for business success in terms of training-development of any farmer assistance organization (Díaz, 2008 and GIPAC, 2010).

Within the training process different authors agree that the needs for training are the source for design formative and developing programs (Suárez, 2003).

Factors of the Central Training System of MINAGRI (Cuban Ministry of Agriculture), which mold the formation needs of human resources:

- Closer approach to the ground level.
- Little training needs.
- Absence of enterprise-school debate.
- Appropriate training system.
- Increased economic resources.
- Active system pointing to the ground level.
- MINAGRI-oriented system
- Absence of diagnostic made by the training management.

Suárez (2006) reports that there are four sources of training needs: 1. Enterprise problems; 2. Shifting projects; 3. trade evolution; and 4. Professional evolution. Solé and Mirabet (1997), out-

lined their experiences in Cuban livestock enterprises, problems of the enterprises and shifting projects.

Participation in the process of training program design:

- The programs are developed from general and specific objectives.
- A previously designed program is the base for training.
- Participation in the design is little or none.
- All staff involved in the problem must be included in the design.
- The design is not systematic; courses of tools and management are given.
- Professors participate in the design.
- The programs designed in the institution have defined objectives.
- Participation in the design is active, according to the needs, which is later approved by MINAGRI.
- For quite a long time, several programs have been in place.

Solé and Mirabet (1997) and Lay, Suárez and Zamora (2005) point out that in designing training program contents, facilities, duration, human and material resources, selection of participants and assistance, the level of achievement of the results after application, must be considered; as well as training methodologies with different techniques and devices, and publication of the training plan.

Monitoring and assessing have proven to be closely tied (Lay, Suárez y Zamora, 2005). As the former is centered on verifying how the process advances, the latter takes that information and issues judgments. The *General Electric* (GE) Matrix is a technique used by Suárez (1998), who analyzes every business based on two factors: market appeal and position (or competitive strength).

Table 1 shows the strength factor in business, with a value of 2.27; and in table 2 market appeal reached 1.96; so training of 2.11 (see figure) is strong, if strong is over or equal to 2.10; the mean is between 1.21 and 2.09; and weak is considered below or equal to 1.20.

GE Matrix (see figure) shows that training is located in square IV; hence, its position and leadership must be protected. Investments should be made in resources, action strategies and time to

keep products and make them grow strong, as well as the processes. Additionally, the mean and weak points should be reinforced, according to Kotler (1992), hoping for a joint effort in favor of the institution by MINAGRI, the Central Government bodies, the National Association of Small Farmers, the National Institute of Veterinary Medicine, and several NGOs, and project management for development. It is also a key step to create awareness in every organization about the necessary collaboration at all levels and areas in terms of training, as all enterprise and businesses activities will require them sooner or later (Suárez, 1998; Ashby *et al.*, 2000; Guevara *et al.*, 2006).

Favorable criteria (81-100 % of producers) on the school training actions in terms of programs, urgent needs, professional level and scenarios, regarding the first four indicators (table 3). It is important, because they are vital components in the training process, whose core is made of classical components of supply and demand: need-program-professor-preparation (Rolling, 1999; Guevara *et al.*, 2010; SEA, 2011).

An outstanding element in this process is the systemic conception of teaching with emphasis on farming, process and knowledge technologies, which was strengthened by the staff in a recent period of analysis, because they are more effective than transferring approaches, and to keep up with regional agro ecological training groups in the continent (Altieri, 2010; Funes-Monzote, 2010; Guevara *et al.*, 2011).

The demonstrative and audiovisual aids for teaching and service providing have evolved favorably. Though improvements are still needed, some equipment for teaching have been received through grants from NGOs (CEDEPA, 2010).

Economic analysis techniques are still deficient; therefore, the school collaborates with the University of Camaguey and MINAGRI. At the University, there are the Faculty of Agricultural Sciences and the Faculty of Economic and Business Sciences (Guevara *et al.*, 2011).

Poor positive scoring of rural extension methods is the result of inadequate approaches in this discipline. Terminological problems with the definition of extension is one example (SEA, 2011; Guevara *et al.*, 2010).

Most of the surveyed individuals (82 %) considered that the techniques used in the assessing

system fit the objectives, contents and scopes of the courses, which corroborates the opinions issued by national and foreign organizations in process evaluation (SEA, 2011; Guevara *et al.*, 2010).

CONCLUSIONS

In order to implement training courses in Cuban farming enterprises, business diagnostics and the training process must be the starting points to identify the training needs, plan the process, follow ups and assessments.

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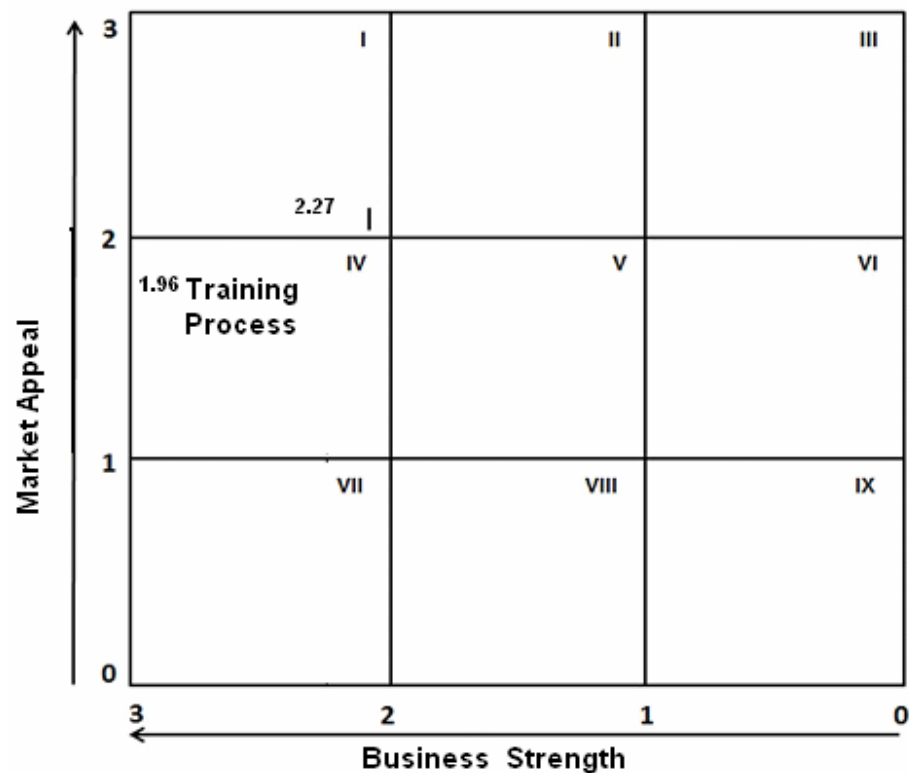
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Table 1. Analysis of school in terms of workforce and business strength

No	Business strength	Pe(j)	Strong	Mean	Weak	Very weak	Pi
1	Competence with counterparts and level of differentiation.	0.10	2.2				0.22
2	Quality of the school as a functional and technological product.	0.10	2.7				0.27
3	Quality of the school as environmental advocate.	0.06	2.5				0.15
4	Level of technological innovation.	0.05		2.0			0.10
5	Vulnerability of the school compared to others.	0.06		1.8			0.11
6	Possibility for after-sales service and product enhancement.	0.05		2.0			0.10
7	Knowledge and need for the market	0.10		1.7			0.17
8	School image	0.06	2.6				0.16
9	Cost of school operations	0.06	2.2				0.13
10	Novelty as a school product	0.05	2.1				0.10
11	Social and economic impact of school	0.10	2.3				0.23
12	School promotion	0.05	2.6				0.13
13	Qualified extension personnel of the school	0.16	2.5				0.40
14	Overall	1.00					2.27

Table 2. Analysis of the school in terms of market appeal.

No	Market appeal	Pe(j)	Strong	Mean	Weak	Very weak	Pi
1	Dynamics of the school's product toward the internal market.	0.25	2.4				0.60
2	Dynamics of the school's product toward the external market.	0.067		2.0			0.13
3	Competence strength.	0.15	2.3				0.34
4	Barriers to school activity.	0.067		2.0			0.13
5	Distribution of actions	0.15	2.1				0.31
6	Purchasing offers	0.25		1.21			0.30
7	Restrictions to school activity	0.066	2.3				0.15
8	Overall	1.00					1.96



General Electric Matrix applied to the results of Business Strength and Market Appeal, for training

Table 3. Criteria from farmers who received training and services at the school in the last five-year period (%)

Criteria from surveyed farmers	Favorable criteria	Unfavorable criteria	Unbiased criteria	Null criteria
Well-conceived programs	66.0	12.0	10.0	14.0
According to the most urgent needs	81.0	16.0	3.0	-
Technical and professional level.	92.0	5.0	-	3.0
Scenario-like classes.	100.0	-	-	-
Systemic and process-based approach	89.0	4.0	-	7.0
Use of demonstrative areas.	67.0	21.0	9.0	3.0
Use of audiovisuals	79.0	14.0	5.0	2.0
Use of economic techniques	55.0	21.0	10.0	14.0
Methods of farming extension.	16.0	-	-	84.0
Appropriate assessing techniques.	82.0	3.0	12.0	3.0