

LATIN AMERICAN CONSERVATION AGRICULTURE NETWORK (RELACO)

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PROBLEMS

Latin America is a highly contrasting region; countries constitute a mosaic in which there are huge environmental, socioeconomic, and political variations. In despite of the before mentioned features, agricultural development processes showed similar patterns in most countries during the second half of the twentieth century. Agriculture is polarized. Conventional high technology and capitalization agriculture looked for incrementing productivity by all means. This reached its climax in the world with the “green revolution” during the sixties. The searched productivity was real, but it was not permanent since it left aside the environmental conservation principles, especially the soil conservation. On the other hand, traditional agriculture, mostly for subsistence in small plots on steep hillslopes has been affected by the exaggerated demographic growth, adverse climatic phenomena, national inadequate policies, economic crisis, and even wars. Commercial and traditional agriculture suffer an unbalance between insume price increment and the agricultural products market value. The result has been a strong tendency to agricultural producers’ impoverishment .

In many production units, natural resources were insufficient to keep the new generations, therefore many poor farmers did not have any other option but look for employment either as handworkers in other production units or going out of agricultural activities to increment even more the urban population. All above mentioned facts have happened in the past and are still happening within each country, but also, desperate peasants cross international frontiers frequently with all kinds of implications.

Most affected people have been farmers and their families in first place, but also the environmental resources, mainly the soil that has suffered considerable damages, in many cases irreversible stopping to produce food for future generations.

Soil deterioration caused by the production conventional or commercial, and subsistence traditional systems is shown by the watershed abuse: deforestation, overgrazing, and the partial or total loss of soil fertile layer, as well as nutriment lixiviation, soil compaction, sealing, and crusting, organic matter loss, salt accumulation, and agrochemical pollution. Those soil changes are

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negatively reflected on the hydrological cycle (more runoff, less infiltration), and surface and underground water quality detriment.

A NEW REVOLUTION

Environmental and energetic crisis, and their socioeconomic and political consequences became world problems that were also highly significant in the Latin American region. The reaction was fast, a new conservation agricultural revolution was born, that started nearly 25 years ago. Surprisingly the leader was United States, the country where high technology conventional agriculture reaches the largest development in the world. Proposed changes for agriculture are very important, they give it mainly a conservative characterization, but also taking into account the productivity goals. The entrance door to the new type of agriculture is the conservation tillage that contradicts those principles that seemed to be immovable such as: the plough gets out of the agricultural scenario, therefore the before arable soil profile stops being inverted, and also a prior crop residue protective layer is left on the soil.

The response in Latin America to adopt the conservation tillage and agriculture has been very heterogeneous among countries, comparable to their environmental, technological, political, and socioeconomic contrasts above mentioned. Although a growing tendency to adopt the new type of agriculture is noticeable in a huge compact surface in the southern part of the continent; Brazil, Argentina, and Paraguay are the leader countries. A near 20 million hectare surface is nowadays under conservation tillage in those three countries. Besides practicing conservation tillage, producers are applying crop rotation and association, green manure crops, and watershed integrated management, especially in Brazil.

Policies and resources to encourage the conservation agriculture are insufficient in most countries. The components required by the change are: research either to generate or to adapt appropriate technology, training, technology transfer, permanent technical assistance, infrastructure and insume (machinery, agrochemicals, services, and other) availability, and enough and accessible credits for producers. It is very difficult that all basic elements required be in enough quantity and together opportunely in most countries due to a number of reasons. Lack of one or several elements stops or hinder the conservation tillage adoption process. So it explains the predominant slowness of adoption process in many countries. In despite of the above mentioned circumstances, Latin America is only second to United States in surface under conservation tillage in the world.

AN ACCESSIBLE STRATEGY

Resources for research and sustainable development, as above mentioned, are insufficient in most Latin American countries, though there are knowledge and experiences that might be communicated horizontally between those people interested in each country. This communication process functions due people's will and attitude; it requires relatively few resources, but it needs an efficient

organization. That is the operational principle of international technical and scientific networks. It has become an important tradition in Latin America. Network management experiences have been accumulated in the region due to proliferation of networks related to agriculture during the last fifty years (Central America is the world region with the highest number of agricultural networks). Some Latin American networks are world well known, they have reached long lives, as well as solid efficacy and organization.

RELACO BIRTH AND DEVELOPMENT

The Latin American Conservation Agriculture Network (RELACO) was born under the above mentioned precepts, and due to the pressure exerted by the problems above described. The objective pursued was to find the simplest and efficient way to communicate the most relevant knowledge, and experiences on conservation tillage to farmers, technicians, scientists, and decision makers in the countries of the region.

The idea of RELACO was conceived since 1986. In 1987, it was formed in an international conservation tillage meeting in the Argentine Chaco region in which Argentina, Bolivia, and Paraguay participated, with FAO support. In that meeting it was made clear that advancement on conservation tillage matters was unequal among participant countries, and that it was possible to interchange tested successful experiences. FAO resources were made available to national institutions for intensifying their research during the next two years. Those first contributions coordinated by RELACO in the region and Venezuela produced significant contributions to newly born conservation tillage, including crop rotation within the scheme. Those activities provided a favorable environment for the first network formal meeting.

In 1991, the First Biannual RELACO Meeting took place in the Experimental Station Saenz Peña, Chaco Province, Argentina. Organization was in charge of the Instituto Nacional de Tecnología Agropecuaria (National Institute of Agricultural and Animal Production Technology) (INTA) of Argentina, and FAO (Dirección de Fomento de Tierras y Aguas). Along that first Meeting, it was organized a training course on tillage systems with participant technicians from nine Latin American countries. A handbook for tillage systems for Latin America was written using the collected material. The handbook was published by FAO, and it has been widely diffused being very useful for the region. Venezuela adhered to RELACO during that first meeting.

It was established that the Meeting Coordinator should also coordinate the Network operations during the following two years, when he would be substituted by the coordinator at the end of the following meeting. This process has been satisfactory up to date.

In 1993, the Second Biannual RELACO Meeting was held at the Centro Nacional de Investigación Agropecuaria (National Center of Agricultural and Animal

Production Research) del Fondo Nacional de Investigaciones Agropecuarias (National Fund for Agricultural and Animal Production Research) (FONAIAP) in Acarigua/Guanare, Portuguesa, Venezuela. Along the Meeting a workshop on “Tillage System effect on Soil Degradation and Productivity” was carried out. Besides the four countries that integrated RELACO, Brazil, Costa Rica, Nicaragua, Peru, and Dominican Republic attended the Meeting. A document on conservation tillage research and technology transfer results in each country was prepared. In that document, appears a list of available technology applicable to Latin America main agroecological conditions.

In 1995, the Third Biannual RELACO Meeting took place at the Agriculture Department of University of Costa Rica, with the Ministry of Agriculture and Animal Production (MAG) of Costa Rica participation, and FAO. The Meeting and a workshop had the theme: “Soil Sustainable Use in Slope Agriculture: the Conservation Systems Essential Role”, due to the accelerated erosion on agricultural surfaces on steep hillslopes. Those places produce less food every day, inhabitants consume less than 2,673 calories/day/individual. Representatives of 15 Latin American countries participated. Among recommendations originated in the Meeting there were: considering the importance of watershed, and the convenience of using the microshed as work unit for conservation management practices.

The Fourth Biannual RELACO Meeting was held in Morelia, Michoacan, Mexico with the participation of the National Agricultural, Forestry, and Animal Production Research Institute (INIFAP) of Mexico through its National Sustainable Production Research Center (CENAPROS), and FAO. In the meeting relevant national conservation agriculture study cases were presented. Representatives of the following countries attended: Argentina, Bolivia, Brazil, Chile, Costa Rica, Cuba, Ecuador, Mexico, Nicaragua, Paraguay, Peru, Republic of El Salvador, and Venezuela. There were 128 registered participants. Among derived recommendations it was remarkable that about the importance of crop rotation and association, as well as green manure, and composts to be integrated to conservation agriculture systems. During this Fourth RELACO Meeting, the name of the network was changed from Latin American Conservation Tillage Network to **Latin American Conservation Agriculture Network**, keeping the same acronym: RELACO.

In 1999, the Fifth RELACO Meeting took place in Florianopolis, Santa Catarina, Brazil, sponsored by Santa Catarina Research and Rural Extension Enterprise (EPAGRI), and FAO. It was agreed to dedicate the meeting to the “Direct Planting: a Tool for Conservation Agriculture.” The meeting system was changed, only four countries sent representatives, and there were participants from several more countries. It was taken the agreement that all Latin American countries will be RELACO members automatically in the future. Also, the network is to be open to other areas related to conservation agriculture as: agrosilviculture, agroecology, and other. It was done an important step: to coordinate RELACO officially with other farmers’ associations as American Associations for Sustainable Agriculture

Confederation (CAAPAS), and other associations whose leaders assisted to the Meeting.

It is important to acknowledge the support that RELACO receives from FAO and national institutions as decisive elements for RELACO Meetings and operation.

TOOL BOX

Main tools RELACO has used up to date to fulfill its objectives are the following:

International Biannual RELACO Meetings rotating from south to north of Latin America.

Scientific, technical and extension publications by network members and other authors have been printed and distributed.

A web page describing the network and relevant news is kept in Internet (<http://www.iica.org.mx/investiga.htm>) and Emails to answer questions.

Three newsletters per year with information regarding relevant network activities in the member countries and other possibly interesting issues are published and distributed.

Permanent information exchange among members.

RELACO has established communication with Ministers of Agriculture and other decision makers of Latin American countries.

Training courses and workshops are organized.

There are kept relations with companies manufacturing and marketing products, and providing services for conservation agriculture.

Formal and informal expert exchange between countries.

RELACO provides consulting and advising services at several levels to its members.

Communication and support to conservation agriculture associations from Latin America and other regions of the world.

Polls and surveys for problem identification and available technology have been made among RELACO members.

NETWORK RESULTS

RELACO has organized five Latin American Meetings during the last 11 years backed by national institutions and FAO resources.

Proceedings of the biannual meetings and near 40 documents have been published and distributed.

The network has adopted legal statutes for a proper and permanent functioning.

Some of the most remarkable Latin American study cases have been presented and discussed among RELACO members at the biannual meetings, and published for diffusion.

RELACO has created solid conscience and ethics of natural resources conservation among its members and those exposed to the stream of information.

RELACO has achieved prestige and is present at several other international meetings both in Latin America and outside.

A handbook for tillage systems in Latin America written by Argentine RELACO members has been widely diffused and it is still used by both technicians and farmers of the region.

During the initial years RELACO members obtained research and extension remarkable practical results (Chaco, and Venezuela) with national institutions and FAO backing and funds.

Assistance and transfer of RELACO results and experiences to sister organizations in other regions of the world.

RELACO has introduced also knowledge and experiences to Latin America from other regions of the world by inviting distinguished external lecturers to its five biannual meetings.

Determination of sustainability thresholds before unknown in Latin America.

RELACO has promoted the organization of several national networks of conservation agriculture in Latin American countries.

Presently RELACO is working to coordinate efforts with Latin America Farmers Federation located in Brazil, and other national similar associations.