

**19th INTERNATIONAL FOOD & AGRIBUSINESS MANAGEMENT
ASSOCIATION WORLD FOOD & AGRIBUSINESS SYMPOSIUM
“Global Challenges - Local Solutions”
Budapest, Hungary - June 20-21, 2009**

Area: Agribusiness Strategies

THE EMERGENCE OF HYBRID FORMS IN ARGENTINA’S GRAIN PRODUCTION SECTOR

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1. INTRODUCTION

Due to natural resource endowments and continuous productivity gains, Argentina is in a unique position to produce food, agricultural and livestock products. Perhaps not surprisingly Argentina is one of the leading producers and exporters of agrifood products. Argentina is among the four largest producers of soybeans, sunflower seeds, corn and wheat. Argentina is also the 5th largest exporter of wheat, the 2nd exporter of corn, the 3rd exporter of sunflower seed and soybean, and the number one exporter of sunflower and soybean oils and pellets in the world. For the past 20 years, the agrifood sector has been a fundamental engine of economic growth as the main generator of export and tax revenues in Argentina.

Since the 1990s a pre-competitive scenario has been introduced. The economy was open to globalization, free market rules were adopted, state-owned companies were privatized and hyperinflation was finally under control with the implementation of the currency board that linked the local peso to the US dollar. As a result of these policy changes, the 1990s were a decade of economic stability and growth based on the agglutination rule of convertibility (one peso-one dollar). Agribusiness and food markets were also liberalized with the elimination of the grains and beef boards and reduction of State intervention and subsidies. Privatization of ports, railways, oil companies, energy facilities, communications systems, highways and road systems, along with increased private investments, reduced agribusiness costs. Export taxes and import tariffs on agrifood products were significantly reduced or eliminated altogether. As a result, distortions between domestic and international prices were significantly reduced.

These institutional and policy changes fostered the development of Argentine agriculture and the introduction of innovative process and product technologies, including no-till cropping systems, fertilizers, agrochemicals, GMO/RR soybean seeds, GPS, and new investments in modern, large scale sunflower and soybean processing plants. In addition to technological changes, a “quiet revolution” occurred in the way agricultural production was carried out and organized: from a self-production (or ownership) agriculture (using own lands) to an agriculture based on contracts (service contracts, land rental contracts, harvesting contracts, future markets contracts, insurance contracts, etc.). These organizational innovations, coupled with the introduction of new technologies, resulted in a more competitive way of doing agriculture, which led to:

- a 57% growth in planted area of the 4 major commodities – soybean, sunflower, wheat, and corn – from 14.5 million hectares in 1992 to 22.7 million hectares in 2000;
- a 64% increase in production of these 4 major crops, from 35.5 million tons in 1992 to 58.3 million tons in 2000.

The competitiveness of the Argentine agrifood sector was seriously jeopardized by a series of macroeconomic crises and institutional shocks starting in December 2001. A “chaotic” institutional breakdown left the State and society without points of reference and daily life was abruptly paralyzed. Negative collective action, rent seeking behavior and contractual hold-ups became the norm, with continuous confrontation of different interest groups trying to become winners in “zero-sum” games. Both planted area and crop production did not increase significantly until 2004.

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Because economic agents did not trust the currency or the banking system, they were forced to develop new organizational and financial structures to decrease transaction costs, enforce property rights, and thereby encourage the normal economic activities of buying, selling, saving, and investing that are necessary to generate growth and jobs. This was precisely the case in the Argentine agrifood sector. More specifically, producers developed complex organizational arrangements and business relationships involving contractors, producers, suppliers, processors, exporters and individual investors (some with no previous experience in the sector). These “hybrid” arrangements –that are neither markets nor hierarchies– provided the institutional framework necessary to reduce transaction costs and build trust among agents such that contracts and exchange could continue to occur in a highly uncertain environment. In addition, these hybrid arrangements enabled outside investors to provide capital to profitable agricultural production and processing ventures, which in turn were facing binding financial constraints. Nowadays unofficial estimates suggest that about 50% of total agricultural production is carried out by these hybrid organization forms.

In this context of great institutional uncertainty and high transaction costs, and with a growing demand for agricultural and food products on a global level, different hybrid governance structures emerged and enabled Argentina to maintain and grow its leading position in the world agrifood system. The results are:

- a 23% increase in the planted area of the 4 major crops –soybean, sunflower, wheat, and corn– from 22.7 million hectares in 2000 to 28 million hectares in 2008;
- and a 62% growth in production of the 4 major products from 58.3 million tons in 2000 to 88 million tons in 2008.

In summary, planted area increased 93.1% while crop production grew 147.8% in 1992-2008 period (see Table 1).

Table 1. Planted area and production of four major crops in Argentina (1992-2008)

	1992	2000	2008	% Growth (1992-2008)
Planted area (in million hectares)	14.5	22.7	28.0	93.1%
Production (in million metric tons)	35.5	58.3	88.0	147.8%

Source: SAGPyA

The objective of this paper is to explore and describe the organizational changes – in particular, the emergence of hybrid structures – in the Argentine crop production sector since the 2001-2002 economic crisis. The paper is organized as follows. In the next session we present the case study and data collection procedures that were followed to prepare the four cases. Subsequently we describe the four hybrid organizational forms. The paper concludes with a summary and suggestions for future research.

2. CASE STUDY AND DATA COLLECTION PROCEDURES

2.1. Procedures

The description of hybrid arrangements in Argentine agriculture is based on a multiple case study methodology (Sterns et al., 1998). According to this empirical methodology, case studies are used to determine whether the theory stands under specific conditions and parameters in a given case. We collected primary data from four different hybrid arrangements in the grain production business including: (a) informal hybrid forms; (b) an agricultural trust fund (known as *fideicomiso*) which has both producers and outside investors as partners; (c) an investor-oriented corporate structure; and (d) a large network of networks (many private nodes in relation with other private nodes including landowners, agronomists, branch managers, contractors, and service providers).

The necessary information to describe the organizational architecture of the four hybrid forms was obtained by means of personal e-mailed interviews using a standardized questionnaire with close-ended questions. A total of 8 experts and CEOs of the agribusiness hybrid forms were interviewed. The questionnaire had general information regarding the development of new organizational forms in Argentina and specific questions regarding coordination and control mechanisms used in the hybrid structures. The identities of the organizations and the respondents shall be kept confidential.

2.2. Theoretical Framework

In order to describe the four hybrid arrangements in production agriculture we use transaction costs economic and organizational interdependence theoretical frameworks. The transaction cost theory of the firm introduced by Coase (1937) has become a standard framework for the study of organizations. Coase (1937) introduced the notion that firms and markets are alternative institutional arrangements to govern transactions. In particular, he posited that the firm supersedes the market when the transaction costs of internal organization are relatively lower than in the market. In this sense, firm boundaries depend not only on technology, but also on organizational considerations; that is, on the costs and benefits of various organizational alternatives. Since Coase's pioneering work, the make-or-buy decision has become one of the most studied topics in the modern theory of the firm. Building on Coase's original insight, the transaction cost approach emphasizes that vertical coordination can be an efficient means of protecting relationship-specific investments or mitigating other potential conflicts under incomplete contracting (Klein, Crawford and Alchian, 1978; Williamson, 1979).

Williamson (1991:271) suggests that "each viable form of governance –market, hybrid, and hierarchy– is defined by a *syndrome of attributes* that bear a supporting relation to one another." Williamson (1991) concedes that transaction cost economics has focused on the study of polar forms (markets and hierarchies), at the expense of hybrids, and also has neglected the abstract description of governance structures. The relative costs and competencies of alternative modes of governance have received less attention than the attributes of the transaction. He advances the hypothesis that each generic form of governance is supported by a different form of contract law; and that there are crucial differences between markets, hybrids and hierarchies in how they adapt to changing circumstances and in the use of incentive and administrative control instruments. Transaction cost economics argues that hybrid arrangements emerge as a result of characteristics of the transaction, including asset specificity, uncertainty and frequency (Williamson, 1991).

In the transaction cost perspective, markets and hierarchies are considered polar modes of governance, while "the hybrid mode displays intermediate values in all four features." In particular, the hybrid form is characterized by "semi-strong incentives, an intermediate degree of administrative apparatus, displays semi-strong adaptations of both kinds and works out of semi-legalistic contract law regime" (Williamson, 1991:281). Building on this view, Ménard (2004) distills a large and amorphous literature on hybrid arrangements including networks, supply chains, franchise agreements, partnerships and cooperatives. He identifies three common features or "regularities" of such "strange forms": pooling, contracting and competing. He argues that "there is indeed a great diversity of agreements among legally autonomous entities doing business together, mutually adjusting with little help from the price system, and sharing or exchanging technologies, capital, products, and services, but without a unified ownership. These characteristics are likely the minimum required to encapsulate the variety of hybrids" (Ménard, 2004:348).

Ménard's (2004) central proposition is that hybrid organizations form a "specific class" of governance structures combining contractual agreements and administrative entities or "authorities" with the purpose of coordinating partners' efforts to generate rents from mutual dependence while controlling for the risks of opportunism. The role of contracts in hybrid arrangements is crucial in coordinating partners and sharing quasi rents. Contracts achieve these purposes by (1) selecting partners; (2) determining the duration of the relationship; (3) specifying quantity and quality requirements; (4) laying out procedures for regulating renegotiations when ex post adaptation is required; and (5) specifying rules for distributing the expected gains from joint actions. Because contracts are unavoidably incomplete, the

stability and continuity of hybrid arrangements require “specific mechanisms designed for coordinating activities, organizing transactions, and solving disputes.” According to Ménard (2004:366), a core element in the architecture of hybrid organizations is the presence of private governments (or authorities) that “pair the autonomy of partners with the transfer of subclasses of decisions to a distinct entity in charge of coordinating their action.” These authorities vary in degree of formalization and centralization of decision making, ranging from trust to formal government.

The netchain approach, in turn, provides a complementary framework to analyzing inter-firm collaboration in hybrids. The netchain approach integrates supply chain analysis (SCA) and network analysis (NA) by recognizing that complex inter-organizational settings embody several types of interdependencies, which are associated with distinct *sources of value* –that is, strategic variables yielding economic rents– and *coordination mechanisms* involved in inter-organizational collaboration. Three core sources of value in SCA are identified: optimization of production and operations, reduction of transaction costs, and appropriation of property rights. On the other hand, three core sources of value are emphasized in NA: social structure, learning, and network externalities. SCA has focused on sequential interdependencies, whereas NA has primarily dealt with either pooled or reciprocal interdependencies. Thompson (1967) suggests that each type of interdependence should be handled with particular coordination modes. These coordination modes include standardization, plan, and mutual adjustment. SCA focuses on coordination mechanisms involving some sort of plan or discretionary managerial action, which according to Thompson (1967) corresponds to sequential interdependence. NA, in turn, emphasizes either standardization or mutual adjustments, which are appropriate coordination mechanisms to deal with pooled and reciprocal interdependencies respectively. The netchain analysis integrates SCA and NA by considering *simultaneously* all types of interdependencies that occur in a given inter-organizational setting.

In this research, both theoretical approaches –transaction cost economics and netchain analysis– will inform the analysis of hybrid arrangements in the Argentine crop production sector.

3. PRELIMINARY DESCRIPTION OF THE CASE STUDIES

3.1. Introduction

Traditionally, agriculture took place at the places of business, using mostly their own agricultural machinery. The producers owned enough equipment to cope with the season; this type of operation was known as “administration agriculture”. In some specific cases, services were contracted of machinery with a higher specificity level in relation to the area worked by the producer, such as harvesting services.

However, the commodities business is considered a high scale business; therefore, production expanded to third-party lands. Improvements in production technology (mainly no-till farming²) made it possible to extend the productive area towards marginal sectors. As the productive areas expanded, looking for regional and crop diversification, it became impractical to move machinery around. The need then arose for local suppliers of sowing services, crop-spraying, harvesting and plague control at the new production sites. “Outsourcing became a solution for some and an opportunity for others. Production started to structure around a group of service companies organized through more or less formal contracts” (Trucco, 2008). The main activity consisted in developing high scale, high technology agriculture through arrangements among different actors participating in agricultural production and commercialization.

Experts consulted state that this has been an emerging process, based on the innovations mentioned. There were no leaders to promote these organizational forms, although many professionals sought to link knowledge to service and capital.

Perhaps the most primitive form of hybrid agricultural organization was the informal hybrid form. However, starting with the 2002 economic crisis, other actors incorporated to the business: external investors, both through banks and individually. The most highly evolved hybrid form is the network of

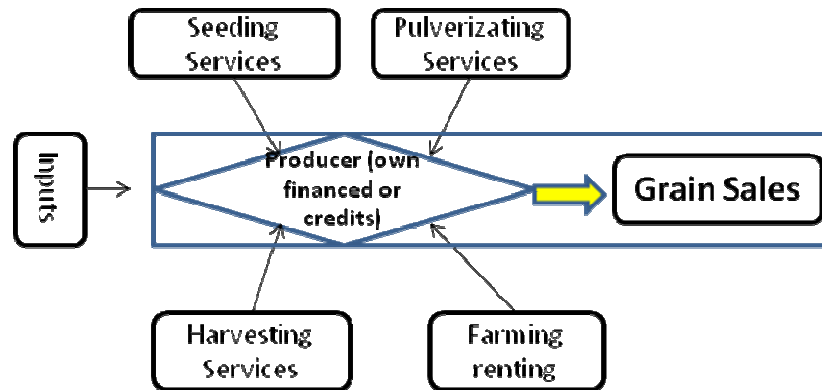
² No-till farming consists in sowing without turning over the soil, using seeders that do not require a plowed field in order to sow. The time necessary to sow the crops was reduced and the sowing capacity increased with no-till farming; the producers started to expand into new agricultural areas that were previously unproductive based on the conventional tilling system.

networks, in which different actors come together based on formal and informal contracts but showing a strong bilateral dependency and shared objectives. The following are the main hybrid forms that exist in the agricultural business in Argentina.

3.2. Informal Hybrid Forms

Informal hybrid forms were the first to arise, at the end of the 1980s. They basically consist in contractual relations, mainly informal (verbal), in which the producers participate in a number of contracts of technological actions related to production (land lease for sowing, purchase of production supplies, sowing, weed and insect control, harvesting, commercialization and storage) (see Figure 1).

Figure 1. Informal hybrid forms



Source: the authors

Sometimes the producer coordinates sowing in his land with leasing a number of other hectares based on the use of contractors' services or the use of his own machinery. In other cases it is the contractor who develops contracts with landowners to take advantage of their structure and minimize their fixed costs per unit of sowed area. Contractual forms among the different participants vary in the way the contract is paid: fixed payments in advance or at the time of the harvest, or payments based on a percentage of the production.

The business in general is designed on the basis of improving the profitability of the actor who coordinates the business (through a scale increase); the recurrence of transactions, the trust built and the information shared will depend on the interest of the coordinator in remaining in the business and/or in the region.

According to the surveys performed, the cases of this type of hybrid form involve areas that range from 3,000 to 10,000 hectares, some of which are the property of those who work the land (from 20 to 30%) and some leased (fixed and percentage). These cases are not geographically restricted to any particular productive region.

In general, the business is financed with equity coming from the productive and commercial system itself. However, this type of hybrid forms often present credits for sowing granted by the suppliers of inputs themselves, the storage facilities and, more recently, the exporters, in order to insure a minimum exportable volume.

Due to the low structure and investment of these hybrid forms, in general the transaction frequency is medium. Contracts cover from one to three productive cycles, and each transaction is repeated based on its productive performance. However, it is precisely the informal character of the contract that increases the uncertainty of the relationship, and many times there are breaches of medium-term contracts based on performance. Because of this, investment in specific assets, and particularly in joint investments, is infrequent.

The main specific asset these forms have is the productive and local know-how on the intrinsic characteristics of agricultural production, and the knowledge of the key actors (suppliers, tenants and

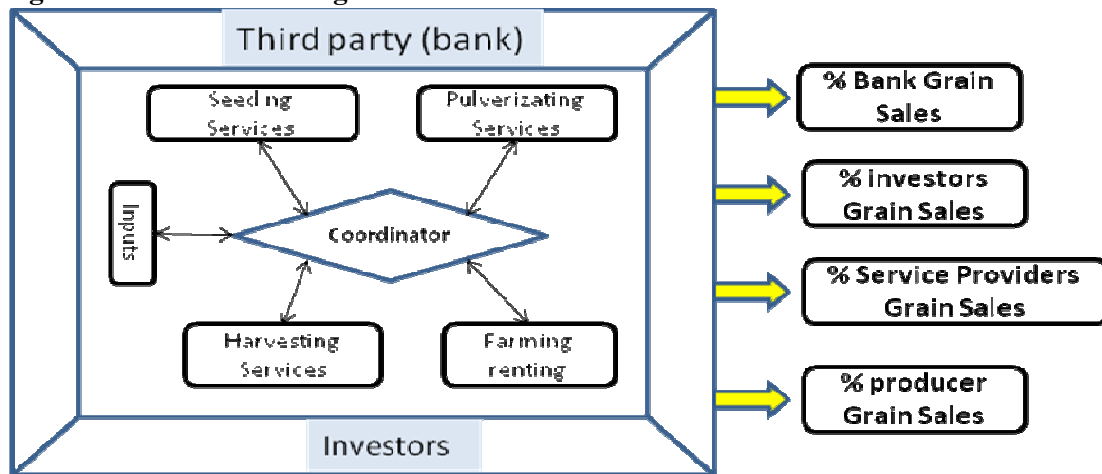
service providers). In most cases, this type of hybrid forms does not present standardized, written productive processes (quality management system).

Finally, the interfirm collaboration type may be characterized as sequential inasmuch as the coordinator of this hybrid form organizes the different activities and transactions based on a specific activity that involves sowing in his own land or that of third parties and later harvest and commercialization of the production (according to Lazzarini et al. 2001).

3.3. Agricultural Trust Fund (Fideicomiso)

A *fideicomiso* is a contractual figure in force by Law 24,441/95. There are two types of *fideicomisos*: a) financial (issue of participation securities to gain access to the capital market), and b) common or non-financial (private contracts between parties). The *fideicomiso* must necessarily have the figure of the controller, a role often performed by the banks in conjunction with lawyers. This type of organizational form arises from the need to finance the growth of the agricultural production of agricultural organizations with venture capital not their own and from the appearance of external investors (mainly since the 2002 crisis).

Figure 2. Agricultural trust fund organization



Sources: the authors

Figure 2 shows a typical agricultural trust fund. Basically, there is an investor and a group of actors, linked to an investment capital receiver (the coordinator of the organization). There is, in turn, a third party (generally banks) that guarantees that the coordinator fulfill his obligations unquestionably. As for the purchase of supplies –such as equipment, seeds, fertilizers, and agricultural chemicals– estimates are requested and purchasing is done on a quality/price basis, always authorized by the third party. Most farm work and land leasing is carried out by means of contracts between service providers or owners and the coordinator. These cases are not geographically restricted to any particular productive region.

In short, a hybrid organization of several actors is formed with the object of carrying out an agricultural activity in which each actor performs a specific function based on a mandate established by the trust fund, receiving in exchange a percentage of the business profits or a fixed amount per service rendered or property leased to the trust fund (agricultural machinery or farm). This type of contracts is in general short-lived, since it is generally set up to develop one agricultural cycle or up to 3 seasons. This is mainly due to the short-term character of investors in this type of financial system in Argentina.

Because of their organizational form and contracts, and because of the need to show investors information, agricultural trust funds share information by definition, and their administrative and commercial aspects are thoroughly audited. This constitutes the investor’s main advantage. In addition, the information, and therefore, the decision making, acquire greater transparency.

Agricultural trusts funds usually fall within 5,000 to 10,000 hectares in production, especially with third-party resources (services). The transaction frequency is medium, based on the duration of the trust fund. In general, transactions with the different service providers (contractors) and land owners are repeated season after season. Uncertainty is low (from the organizational point of view) due to contracts, strong incentives and controls, and the high trust generated among the actors. The level of specificity of the assets is generally low from the point of view of fixed capital, but is medium from the point of view of business know-how (contacts, contracts, administration, logistics, etc.). The reputation of the actors that form part of the contract also plays an important role. It is worth noting that each actor makes his own investments based on the function of the service he must perform for the trust fund.

Finally, this type of hybrid form could be catalogued as a combined interfirm collaboration, since each individual within the group makes a clearly defined and differentiated contribution to a definite task (according to Lazzarini et al. 2001).

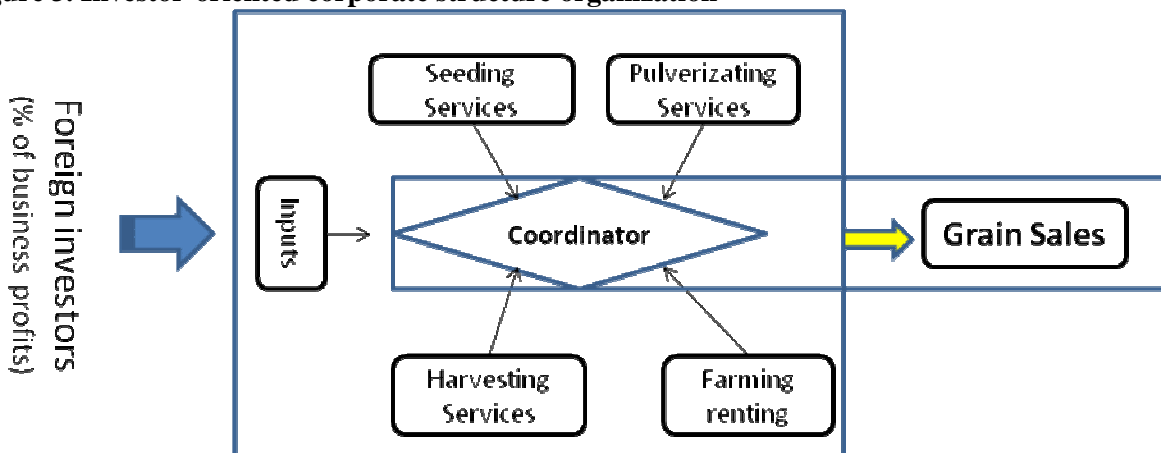
3.4. Investor-Oriented Corporate Structure

The investor-oriented corporate structure model is a way to organize agricultural production by taking capital funds from several partners. Although often associated to common investment funds, investor-oriented corporate structures appear more private, between producing parties and investing parties.

Starting with increased technological intensification and production area expansion, the different actors had to find their own financing for productive processes in independent investors. They basically started during the 1990s, sowing large areas in the pampas region (Buenos Aires, Santa Fe and Córdoba). Once the production processes became more efficient and the technology used made it possible to reach other less stable productive areas, they moved to other regions like the northeast of the country. At present, this type of hybrid form presents cultivated areas ranging from 10,000 to 100,000 hectares, mostly on leased land.

The investor-oriented corporate structure appears as a more flexible organizational form since contractual forms may be highly varied. Investors may receive one fixed percentage-based payment at the end of the harvest, agreed upon before sowing, or they may participate in the future risks and benefits of the business, obtaining the real profitability of the system once the production has been harvested and commercialized. This second option is the less frequent, since it involves a higher degree of trust among the parties and, very often, accounting and administrative audits. In the first case, the investor already knows how much money he will receive at the end of the season, independently of the production and the commodities prices. In general, contracts are short-term, based on the agricultural season or year in which the investment is made.

Figure 3. Investor-oriented corporate structure organization



Sources: the authors

As can be observed in Figure 3, either the producer or the coordinator of the system –often not a land owner– coordinates contracts among different service suppliers and tenants. Production supplies are mostly paid with external investor capital in order to obtain better prices by paying cash. Regarding land leases, these coordinators in general choose to pay cash in advance to the owners of the land, because of growing competition with similar hybrid forms in the same work area. Sometimes the coordinator will sell grain to pay the investor the promised profit; often the contractors receive part of their payment in production. The coordinator's profit equals the difference between the income, on the one hand, and the production costs (inputs, services, land leasing) and investor's participation on the other. In some cases, the coordinator himself invests own capital (money, machinery and/or land) in the system. Due to the openness involved in this type of contracts, coordinators are obliged to show great transparency and share information with investors.

This type of hybrid form has made it easier for outside investors, oriented towards agriculture in times of high prices and profitability, to participate in the agricultural sector. It is for this reason that most of the time contracts are signed only for one agricultural season, the partners renew their trust one year at a time, and there is a low transaction frequency between coordinator and investors. This implies that the profitability of the business must be attractive.

The uncertainty of this type of hybrid form is that of the business itself, since both the contracts and the reputation of the participants in the hybrid form generate lower transaction costs. The incentives and controls are high, since all participants must fulfill the agreement; competition among this type of organizational designs is high. As for specific assets, something similar goes on here as what happens in the previous case: the actors' know-how and reputation are the main assets involved, they are of medium level, and they are well safeguarded by the contracts.

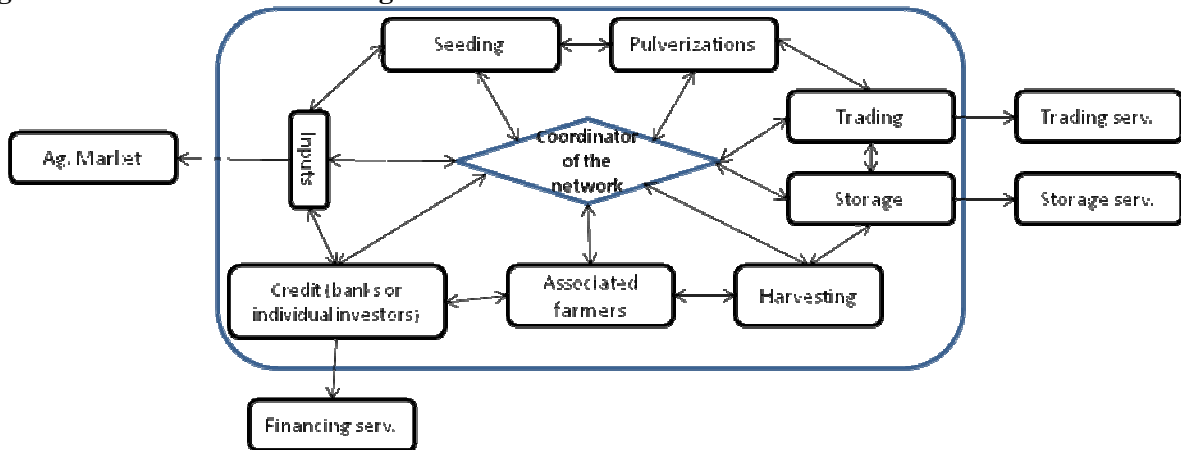
It is to be noted that each particular actor carries his investments individually based on the service he must perform for the trust fund. In some cases there may exist collective investments, especially when an organization starts gaining ground and the partnerships between service providers and coordinators last longer. In this case there may appear shared fixed capital investments in storage, machinery, and logistics. Finally, this hybrid form may be considered a combined form, according to the classification proposed by Lazzarini et al. (2001).

3.5. Network of Networks

The strategy of this type of organization is based on creating a network of contractors with local, specific knowledge. These contractors may be investment partners or network service providers. Generally, the whole network is kept in a solid area of influence, but this know-how has been spread to other regions beyond traditional ones. They appeared in the beginning of the 1990s, especially in the Pampas region.

The model of this type of organization is that there is a coordinator of the network and technical people in charge in each region of production and activities the network does (see Figure 4). The different activities are production (seeding and pulverizations), harvest, storage, agricultural input selling, trading, financial services, etc. (depending on the network). The network of network works in different business units in different regions: each unit is important to the contribution of the network. The areas of influence have generated the network of branches. In these branch offices grain is purchased, inputs are sold and business contacts explored.

Figure 4. Network of network organization



Sources: the authors

The coordinator “opens” business units in different regions similarly to a franchise system. A network of networks could be characterized as a sum of formal and informal networks in different regions, coordinated by a central manager. The reputation of the coordinator is very important for developing the region and expanding the network. Conditions the coordinator offers many times are sufficient for starting a bargain between similar agents in the region. As a result, network of networks have long term contracts (more than five years) with participants due to the more interest of establish in a region.

The size of a network of networks varies widely. There are some with 20,000 hectares in production and others with 350,000 hectares if we consider the production in neighboring countries such as Uruguay and Paraguay. Financial resources come from coordinators’ own budget but they generally open to new forms of finance, such as short-term credit from farm input providers, trust funds, investors-oriented, and issuance of stock in equity markets. Many organizations included financial assistance to different participants of the network.

The people responsible perform technical and commercial tasks; they are key units in the network. Management is totally decentralized. Each responsible person loads the information at his own workplace. The backbone is training, professionalizing and leveraging human resources; incorporating new technologies from the information society for the purpose of creating a new local knowledge and finally developing various kinds of alliances within value systems in order to bring support to the network of networks. In that sense, it is very important to share information, build trust and alliances with clients. Trust is the result of transparent operations and solvency of the network.

Long term relationships constitute the base of this network; transaction frequency is high and so are incentives and control. The result is a low level of uncertainty and transaction costs. Specific assets are know-how and reputation. However, many network of networks started to invest in particular technology, standardization programs and human resources in terms of doing agriculture more efficiently (GPS, ISO 9000, etc.). Some of these investments are done collectively, making the interfirm collaboration more reciprocal (Lazzarini et al. 2001).

4. Summary and Conclusions

In the past 20 years, important transformations have taken place in Argentine agriculture at institutional, organizational and technological levels. The world has changed; the globalization process has given rise to new relations, in which countries see themselves as open to the world and its opportunities. Interests are thought of as integrated: agriculture and industry; production and services (Trucco, 2008).

Starting with the innovations of the 1990s, producers and service suppliers developed a complex contracting system (hybrid forms) in order to expand agricultural production, gain scale economies, and produce in until then almost virgin areas. Following the Argentine crisis in 2001 and 2002, these actors also started to create alliances with other actors outside the formal agrifood business circuit. Banks, financial organizations and even common people began to finance the agricultural sector.

The different organizational forms described in this multiple case study explain the different ways to coordinate transactions in Argentine agriculture (see Annex). In some cases we observe informal hybrid organizations, with short-term relations based on the current season (informal hybrid forms). In other cases, we observe more detailed, longer-term contracts, involving fixed assets (machinery) or intangible assets (know-how) in the relationship. In all cases, hybrid forms involve a group of actors linked by common objectives, mainly to gain scale and improve the profitability of the business.

The risks are those inherent to agriculture, added to Argentina's institutional risks. However, experts consulted state that these organizational forms are highly flexible and show a great capacity to adapt to the challenges of the knowledge society. Hybrid forms constitute autonomous specialized nodes that work in a coordinated fashion assisted by modern information and communication technologies (ICT), trust, a shared vision, and the capacity to coordinate different agricultural processes. These organizations are more competitive because they enjoy aligned incentives, flexibility, and adaptability. However, labor and social laws do not make things easier for these organizations, since they consider industrial society models; abrupt institutional changes can also cause contract breaches.

The paradigm of agriculture under contract has evolved in different ways during the past 15 years. Currently, institutional uncertainty (related to export taxes, export control, fiscal pressure), international uncertainty (with increased commodity price volatility) and production issues (related to changing weather patterns) have generated a new paradigm in Argentine agriculture. The actors present scarce financial resources, and external investors prefer not to invest in this sector because of the current high level of uncertainty. All that is left is to ask oneself whether this type of highly competitive organizational design will be sustainable and continue to dominate Argentine sowing and agricultural production. The risk is that, if they do not function correctly, these designs will crumble, and the autonomous nodes are more vulnerable to transaction costs. Perhaps a new form of hybrid organization will arise.

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Annex: Summary of different forms of organizing the agriculture in Argentina

	Informal hybrid forms	Trust fund	Investor oriented	Network of networks
Presence in the system	20 years	6 years	15 years	15 years
Type of contract	Informal	Formal	Formal	Formal and informal (trust)
Actors involved	Producers, services providers	Banks, lawyers, financial organizations, coordinator (administration company) of service and contracts with producers, services and inputs providers	Coordinator of services-contracts-inputs, capital investors, lawyers, accountant	Coordinator, producers, services providers, inputs companies, banks, investors, investors partners (infrastructure, technology, information)
Duration of contract	Short-medium term (one-three years)	Short-medium term (one-five years)	Short term (one year)	Long term (more than 5 years)
Share of information	It depends on the contract (generally little)	High/total	High/total	High/total
Average productive area (based in real cases)	3,000 to 10,000 hectares. Own and rented area	5,000-10,000 hectares. Rented area mainly	10,000-100,000 hectares Rented area	20,000-350,000 hectares Own and rented area
Financial sources	Owned capital and inputs companies	Financial arrangements with banks	Financial arrangements with external investors	Owned, banks and external investors, inputs companies
Frequency of transaction	Medium	Medium	Low (investors), High (service providers)	High
Level of organizational uncertainty	Medium	Low	Low	Low (importance of trust)
Level of trust / reputation	Not very important	High	High	High
Incentives and control	Low	High	High	Very high
Specific assets	Know how. Low level	Know how, reputation of actors. Medium level	Know how, reputation of actors. Medium level	Know how, reputation of actors, technology (innovations). High level
Joint or individual investments	Individual	Individual	Individual. In some cases collective	Collective
Interfirm collaboration (pooled, sequential, reciprocal)	Sequential	Combined	Combined	Reciprocal

Source: the authors