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Agriculture in the Twenty-first Century: Challenges and responses

Two tools to ensure a good harvest

Education and Training, the engine for change in the rural milieu

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distributed equitably. Poverty has increased, affecting children under 16 and rural women especially.

In vast areas of the hemisphere, illiteracy rates for rural women exceed those for men. Another cost of growth has been pollution and the degradation of the environment.

To face these challenges, educational reforms have been instituted in an effort to afford access to education at all levels, promote respect for people and their environment, encourage greater use of technology and guarantee more private sector involvement in the delivery of educational services. Organizational capability was upgraded in order to implement programs and better respond to the needs of the milieu.

The chief problems

According to the FAO, the OAS, UNESCO and the World Bank, despite progress that has been made, curriculum design problems continue to plague agricultural and rural education programs in the hemisphere.

In the case of vocational and higher agricultural education, there is a disconnect between what is taught and what people need to learn. As a result, many graduates have difficulty finding work, while producers make little use of the knowledge they have acquired on their farms.

Education continues to be too theoretical, abstract and divorced from the realities of production. It fails to deal with pertinent topics such as the processing of products, the management of production, sustainable development and the organization of producers.

The coverage of training programs is very limited due to lack of financing. On average, extension services reach 10% of producers.

In recent years, countries in the Americas have made a considerable effort to improve their educational systems.

Governments have shown increasing interest in education as a means of achieving development to enable them to better face up to conditions in an environment, characterized by globalization and trade liberalization processes, the signing of free trade agreements, the rapid development of biotechnology and the advent of new information and communication technologies (ICTs).

Production has increased, but at the cost of growing imbalances among and within countries. Furthermore, the wealth created has not been

Despite the progress made, curriculum design problems continue to plague agricultural and rural education programs in the hemisphere.

Due to the economic conditions and the poor telecommunications infrastructure, training programs have failed to tap the full potential of ICTs for multimedia-based distance education programs. Basic education programs in rural areas are still hindered by centralized, universal education policies, with little scope for adaptation to rural areas. In most cases, the course content refers to situations that have nothing to do with the rural milieu.

Generally speaking, community institutions, municipalities and parents play only a limited role in supporting educational programs in rural areas of the hemisphere.

Despite the efforts made to correct the situation, there are major differences between the quality of the educational programs on offer in urban and rural areas. Limited coverage, the dropout rate and big differences in quality are some of the main problems affecting the sector.

IICA's contribution

Ever since it was founded, the Inter-American Institute for Cooperation on Agriculture (IICA) has played an important role in improving rural education. It has supported vocational and higher agricultural education programs, and a number of training initiatives in this field.

In its 2002-2006 Medium-term Plan, the Institute set as its objective for the Strategic Area of Education and Training "to support the efforts of the Member States to develop and upgrade human capital and talent for sustainable agricultural development and the improvement of rural life," employing a strategy aimed at improving the quality of agricultural education.

Esa iniciativa comprende tres grandes líneas de acción:

1. The modernization of vocational and higher agricultural education programs
2. Dialogue aimed at integrating agricultural and rural education in the Americas
3. The development of multimedia materials to establish distance education programs

Lines of action

To support curriculum modernization in state-run and private agricultural and rural education institutions, a strategy has been developed entitled "Improving the quality and relevance of agricultural education."

The first stage of this strategy involved diagnostic assessments of strategic planning, curriculum review and development, and the design of short- and medium-term institutional improvement plans.

This effort was undertaken using an innovative methodology developed by IICA involving the use of ICTs. Traditional training materials were converted into interactive CDs to encourage self-teaching and the application of the knowledge acquired to real work situations, with the support of specially trained tutors.

The strategy was implemented in Costa Rica, Colombia and Guatemala. The appraisals carried out showed that this program is a tool for improving the quality of education. It is available for use by agricultural vocational schools and agronomy and science faculties.

In response to a series of requests from the public and private sectors, the Directorate of Education and Training helped the member countries set up forums for dialogue and the integration of agricultural education at the national and regional levels.

Among the mechanisms created are the Andean, Southern and Central regional forums, the Central American Association of Higher Agricultural Education (ACEAS) and the Caribbean Council of Higher Education in Agriculture (CACHE).

IICA has supported the organization of the annual meetings of these bodies, where the members discuss specific issues, evaluate the progress made and program activities. Ties have been strengthened as a result, and joint activities promoted.

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The CACHE, for example, has strengthened student and faculty exchange programs among agricultural education institutions in the Caribbean, promoted the creation of the Distance Education Network for Agricultural Development in the Caribbean, the Program to Develop Educational Quality in Agricultural Education Institutions in the Caribbean, and the implementation of forums for dialogue and the integration of agricultural and rural education.

Universities in the Dominican Republic, Guyana, Haiti, Puerto Rico, Suriname, the Virgin Islands, Trinidad and Tobago and Jamaica have taken part in the initiative.

Development and dissemination of materials

To harness the potential of ICTs, IICA has consolidated a training system for the various actors in the rural milieu at the national and international levels. This has provided input for efforts to improve outreach and production programs, and made it possible to offer training in areas of specific interest.

New technologies can play a valuable role in the expansion of training programs.

The tools that IICA has been developing are of three main kinds:

- . *Videoconferences*
- . *Courses on CD*
- . *Electronic networks*

The systems of videoconferences has made it possible for producers, technical personnel, educators and government officials of a single country, or several countries, to establish contact with one another, receive training and exchange points of view.

The system has also proved to be an ideal way for producers and exporters to make contact, and professionals of different institutions to network on issues such as bioterrorism, indicators of sustainability, environmental economics, environmental and development project management, and the implementation of hazard analysis and critical control points (HACCP) plans for the food industry, organic agriculture and to prevent bioterrorism.

Hand in hand

A FAO-UNESCO study carried out in 2003 revealed that farmers' productivity is directly linked to their level of education.

Based on the theory of Human Capital, the research showed that the educational level of producers impacts agricultural productivity: training improves the quality of their work, as the factors of production are utilized better and resources are allocated more efficiently.

Finally, education helps producers select more effective means of production by adopting new techniques.

Courses on CD have become a very useful source of information and learning. They are inexpensive and reach extension workers and producers in isolated areas.

This project started in the Caribbean with support from the OAS. The courses developed so far include Farm Management, E-Commerce and Organic Farming for Entrepreneurs.

IICA's Distance Learning Center (CECADI) recently became involved in the project, to work on topics such as competitiveness in agrifood chains, international trade, the quality and relevance of agricultural education, and the development and implementation of hazard analysis and critical control points plans for the food industry.

The electronic networks were developed by pooling efforts with the American Distance Education Consortium (ADEC), an umbrella group of 64 Land Grant institutions involved in the development of distance education programs in the hemisphere. IICA also worked with the World Bank to set up the Global Development Learning Network (GDLN).

This system has been used to implement training activities and hold global dialogues for producers, technical personnel, educators and government officials of different countries to share their know-how and experience.

As a result of IICA's efforts to consolidate a digital distance learning system, the infrastructure, team and resources now exist for developing multimedia teaching materials. These tools for implementing distance education programs are available in videoconference and CD formats.

Thanks to the actions implemented, "ed.rural" has now become a training tool and a way for different professionals and producers located in rural and urban areas of the hemisphere to interact.

Centralized, universal education policies continue to dominate basic education programs in rural areas, with little scope for adaptation to rural areas.

New technologies can play a valuable role in the expansion of training programs for the rural milieu.



Three major challenges

The major objectives for IICA's Education and Training Program are to:

Improve the quality of education keyed to national and regional conditions, taking cultural diversity into consideration

Promote the introduction of new information and communication technologies (ICTs) in IICA's cooperation activities

Support the development of training programs based on the use of ICTs