INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE
sustainable solutions for ending hunger and poverty




"The Present and Future of Agricultural Mechanization in Latin America"

Date: November 4th, 2016

Time: 8:30am - 5:15pm

Location: Organization of American States,
Hall of the Americas,
17th Street and Constitution Ave., N.W.,
Washington, D.C. 20006, USA

1. Objective

Analyze the current situation of agricultural mechanization in Latin America to identify factors that limit its use in agriculture and identify possible actions, including those of public policy, to help improve the use of mechanization, particularly to family or small-scale agriculture producers as a tool to improve productivity, efficiency and sustainability of agriculture in the region.

2. Background

The new productive and organizational model of the agricultural sector passes through a system of more associative and less individualistic production, allowing more rapid diffusion of knowledge and facilitating the incorporation of new machinery and technologies, increase financing and better risk management, with significant positive impacts on productivity. Agriculture today is viewed as the integration of the different actors, production and management aspects.

The process of mechanization and modernization of the agricultural sector should be studied in this broad framework, taking into account the many interactions with many other production factors and management. The use of machinery and new technologies in agriculture is not independent of the access to finance, possibilities of risk management, access to inputs such as improved seeds, precision agriculture services, horizontal and vertical associative possibilities, access to information and public infrastructure, and institutional frameworks, among other factors. In Latin America, for example the case of Argentina shows how mechanization and technicalization have been accompanied by a new model of grain production that stopped focusing only on the farmer, and rather revolves around a network of actors, including the owner of the land, the service center and the rural contractor. In this new production model the contractor is responsible for providing various services (sowing, spraying, harvesting, etc.), usually provides it with latest machinery, including the operator of them. In this scheme, both the service center

and the contractor can take the risk and finance the producer for inputs and machinery services through contracts, for example, where the value of the final harvest is shared.

However, the reality of the region is still very diverse in terms of patterns of production and use of machinery and technology. There is potential because in most of LAC countries, the use of machinery is low, therefore there is a huge potential growth. In Peru, for example, only 11.97% of the total agricultural land uses mechanical energy, either their own or others (INEI, 2012). However, in this country and in other countries in the region the provision of machinery for rent has been expanding. Thus, in Peru in 2012 it was estimated that 78.04% of the area where tractors were used, were rented.

They are not entirely clear what has been the limiting factors and the contribution of each to the low mechanization in some countries and for the takeoff in others. One hypothesis is that the demand for mechanization services has been limited by the small scale of production. However, the market development of mini-tractors, for example in Andean countries, can help to cope with the issue of small-scale production in many countries. Another influential factor in the use of machinery is the intensifying and increasing use of modern inputs proving that the current trend is toward adoption of integrated production systems that combine effectively the use of machinery, inputs and other production factors and management. Another factor to be considered for agricultural mechanization and modernization is the access to financing and its various forms (credit, leasing, factoring, etc.), sometimes is linked to public policy. In Brazil, for example, government subsidies for purchasing agricultural machinery have largely benefited producers and allowed rapid growth of agriculture in the country. Brazil has managed since 2000 a program of modernization of the national fleet of tractors, combine harvesters and agricultural machinery (MODERFROTA) and an incentive program for irrigation and storage (MODERRINFA). Since the establishment of these programs, domestic tractor sales in Brazil increased 129% in ten years (Santana and Nascimento 2012).

Given this scenario of multiple factors that influence the processes of mechanization and agricultural modernization, in a context of different situations between countries and with a vision of integrated production systems in which all factors of production and management interrelate, it is considered opportune to review the present and future of mechanization and modernization of agriculture in the Americas.

3. Structure of the seminar

1. Current mechanization situation in Latin America and global perspective
    - This session will aim on one hand to look at the situation and prospects of agricultural mechanization at the global level, and on the other hand, will present the preliminary results of the work done by IFPRI on the current situation of agricultural mechanization in Latin America, making reference to intra-regional differences, types of producers and supply chain.

2. Producers' perspective
    - This session aims to determine the views of farmers on their needs for mechanization and the challenges they face to solve them. The discussion will be led by representatives of producer organizations in the region. In addition, it is expected that producers could share successful experiences of how they have resolved the problems of mechanization in their organizations and countries.

3. Agricultural machinery manufactures' perspective
    - The purpose of this session is to know, from the perspective of manufacturers of agricultural machinery, which are the main obstacles faced in the region, which plans and projects are

implemented to meet the demands of producers and what policies are considered necessary to improve the mechanization levels in the region.

4. Mechanization through agricultural service providers
   - The purpose of this session is to first know the existing business models in the region regarding the provision of agricultural services and to identify the constraints that prevent service providers to have greater reach and impact, and learn from them the recommendations considered relevant to improve the delivery of such services. It will be important to know how they view their business models to meet the needs of family farming and small-scale.

5. Policies to promote agricultural mechanization in Latin America
   - The purpose of this session is to know the people responsible for public policies for agriculture, some examples of how countries in the region are addressing the issue of mechanization and to know which areas require support to achieve a better impact on these programs.

4. Program

8:30 – 9:00	Breakfast and registration
9:00 – 9:20	Welcome and Introduction
	• Miguel García Winder, IICA Representative in the United States • Miguel Robles, IFPRI Research Fellow
9:20 – 10:30	**Session 1: Current mechanization situation in Latin America and global perspective** **Moderator: Priscila Henríquez (IICA)**
	• Pablo Elverdín (IFPRI)
	• Scott Shearer (Ohio State University)
	Questions and Discussion
10:30 – 10:45	Coffee
10:45 – 12:15	**Session 2: Producers' perspective** **Moderator: Valeria Piñeiro (IFPRI)**
	• Alejandro Vélez (Colombian Agriculture Society) • Donald Milian (MG Group, Guatemala) • Germán Pérez (Consultant, Honduras) • María Lucila Quintana (Former President, Conveagro, Peru)
	Questions and Discussion
12:15 – 13:30	**Lunch**
13:30 – 15:00	**Session 3: Agricultural machinery manufactures' perspective** **Moderator: Daniel Rodríguez (IICA)**
	• Vanessa Stiffler-Claus (John Deere, USA) • Philip de Leon (AGCO, USA)

	• Miguel Aburto Melo (Oxbo, Chile)
	Questions and Discussion
15:00 – 15:15	Coffee
15:15 – 16:00	**Session 4: Mechanization through agricultural service providers** **Moderator: Miguel Robles (IFPRI)**
	• Emanuel Bodega (Los Grobo Group, Argentina) • Eduardo Griffin, (Uruguayan Chamber of Agricultural Services Secretary) (CUSA), Uruguay) • Ricardo Garbers (FACMA, Argentina) • Lanfranco Tretti (TECNOAGRICOLA, Costa Rica) • Marcelo Marini (Association of Agricultural Machinery Industries of Rio Grande do Sul (SIMERS), Brazil)
	Questions and Discussion
16:00 – 17:00	**Session 5: Policies to promote agricultural mechanization in Latin America** **Moderator: Máximo Torero (World Bank)**
	• José Manuel Hernández Calderón (Minister of Agriculture and Irrigation, Peru) • Verónica Santillán (Delegate, The Ministry of Agriculture, Livestock, Aquaculture and Fisheries, Ecuador) • Felipe Orellana (Vice Minister of Rural Economic Development, Guatemala)
	Questions and Discussion
17:00 – 17:15	**Conclusions**
	Valeria Piñeiro (IFPRI) and Joaquín Arias (IICA)