

Argentine Farmers Search for Collective Action

*A case study of rural cooperatives within the
Genetically Modified agricultural production
in Argentina*

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Argentine Farmers Search for Collective

Action: Rural cooperatives coping with socioeconomic and environmental impacts within the Genetically Modified agricultural production in Argentina.

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IV

Abstract

The period after the introduction of GM technology in the Argentine agricultural sector has been characterized by soyaization, biotechnological hegemony, export-oriented populism or as a success story. All these topics are centred on the production of GM soybean. The first part of the thesis claims that the expansion and increasing production of GM soybean in Argentina has replaced other crops and agricultural activities and led to a production concentrated in larger farming units. Based on this perception the thesis focus on how local institution, such as rural cooperatives, can improve socioeconomic distribution and management of natural resource within the actual agricultural reorganization. In this context collective action is presented as a central tool to solve social dilemmas connected to locating financial resources, markets, technical expertise, new production methods and diversification of agricultural activities. The thesis recognizes that the capacity of the farmers to engage in collective action on a local level is tied to political decisions on higher levels, and to understand how the cooperative work within the broader political context agricultural policies on a government level is also analysed in the following work. The objective of the thesis is to emphasize the importance of local rural institutions in Argentina in the aftermath of the transition to GM soybean production, and promote a cooperative based model for future agro-state collaborations.

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Abbreviation

AACREA - La Asociación Argentina de Consorcios Regionales de Experimentación Agrícola

ACA - La Asociación de Cooperativas Argentinas

ADR - La Asociación para Desarrollo Regional

AFBF - The American Farm Bureau Federation

CGE - Confederación General Económica

CGT - La Confederación General del Trabajo

CONABIA - La Comisión Nacional Asesora de Biotecnología Agropecuaria

CONICET – The National Scientific and Technical Research Council

ConInAgro – La Confederación Intercooperativa Agropecuaria Limitada

CPR – Common Pool Resource

CRA - Las Confederaciones Rurales Argentinas

ENGOV – Environmental Governance in Latin America and the Caribbean

GEAC - The Cooperative Rural Extension Group

GM – Genetically Modified

GMO - Genetically Modified Organism

FAA –La Federación Agraria Argentina

FAO - The Food and Agricultural Organization

INASE - El Instituto Nacional de Semillas

INTA - El Instituto Nacional de Tecnología Agropecuaria

IPR - Intellectual Property Rights

ISI – Import Substitution Industrialization

MNC - Multinational Companies

ONCCA - La Oficina Nacional de Control Comercial Agropecuario

PJ – El Partido Justicialista

RR – Roundup Ready

SAGPyA - La Secretaría de Agricultura, Ganadería, Pesca y Alimentos de la Nación

SRA – La Sociedad Rural Civil

SUM – The Center for Development and Environment

UAA - La Unión Agrícola de Avellaneda

UBA – La Universidad de Buenos Aires

UIA – La Unión Industrial Argentina

Table of content

Title.....	III
Abstract.....	V
Acknowledgments.....	VII
Abbreviation.....	VIII
Table of content.....	X
Figures:.....	XIII
1 Locating rural cooperatives within the current agricultural boom.....	1
1.1 Research question.....	1
1.2 Previous studies.....	4
1.3 Why study GMOs in agricultural production?.....	5
1.4 Thesis structure.....	6
2 Historical background.....	8
2.1 The reorganization of the agricultural sector in the era of GM technology.....	8
2.2 Who are they? A conceptualization of agricultural producers in Argentina.....	12
2.3 Northern Santa Fe and the UAA.....	15
2.4 An historical approach to the state-agro relationship.....	18
3 Theoretical approach.....	23
3.1 Governing the common goods.....	24
3.2 Selective incentives for collective actions.....	27
3.2.1 The state and collective action.....	30
3.3 The state as an organizer of collective actions.....	31
4 The research process.....	36
4.1 Point of departure.....	36
4.2 Research design: Case study.....	37
4.2.1 Operationalization of central concepts.....	37
4.2.2 Connecting the research question with collective actions.....	39
4.2.3 Designing quality in case studies.....	39
4.3 Experiences and challenges.....	40
4.3.1 The interview guide.....	42

4.3.2	Other sources.....	44
4.4	Strengths and limitations	44
5	Is the UAA an institution for collective action?.....	47
5.1	Selective incentives for collective action	47
5.2	Social incentives for collective action	50
5.2.1	Formal structures for collective action.....	50
5.2.2	Informal structures for collective action	52
5.2.3	Monitoring and sanction mechanisms.....	54
5.3	The Argentine state as an organizer of collective action.....	55
5.3.1	Export taxes.....	56
5.3.2	Export restrictions	57
5.3.3	Centralization of decision making.....	59
5.3.4	Return of old ideologies?	61
5.3.5	Privileged access or self-defence?.....	63
6	Socioeconomic distribution and natural resource management.....	65
6.1	Handling scale	65
6.1.1	Loans	66
6.1.2	Technical assistance	68
6.1.3	Partnership.....	69
6.1.4	New production activities.....	72
6.2	Agricultural diversification.....	73
6.3	Facilitating for a diversified resource use.....	75
6.3.1	Rotation and crop diversification techniques	75
6.3.2	No-till farming.....	78
6.3.3	Diversification of production activities.....	79
6.4	Resource governance	82
6.4.1	Common rather than individual management of natural resources.....	82
6.4.2	Local rather than governmental management of natural resources.....	84
6.4.3	Polycentric management of natural resources.....	87
7	Conclusions	89
7.1	Locating the findings within the broader discussion	92
7.2	Contributions and future research.....	93
	Bibliography.....	94

Appendix 1: Interviewees..... 98
Appendix 2: Interview guide..... 100

Figures:

Figure 1: Cultivated area of soybean, cotton, sunflower and pastures – 2

Figure 2: The evolution of the GM crops of the total planted area – 9

Figure 3: Map over the Pampa and extra-pampeana region – 13

Figure 4: Map over UAA's operational branches – 17

Figure 5: The distribution of benefits from GM soybeans – 20

Figure 6: Theoretical puzzle - 23

Figure 7: Model of the relationship between the Raffins and the UAA - 71

Figure 8: Agricultural products sold by the UAA (table) – 77

Figure 9: Agricultural products sold by the UAA from season 2005/2006 to season 2010/2011
(Chart) - 77

1 Locating rural cooperatives within the current agricultural boom

The introduction of genetically modified (GM) technology in 1996 launched an increasing productivity of agricultural commodities and an expansion of the agricultural frontier in Argentina. The new GM soybean seeds, tolerant to glyphosate, in combination with no-till farming techniques played a leading role for this development (Trigo & Cap, 2003:89). In the crop season of 2010/2011 soybean accounted for 19 million out of a total 22.9 million hectares planted with the GM technology (Trigo, 2011:7). Currently the GM soybean represents 95 per cent of the total soybean crop in Argentina (Teubal & Palmisano, 2009:198). The need for only one herbicide and the reduction of inputs such as labour and fuel lowered the expenses drastically for agricultural producers. In addition, a great international demand for soybean or products derived from soybean, especially from China and Europa, results in favourable prices on the international market (Rodríguez, 2010:167). Soybean products have for instance witnessed a threefold price increase compared to the 90's (Trigo, 2011:18). This agricultural transformation has pushed forward a reorganization of the agricultural sector with a further emphasis on the production of commodities for the export market which has changed socioeconomic structures in Argentina. Within this agricultural reorganization, and the focus of this thesis, rural cooperatives play a central role for contributing to socioeconomic distribution and conserving natural resources.

1.1 Research question

After more than 15 years with GM soybean crops, important changes have occurred between Argentine agricultural producers managing the land. One of the main challenges facing small and medium sized producers within the agricultural transformation is related to the size of agricultural or arable land. The introduction of GM soybean crop has been followed by increasing export taxes on agricultural products under the governments of Néstor Kirchner (2003-2007) and later Cristina Fernández de Kirchner (2007-2011; 2011-). Favourable international prices on agricultural products have also raised the value of agricultural land in Argentina. These factors combined with increasing production costs lead to a scenario where

many farmers need to scale up the size of agricultural land to maintain sustainable production units. The economies of scale mean that large farms are able to produce at lower costs. Small and medium sized farmers may lack the economic resources to make necessary investments to compete with these larger farming operations. This is leading to a concentration of production in larger farming units with smaller farmers getting squeezed out in the process of reorganization (Rodríguez, 2010:248). The increasing emphasis on soybean production has also raised ecological questions for farmers since the soybean production extracts more nutrients from the soil and retransfers few compared to other crops (Solbrig & Adámoli, 2008:24). Hence, to avoid soil erosion, farmers must maintain rotation techniques which imply growing other crops to compensate for nutrient loss. However, profitability linked to soybean production may limit long practised rotation techniques (Pengue, 2005:317). Moreover, promoting a more diversified agricultural production has other benefits, such as economic security for farmers and maintaining national food security. The actual ecological debt of the GM soybean production is a time dependent process, and it is hard to produce any grounded evidence of its consequences at this early stage (Barsky & Dávila, 2008:58). Though, through observation, statistics and interviews I can claim that the transition to GM soybean has had and continues to have a negative impact on the diversity of crops and agricultural activities in Argentina (Pengue, 2005; Rodriguez, 2010). Studies done by Trig & Cap (2006:29) reveal how the agricultural land of cotton, sunflower and pastures has been replaced by soybean production between the 1996/1997 and 2005/2006 season.

Figure 1: Cultivated area of soybean, cotton, sunflower and pastures

SEASON	Δ ha	Δ ha	Δ ha	Δ ha	Δ ha
	SOYBEANS	DOUBLE CROPPING SOYBEANS	COTTON	SUNFLOWER	PASTURES
1996/97	667,345	838,800	-54,240	-290,850	516,545
1997/98	506,750	-575,900	177,590	391,650	-1,651,890
1998/99	1,223,750	-74,160	-382,220	732,400	-1,648,090
1999/00	390,500	442,010	-404,980	-656,800	1,113,290
2000/01	1,873,830	326,900	64,955	-1,610,880	-1,005
2001/02	974,910	232,510	-236,862	74,245	-579,783
2002/03	967,605	-431,581	-15,834	327,635	-1,710,987
2003/04	1,919,761	219,108	108,178	-530,037	-1,278,794
2004/05	-126,608	1,168,122	140,034	118,636	1,036,060
2005/06	929,002	141,917	-97,421	293,401	-983,065
95/96 - 05/06	9,326,845	2,287,726	-700,800	-1,150,600	-5,187,719

Source: Trigo & Cap (2006:27), based on data from SAGPyA

A final element of concern for farmers within this reorganization is related to government policies and actions. Policies based on high export taxes and export restrictions on agricultural products combined with lack of rural representation on government level impair the capacity of farmers to achieve profitable production units and conserve natural resources through their operations.

To meet environmental and socioeconomic problems linked to the GM soybean production and national policies, small and medium sized farmers are often dependent on rural organizations which respond to their specific interests and needs. In this context rural cooperatives present an interesting case due to their economic function for members by providing inputs, technical assistance, commercialization, marketing, credits and insurance. The importance of this economic function gets reinforced by the undermining effect of governmental policies and farmer's institutional weakness at the state level. Rural cooperatives also have a great social function and serve as a platform for communication, networking, cooperation and future organization. Through highly democratic structure members of rural cooperatives participate in sharing knowledge about markets, technology, inputs and the environment which can encourage them to follow a more sustainable local based resource use. Based on these perceptions the following thesis seeks to analyse:

How do rural cooperatives contribute to socioeconomic distribution and improve the management of natural resources within the agricultural reorganization oriented on the production of GM soybean?

In Argentina four organizations dominate the map of rural representation. La Sociedad Rural Civil (SRA) and las Confederaciones Rurales Argentinas (CRA) are known for representing medium and large farmers while la Federación Agraria Argentina (FAA) appeals to mainly small farmers and la Confederación Intercooperativa Agropecuaria Limitada (ConInAgro) is the organization for cooperatives. Considering numbers of members, extension of operational activities and organizational structure ConInAgro appears as one of the most influential agricultural associations in Argentina. ConInAgro represents 400 cooperatives and around 70 000 farmers in Argentina which are connected to nine federations. The organizational structure is presented in three layers with the lobby organization at the national level, federations at the regional level and cooperatives at the local level. In this pyramid the cooperatives are directly connected to the farmers and therefore perform the most important functions for contributing to rural progress in local and regional agricultural zones

(ConInAgro, 2011). Connected through ConInAgro, the cooperative la Unión Agrícola de Avellaneda (UAA), which operates in the northern part of Santa Fe, serves as an interesting case study for several reasons. The cooperative displays a strong organizational structure and plays a central economic role for farmers in the region. Moreover, despite the profitability of producing GM soybean and limited access to new arable land, lower soil quality and longer distance to transport hubs compared to other agricultural regions such as the Pampa, the cooperative manages to promote diversified agricultural activities. In this sense the rural cooperative can cope with socioeconomic challenges and ecological limitations in the agricultural production.

1.2 Previous studies

Several other studies concerning the reorganization of the agricultural sector have taken either an external or governmental stance to analyse the emergence, persistence or demise of social actors within the current agri-business. Newell (2009) claims that the inputs used in the new export oriented agricultural production, based on the technological package composed of no-till farming, GM seeds and agrochemicals, are largely controlled by multinational companies (MNC). This had led him to propose a hypothesis of bio-hegemony where MNCs exert material, institutional and discursive power over the agri-business in Argentina. Pengue (2005) and Teubal (2009) have a more complex focus, but also argue that large multinational bio-technological firms exercise great economic influence in the agricultural chain of production. Richardson (2009:229-232) suggests that the inauguration of Néstor Kirchner representing el Partido Justicialista (PJ) in 2003 has been followed by an export-oriented populism. This new political orientation favours the urban population through taxation of the increasing production and export of agricultural commodities. In contrast to the old populism, which rejected the rural sector, the Kirchner governments are increasingly dependent on income from rural production to carry out their redistributive policies for purchasing urban mass support. Barsky & Dávila (2008) also focus on governmental policies towards the agricultural sector, but suggest that these have negative effects on current production, and are to blame for the polemic relationship between agricultural organizations and the government.

Other important contributions in the study of the GM soybean production focus on the environmental consequences brought about by the transition to this production. This GM crop has been blamed for generating monocropping, deforestation and soil degradation

(Domínguez & Sabatino, 2010). According to Pengue (2005:314-316) the agricultural expansion and exploitation associated with the GM soybean production in Argentina has led to nutrient depletion, soil-structure degradation, potential desertification, and loss of species.

Central studies done by Trigo & Cap (2003 & 2006) analyse the economic, social and environmental impact brought about by the introduction of new the GM technology in Argentina. They claim that the introduction of this technology is a win-win case, in particular regarding GM soybean (Trigo & Cap, 2003:92). They base their arguments on the fact that the technological change has generated great economic incomes and employment through an increased productivity, agricultural expansion and new jobs linked to the technological sector. Finally, the use of no-till farming, less fuel consuming machines and agrochemicals with lower toxic level in the agricultural production mitigate environmental impacts. On the contrary Rodríguez (2010:158-162) claims that research on technological changes in the Argentine agriculture done by institutions such as the Food and Agricultural Organization (FAO) and Trigo only emphasize positive aspects. These findings do not consider the outcomes for farmers taking part in the production and farmers which are excluded from the production. But more importantly these researches fail to analyse how the major substitution of other agricultural products under the transition to GM soybean production generates economic and social consequences for farmers. Technological change in the agricultural sector usually has a greater impact on substitution of production compared to other industries. However a substitution of agricultural productions followed by an overall income increase from a more effective production does not automatically lead to an equal income distribution between farmers within the country and agricultural regions.

1.3 Why study GMOs in agricultural production?

There are several reasons to investigate the environmental and social impacts of Genetically Modified Organisms (GMO) in agricultural production. Primarily transgenes may produce unwanted effects by influencing the function of natural or managed ecosystems, and can damage the value of neighbouring non-GM crops. Seen from a social perspective, GM food can have negative health effects for humans. Furthermore, the bio-technology is not scale neutral and benefits mainly large seed and grain corporations and large farmers (Wainwright & Mercer, 2011:414-416). However, Wainwright & Mercer (2011:418) claim that it is no longer a question of reversing the process but rather how to regulate the ecological effect of

GM agriculture. What is my motivation for studying GMO's in the agricultural production? Based on my educational and interdisciplinary background from the faculty of humanities I take great interest in issues concerning social equality and environment. In this context the study of GM soybean, government policies and rural cooperatives gave me the chance to acquire deeper knowledge of how local institutions interact within the broader political context and how they might mitigate social and environmental consequences.

1.4 Thesis structure

The first task of the thesis is to highlight some central historical aspects concerning the reorganization of the agricultural sector into a greater emphasis on the GM soybean production in Argentina, and give a better understanding of the social actors involved in the Argentine rural sector. Based on this information I will introduce the research area, northern Santa Fe, and contextualize the farmers and the cooperative within the rural sector of Argentina. The chapter concludes with an historical presentation of the agro-state relationship with focus on the governments of Néstor Kirchner and Cristina Fernández de Kirchner and the emerging conflict between the rural sector and the latter president in 2008.

The theoretical chapter investigates how the concept of collective action influences the behaviour and capacity of farmers to solve social dilemmas in the rural sector. Collective action is analysed from different perspectives, and presents how this concept is organized between stakeholders in common-pool resources (CPR), by organization through selective incentives or by governments through privileged access or reformist policies.

In chapter four I address the way I conducted my research. The master thesis is constructed on the basis of a case study. In the research design section I operationalize the concepts of collective action, CPR and socioeconomic distribution which are later used in the analysis. The chapter also includes the experiences and challenges I encountered during my research process, and the strength and limitations with the overall research project.

The analysis is divided in two chapters. In the first chapter I analyse how the cooperative facilitates and supports collective action related to the variables discussed in the theoretical chapter. The last part of the chapter analyses how government actions influence collective action on local level, and how these political measures produce various outcomes for how farmers engage in collective action through the cooperative.

In the second chapter I analyse which tools the cooperative applies to cope with economic challenges related to the size of agricultural land. The following analysis also identifies agricultural diversification as a central tool to improve natural resource management and socioeconomic distribution, and analyses how the cooperative facilitates for members to engage in multiple agricultural activities. The last part of the thesis recaptures the theory and analyses the socioeconomic and environmental advantages of a local resource management compared to a state or private market options.

Chapter seven offers concluding remarks to the thesis and proposes future studies which may complement my research.

2 Historical background

This chapter gives an historical introduction to the Argentine agricultural sector which is used as a backdrop in the later analysis, but readers have to bear in mind the complexity and ongoing changes which exist between and within various agricultural regions in the country. The first section explains the main features leading to the adaptation of the GM soybean and emphasizes some central characteristics of today's agricultural sector related to the introduction of the GM soybean crop. To reach a greater understanding about the farmers in question calls for an operationalization. This is done through presenting a traditional and a more up to date perspective on Argentine farmers. The third section gives an historical introduction to the fieldwork area, namely northern Santa Fe, and the investigated rural cooperative UAA. The information presented in this section will be linked to the agricultural context in Argentina related to the reorganization and the social actors involved in this process. In order to understand present agro-state dynamics, the last part presents some general characteristics about the agro-state relationship.

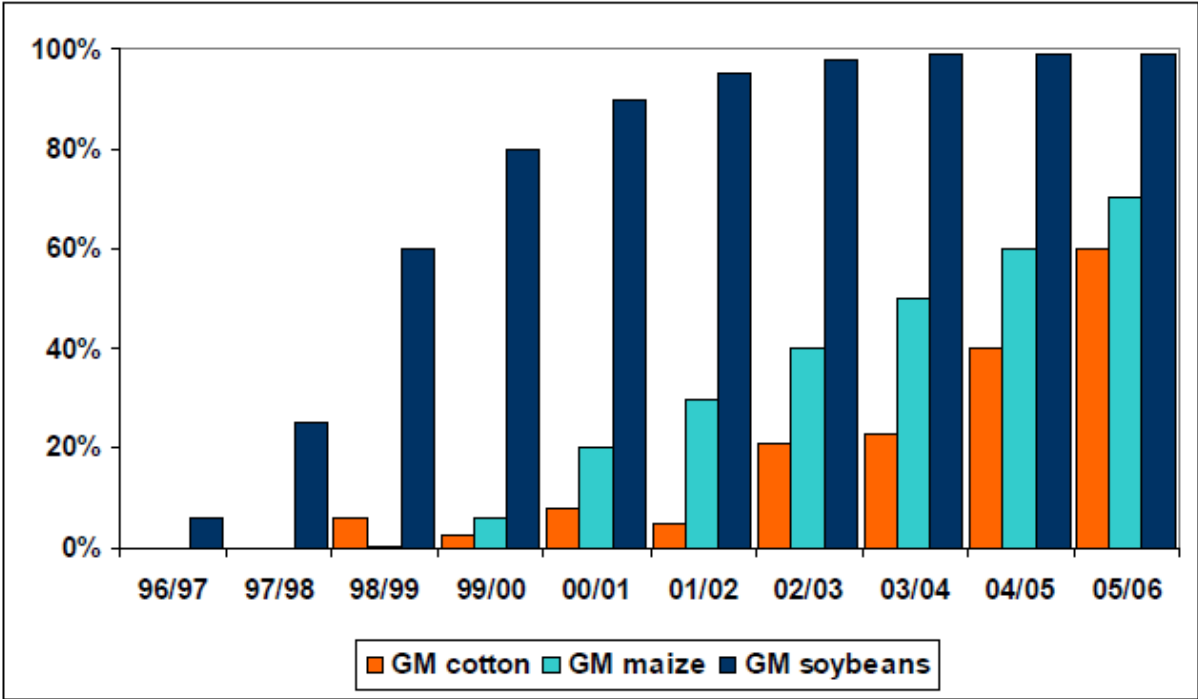
2.1 The reorganization of the agricultural sector in the era of GM technology

In the beginning of the 20th Century Argentina was a wealthy country due to great income from the export of agricultural products, and until 1940 agriculture represented the main engine of the Argentine economy. The country was a known world exporter of cereal, meat wool and leather, and considering its endless amounts of fertile land, Argentina was once known for being the “world's breadbasket”. However, when the great depression hit the world economy in 1929, Argentina suffered severe economic losses. Economic recession and droughts led to a lack of confidence in the agricultural sector as a source of economic growth, and Argentina initiated an internal industrialization process, also known as import substitution industrialization (ISI), from the 1940's under the government of Juan Perón. A previous demographic shift from rural to urban areas in Argentina made the industrialization feasible, and since this period the political power has largely remained in the hands of urban voters (Reca & Parellada, 2001:708-709). A limited increase in the agricultural production until 1960 in Argentina is linked with a modest adaptation to new technology. However, from the

beginning of this decade and forward measures from el Instituto Nacional de Tecnología Agropecuria (INTA) contributed to slowly recapturing Argentina’s participation in world production of agricultural products (Reca & Parellada, 2001:712).

The introduction of soybean production in Argentina dates back to 1910, but a significant diffusion started first in the 70’s. Despite that the expansion of soybean production has gone through many stages, the two last periods from 1996-2001 and 2001 until the present have shown a tremendous growth in the production quantity (Rodríguez, 2010:165). Compared to the USA where a 90 percentage adoption took nearly 15 years this was completed during seven seasons in Argentina. The chart below, elaborated by Trigo y Cap (2006:11), illustrates the evolution of the GM crops of the total planted area, sorted by species.

Figure 2: The evolution of the GM crops of the total planted area



Source: Trigo & Cap, 2006:11, based on statistics from ArgenBio 2006

This fast transition to GM soybean is related to several factors. Primarily, reduced energy and labour costs as well as the decreased price of glyphosate, the pesticide used in combination with the GM soybean seeds, led to lower production costs in the soybean production. Trigo & Cap (2006:23) emphasize that the low production costs, as a result of the technological changes, were the main force behind the increasing supply response among farmers between 1996 and 2001. Secondly, GM soybean has important synergy with no-till practices that facilitates the incorporation of double cropping and thus increased productivity on arable

land. Furthermore, already established key institutions, such as el Instituto Nacional de Semillas (INASE) and la Comisión Nacional Asesora de Biotecnología Agropecuaria (CONABIA), which were created in 1991, facilitated and speeded up the evaluation and approval process of GM soybean. Finally, the absence of intellectual property rights (IPR) connected to the GM soybean and farmers rights to save and reproduce seed for future planting also lowered production costs and facilitated a rapid dispersal of the technology (Trigo & Cap, 2003:87-89). The fact that the company Monsanto which developed the GM soybean, also called Roundup Ready (RR), sold the patent rights to Nidera made the MNC unable to demand royalties or restrict the diffusion of the seed among Argentine farmers (Barsky & Dávila, 2008:43).

The main features of the rural reorganization involve land, labour intensive technology, social actors and capital. Land for GM soybean production was acquired through two processes; changing agricultural activity on already managed land and/or acquiring new land. However, considering the rotation of crops technique, applied by the majority of agricultural producers, corn, wheat and sunflower also have an important position in the agricultural boom. However, GM soybean production is favoured for its profitability compared to other crops (Barsky & Dávila, 2008:46). Buying, renting or sharecropping is the most usual methods by which farmers acquire new land. During the last decade renting land for production has become the most common method for farmers to get access to new land. The growing commitment to GM soybean production leads to a replacement and relocation of former agricultural activities such as cattle farming, previously located in the Pampa region, to the northern part of Argentina (Teubal, 2009:76). In 2005 the GM soybean had replaced 4,600,00 hectares of land dedicated to other production systems such as dairy, fruit trees, horticulture, cattle and other types of grain (Pengue, 2005:315). Moreover, the relocation of former agricultural activities and the fact that GM soybean can be cultivated in semi-arid zones has opened the agricultural frontiers to new farmland development. Barsky (2012), who is a researcher at the National Scientific and Technical Research Council (CONICET) specialized in agricultural studies, claims that during the last years six to eight million hectares of new agricultural land have been incorporated into the agricultural production. This was also feasible due to the convenient land management system involved in the production of GM crops. Machines used in this land management system are extremely expensive, and many agricultural producers employ contractors to do the needed labour, such as sowing, irrigation, fumigation and harvesting. The re-emergence of contractors of machines enables farmers and other

stakeholders to invest in agricultural land and organize the production cycle without living close to the production area (Rodríguez, 2010:173).

Scaling-up the size of agricultural land has further created a greater concentration of land managed by fewer hands. The deregulation and privatization of the agricultural sector in the 90's under the government of Menem meant no governmental protection for small farmers. Limited possibilities to adapt to the new technological reality and a growing competition from the exposure to the world market resulted in a mass migration from rural to urban areas. Statistics show that 75 293 agricultural farms with less than 200 hectares disappeared from 1988 to 2002 (Teubal, 2009:77-78). However, Barsky (2012) mentions that many small farmers which were not able to increase the size of agricultural land are not necessarily forced from their land. As mentioned, leasing out land is an increasing tendency among small land owners. In this way small farmers can search for other economic activities while receiving a rental income. This rental agreement is usually arranged by paying a fixed rent annually, and in addition a certain percentage from the total production income or a predetermined price is paid. Trigo & Cap (2006:20) mention that the replacement of rural workers and pre-eminence of labour-saving technologies is not a peculiar case only encompassing Argentina, but a repeating trend in other major agricultural producing countries such as USA, Australia and Canada.

Finally, the economic profitability of growing GM crops for the world market, driven by reduced production costs and favourable international prices, has increased the value of land in Argentina dramatically. Small and medium sized farmers, have often have less financial capacity, and limited possibilities to purchase new land (Sili & Soumoulou, 2011:8). This argument can also be related to the enormous disappearance of farmers between 1988 and 2002. Furthermore, increasing profits from agricultural products have made it more attractive for non-agrarian business to invest in the production process. These new social actors can both be represented by businesses or individuals located in urban areas. Investment is usually placed within the organization of sowing pools. These are arrangements between the owners of land and investors where contractors are hired to do the work. The arrangements are often organized by mediators which have connections with wealthy businessmen in cities, land owners in the campo and machine-contracting firms. The arrangements can be time limited to one harvest or extend over several years. Profit from the production is distributed based on

pre-negotiations and contracts between participants (Bisang, Guillermo, & Campi, 2008:166-167).

2.2 Who are they? A conceptualization of agricultural producers in Argentina

Barsky & Dávila (2008:78) argue that the traditional image of the campo is a world divided between big land-owning ranchers and small producers, “chacareros” who rent land for agricultural production. According to them this is a very misleading understanding of a complex industry which consists of multiple actors intertwined with cities through links with markets, services and other businesses.

Teubal (2012), who is a researcher at CONICET and specializes in the Argentine agrarian economy, claims that a common way to divide the campo in Argentina is according to geographical location and size of farmland. First, he makes a distinction between the Pampa and extra-pampeana region. The first zone is located in the central east of Argentina, and has historically been the most productive area which mainly produced grains and meat for national and international markets. The extra-pampeana area encompasses the rest of Argentina where producers engaged in the production of industrial goods such as cotton, sunflower, fruits, sugar, rice, maté and livestock farming. These traditional images have changed with the major transition to GM soybean production. In la Pampa cattle farming has, as mentioned, been replaced by the production of GM soybean. Much of this cattle farming has been relocated to the northern part of Argentina (Teubal, 2009:76). The map below illustrates the geographical division of the Pampa and extra-pampeana region.

Figure 3: Map over the Pampa and extra-pampeana region



Source: Elaborated by the author 2013, based on Stølen, 1996:XV

Within this geographical structure we can make a distinction between small, medium sized and large agricultural producers. Small producers are usually characterized as those who manage less than 200 hectares of land (Teubal & Palmisano, 2009:199). Large producers are according to studies done by Basualdo & Acreo (2005:76) defined as producers with more than 2500 hectares, and the medium sized ones, falls between these two categories. Many Argentine farmers manage large land areas compared to European farmers, but we have to keep in mind that Argentine farmers also pay high taxes on their agricultural products and receive limited financial or political support from the government. However, the categorization of farmers above is not very accurate. The category of medium sized farmers is

for instance misleading when one considers the huge disparity between a farm unit of 210 hectares and 2400 hectares. Moreover, farmers in the Pampa region have more fertile soil, a shorter distance to transportation hubs and better institutional frameworks compared to farmers in the northern part of Argentina, such as Chaco, Formosa and Santiago del Estero. A unidirectional focus on size of farm unit fails to capture the fact that the majority of farmers combine several agricultural activities, and the level of technology applied in these production processes determines how effective and profitable these activities are. Furthermore, this threefold division excludes other smaller agricultural groups, mainly located in the northern part of the country which encompasses family farmers, indigenous communities and subsistence farmers. These have more recently achieved some attention through social protest against the expansion of the agro-industry into their areas. Finally, external agents such as investors who participate in agricultural business through various mechanisms of production management such as sowing pools are also left out of this equation (Teubal, 2012).

Another important aspect is to understand that the profile of Argentine agricultural producers has gone through major changes the last twenty years largely due to new information technology and increased know-how. Compared to the traditional farmers which possessed only a radio and lived next to the production area, the new agricultural producers are more business oriented. Television, internet and the cellular phones enable farmers to obtain knowledge about prices on agricultural products in the national and international market, technology, agricultural inputs and production techniques (Gras & Hernández, 2008:233). To adapt to a more business oriented production involving the use of high technology, many of today's producers also have a university degree. Moreover, a simplification of the production processes has resulted in more urban farmers as they move to cities where access to public services, such as education and hospitals, are present (Barsky, 2012). In this context, many producers have gone from doing the actual labour to having a more supervising and administrative role. This trend in combination with the concentration of agricultural production in larger farms has led to what Teubal (2009:78) characterizes as agriculture without farmers. The next section gives an historical introduction to the region in question and the cooperative investigated in the thesis. The presentation is related to the discussed topics concerning the agricultural reorganization and characterization of farmers in the two previous sections.

2.3 Northern Santa Fe and the UAA

All my informants live in or nearby Avellaneda which is located in the northern part of Santa Fe. The south and central part of Santa Fe belongs to the Pampa region while the northern part is more ecologically similar to Chaco, a province characterized by bush land and more climatic variations (Stølen, 1996:45; 71). New immigrant settlers established the first agricultural community in Avellaneda in 1879, and practiced subsistence farming where labour was the most critical factor of production (Stølen, 1996:48; 64). The economic crisis in 1929 decreased the demand for Argentine export products dramatically, and farmers in northern Santa Fe, which had a low area productivity and low level of capitalization, suffered greatly under the following economic restructuring where farmers outside of the la Pampa region were encouraged to produce industrial crops such as cotton and oil seeds. During the industrialization process from 1936 onwards, when the Argentine textile industry witnessed a great expansion, cotton became an important crop in the region (Stølen, 1996:68-70). According to Eduardo Raffin, farmer and member of the UAA, cotton is still an important crop in the region, but during the last decade many producers have been shifting to the cultivation of soybean.

Currently, through the presence of the UAA, partnership and diversification of production activities, some farmers have managed to scale up the size of agricultural land and increase profitability from production. Other farmers faced with large debt or unprofitable production units were forced to sell or lease out land. According to Luis Miguel (2012), farmer and member of the UAA, some producers did not manage to adapt to the new technological reality, but their loss became others gain. This also leads to a concentration of production where more and more farmers chose to lease out or sell land to other farmers and engage in other economic activities. Spontón (2012, who is the regional director of INTA in Santa Fe, mentions that these farmers usually handover the management of land to family, a neighbour or other person from the local community. The introduction of the GM soybean and a new method to organize the production cycle paved the way for social changes in Avellaneda and the remaining region. A combination of large families and the need for increasing size of agricultural land resulted in some family members applying for work in cities while some family members stayed behind. Some remaining farmers started to invest in land further away such as Chaco and Santiago del Estero. Some of my informants, for instance the Raffin brothers, rent agricultural land in Chaco for crop production.

According to Stølen (2013), who is professor in social anthropology at the University of Oslo and has an ongoing project about gender and changes among Argentine farmers in the GM agricultural production, limited access to arable land in northern Santa Fe makes it more attractive to rent out land for raising cattle to small and medium sized agricultural producers. Thus, external investors living in cities are more likely to invest in the mentioned activity and land than actual agricultural production in this region. There is less use of contractors of machines in the region as farmers who own machines usually also rent them out to other farmers. Characteristics of the agricultural producers in the region mainly fall within the groups of small and medium sized farmers where few farmers manage more than 500 hectares of land. The farmers in the region have become more dependent on the GM soybean crop as the importance of cotton production has decreased. However, corn, sunflower and other production activities, such as feedlots and poultry farming, also play a central position for farmer's income (Avellaneda, 2011:31). The focus on diversity of agricultural production and other production activities in the region may be seen as a strategy to meet challenges related to the size of agricultural land. The investigated farmers in the northern part of Santa Fe reflect many of the characteristics of the new agricultural producers presented in the previous section. Observations from my fieldwork revealed farmers involved in multiple agricultural activities where knowledge, technology and network play a central role. The majority of farmers lived in cities, Avellaneda, Lanteri and Reconquista, close to the farming area, and many of my informants possessed a university degree. These observations can be related to Gras & Hernández's (2008: 230-231) fieldwork from the Argentine provinces of Entre Ríos and Santa Fe in 2005-2006. In their research they identified a new social group of farmers who have emerged in the aftermath of the transition to the GM soybean production. This is a group of farmers called "empresarios familiares" which have been able to consolidate the passage from a family farm to a successful business. The business strategy of this new agricultural producer include engaging in several economic activities such as investments in infrastructure, renting land and hiring out services (Gras & Hernández, 2008:241-242).

According to Noguiera (1988:297-298) the cooperatives emerged as mechanisms of service suppliers between homogeneous producers and represented an alternative to the existing system of commercialization. The first cooperative union in Avellaneda was established in 1919 with the overall aim to have a joint commercialization of products and secure access to consumer goods. Today, as illustrated by the map below, the cooperative has extended their

activities to the whole northern part of Santa Fe as well as having extensive operations in the provinces of Salta, Formosa, Chaco, Corrientes and Santiago del Estero.

Figure 4: Map over UAA's operational branches



Source: <http://www.uaa.com.ar/institucional.php?id=4>

UAA's main goal is to support the agricultural activities of its members, add value to the production, generate new growth alternatives and translate these benefits to other agricultural regions. The cooperative offers a variety of services such as commercialization of products, internal pricing on inputs, technical assistance and a network connected to governmental institutions, suppliers and other rural organizations (Union Agrícola de Avellaneda). The northeast region of Santa Fe has been one of the poorest areas of the province considering profits and economy, but they compensate for this with strong organizational structures. One reason for this is the continuous close cooperation between the INTA and the UAA (Spontón, 2012).

2.4 An historical approach to the state-agro relationship

Agricultural production holds a central position for the Argentine economy and trade since the middle of the 19 century, and the first rural organization, SRA, was already funded in 1866 (Heredia, 2003:81). However the relationship between stakeholders involved in agricultural activities and the state has often been polemic. Argentina is also a federal state, and regional authorities exercise considerable power over political decision-making and resource use within provincial borders which can create conflicts of interest between national and regional governments.

The political tools used towards the rural organizations have varied over time, but have mainly been redistributive, distributive and regulating. Redistributive measures are policies based on price control and taxes to transfer assets between sectors where surpluses have historically often been extracted from the agricultural production. These measures have provoked the most intensive conflicts between the state and the rural organizations. Distributive measures encompass the degree to which the state facilitates agricultural activities through investments in the sector, such as research, technology and infrastructure. Regulating measures reflect policies which restrain farmers in their activities. These can take form as sanitary laws, size limitations on farm land or export restrictions to ensure internal food security (Noguiera, 1988:316-319). A current resurgence of conflicts between the state and agricultural organizations can be seen as a result reflecting all these three policies. The current government has implemented high export taxes on agricultural commodities, measures to restrict free export of beef and wheat, and the distribution of economic resources done by the government to the rural sector is inconsistent compared to the urban sector (Barsky, 2012).

Historically speaking, urban primacy and the need to sustain a trade balance are two central dynamics for understanding governmental intervention in the Argentine rural sector. Governmental initiatives to carry out structural and dynamic policies towards the agricultural sector have often been opposed by rural organizations (Noguiera, 1988:295). Since the great depression urban dwellers have represented the majority of the population and gained an increasingly dominant position in Argentine politics. With the first government of Perón in 1946 the urban sector and industrialization was seen as the primary motor for national

development. Neglect of rural development varied over time where some governments promoted an agricultural export orientation while others favoured urban development. However, from the government of Perón until the present, the political power has remained in the hands of urban voters (Noguiera, 1988:313). On the other hand, some governmental policies such as land reform and price control coincided with the demands of smaller rural organizations. FAA and ConInAgro wanted to see these policies implemented while other rural fractions that represented larger agricultural producers opt for non-state interference and free market policies (Manzetti, 1992:595-596). For instance, during the 40's, interventional policy promoting access to land and the termination of forced eviction from land favoured the cooperative movement (Noguiera, 1988:298).

Agricultural production has always been a competitive source for the national economy in Argentina, and governments have often used this income source to finance other sectors and obtain governmental legitimacy. Perón used the income to boost the Argentine industrialization, some military dictators appealed to social actors within the rural sector to achieve economic stability and political legitimacy, while the current government uses it to support social programs in urban areas while (Richardson, 2009:233-234). Moreover, since agricultural commodities represent the main export products of Argentina many governments have depended on the quantity of agricultural production to achieve trade balance. According to Richardson (2009:229), previously an increase in agro-exports of beef and wheat resulted in higher internal consumption prices hurting the purchasing power of urban dwellers while opposite policies to keep food prices low generated trade deficit. The introduction of GM soybean in 1996 changed this situation since the soybean is not a part of the Argentine diet, and the majority of soybean oil and soybean meal are exported without influencing internal food markets (Richardson, 2009:237).

After the economic crisis in 2001 the agro-industry was the only productive industry to survive the liberalization project of Menem. The government of Néstor Kirchner saw this industry as a way to recapture economic stability and secure trade balance. But over time his government and the later governments of Cristina Fernández de Kirchner increasingly used income taxes from agricultural commodities to finance their political programs leading to a scenario of governmental dependency on the soybean model. Trigo's (2011:19) table, based on the distribution of benefits from GM soybeans, illustrates how the government revenues from export taxes of GM soybean have increased from 526 million US\$ in 2003 to 3,311

million US\$ in 2011. These government revenues are a result of increased agricultural production and export taxes on soybean.

Figure 5: The distribution of benefits from GM soybeans

SEASON	TOTAL GROSS BENEFITS (M USD)	AREA WITH GM (ha)	FARMERS (M USD)	TECHNOLOGY SUPPLIERS (M USD)		NATIONAL GOVERNMENT (M USD)
				SEEDS (*)	GLYPHOSATE	
1996/97	200	370,000	189	6	5	-
1997/98	518	1,800,000	467	27	23	-
1998/99	651	4,875,396	526	74	51	-
1999/00	941	6,870,511	722	110	109	-
2000/01	1,265	8,783,542	1,062	72	131	-
2001/02	1,849	10,381,943	1,641	83	125	-
2002/03	2,863	11,756,084	2,132	83	122	526
2003/04	3,105	13,057,989	2,322	94	120	569
2004/05	3,928	14,407,585	2,928	88	184	728
2005/06	4,416	15,859,058	3,296	134	165	820
2006/07	6,260	16,141,337	4,920	234	213	893
2007/08	10,680	16,603,525	8,436	226	287	1,731
2008/09	7,157	18,032,805	3,784	202	240	2,931
2009/10	9,472	18,343,272	6,559	356	190	2,367
2010/11	12,129	18,650,000	8,383	281	154	3,311
Total	65,436		47,369	2,070	2,121	13,876
				4,191		
	PERCENTAGE		72.4%	3.2%	3.2%	21.2%

Source: Trigo, 2011:19

A scenario where the government seeks higher incomes from the rural sector without promoting rural development produces a more conflictive relationship between rural organizations and the government. Concentration of political power in urban areas and ongoing expenses to meet demands from urban dwellers impairs the progress of rural organizations. According to Yeyati & Novaro (2013:70-71) traditionally, the political representation of the rural sector has been weak, and the parties which represent rural voters are poorly organized. The lack of institutionalized representation of the agricultural sector at the national level and channels of communication between rural stakeholders and the government are often origin to conflicts between the two parties. The governmental intent to implement resolution 125 served as a catalyst in the agro-state conflict in 2008. The 125

resolution involved linking exportation of agricultural products to a new system of mobile taxes. In other words, instead of operating with fixed export taxes on agricultural commodities the new system would involve mobile taxes which adjusted according to international prices on agricultural products. The resolution emphasized an increase in the export taxes of soybean and a minor decrease in the export taxes of wheat and corn. However, Barsky (2012), researcher at CONICET specialized in agricultural studies, suggests that the proposed resolution was just one in the series of many undermining policies played out against the rural sector. The original draft of the resolution did not give much consideration to the size of farm units or variation in transport expenses. Major protest from the four largest rural organizations, SRA, CRA, FAA and ConInAgro, representing small, medium and large farmers forced the government to draw a second draft including the two mentioned complaints. The resolution can be analysed from different perspectives. From a government stance the resolution was elaborated in compliance with increasing international prices on soybean products, a wish to expand governmental social programs and it represented a tool to mitigate the soybean boom. The export tax prices on wheat and corn were decreased to encourage producers to favour cultivation of these products. This governmental strategy, encompassing a rise in export taxes, has been applied several times before and after the economic crises in 2001. However, agricultural producers perceived this proposal as a direct attack on their interest and livelihoods for several reasons. Primarily, between 2007 and 2008 the export taxes were raised three times, and according to international price levels on agricultural products the export tax on soybean would increase from 35 to 44 per cent and sunflower from 32 to 39 per cent under the new mobile tax system (Yeyati & Novaro, 2013: 71-73). Moreover, the tax level started so high that farmers could risk paying up to 50 per cent in export taxes on soybean if international prices reached 610 US\$ per ton¹ (Barsky & Dávila, 2008:169). In addition, prices on inputs usually increase in accordance with international prices on agricultural products, and since the greatest production expense for farmers is technological inputs and not labour, small and medium farmers would suffer the biggest consequences of this resolution (Barsky & Dávila, 2008:176). Farmers from the four mentioned rural organization gathered to rally against the government of Fernández de Kirchner, and blocked important transport corridors to affect national and international demands for food, fuel and other supplies. Pressure from protesters and demonstrations nationwide forced the government to pass the legislation through congress where it was

¹ International price on soybean is currently set to 547, 93 US\$ per ton, accessed 11.05.2013

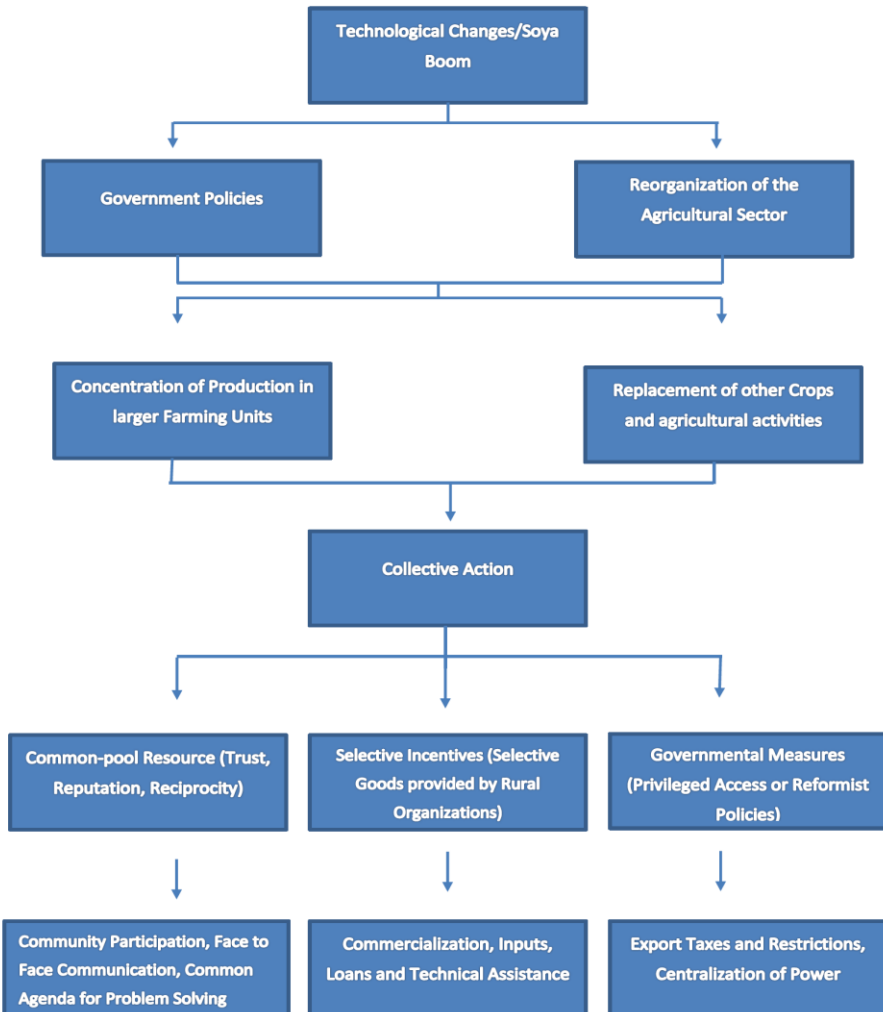
rejected, and the old price-system based on fixed taxations was re-established (Giarracca, Teubal & Palmisano, 2009:271).

The following theoretical chapter identifies collective action as a key concept for the emergence, maintenance and progress of cooperation between social actors in rural sector. In this context the cooperative is an important institution for facilitating and supporting the continuation of this cooperation faced with technological, economic and political changes.

3 Theoretical approach

The theoretical chapter presents three theories which are later used as analytic tools in the main analysis. The first theory, based on Ostrom’s (1990) conception of common-pool resource, gives a local based approach to collective action and illustrates how formal and informal institutions can improve resource management. To place collective action within a bigger context Olson (1965; 1982) uses a model based on rational human behaviour to explain individual’s incentives for collective action, and describes how organizations work within societies and states. To capture the importance of external actors as organizers of collective action in Argentina, Schneider’s (2004) theory reveals how Latin-American states interact with national organizations. The theoretical puzzle is presented in the figure below.

Figure 6: Theoretical framework



Source: Elaborated by the author, 2013

3.1 Governing the common goods

CPR theory is applied to demonstrate how rural cooperatives may present a valuable alternative for a more socioeconomic inclusive agricultural production with an improved management of natural resources. According to Ostrom (1994:2) common-pool resources are “...natural or human-made facilities (or stocks) that generate flow of useable resource units over time”, such as forests or irrigation systems. Even though Argentine rural cooperatives do not exercise any direct control over natural resources they play a crucial role for the management of natural resources in their operational areas.

One central aspect in the CPR theory encompasses the concept of human behaviour. Ostrom (1999:3) criticizes economic perceptions which identify rational human beings only as self-centred and profit seeking individuals, and how this is applied as foundation for private or state led management of natural resources. Ostrom (2010:160) claims we need to recognize that “...rational choice *theory* is instead one *model* in a family of models useful for conducting formal analysis of human decisions in highly structured settings”. Several laboratory studies of human behaviour demonstrate that a large proportion of individuals would chose to participate in common resource pools and also punish other individuals for not contributing. Moreover, fieldworks from various countries where CPR's are practiced support these findings, and illustrate how individuals organize to achieve trade benefits, mitigate from mutual risks and create and enforce rules to protect natural resources beyond the regulation of states or markets (Ostrom, 1998:7; 1997:18-20; 1999:1; 2007:3). This means we need a revision of the individual's objectives towards managing of resources and to recognize that collective actions are results of incentives other than those of purely economic self-interest.

According to Ostrom (1997:7-8) conventional theories are incomplete since these are based on logic which excludes the importance of social interaction in solving social dilemmas. Hence, understanding collective actions is more easily seen from the context within which individuals face social dilemmas (Ostrom, 2010:160). Cooperation between social actors does occur frequently, and in many instances leads to overall economic and environmental gains for the involved stakeholders. Cooperation and solutions to social dilemmas are largely based on informal structures such as trust, reputation and reciprocity (Ostrom, 2007:10). Ostrom (2010:163) suggests that reputation, trust and reciprocity, affect level of cooperation and joint benefits, and are likely to overcome short-termed material benefits that individuals involved

are attempted to pursue. Trust between stakeholders creates credible commitments which depend on the degree of reciprocity and reputation (Ostrom, 1994:20). Findings from Gras and Hernández's (2008:237) research about social actors within the production model in the Argentine agriculture illustrate that trust between farmers creates social ties and provides a basis for the success of commercial transactions on a local level. Reciprocity reflects the willingness of individuals to contribute to the provision of public goods, and is correlated to their expectations of the behaviour of other stakeholders. Based on the reputation of other players, individuals estimate the risk of extending trust in a given situation (Ostrom, 2010:161). To achieve these goals appropriators of CPR's take part in community participation, face to face communication and common agendas for problem solving (Ostrom, 2007:8). Community is the arena where mutual commitment and trust are developed, norms are created and enforced and group identity is formed. Face to face communication is used to build up a group identity and commitment to follow up agreed on strategies (Ostrom, 2008:3). Participation of members in elaborating rules concerning resources management is usually more preferable for meeting local conditions and needs than general market or state led regulations (Ostrom, 1994:6). Thus, we cannot predict when governmental ownership or the system of private ownership will perform appropriately.

The theory presents both a revision of actors engaged in management of natural resources and how they can organize a more sustainable management of these resources through their own operations. According to Ostrom's concept of collective action farmers will show high levels of interaction and cooperation to meet socioeconomic and environmental challenges. In an Argentine context, interaction and cooperation can take place through formal and informal structures facilitated by the rural cooperatives. Hence, rural cooperatives are central institutions for the solving of social dilemmas through participation, communication and common agendas. Furthermore, rural cooperatives in Argentina are self-organized associations comprised of the farmers themselves. Therefore rural cooperatives have more knowledge about socioeconomic and environmental challenges in their region and possess the proper tools to cope with these challenges.

Another question linked to collective action is the behaviour of a member in a second order dilemma. These dilemmas arise when members of an already established CPR break set rules to increase their own benefits. Predicted problems of motivations for mutual monitoring activities and willingness to impose sanctions among members of a CPR can justify

enforcement by an external actor, such as the state (Ostrom, 1990:44-45). The lack of motivation is explained by the fact that a participant is faced with the option of either changing the structures of the game or using costly sanctions towards rule breakers. In these situations many authors predict that collective action will fail as participants return to protecting their own interests. However, results from various experiments and field settings show that individuals participating in CPR's to a large extent choose to monitor and punish other members to overcome such challenges. According to Ostrom (1998:8) "Most robust and long-lasting common-pool regimes involve clear mechanisms for monitoring rule conformance and graduated sanctions for enforcing compliance".

However, local resource management is not delinked from political and economic circumstances on higher levels. This implies that we cannot analyse CPR's as independent resource systems. Agrawal (2003:251) adds the importance of including external forces and authorities to get a more nuanced understanding of the capacity of local institutions in resource management. He proposes a further emphasis in the relationship between national policy and local outcomes, market forces and demography. Schneider (2004:196) argues for instance that governmental policies in Argentina largely had a negative effect on association building. Hence, rural cooperative's capacity to meet environmental and socioeconomic matters is highly connected to regional and national policies. To meet such a challenge the management of natural resources in Argentina can be based on a more polycentric governance system (Ostrom, 2007:4). Ostrom (2007:18-19) claims that "A polycentric system is one where citizens are able to organize not just one but multiple governing authorities at different scales". In an Argentine context this implies that rural cooperatives achieve greater political influence at the regional and national level to promote their model for management of natural resources to mitigate negative consequences from the soybean boom. Agrawal (2003:246) also criticise the unilateral focus on case study method in the CPR approach which fail to "...systematically test findings, compare postulated causal connections across contexts, or carefully specify the contextual and historical factors relevant to success". Related to my research this critique emphasizes that there is big variation between rural cooperatives in Argentina and other countries in terms of institutional, economic, technological and ecological capacity and level of knowledge. This may be seen as a future task for the study of CPR's, and is also relevant for my thesis since I choose to use a case study method. The following theory gives a more general introduction to how organizations promote collective action and analyses how these interact with national policies.

3.2 Selective incentives for collective actions

In Argentina farmers operate within a complex agro-industry, and have different objectives according to type, location and scale of production. Therefore agricultural producers seek to organize in associations which represent their specific interests. However, the majority of agricultural organizations have certain overarching goals targeting governmental policies. According to Noguiera (1988:300) the tactical actions of rural organizations are explained by the need to preserve the legitimacy towards their members, the capacity for capital accumulation and to keep competitiveness in operational markets. Considering the historical importance of agricultural activities in Argentina there is no doubt that agricultural associations continue to play an influential part in Argentine politics and economics. Trigo (2012), who is an agricultural economist specialized in science, technology and innovation policy and organizational issues, suggest that the adoption of new GM technology has made Argentina more agriculturally oriented than even before the industrialization process in the 1940's.

Olson's theory on collective action can help us understand the behavioural pattern of farmers and strategies of agricultural associations. Some of the main arguments of Olson's theory used in this section are derived from *The Logic of Collective Action* (1965), and the successor *The Rise and Decline of Nations* (1982). Olson uses the concept of selective incentives as an access point to his theory. He (1982:34) stated that "Those groups that have access to selective incentives will be more likely to act collectively to obtain collective goods than those who do not..." Seen through an economic lens Olson wants to illustrate why rational and self-interested individuals choose to become part of a larger group or organization. First he states that the purpose of organizations is furtherance of the collective interests of their members. Labour unions will seek higher wages for the workers which they represent while agricultural organizations are expected to strive for favourable legislation for their members (Olson, 1965:5-7). However Olsen recognizes that individuals need some kind of selective incentives to act collectively and work toward the achievement of collective goods. Even though Olson (1982:41) recognized that small groups usually will have more lobbying and cartelistic power per capita he was more interested in understanding how larger groups like national unions or farmer organizations achieve and maintain influential positions in societies. In societies or larger organizations all members are recipients of provided goods which generate free riding because individuals don not recognize any individual benefits from acting

collectively. Members of such organizations must be provided with some selective incentives to pursue collective goods. This could either be through coercion or by the inducement of a non-collective good for their members. Coercion is usually practiced by labour unions which demand compulsory activities such as strikes or union shop while non-collective goods are provided by the organization in terms of technical assistance, education, loans, insurance or other work related benefits (Olson, 1965: 68-72). In the USA the American Farm Bureau Federation (AFBF) maintained a relative size and stability due to the technical aid and education given to the farmers and through control of a vast variety of business institutions which provided their members with some special benefits (Olson, 1965:157). Olson's concept of rational human beings predicts no collective action without individual gains contributed by a parent organization. In contrast, Ostrom's (1997:2) theory illustrates that individuals engage in collective actions to manage common resources without an external authority to offer inducement or impose sanctions. Olson (1965:63) makes one exception concerning his theory of large groups. When large groups are formed as federal groups, and further divided into small groups, such as rural cooperatives, social incentive may bring group-oriented action as well. In this context the federation, representing the large group as a whole, provides services to the small groups where the latter can use their social incentives to get members to contribute towards the achievement of collective goals. Social incentives are the benefits granted by friends and associates for achieving collective goods. Associates of a social club can also exert social pressure to encourage individuals to do their part in achieving group goals. Thus social incentives can in many occasions outweigh economic incentives (Olson, 1965:60).

In *The Rise and Decline of Nations* (1982) Olson develops his theory further to explain how interest groups influence political and economic matters through interaction with the state. For agricultural organizations changing national legislation became a main focus for achieving collective goods for their members. Effective and decisive action-taking towards government policies was made feasible through lobbying groups (Olson, 1965:53). Olson (1982:47) claimed that the lobbying efforts of these interest groups slowed down reallocation of resources and adoption of new technology since the organizations for collective action within societies are oriented towards struggling over distribution of income and wealth rather than creating production and additional output. This rent seeking behaviour leads to a situation where interest groups aggregate income rather than create it. These arguments can both explain why agricultural producers choose to organize and how they can achieve

collective goals through lobbying measures towards government policies. In Argentina, the lack of appropriate, permanent and strong mechanisms to represent the interests of the agricultural sector resulted in a setting where rural organizations for a period of time had direct access to the state without parties or parliament working as mediators for rural demands (Noguiera, 1988:312). The agro-state conflict over the mobile taxes resolution in 2008 can illustrate how rural organizations want to obtain a bigger share of the total production income. In contrast to this view, farmers in Argentina, through rural organizations, show a high and efficient level in application of new technology, allocation of land and economic growth. Pengue (2005:15) characterizes agricultural producers in Argentina as great innovators who have through history practiced an extensive interchange of animals, seeds, knowledge and technology.

Related to the research question Olson's theory leaves many aspects untouched. It is clear that rural cooperatives provide selective incentives for their members, and thus can promote socioeconomic distribution among various stakeholders within the rural sector. Farmers will seek organizations which represent their interests and act collectively to achieve individual benefits. Moreover, social pressure or social benefits provided by co-members can certainly work as an incentive for achieving collective action in rural cooperatives. ConInAgro, which serves as a lobby organization for their members on a national level, can lobby for favourable legislation, but this organization only provides a by-function compared to the cooperative (Olson, 1964:133-135). However, in Olson's theory organizations compete with each other for organizational dominance and for selective goods provided by the state. One scenario from this perception of collective action is a concentration of a few dominant organizations which exert great influence on national policy, and thus undermine socioeconomic distribution. In research presented by Manzetti (1992) and Heredia (2003) concerning business associations in Argentina this is certainly the case. In their journal articles associations such as la Unión Industrial Argentina (UIA) and SRA are presented as major interest groups in national policies which simultaneously undermine the demands and existence of other organizations. In this context Olson's theory may reflect the subject's economic and political incentives to meet their own interests, but fails to show how socioeconomic consequences derived from organizational activity are unequally distributed within the society.

Second, in Olson's theory farmer's incentives for collective action primarily respond to economic benefits provided by rural organizations, and therefore the theory excludes the

importance of social interactions between individuals to achieve collective action, such as face to face communication, community participation and common problem solving, which are central arguments in Ostrom's theory. Moreover, Olson's unidirectional economic focus also fails to capture the connection between collective action and natural resource management emphasized in Ostrom's theory. In agricultural production economic gains are in many cases related to maintenance of natural resources where it is hard to achieve a profitable production in the long run without taking environmental considerations. According to Piñeiro (2004:11-12) it is important to understand, contemplate and manage human activities in accordance with the ecosystem. This compromises policy-makers at all government levels, but also other interest groups which manoeuvre within the limits and restriction of the ecosystem. Blaikie & Brookfield (1987:17) claim that there exists a "...constantly shifting dialectic between society and land-based resources..." In this perspective collective action and natural resource use are interlinked through a continuous interaction between farmers managing the land and nature.

Finally, Olson claims that cooperatives can provide social incentives to promote collective action. Social incentives are recognized as acknowledgements or social status indications provided by associates participating in the same organization. This type of social incentive has some similar attributes to Ostrom's understanding of reputation and reciprocity in CPR's. Olson also suggests that social incentives have a pressure function which encourages members to conduct collective action. Close cooperation and interaction between members in cooperatives can force other members to follow collective action. This perception may reflect Ostrom's concept of how participants solve second order social dilemmas through monitoring and sanctioning mechanisms.

3.2.1 The state and collective action

Associations like labour unions and farmer organizations have one common resemblance with the state; they provide services or goods to everyone in some category or group. When farmer organizations obtain a tariff on a specific commodity through lobbying measures it favours all the members (Olson, 1982:19). To Olson (1965:6-7), the purpose of the state is to further the common interest of its citizens, and generally it provides collective goods based on compulsion. Citizens are obliged to pay taxes and for that they receive law, order and defence. These public goods usually encompass everyone in a nation. The state, like large

organizations, cannot support its self on voluntary contributions (Olson, 1965:14-15). As a critique of Olson's view the following section emphasizes how states and not rural associations in Latin-America organize business and provide non-collective goods through inclusion and exclusion of business associations. The contextualization of governmental operations towards business associations is included both to shed light on the agro-state relationship, but more importantly to ascertain the institutional strength and behaviour of rural cooperatives faced with lacking and/or undermining government actions.

3.3 The state as an organizer of collective actions

The following theory demonstrates how the government interacts with organizations, through formal or informal policy actions, and facilitates or undermines the function of the latter. Neither Ostrom (1990) nor Olson (1965) emphasizes the importance of governmental action towards the outcome of collective action and resource management on local level. Ostrom (1994:6) highlights how local established institutions represent a better alternative than state-based resource management, but, as mentioned by Agrawal (2003:251), the CPR theory fails to connect resource management to governmental action on a regional and national level. In Olson's theory (1965; 1982) the state appears almost invisible or nearly like a victim of organizational actions. Considering this issue, Schneider (2004) can help us understand how the Argentine state influences organizations, and thus the capacity of rural cooperatives to achieve socioeconomic distribution and improve natural resource management. He (2004:15) claims that the state, rather than being a passive reactor to demands from organized economic groups, is crucial to understand the emergence, maintenance or disappearance of business associations in Latin-American countries. According to this perspective, central decisions which have direct or indirect effect on associations, are taken by a small number of state actors in the president's informal inner circle, such as cabinet ministers and officials responsible for economic policies (Schneider, 2004:26). These state actors generally encourage associations to organize through two mechanisms. First, associations emerge to prevent unfavourable outcomes when business interests are threatened by governmental reformist policies. History shows that state intervention in labour markets or in property rights often had the unintended consequence of provoking defensive mobilization by business. In Argentina, the established cooperation between the four major rural organizations, called La Mesa de Enlace, to counteract the mobile tax resolution introduced by the state in 2008 may

reflect such a situation. Another incentive towards associations is through providing them with public resources, such as authority over public functions or funds or access to policy-making circles, where they can gather vital information and promote their own institutional interests (Schneider, 2004:39). According to Schneider (2004:28-30), the willingness of state actors to provide business associations with incentives are stronger during periods of national vulnerability such as economic and political crisis. State actors feel strengthening business associations and consulting them can mitigate sources of vulnerability. The intensity of incentives provided by state actors depend on economic and political conjuncture, available resources to state actors and the types of existing business organization they can call on. For instance, after the great depression in 1930 many industrial organizations emerged as states saw the advantages of a more attached relation to business to promote new development models.

Contrary to what Olson (1965) proclaims, Schneider (2004:12) suggests that selective benefits originate in the state and not in associations. Governments grant associations access to information on governmental policies and distribution of public benefits which are passed on to their members. Hence, free riding and rent-seeking is not a product of measures taken by organization, but rather an outcome of specific government policies (Schneider, 2004:33). Moreover, selective benefits provided by the state have different effects on business associations (Schneider, 2004:15). Through access to information or laws which favour only certain associations, states organize or disorganize business (Schneider, 2004:5). In the case of Argentina the state has frequently given corporate privileges through providing access to information, but only to organizations which coincide with their specific policies. This strategy has institutional implications where actors in the industry sector often get privileged access at the expense of rural organization (Noguiera, 1988:315-316). In Argentina shifting membership and investment in associations was common after the 1940s as firms joined whatever associations which were favoured by the government at the moment (Schneider, 2004:35).

Schneider (2004:173-197) emphasizes two historical periods in Argentina to illustrate his arguments. During the period under the first government of Perón (1946-1955) and the re-democratization between 1983 and 2000 business associations are characterized by rivalry, politicization and weak institutional capacity. Throughout the twentieth century associations in Argentina had few consistent channels, either formal or informal, for input into policy

making (Schneider, 2004:173). Perón's relation to labour unions during his first period in office illustrates how governmental actions can have a severe impact on organizations. Perón established closer ties with labour unions during his first presidential period, but these were never institutionalized within the governmental body. Disputes between Perón's policies and the interests of business associations led him to form rivaling associations to fragment the former. Perón outlawed UIA in 1953 and created a new economic association called la Confederación General Económica (CGE). The decision to forward this organization was due to economic recession and political instability in the beginning of the 1950's which forced Perón to organize business and formalize its representation in his government (Schneider, 2004:178-179). However, it is important to distinguish between the industrial and rural sector in Argentina since these represent different interests and have often been in conflict throughout history. According to Schneider (2004:17) the politicization of industrial and agricultural organizations under Perón in the 1940's led to a subsequent polarized politics which prevented the establishment of future strong and stable business associations. Related to rural organizations the survival and continuous presence of SRA faced with Argentine politics is a result of the lack of institutionalized channels of access to the state, and institutional capacity to finance itself through self-generated governance functions (Schneider, 2004:183-184). After the return to democracy in 1983 the governments of Alfonsín and Menem appointed businessmen to top government positions to signal the government's commitment to maintain good relations with business, but in general state actors did not provide any consistent incentives to invest in associations, neither through threatening business interests nor institutionalizing consultation with business associations. In this manner privileged access was either denied or sporadic in Argentina (Schneider, 2004:192-194). Schneider's image of the relation between the state and organizations in Argentina reveals political leaders who attempted to use associations to mobilize support or undercut opposition. Argentine history displays a series of defensive mobilization efforts against governmental policies, but these associations vanished shortly because of the absence of selective benefits such as privileged access to policy-making circles (Schneider, 2004:174).

Schneider's theory makes another important contribution to the understanding of collective action where the state plays the main character. The actions of the organizations are, according to Schneider's theory, by-products of state action and unfold through privileged access or as self-defence mechanisms. However, Schneider may overrate the role of states in organizing collective action. Schneider (2004:32) believes that state actors are vital to

generate an organizational response from business since private business is unable on its own to solve collective action problems and form encompassing organizations. This is in particular the case of Argentine business associations which are structured and behave more like political movements than organizations (Schneider, 2004:183). Despite the fact that few rural organizations, except perhaps for SRA, exerted any major influence in government policies, many of them have during periods maintained a stable economic and social position within the Argentine society. Secondly, Schneider's concept of how the state organizes collective action in associations appears simplified when examined on a micro level. Rural cooperatives and more informal structures can constitute important mechanisms for local cooperation and resource management without access to policy making circles, and they can neither be defined as mere self-defence organizations. A third element is that the theory deals largely with a macro perspective, and even though the macro level is essential for understanding outcomes on a micro level he makes few contributions to explain this interrelationship. The subsequent impacts of governmental policies on agricultural associations and the potential socioeconomic and environmental consequences are left out of the theory. Walker (2007:363) claims that we need to understand how political processes create an unfair distribution of environmental goods and bad. The interplay between environment, politics and society takes place on multiple levels, and environmental outcomes can be seen as a product of politics on different scales (Paulson, Gezon, & Watts, 2003:210-211). Moreover, the fact that the state lends its power to dominant groups and classes and strengthens or marginalizes groups through land-based policies, such as land tenure, taxation and allocation of economic resources, can have a huge impact on both socioeconomic distribution and resource use (Blaikie & Brookfield, 1987:17). Pengue (2005:88) claims that without an active state which adjusts impacts from a distorted market, this leave agricultural producers with few production alternatives and possibilities to manoeuvre when confronted with technological changes.

On the other hand Schneider's theory makes it evident that governmental actions in Argentina have great influence on the capacity of organizations to achieve socioeconomic goals. Based on Schneider's theory the government actions of Néstor Kirchner and Cristina Fernández de Kirchner towards farmers and rural organizations will be analysed in the later chapter on the basis of two identified concepts. The governments pursue policies which exclude rural organizations from the national decision making body and therefore undermine rural institutions and representation. Secondly, the government elaborates policies which have negative effects on farming activities. These two processes will, as presented in the later

analysis, have various outcomes for how farmers engage in collective action, and where the cooperative plays a central role.

The methodological chapter gives a detailed presentation of the conducted fieldwork. Moreover, central concepts presented in the theoretical chapter will be operationalized in the research design part of the following chapter, and later used as analytic tools in the main analysis.

4 The research process

This chapter presents the methodological basis for my research project and how the data has been collected. The first part identifies the research within a qualitative approach where a case study design is used as a tool to collect and analyse data. The next section presents experiences and challenges during the research work which are central in order to understand the findings and subsequent conclusions. Reliability and validity are discussed under the last section and emphasize the strengths and limitations of the conducted research.

4.1 Point of departure

My research aims at understanding how rural cooperatives are important for socioeconomic distribution and to improve the management of natural resources within the agricultural reorganization oriented on the production of GM soybean. The research is linked with an ongoing project at the Centre for Development and Environment (SUM) named Environmental Governance in Latin America and the Caribbean (ENGOV). To keep an open mind towards the overall research project and future collected data I chose an open and explorative research question. This method applies to a qualitative research approach where flexibility in the project and close contact with sources can change the focus and allow for adaptation of new experiences during the collection process of data (Grønmo, 1998:81-82; Thagaard, 2009:18). Hence, the researcher becomes more selective as additional knowledge about each case is gained (Ragin & Amoroso, 2011: 112). Using a qualitative approach emphasizes the production of knowledge based on people's own experiences and is therefore suitable to develop theories and hypotheses (Grønmo, 1998:93). Findings from the conducted fieldwork illustrated various times that constructed realities presented through prior written academic works deviated from concepts experienced by local people. Argentine academics, public employees within INTA and agricultural producers living in northern Santa Fe had for instance a more nuanced picture of the state-agro relationship. To get under the surface of constructed images the collected data needed to express other qualities than number or quantity (Grønmo, 1998:74). After conducting several interviews I reached what Ragin & Amoroso (2011:117) calls an ideal saturation point where recently collected evidence appeared repetitious.

4.2 Research design: Case study

My study involves investigating what Yin (2009:4) refers to as “...the holistic and meaningful characteristics of real-life events...” such as small group behaviour or organizational processes. Primarily, the thesis deals with an in depth study of a contemporary phenomenon taking place within the rural sector. Secondly, to understand the operation performed by the cooperative and how these are linked with national politics implies conducting a study which copes with many variables, and is therefore too complex for a survey or experimental strategies. These factors combined with the use of multiple sources for collection of data, such as interviews, document analysis and observation, all constitute important tools in Yin’s (2009:18-19) perception of a case study. Moreover, the research seeks to answer *how* and *why* questions which are generally more suitable in case studies (Yin, 2009:9). A common critique of case studies is that they provide little basis for scientific generalization. However, case studies are meant to generalize a particular set of results to some broader theory rather than to populations or universe (Yin, 2009:43). The use of case study implies positioning the case within a larger context. The investigated case encompasses to processes; the soybean boom, which occur in other agricultural countries as well such as USA and Brazil, and the agro-political context in Argentina. In broader terms my research may be used to understand the behaviour of farmers and their mitigation strategies when confronted with great technological and structural changes in the agricultural sector. Narrowing down, the case may illustrate how farmers in the specific region engage in collective action to cope with technological changes and government policies. However, these findings can be transferable to other agricultural regions in Argentina, and as well to other national contexts.

4.2.1 Operationalization of central concepts

In case studies theory development as part of the design phase are essential (Yin, 2009:35). Main theoretical concepts applied in the thesis can be summarized in the concepts of collective action, common-pools resources and socioeconomic distribution. Based on the prior discussion, collective action is related to human behaviour when confronted with social dilemmas. In my research the farmer’s capacity to achieve a socioeconomic standard of living and improve resource management when confronted with technological change and government policy captures the social dilemma. Olson focuses on the rational aspects of collective action, but as shown by Ostrom collective actions cannot be investigated in

isolation since social interaction between participants is an ongoing process and changes the behavioural pattern of individuals. Schneider's contribution shows that government actions can have great influence on the capacity of an organization to promote collective action. On the other hand, in Argentina rural cooperatives reveal a lot of local strength to cope with the impacts brought about by government actions. Common-pool resources usually encompass natural resources available and used by many actors simultaneously. Participants of CPR's, such as rivers used for irrigation of farmer activities or forests for firewood, recognize a mutual economic benefit from cooperation to conserve local resources. CPR stresses the importance of the capacity of participants to develop formal or informal institutions, elaborate economic strategies, exchange information and enter into agreements on natural resource management. However, as mentioned by Agrawal (2003:251), CPRs are not independent from external authorities such as state actions, and therefore CPRs need to be analysed within a broader political context. CPR can in many ways be understood as a more comprehensive analysis of collective action where subjects interact to promote socioeconomic and sustainable use of resources. According to Ostrom (1990:24-25) CPR can contribute with "...an adequately specified theory of collective action whereby a group of principals can organize themselves voluntarily to retain the residuals of their own efforts". In my investigation collective action can thus be understood as actions taken by economic actors engaged in an ongoing mutual social interaction where the level of collective action is linked to a complex set of government policies which produce various outcomes. In the later analysis of collective action, I will apply central elements from both Olson theory, considering selective incentives, but also the CPR theory, such as trust, reputation, reciprocity, monitoring and sanctioning, as a tool to understand how the cooperative facilitates for the interaction of farmers to achieve common goods. Finally, Schneider's contribution, concerning government actions influence on national organization, illustrates how the lack of institutional representation and undermining government policies can affect the UAA's capacity to promote collective action on a local level. This setting can have a negative impact on farmer's socioeconomic situation and limit their options in following a sustainable management of natural resources.

Socioeconomic distribution reveals how resources, and in particular financial resources, are distributed within societies. Socioeconomic distribution can involve how turn-over from productions is distributed within a country, region or community, but also reveal how the government distributes income from production, such as agricultural production, within the

country in terms of investments in infrastructure, education, health and new industries. Within the region I conducted my fieldwork the technological change, where the production of soybean plays a central role, and government actions have a negative effect on socioeconomic distribution and natural resource management.

4.2.2 Connecting the research question with collective actions

Yin (2009:26) stresses the importance of linking the study's initial research question to the empirical data in the design phase. Throughout this thesis collective action has been a central theoretical topic. However, since the main objective of the research question is to understand how rural cooperatives contribute to socioeconomic distribution and improve the management of natural resource within the agricultural reorganization oriented on the production of GM soybean, I propose a closer examination of how these concepts are interlinked. First it became evident that a combination of inadequate government efforts and the technological changes, mainly oriented on GM soybean production, has accelerated the concentration of agricultural production in fewer hands. This has a negative effect on socioeconomic distribution within the rural sector. Secondly, the transition to GM soybean crops has according to several studies (Pengue, 2005; Rodriguez, 2010) led to a replacement or substitution of other crops and production activities in the rural sector. As mentioned, soybean production extracts more nutrients from the soil compared to other crops. Therefore can an emphasis on growing GM soybean lead to soil erosion and weaken farmer's economic security. Faced with these challenges farmers must make necessary investments to scale up the size of agricultural land and/or diversify economic activities to manage the transition and achieve profitable productions. Central tools to meet such obstacles are collective action through local informal or formal institutions. In this research rural cooperatives are seen as local institutions which facilitate and enhance economic activities, social interactions and resource conservation through their operations.

4.2.3 Designing quality in case studies

In my research I adapt Yin's (2009:101) three principles of data collection to achieve a high quality case study, namely the use multiple sources of evidence, creating a case study data base and maintaining a chain of evidence. Triangulation of collected data implies collecting information from multiple sources, such as interviews, documents and observations, aimed at

explaining the same fact (Yin, 2009:116). Through presenting background information about informants and an interview guide readers get access to the raw material which led to the researcher's conclusion. This allows the reader to critically review the data independently from the researcher's perceptions (Thagaard, 2009:199). Creating a chain of evidence enables the reader to follow the derivation of any evidence from initial research questions to final conclusions. In this context an external observer should be able to trace the steps in either direction (Yin, 2009:122).

4.3 Experiences and challenges

In this section I give a brief presentation of experiences and challenges prior, during and after the conducted fieldwork with a specific emphasis on doing interviews. Before initiating the main fieldwork I had one exchange semester at the University of Buenos Aires (UBA). I saw the exchange semester as an opportunity to gain more knowledge about the chosen research subject, improve my Spanish and make contacts before a future fieldwork. During these four months in Argentina I conducted one short field trip to Flor de Oro and Avellaneda in the northern part of Santa Fe. The main reason for selecting this region was due to my supervisor's prior knowledge and network in the area. Stølen has conducted several anthropological studies in the northern part of Santa Fe and has frequent contact with her former informants. Through semi structured interviews, conversations and observation during my first visit a repeated issue presented was the lack of governmental policies and institutions to support agricultural producers. Despite this fact, the farmers seemed both very organized and systemized in their daily agricultural activities. This perception led me to take greater interest in the function of the local cooperative as a potentially powerful actor at the local level.

Four months after my first stay in Argentina I returned and conducted my main fieldwork interviewing researchers, professors, delegates from governmental institutions, spokespersons for agricultural organizations and the UAA and farmers and members of the cooperative. The fieldwork can be divided in two stages. The first part of my fieldwork I spent in Buenos Aires to get in touch with leading researchers within various topics of Argentine agriculture. Osvaldo Barsky, Mabel Dávila, Eduardo Trigo and Miguel Teubal gave me valuable information about the agricultural history, politics, social actors and economy, but also environmental and social impacts brought about by the GM soybean production in Argentina.

Interviews with Federico Landgraf, the economic director of ConInAgro and Gabriel Delgado, the national director of communication and information system in INTA, were essential to acquire greater knowledge of the agro-state relationship. In the second part of my fieldwork I revisited northern Santa Fe, and lived with Imelda, the mother of the Raffin brothers, in Flor de Oro. During this period I got in touch with several farmers and members of the UAA and informants who have or had important positions in the cooperative. I also got to interview the regional director of INTA which gave me a better insight in the relation between this governmental institution and farmers at a regional level. Beside the interviews I got to experience the rural life in an agricultural region quite different from the Pampa region. Many researchers writing within the field of Argentine agriculture and GM soybean production collect their data and base their thesis on characteristics of the Pampa region. In my research it became important to present another rural reality where farmers are dependent on local institutions to meet socioeconomic and environmental challenges. I selected my informants based on strategic choice and accessibility. This indicates that informants were contacted because of their specific position or function or their expertise on the research subject. According to Aberbach & Rockman (2002:673) “In a case study, respondents are selected on the basis of what they might know to help the investigator fill in pieces of a puzzle or confirm the proper alignment of pieces already in place”. However, before leaving I prepared myself by reading relevant literature on the research subject and discussing the research subject with my supervisors and others with experience in this research area. The ENGOV project gave me some theoretical tools to follow which made it easier to choose academic literature and detach some alternative explanations to the already existing perceptions concerning central actors within the agricultural reorganization. According to Yin (2009:130-131) a proposed theoretical framework gives the researcher a chance to focus on certain types of data and define alternative explanations of a case study. The preparation process also encompassed studying different methodological approaches and potential future challenges in the data collecting process, especially concerning doing interviews.

During my first visit in Argentina and later through correspondence with informants I had already established several contacts before initiating my main fieldwork. The exchange semester and prior knowledge about history, politics and economy in Argentina prepared me well for understanding the local contexts. Moreover, the network of my supervisor, Kristi Anne Stølen, proved valuable, and I got in touch with some of her former academic colleagues in Buenos Aires. Having known authors that support your work can, according to

Richards (1996:202), provide legitimacy and credibility to your research and facilitate access to other informants. This method is characterized as the snowball method. A danger linked to this approach is that informants propose other people with a world view similar to their own. However, since I chose informants from different categories, public employees, academics with different backgrounds, a journalist, administrators of rural organizations and farmers I was able to obtain data from a variety of perspectives. The second and main fieldwork extended over one month. This can be regarded as limited, but due to thorough preparation and former knowledge of the country and language it was possible to conduct the fieldwork very efficiently.

4.3.1 The interview guide

According to Yin (2009:106) interviews are the most important source of case study information, and appear as guided conversations rather than structured queries. All interviews were carried out in Spanish. Even though many of my informants spoke English fluently and my Spanish is not on an academic level I preferred the native language since the research subject is place specific and some social phenomena, such as sowing pools, only apply to Argentina. Moreover, prior discussions with colleagues who have conducted fieldwork in Latin-America revealed that information can get lost when English is chosen over the native language. I also was aware of my own academic background and the overall aim of the research project when collecting and processing information. According to Grønmo (1998:90-91), the most important instrument in the process of data collection is the researcher himself. In this context personal attributes and sociocultural background can affect the interpretation of collected data, and thus the final products.

Some of my informants hold important positions in organizations, the educational system and governmental institutions, and there was a concern that these would be too busy to receive a master student. The problem of access when interviewing elites is portrayed as a common problem by researchers (Richards, 1996:200). I had some challenges getting in touch with certain informants, but after contact was established the majority of informants found time for me. I think this was largely due to the snowball method, and the fact that I could draw reference to other academics who had recommended them. Richards (1996:202) states that by mentioning other individuals already interviewed you add credence to your project. Another concern when interviewing individuals in high positions is the uneven power balance between

interviewer and interviewees. Taking into account my status as a foreign student, well-educated informants who are accustomed to talk about their work may supply highly subjective information and control the direction of the interview. To avoid this situation I tried to be an active participant during the interviews, but I also tried to get the informants to challenge their own perspectives which are an important argument in Berry's (2002:680) article on elite interviewing. This interview approach place within what Thagaard (2009:87) refers to as a constructivist stance. Contrary to a positivistic stance, where the researcher appears as a neutral receiver of information from informants, a constructivist stance favours interpretation of information through social interaction between researcher and interviewees.

To appear professional and enhance the chance of obtaining quality information I prepared myself prior to interviews through investigating the social background and career of informants and formulating relevant questions. During interviews I tried to link the area of expertise of interviewees with my research project. Many interviewees got more involved in the dialogue when I used this approach. I could also use this information as a bridge to get back to the research subject when informants gave unproductive answers (Berry, 2002:682). Richards (1996:201-202) claims that knowledge about interviewees usually improves the whole tone of the interview and thus collected information. For the interviews I used a semi-structured approach with open-ended questions. Semi-structured interviews involve a lot of flexibility in the actual interview setting and enabled me to direct the dialogue within the frames of the research. Open-ended questions enable the respondents to engage in wide-ranging discussions, and provide greater opportunity for respondents to organize their answers within their own framework. For explanatory and in-depth work this increases the validity of responses (Aberbach & Rockman, 2002:674). When conducting the interviews I first presented my research project, and then asked if the interviewees could give a short introduction about his or her research, profession or background. It can prove productive to understand the context within which interviewees communicate information since Argentina is highly influenced by ideological views, and especially when discussing agro-state relations. Barsky (2012), researcher at CONICET specialized in agricultural studies, claims that there is always an agenda of interest behind information produced in Argentina. The government will for example strive to present information which supports their policies while stakeholders in the agricultural sector seek to protect their interests. In the end the interviewees were asked if they had any further comments or questions. This had the advantage of getting all of the information to the table and allowed the interview to phase out into friendly conversations.

For the interviews I used a tape-recorder. I asked all informants prior to the interview about recording the conversation and everyone accepted the request. I also took notes, and comments and the majority of the interviews were roughly transcribed and put into context shortly afterwards to not miss out on any information. According to Richards (1996:203) writing down your notes right after interviews is important to avoid a hazy recollection of information.

4.3.2 Other sources

In compliance with one of Yin's (2009:101) three principles of case study research I use several sources of data collection. Observation is central to understanding the ongoing agricultural situation in Argentina. Barsky (2012) mentioned that some researchers writing within the agricultural topic produce deceptive information since they never leave Buenos Aires to experience el campo in real life. My two visits to northern Santa Fe gave me insight as to how agricultural producers live, conduct their work and cooperate. I also got an introduction to the processes involving sowing, harvest and commercialization of final products, and other agricultural activities such as feedlots and poultry farming. The observation switched between direct and participating observation. The majority of the observation was in the company of the four Raffin brothers, and can be identified as having a participating nature since I joined them in their daily activities. In the evening I had the opportunity to ask them questions to clarify any confusion due to language or subjects that needed deeper explanations. Observations gave me new perspectives and either made me critical or confirmed already collected information. In the thesis organizational records from the UAA and ConInAgro and one newspaper article are used to corroborate statements of interviewees. In accordance with Yin (2009:103) documentation is not always accurate and may not be lacking in bias. Therefore the documents are basically used to confirm and strengthen evidence from other sources.

4.4 Strengths and limitations

The quality of research is often linked to the concepts of reliability and validity. Reliability concerns the extent to which the data material has been collected in a satisfactory manner. This indicates that other investigators should be able to follow the procedures of your investigation, from the initial stages to the final conclusion, and arrive at the same findings

and conclusions, or in other words doing the same case over again (Yin, 2009:45). However, in my research constructed knowledge is a product of the interaction between researcher and informants, and therefore cannot be perceived as independent data. To overcome this obstacle the researcher must design a clear report on how data have been developed during the research process. Both the context in which data is collected and the researcher's relation to informants can influence the content of the information (Thagaard, 2009:198-200). Former knowledge of the research subject and national political and economic context reduce the chance of collecting poor or misleading information. Interviews, which constitute the main body of the collected information, were chosen on the basis of capturing various perspectives of the research subject and thereby avoid biases. According to Yin (2009:45), the goal of reliability is to minimize the errors and biases in a study. The use of a tape recorder and access to a data base make the research process more transparent. Moreover, the researcher acknowledges that documents are produced for a specific purpose and some specific audience, and these data are mainly used to confirm information from other sources (Yin, 2009:105)

Validity in research entails that the material and observation accord with the objectives of the research. Thagaard (2009:201) divides between internal and external validity. Internal validity relates to how causal linkages are supported within the study. The use of multiple resources in the fieldwork produces a wider and more representable data base for a later analysing process. According to Yin (2009:116-117) data triangulation constructs validity since multiple sources of evidence provide multiple measures of the same phenomenon. Diverse selection of scholars, both western and Latin-American, can provide a more nuanced image of the research subject. Furthermore, the findings are linked to a strong theoretical framework, and through a chain of evidence the researcher seeks to make the research more evident and transparent. External validity however focuses on how the comprehension of one study can prove valid in other circumstances (Yin, 2009:43). For instance Agrawal (2003:247) emphasizes that case study as research method in CPR fails in capturing causal connections across contexts. However, I would claim that considering rural cooperative's social and economic importance and similar organizational structure, findings from my case may be, as mentioned, transferable to other rural cooperatives within Argentina and other countries as well. Finally, through careful investigation and access to collected evidence I try to minimize the vulnerability of a single case design (Yin, 2009:61).

The following chapter seeks to analyse the causal relationship between the defined concept of collective action and the UAA's operations and how the Argentine government influences collective action on local level. In the second and final chapter I will give a closer analysis on how the investigated cooperative contributes to socioeconomic distribution and improved resource management in the investigated region.

5 Is the UAA an institution for collective action?

Based on the previous discussion in the theoretical chapter collective action takes many forms, and have through time gone from encompassing only economic self-interest to embrace a more complex nature involving many social variables. In the analysis presented below both Olson's and Ostrom's model of collective action is included to cover the complexity of this social phenomenon, and thus reflect the definition given in the methodology chapter. However, I chose to emphasize the social spectre, presented in the CPR theory, of collective action since this appears more representable for the current ongoing context in northern Santa Fe. The importance of government influence on collective action is reviewed in the last section of the chapter, and links how the policies and actions under the Kirchner governments have various outcomes for resource management and socioeconomic capacity of the farmers in northern Santa Fe and subsequent collective action.

5.1 Selective incentives for collective action

Related to Olson's (1965; 1982) theory individuals need to be provided with some kind of selective incentives to act collectively. Barsky (2012), researcher at CONICET specialized in agricultural studies, claims that Argentine agricultural producers are very rational actors, and will usually strive for the best economic alternatives. Contrary to labour unions, rural organizations are more likely to use selective incentives or non-collective goods rather than coercion to foster collective actions. Non-collective goods are economic benefits provided only for the members of an organization. The UAA offers many economic functions for their members. Primarily they supply farmers with better prices on production inputs, such as machines, seeds, agrochemicals, fuel and animals, through internal trading mechanisms in the cooperative. The cooperative can achieve lower prices on agricultural inputs since they purchase large quantities. In many instances the provision of inputs can be provided as a temporarily loan until farmers deliver the final product to the cooperative. An example from poultry farming illustrates this system. Because of the little space needed and good profitability poultry farming has become a more attractive production activity in the region.

When launching such a business the cooperative contributes with inputs, which are in this case baby chickens and food. From there on the farmers raise the chickens to an agreed size and sell them to the cooperative. At this stage the cooperative pays their members based on expected market prices on the final product minus input costs. More commonly the members borrow seeds, fuel and agrochemicals from the cooperative to organize the production cycle and repay them when the crops are harvested and sold to the cooperative. This leads us to a second economic function of the cooperative, commercialization. Locating markets for agricultural products, marketing products and building trustworthiness towards customers are more easily done through an already established institutional structure. In addition, being part of a cooperative makes it easier for customers to locate products, and trading with the cooperative is also more attractive since it can meet big and diverse product demand. Through this economic function of the cooperative agricultural producers are guaranteed markets for selling their products. Internal trading mechanisms of inputs and commercialization of products the UAA can also provide members with a stronger bargaining power towards big input and export companies and markets. Thirdly, and linked with the commercialization, the cooperative provides storage space for agricultural products. Through this system farmers have the liberty to decide themselves when to sell their products. This system is known as future markets and has the advantage possibly of a higher price on agricultural products according to price fluctuations on the Chicago stock market. The stock market in Chicago gives daily updates on the international prices of agricultural products based on global food demand and speculation. A fourth economic function the UAA performs towards their members is providing loans when possible allowing members to conduct necessary investments in farming equipment or inputs for the future production cycle (Raffin L. M., 2012). The cooperative negotiates loans with el Banco Nacional, and the members can apply for a loan through the cooperative. However, considering the economic risk the UAA can only cover a minor part of an investment and farmers have to contribute with a large share of equity. A common strategy among farmers in the region is to combine loans from the cooperative with own savings to invest in cattle, new machines or new production activities (Stølen, 2013). Raul Nicklis (2012), who is farmer and mayor of Lanteri representing the PJ party, suggests that the cooperative functions as a bank in the sense that farmers who cannot pay debts will not obtain more loans from the cooperative. However, the cooperative is willing to go great lengths to meet the economic needs of farmers in situations of crisis such as loss of harvest, and farmers can in these vulnerable situations extend payments of loans for

several years (Stølen, 2013). Furthermore, through longstanding cooperation with INTA and more recent cooperation with private bio-technological companies the cooperative has a wide knowledge platform to provide technical assistance and generated innovations. Based on prior knowledge and the help of agronomists the cooperative can meet socioeconomic and resource related challenges connected to the regional reality. As mentioned by Olson (1965:157) technical aid provided by AFBF was an important factor to stimulate collective action among farmers in the USA. According to Chinchin Nicklis (2012), farmer and current president of the UAA, compared to 20 or 30 years ago the rural cooperative today is structured more like a company where new knowledge, professionalization and resources, previously not known, have a central function.

In northern Santa Fe drought is the most damaging threat to agricultural producers. In 2009 Santa Fe and many other agricultural regions in Argentina witnessed a severe drought which had damaging effects on the soybean yield. According to Eduardo (2012), farmer and member of the UAA, many agricultural producers were forced to rent out their land due to loss of harvest which made them unable to handle high debts. For such crisis the government does not provide any economic support (Nicklis, R., 2012). Under these circumstances the cooperative can help their members to maintain their farm land through providing inputs to organize the next agricultural production cycle, loans to handle debt and future investments and technical assistance to locate new economic alternatives. Finally, even though the UAA does not hold the economic capacity for handing out compensation in the case of droughts the cooperative is connected to insurance companies which cover other climatic circumstances such as damage on sunflower in case of strong wind.

Olson (1965:53) also claims that individuals are provided with selective incentives through organizations which exert lobbying functions at the national level. The main objective for these organizational branches is to strive for legislative changes which favour their members. The UAA is as mentioned connected to the lobby organization ConInAgro at the national level and Chinchin participates in the national council of ConInAgro. This national branch has representatives in INTA at the national and regional level and has ongoing contact with banks, agencies and other institutions which can be helpful for members on local level. Landgraf (2012), who is the financial director of ConInAgro, suggests that the main objective of the lobbying organization is to forward demands from their members in the arena of national policies and analyse how the government intervenes with their members. Information

and possibilities provided through a close interrelation between ConInAgro and the cooperatives can play a central economic and legislative function for members in the UAA.

Based on Olson's theory the cooperative provides several selective incentives which should encourage collective action through the whole production process in various agricultural activities. Farmers get economic and technical assistance from the initial stage of buying inputs to commercialization of final product. In addition, work done by ConInAgro may produce legislative benefits for the members, and enable farmers to be more responsive and resistant towards political changes at the national level.

5.2 Social incentives for collective action

In more recent times collective action has increasingly been recognized as a product of social interaction, and rather than examining the behaviour pattern of individuals as only rational choices, the social context in which individuals make their choices has become more important to understand this concept. From Ostrom's theory we can point out some main arenas of social interaction which are likely to generate and strengthen collective actions. For Ostrom (2010:163) trust, reciprocity and reputation are central elements leading to collective action. To produce these variables social actors must seek to engage in community participation, common agendas for problem solving and face to face communication. The mentioned social interaction can in the case of this study take place within both formal and informal structures. In the following section I will analyse how the cooperative either has a proactive or facilitating role in promoting collective action through its own organizational structure. Olson's (1965:60-63) perception of social incentives is embodied in the analysis.

5.2.1 Formal structures for collective action

In my study the most general observation on how collective action is practiced through social interaction is related to the organizational structure of the cooperative. The UAA operates as a highly democratic institution where representatives are elected annually by its members, and in most instances the management is composed of the members themselves. The cooperative is divided into eight districts, and every district comprises one or more settlements. District eight, where I conducted some of my fieldwork, comprises three settlements; Moussy, Santa Ana and Flor de Oro. One councillor and one deputy member are elected from every district.

Together these constitute the governing board which is the cooperative's highest decision making body. Among these representatives one president and one vice-president is elected (Stølen, 2013). The fact that the members themselves can choose their own leaders in the cooperative is a good basis for trust. Ostrom (1994:4) claims that defining boundaries and members is usually a first step to organize collective actions. In this context the organizational structure facilitates for community participation and building trust through involving local communities in the decision-making process.

Through this formal structure there is a two way channel where members receive information about technology, prices and governmental policies and members can communicate their interests and demands. This two way communication is usually conducted through regular meetings set up by the UAA with their members, but members also have the possibility to contact the cooperative for more individual related requests. Every district has one advisory committee. In district eight there are nine advisors and these have formal meetings two times a month with the presence of the president and vice-president from the cooperative. The advisors get news from the cooperative and advisors address specific issues related to their own district and present complaints from their members. From there on the president reports to the governing board which meets once a week. When members want to forward a complaint they usually consult their district advisors. Members also have direct access to the president, and are free to pass by his office to raise questions. Three times a year the cooperative organizes meetings where the advisors from all districts are present. In these meetings they discuss the various activities of the cooperative and issues related to agricultural policies. In addition the cooperative holds a general assembly annually (Stølen, 2013). 159 associates participated in the cooperative's general assembly in 2010 (Avellaneda, 2011:11). The cooperative also arranges workshops during the year. Activities carried out between associates and the cooperative encompass business, agricultural production, poultry farming, cattle farming, pig farming, horticultural farming, general interest and exhibitions. Each activity involves several topics and experts within the field are invited to make presentations. For instance, during the activity "general interest" agronomist Eduardo Sierra presented the topic climatic perspectives where 500 farmers participated (Avellaneda, 2011:18-21). Frequent meetings on district and regional level between farmers and the cooperative encourage face to face communication and community participation. According to Ostrom (1998:6), in experiments where communication between social actors or other facilitating institutional conditions are left out collective action to solve social dilemmas

usually fails. Furthermore, the majority of members in the cooperative engage in similar agricultural activities and faces the same economic and environmental or resource related challenges. Access to platforms for both communicating their own interests and exchanging information with other members through the cooperative's operations strengthens common agendas for solving social dilemmas, and thus collective action. For Ostrom (1990:25) individuals try to solve problems as effectively as they can, and have a very similar platform from which to reason and figure out the structure of complex environments. Participation through the organizational structure also builds reputation and trustworthiness among members which is an important factor for future cooperation and collective action.

As discussed collective action is predicted to falter when individuals take advantage of or free-ride on the system. In these situations other individuals are less likely to engage in collective action, and common management of resources fails. To the contrary Ostrom (1998:8) claims that "...individuals temporarily caught in a social-dilemma structure are likely to invest resources to innovate and change the structure itself in order to improve joint outcomes". First, the cooperative works as a central agent to guide members through the production processes which limits the rise of social dilemmas. When social dilemmas occur the cooperative has many mechanisms, such as internal and external technical expertise and economic resources, which support individuals in the problem solving phase. Finally, and discussed later, the cooperative can also provide monitoring and sanctioning mechanisms. All these institutional functions support individuals in working for joint outcomes, and prevent the emergence of free riding.

5.2.2 Informal structures for collective action

The data used for this section is basically collected through observation and participation in agricultural activities with farmers in northern Santa Fe. During both fieldtrips to the region I took part in the daily activity of farmers. The majority of the farmers from the region are descendants of immigrants who settled here during the late 19th century.² The fact that the farmers migrated from the same area, Friuli, implies that they already shared a collective identity which is important to build trust, and thus generate collective action. Distribution of land has generally gone through kinship or friends. The four Raffin brothers share for instance

² The immigrants came from Friuli, which at the time of immigration belonged to the Austro-Hungarian empire, today part of Italy (Stølen, 1991:165)

land with four uncles. Moreover, the rural communities I visited are small and have few residents which make interaction more likely. For instance, the advisors participating in the cooperative from district eight do not have regular meetings with the members of their settlement. This is because there are few members in each settlement, and it is more common to exchange information in informal settings when they meet through family, at the pub, in church or in town (Stølen, 2013). Ostrom (2010:158-159) suggests that “In families and small farming neighborhoods, where interactions are repeated, reputations can be built over time and group members can build up a level of trust about other participants”. During my last fieldtrip Leo Raffin, who is farmer and member of the UAA, and I passed by the local grocery store in Flor the Oro. Here we randomly met other farmers from the area, and we had discussions about agricultural politics and the annual harvest.

My contact with the Raffin brothers proved to be very beneficial for collecting data for this section. The Raffin brothers are engaged in many economic activities such as agriculture, poultry farming, feedlots, cattle breeding and the leasing out of machines. They have a wide network and frequent interaction with other farmers. Moreover, as members of the UAA they have a close relationship with the cooperative management and a good knowledge of the organizational structure of the cooperative. The four brothers have each their own area of responsibility and I got the chance to follow three of them through their daily activities. During these periods in the campo I got to observe how the farmers conduct their work and interact with their employees, but I also got an insight into the ongoing interaction between farmers. According to Ostrom (1994:2) shared knowledge, understanding and patterns of interaction that a group or individual brings to any productive activity have great importance for collective action. In the region face to face communication between agricultural producers takes place on a daily basis. In these conversations work related challenges are a common topic. Farmers discuss the status of the current crop, environmental challenges linked to drought, government policies, market prices, new technology and other agricultural activities they are involved in. Communication and agreement on joint strategy is central to achieve collective action (Ostrom 2007:10). Through this interexchange of information farmers can detect mutual problems, find better solutions for resource management and agree on problems they want the cooperative to address. Detecting mutual problems may build common identity among producers, and is according to Ostrom (2008:3) important for subsequent collective action. Frequent conversations with farmers and about other farmers in the community strengthen knowledge of each other which is a good basis for building trust and reputation

and improve reciprocity. This makes it more likely for farmers to enter into partnership with other farmers and act collectively through the cooperative. Contrary to Olson (1982:41) who states that size and heterogeneity have a great effect on collective action it is more important that individuals share a common understanding of their situation and have a similar view on matters such as the structure of the resource, authority, interpretation of rules, trust and reciprocity (Ostrom, 1997:18-20).

Based on these observations I would claim that collective action, according to the key concepts of Ostrom's theory, is also practiced outside of the rural cooperative structure. However, the presence of the cooperative facilitates and enhances these social processes. First the cooperative provides farmers with a platform of knowledge, expertise and possibilities for solving social dilemmas. Second, frequent meetings through the cooperative are likely to enhance social interaction among farmers outside of cooperative arrangements.

5.2.3 Monitoring and sanction mechanisms

Both Olson and Ostrom claim that groups have some mechanisms to put pressure on or sanction individuals who fail to act collectively. Olson (1965:63) makes an exception to his rule of selective incentives when dealing with cooperatives, and suggests that cooperatives can apply social pressure to achieve collective action. In Olson's theory individuals basically want to nurture self-interests, but are forced by other associates to act collectively. To the contrary, Ostrom (1998:8) predicts that in most cases individuals will voluntarily monitor and sanction other individuals that fail to contribute to common goods, even if it means sacrificing a proportion of their own assets. In this context individuals facing second order dilemmas are likely to pursue options for further cooperation and joint benefits rather than promoting their own interests.

Informants and members of the UAA who lived in Avellaneda, Lanteri and Flor de Oro seem to have close relationships with each other and appeared well informed about the ongoing agricultural activities in the area, and to whom these belonged. Furthermore, the cooperative arranges frequent meetings and members have easy access to the administrative body of the cooperative. Based on these observations the UAA has good mechanisms for monitoring and handling complaints. Social pressure can take place outside of the cooperative, but it is more probable that farmers who are willing to use pressure or sanctions mechanisms against other members will do so through the institutional body of the cooperative. This way a complaint is

handled in a proper manner, and in a common arena farmers can unite against members who fail to act collectively. On the other hand exclusion from the cooperative is almost non-existing, and it is more likely that members determine their own relationship with the cooperative if they for instance go bankrupt. The only criteria to be a member in the UAA is to supply the cooperative with agricultural products which are later turned over by the cooperative. However, in extraordinary cases the cooperative can gather and by a majority vote to expel members who thwart their mutual operations (Stølen, 2013).

In the following text I will give a closer examination of how policies under the Kirchner governments, from 2003 until present, influence collective action on a local level, and how these interventions produce stronger cooperation between farmers.

5.3 The Argentine state as an organizer of collective action

“The redistribution managed by the state is not creating productive growth. What we see is a monopolization of production, incomes and distribution. This is not a sustainable way to promote development. The day the soybean disappears we’ll be left with nothing” (Agretti, 2012).³

As clarified in the theoretical chapter the state can exert great influence on collective action. In this setting collective action has to be analysed within a bigger context than suggested by Ostrom. Agrawal (2003:250-251) claims that the study of the commons focuses on the role of the state, but not the state-local relationship, and tends to ignore that the local is created in conjunction with external and constituted in relation to its context. Hence, the capacity of social actors in solving social dilemmas on a local level is often interlinked to decisions taken on a macro level. The following chapter will highlight how government actions have an impact on farmer’s economic activities in northern Santa Fe, and analyse the strategy of collective action taken by stakeholders in the area faced with these government measures. Furthermore, findings from the conducted fieldwork illustrate how government actions favour the production of soybean which decreases the farmer’s capacity to achieve socioeconomic security and improve natural resource management.

³ Translation from Spanish to English is done by the author.

5.3.1 Export taxes

It became evident already from the first conducted fieldwork that the government policies play a central role for socioeconomic and agricultural changes in Argentina over the last decade. Several informants highlighted the lack of or undermining governmental policies as one of the most important factors for ongoing changes in northern Santa Fe. One main reason for the farmer's discontent is related to aspects of the national agricultural policy. Regarding the policies, export taxes are perhaps the most conflictive issue which also was the trigger for the four month conflict between the four largest agricultural organizations and the government in 2008. After almost an abolishment of export taxes on agricultural products during Menem's government in the 90's these have since the inauguration of Néstor Kirchner in 2003 steadily increased. Export taxes are valuable economic tools for the Argentine government since these can be increased without legislative approval, and need not to be shared with the provinces (Richardson, 2009:243-244). During the government of Néstor income from export taxes on soybean production facilitated the formation of a coalition of urban workers encompassing la Confederación General del Trabajo (CGT) and large organizations of unemployed or informal-sector workers (Richardson, 2009:238). Schneider (2004:5) suggests that the state can organize and disorganize associations by providing non-collective goods to only certain interest groups in the society. The current government in Argentina subsidizes working-class consumption, and thus the real wages through redistribution of income from export taxes on agricultural products (Richardson, 2009:232). The access to non-collective goods is limited for the agricultural producers since they represent the minority of the national population, and basically have an economic and not political function for the ruling party.

In northern Santa Fe lower soil quality and limited access to new arable land compared to the Pampa region leads to a scenario where few agricultural producers are able to maintain sustainable production units faced with the high export taxes. Chinchin (2012), the president of the UAA, claims that when the government demands almost half of the income combined with increasing production costs and inflation it is hard to maintain competitiveness. Leo (2012), farmer and member of the UAA, suggests that the tax policy of the government have resulted in that many farmers in the region lease out and leave their land. Moreover, pressure on small farmers to achieve profitability faced by high export taxes can force them to neglect ecological consideration by limiting the use of rotation techniques. Since the GM soybean

production is the most profitable alternative, but also is more nutrient depleting compared to other crops, farmers may be vulnerable to soil erosion. Insufficient crop rotation can have, according to Barsky & Dávila (2008:57), a devastating impact on the soil quality.

The export tax on soybean is currently set to 35 % while other important crops are taxed as followed; wheat 23 %, sunflower 32 % and corn 20 %. Despite a higher export tax on soybean, the crop is still more profitable than other crops due to low production costs and high international prices (Teubal & Palmisano, 2009:223). According to Trigo (2012), agricultural economist specialized in science, technology and innovation policy and organizational issues, the government, through the export taxes, becomes a partner in the expansion of the soybean production. They could have lowered the export taxes for wheat or corn to favour these products over soybean, but choose not to. Chinchin (2012) agrees with Trigo and suggests that farmers cultivate what is most profitable for their region, and that depends greatly on the ratio of export taxes. Primarily, the export taxes do not take into consideration the size of agricultural land, production costs, soil fertility or expenses related to the distance to transport hubs which vary greatly between agricultural regions (Barsky & Dávila, 2008:170). Spontón (2012), the director of INTA in Santa Fe, claims that previously they had national policies which took into account regional differences, such as quality of soil and distance to transportation hubs. The absence of such initiatives produces inequalities between regions where some producers experience comparative disadvantages. In this context we can claim that the export taxes also contribute to the concentration of agricultural production in larger farming units as small producers fail to achieve a profitable agricultural production. Agretti (2012), farmer and former president of the UAA, claims that due to this generalization of a highly complex rural sector many agricultural producers in northern Santa Fe experience that they are being compared with those living in the Pampa region which consists of larger farms with access to more fertile land.

5.3.2 Export restrictions

Another government tool towards the rural sector is export restrictions on agricultural products. Export restrictions on beef and wheat are well-known mechanisms to control internal demand and for securing the Argentine food table. Richardson (2009:229) claims that the Argentine government has throughout time used export regulation to either keep prices on domestic food low favouring workers and the urban population or to achieve a stable trade

balance. However, during the last decade soybean production has replaced beef and wheat as leading export products, and since soybean is not consumed by the Argentine population the government can generate fiscal revenues without harming the purchasing power of urban workers or provoke trade deficit. In this context the Kirchner governments can reduce domestic prices by restricting exports of wage goods. In 2006 the government launched a 180 days embargo on beef exports to increase the supply of beef to the domestic market (Richardson, 2009:243). Dávila (2012), who is an agronomist specialized in agribusiness, suggests that the export restriction on meat is said to have led to a decrease of 10 million cattle. Many agricultural producers claim that the export restriction on wheat and beef, to secure national demand, is based on false premises. According to Landgraf (2012), the financial director of ConInAgro, wheat is a surplus production in the country and Argentina has throughout history never lacked bread. An unexpected effect of export restrictions on agricultural products and the uncertainty generated by such policies makes many farmers in northern Santa Fe switch to the GM soybean production since the latter is only regulated by an export tax (Raffin L. M., 2012).

Collective action on the local level may be influenced by export restrictions since these control the demand of agricultural products and therefore also influence prices. The annual report elaborated by UAA (2010-2011) highlights that export restrictions on wheat have made commercialization efforts difficult (Avellaneda, 2011:9). According to Chinchin (2012), the president of the UAA, government intervention in the export market of meat and wheat have made the cooperative focus on other alternative crops and agricultural activities. However, it is hard for the cooperative to make plans on a micro level when institutions fail on a macro level. The cooperative can exercise an institutional function and find new economic sources which support farmers within the region. Currently the cooperative focuses on poultry farming, but if the government decides to restrict exports of chicken tomorrow the whole industry will collapse (Agretti, 2012).

5.3.3 Centralization of decision making

“One thing you have to understand about Argentine politics is that all decision-making processes are centralized...the president does not consult anyone...” (Barsky, 2012).⁴

Representation of rural interests on a national level has been limited under the Kirchner governments. Despite the UAA’s close and ongoing cooperation with ConInAgro on the national level the channels to the government decision-making body are few. This reflects Schneider’s (2004:26) argument which suggests that some central state actors make the majority of decisions within Latin-American countries. The distance between local or regional needs and national policies generates lack of institutional representation for agricultural organizations and farmers. In Argentina, stakeholders in the rural sector are officially represented on state level through both the Ministry of agriculture and the Secretary of agriculture. However, in many instances these two institutions get overruled by other ministries. For instance, many tasks formerly performed by the Ministry of agriculture, such as management of subsidies and commercialization within the agricultural sector, has been transferred to the Ministry of domestic trade. Barsky & Dávila (2008:194-195) claim that the person responsible for domestic trade under the Néstor administration, Guillermo Moreno, subordinated decisions concerning control of food prices in the internal market and blocked initiatives from the secretary of agriculture. A gradual weakening and disappearance of la Oficina Nacional de Control Comercial Agropecuario (ONCCA) and other measures from Moreno deconstructed the influence of the secretary further. The Ministry of agriculture was also excluded from the drafting of the 125 export tax resolution in 2008 which triggered the agro-state conflict (Dávila, 2012). Moreover, the government has done little to improve the ongoing conflictive relationship between the government and rural organizations. The conflict in 2008 revealed actors from the whole rural sector revolting against the government. The large level of support reflects the complexity of the agro-industry with multiple linkages to cities forming a social base and unifying various actors from several sectors. The government had the chance to resolve disagreements prior to the conflict, but there were no initiatives to build agreements across sectors (Barsky, 2012). Dávila (2012) suggest that compared to USA and Europe, where there they have close cooperation between the governments and rural organizations, in Argentina there exist no such platform for negotiation. Lack of national representation is also reflected in northern Santa Fe. According to Chinchin (2012), the

⁴ Translation from Spanish to English is done by the author.

president of the UAA “We lack political influence because we raised our voice against the interventional policies of the government...the government wants to control everything”.⁵

Centralization of power has undermined the representation of farmers, but also produces contradictory policies. In 2008 the government initiated a biofuel initiative where farmers could sell their agricultural products at favourable prices to biofuel refineries. This production was very beneficial for farmers, and many small and medium sized agricultural producers engaged in this industry. However, after some time the government intervened in the market and put a top price and export tax on the product hurting local industries (Dávila, 2012). In northern Santa Fe agricultural producers and the cooperative suffer from the consequences of short-termed and unpredictable national policies towards the rural sector. Agretti (2012) compares the agricultural policies to a round dance without choreography. In other countries governments elaborate long term policies considering agricultural production and trade. In this country the government launches a general policy and changes it consecutively when consequences occur. The government has contributed to some interesting rural projects. The export price on corn is lowered, and they provide financial support to feedlots, poultry and pig farming, and occasionally they provide credits. But suddenly they change stance without any prior warning. There is no juridical security in this country, and it is hard to make a productive plan or make future investments taking into account the juridical insecurity and confrontational segments within the government. Another increasing problem in Argentina which also effects the farmers in northern Santa Fe gravely is the increasing inflation, fluctuating between 25 to 30 per cent. Farmers who trade in dollars and receive payment in Argentine pesos experience substantial economic losses in the exchange process. However, the government ignores warnings from many actors within the civil society and proclaims the inflation to be just above five per cent (Barsky, 2012; Landgraf, 2012; Nicklis C., 2012).

Based on Schneider’s (2004) theory centralization of power can serve as another tool to influence, promote or undermine collective actions. Urban associations which collaborate with the government will benefit and thus increase collective action while rural organizations such as the UAA will struggle more to achieve collective actions. According to Eduardo (2012), farmer and member of the UAA, prolonged periods of drought make it challenging to

⁵ Translation from Spanish to English is done by the author.

predict future cultivation and investments. There are no mechanisms in the current agricultural policies which compensate for loss of crops.

5.3.4 Return of old ideologies?

“The government...portrays us as rich and conservative actors who are not willing to share the economic surplus when the majority are small and medium sized farmers” (Raffin L. M., 2012).⁶

“We need to go back to the 19th century to track such historical high prices on agricultural products on the international market...there is no need to produce these crises” (Barsky, 2012).⁷

Many informants claim that old ideologies linger in the political logic of the current government. With the government of Perón in the 40's and 50's Argentina initiated an industrialization process, and over a long period of time it was more common to promote the production of industrial goods over agricultural products. The current government also gives primacy to the urban and industrial sector, and linked with this strategy many prejudices against the agricultural sector emerge. From a government perspective the agro-industry does not add any value to the production. Longoni (2012), who is a journalist in el Clarín, one of the leading newspapers in Argentina, and focuses on rural issues, claims that this is largely based on old prejudice which emerged under the government of Perón. A small proportion of agricultural products are exported as primary products, and the agro-industry adds value to the production through transformation of grains into wheat, oilseeds or biofuel. The agro-industry has undoubtedly a larger potential for adding value, but this also requires government efforts and investments. Another example of ideological rhetoric used by the government occurred during the agro-state conflict in 2008 when the government blamed “the land-owning oligarchy” for trying to destabilize the country. This emerges contradictory to the fact that the majority of the protesters in 2008 were small and medium sized farmers (Teubal, 2012). Moreover, the progress of the agro-industry is due to the work of small framers who migrated to Argentina many years ago and not the influence of a land-owing oligarchy (Longoni, 2012).

⁶ Translation from Spanish to English is done by the author.

⁷ Translation from Spanish to English is done by the author.

Dávila (2012), agronomist specialized in agribusiness, claims that the government has to face today's reality where an increasing world population demands more food and energy. Local and regional communities in Argentina must be connected to the world economy according to this scenario. According to Landgraf (2012), the financial director of ConInAgro, in Argentina they have an incomprehensible ongoing discussion whether we should export industrialized or agricultural goods, while large economies such as USA combine both a rural and industrial sector. A criticism of these negative characteristics painted of the government is put forth by Fortunato Mallimaci (2012) who is professor in social history of Argentina at the University of Buenos Aires. He claims that complaints from farmers towards government policies have to be evaluated in an historical context. Reviewing the agro-state relationship through time shows that farmers are accustomed to fight for their own rights, income and production. Criticism has been pointed at different governments, both from the left, right and military, under various economic and social contexts. Giarracca (Lorca, 2008), a specialist in rural sociology, suggests that in Argentina there is a struggle over opinions and discursive legitimation. The government depicts an agricultural sector all prosperous which wants to get richer and not share with the rest of the population, but the agricultural producers also emphasize an oversimplified discourse to describe the government.

Ideologies have produced many internal divisions within Argentina. One concern in northern Santa Fe is that the current government connects party loyalty to national distributive politics. For provinces party loyalty can be rewarded with increased economic resources from the national budget and higher priority in regional developing plans. Horacio (2012), farmer and former secretary of the board of directors in la Asociación de Cooperativas Argentinas (ACA), suggests that the province of Chaco, which has a government friendly authority, receives more of the national budget than Santa Fe which is governed by the socialist party. Ideologies also justify political decisions taken towards the agricultural sector. In Avellaneda farmer's experience that myths related to the rural sector put them in a disadvantageous position where they have to struggle on equal terms with much bigger and more prosperous agricultural producers located on the Pampas (Agretti, 2012).

5.3.5 Privileged access or self-defence?

“Before we were more individual oriented...today we recognize that working together is the only way to survive and achieve progress” (Nicklis, C., 2012)⁸

According to Schneider’s (2004) theory, state actors organize associations through either granting them privileged access to policy making circles or by implementing reformist policies which lead to the establishment of self-defence organizations. Based on the previous sections it appears quite evident that collective action among farmers in northern Santa Fe is fuelled by undermining government policies. High export taxes and export restrictions on agricultural products reinforce dependency on rural organizations to maintain competitiveness and find new economic activities. Lack of institutional representation at the national level and a hostile government posture produce uncertainty among farmers and causes them to rely more on their organizations, both to communicate their interests but also to mitigate sporadic government policies. Even though the UAA can hardly be recognized as a pure self-defence organization, government actions may serve as an incentive for stronger cooperation between the members of the cooperative. According to Chinchin (2012), the president of the UAA, the governmental policies have forced us to establish partnerships and cooperate across interests. In the region this tendency has become more transparent in the last decade. Hence, government policies may have increased collective action in the region and enhanced the rural cooperative. This reflects Schneider’s (2004:32) scenarios where reformist government policies can produce unpredicted outcomes and strengthen organizations.

The farmers’s chosen strategy in the region can be related to Stølen’s (1996:140-143) fieldwork from Santa Cecilia in northern Santa Fe. She detected that farmers in this area apply either a survival or growth strategy. Survival strategy involves immediately investing money in production inputs required for the next agricultural cycle. A second characteristic is to never have a debt. Farmers are sceptical of using credits because of the unstable Argentine economy. A third component of this strategy is commercialization through the cooperative which enables farmers to sell their products when prices are high. In this context the farmers only sell what they need in order to cover debts and inputs to start the next agricultural cycle. Farmers who follow a growth strategy use many of the same methods to cope with galloping inflation, but aim at securing a surplus from production to invest in future production.

⁸ Translation from Spanish to English is done by the author.

Farmers can invest in land, equipment or animals to produce future growth. Government actions may in this context have enhanced already existing strategies in the region leading to a closer cooperation between the farmers and the farmers and the cooperative.

This chapter clarifies how the UAA meets the research's social and economic criteria for collective action. Moreover, it is evident that the Argentine government plays a central role for outcomes of collective action at the local level, and thus influences resource governance and the socioeconomic situation for the famers in the region. The next chapter will take a deeper dive into how socioeconomic distribution and improved natural resource management are practiced and supported through the action and operation of the cooperative.

6 Socioeconomic distribution and natural resource management

What would be the situation without the cooperative? The value of production decreases, input prices go up, producers face limited possibilities and food prices in the supermarkets will increase. Regions without the presence of rural cooperatives experience lagging behind economically and agricultural activities get concentrated in few hands (Nicklis, C., 2012).⁹

The following chapter analyses how the UAA contributes to socioeconomic distribution and improved natural resource management in its area of operations. The first part analyse how the UAA can help their members to cope with challenges related to the size of agricultural land, and thus contributes to socioeconomic distribution. The second section identifies agricultural diversification as an important tool for conservation of natural resources and socioeconomic distribution, and explains how the UAA facilitates and supports various diversification processes. The last part emphasizes why the UAA organizational model and mode of operations is a preferable option for resource management rather than a government or market based model. Highlighted concepts from Olson, Ostrom and Schneider, presented in the theoretical chapter, will be used as analytic tools to underpin collected data from the fieldwork.

6.1 Handling scale

“Previously farmers in the region could remain profitable through cultivating a small field of cotton, but since their economies of scale do not allow them to incorporate the new technology they end up with renting out or losing their land” (Agretti, 2012).¹⁰

One central issue for farmers in northern Santa Fe, and in other Argentine agricultural regions as well, is connected to the size of arable land. As mentioned, the technology linked to the GM soybean production demands a certain size of agricultural land to profitable, and small and medium sized farmers may lack economic resources or access to arable land to adapt to these circumstances. In the region where I conducted my fieldwork two strategies for

⁹ Translation from Spanish to English is done by the author.

¹⁰ Translation from Spanish to English is done by the author.

handling scale can be recognized. First, farmers can purchase or rent more land, and thus increase the size of agricultural land to grow more crops and achieve profitable productions. For farmers who cannot do the necessary investments in new land, agricultural diversification represented a second alternative. This latter strategy is often used as a complementary income combined with ongoing crop production.

Scaling up agricultural production can be achieved through several mechanisms. Farmers with economic capacity can buy or rent new land and thus increase the size of agricultural land individually, while some farmers acquire new land through credits. A common strategy among farmers in northern Santa Fe is in the first instance to rent agricultural land, increase production and generate enough profits to buy arable land. Purchasing land can be self-funded or partly financed by loans through the cooperative. A second strategy to acquire land is achieved through entering into partnership. Though partnerships farmers can increase economic capacity, share risk and exchange services. The presented strategies for coping with the size of agricultural land take place with and without the direct assistance of the cooperative. However, I suggest that the presence and operations of the UAA, in the long run, facilitates and sustains farmer's capacity to succeed in their chosen strategy. In the investigated region the land market is organized between tenants and land-owner. When renting land the involved parties share the harvest based on preliminary negotiations between the land-owner and tenant. The landowner usually charges 20 per cent of the total harvest and also decides when to sell his part of the harvest through the cooperative (Stølen, 2013). This arrangement is strictly cooperation between tenants and land-owner, and the government has no means by which to regulate rental agreements or land prices in the region (Nicklis, R., 2012). The following section focuses on how services provided by the cooperative facilitate the process of acquiring new land and achieving a profitable production. Loans and technical assistance are mainly services provided by the cooperative while partnerships, which are often kinship based, cut across formal and informal structures. The last section shows how agricultural diversification can present a valuable strategy for farmers to generate sufficient income to invest in new agricultural land.

6.1.1 Loans

Technological change occurs frequently in the agricultural sector, and farmers are often dependent on available financial resources to do necessary adjustments to meet these

transformations. Increased international prices on agricultural products, in particular soybean, have multiplied the prices on arable land in Argentina. In addition, agricultural machines used in the planting, fumigating and harvesting processes are getting bigger and more expensive. This scenario combined with inadequate agricultural policies exclude small and medium sized farmers from agricultural transitions processes involving new technology due to lack of investment capacity. According to Eduardo (2012), farmer and member of the UAA, the producers have to make high preliminary investments which require a large production area to handle following debt payments, even though the production of GM soybean is quite profitable. Access to credit in Argentina is characterized by strict payment requirements. The banks demand some sort of guarantee of assets and operate with an interest level on loans beyond 20 per cent. The poor loan conditions offered by national and private banks are also a reason for the concentration of agricultural production in Argentina (Raffin L. M., 2012). Moreover, many farmers in the region are sceptical of obtaining credit from the banks due to a historically unstable national economy. During the economic crisis in 2001 many farmers saw their debts triple as the Argentine peso was devaluated (Stølen 2013). Credits possibilities can also be scarce due to the national macro-economic situation. Barsky (2012), researcher at CONICET specialized in agricultural studies, claims that the investment pattern in the agricultural production accompanies fluctuations in the national economy.

According to Javier Raffin (2012), farmer and member of the UAA, associates of the cooperative can apply for credits through the financial department of the cooperative. When farmers need to obtain credits from the cooperative they must first consult an agronomist. Based on technical advice provided by the agronomist, farmers elaborate a strategy plan encompassing the needed inputs, amount of credit and repayment method. A council within the cooperative structure analyses the plan and decides if farmers get the loan granted or not. If the plan gets approved the cooperative will assist the farmer through the following production process. It would naturally be too risky for the cooperative to provide farmers with fully covered loans. However, the cooperative can loan farmers a percentage of the total amount and operate with interests rates far below national and private banks. The Raffin brothers have for instance invested in four poultry farming houses where 20 per cent of the investment was borrowed from the cooperative. Moreover, members can benefit from the cooperative temporary credit system where they can obtain short-term loans to purchase production inputs required for the next agricultural cycle such as seeds, fuel and agrochemicals. The credits obtained from the cooperative are paid back when the crop is

delivered. In the cases of failing crops, usually inflicted by exposure to climatic forces, members can apply for a postponement on their debt. The cooperative can extend the debt period up to eight years for members who struggle to repay the cooperative. Agretti (2012), farmer and former president of the UAA, mentioned that problems with handling debt were a very pressing problem during the 90's, and he claims that the cooperative tried to facilitate the circumstances and avoid that farmers lost their land. One way of dealing with this issue was through engaging in individual cases and trying to find solutions which fitted individual needs. When dealing with bigger loans, land can be used as collateral, and the cooperative assumes control over the land until farmers can repay their debt (Stølen, 2013). Based on these observations the cooperative facilitates the capacity of farmers to invest in necessary land or farming equipment to meet challenges linked to the size of agricultural land and save them from bankruptcy.

6.1.2 Technical assistance

Access to technology and technological knowhow are vital to meet the challenges related to scaling up and maintaining crop production on agricultural land. Technical assistance can for instance support farmers in gaining knowledge about the implementation of new seeds, agrochemicals, nutrients and farming equipment in the production cycle. It can also be used to counter emerging problems related to weeds and insects in crops and soil erosion. Noguiera (1988:300) claims that a more recent characteristic of rural organizations in Argentina is the growth of their technical and administrative bodies.

The UAA has a good platform for accumulating knowledge about new rural technology which can be dispersed to members through regular meetings and other communication channels. Expertise with regard to technology and innovation is found within the organization, but is also acquired through connection and cooperation with other rural organizations, bio-technological companies and national institutions such as INTA. This network generates valuable knowledge for building a base with which to respond to the different demands and interests of associated farmers. According to Agretti (2012) the cooperative has a prevalent structure in the region with many branches. There are several levels and types of crop production and the cooperative seeks to support members financially and technically in accordance with their needs. The cooperative usually conducts tests and experiments prior to introducing new products or activities such as new varieties of soybean

and sunflower. This is feasible due to the agronomists employed by the UAA. Farmers can seek technical advice and help from the technical administration of the cooperative by phone or by bringing products that need to be analysed. Javier (2012) suggests that technical assistance provided by the cooperative's advisors helps producers to improve the income possibilities of their agricultural activities. This system is according to Stølen (2013) based on an older system, which emerged in 1982 in Santa Cecilia called the Cooperative Rural Extension Group (GEAC). The GEAC group was established by members of the UAA and consisted of 12 farmers who met once a month to share information and experiences between fellow farmers. At first the group had a technical focus emphasizing experiments with fertilizer, ploughing techniques and crop rotation to improve crop management. Later the group also engaged in the economic aspect of farm management. Within this system farmers also received help from an agronomist who visited every member four times a year to draw up annual plans (Stølen, 1996:137-138). Today there are also radio programs and reports produced by the cooperative that address technical issues (Raffin J., 2012). With the help of the agronomists, which support farmers in the use of agrochemicals, fertilizer and nutrients for the soil, associates of the UAA obtained good yields in the 2010/2011 season (Avellaneda, 2011:39). The farmers can with the technical assistance from the cooperative achieve better crops which increases the profitability. This is important to obtain economic capacity for doing necessary investments in new land, handling debts and adjusting to new production methods.

6.1.3 Partnership

“To participate in the technological changes many farmers are dependent on entering into partnerships to conduct necessary investments in machines, cattle or flour mills” (Nicklis, R., 2012).¹¹

A more common strategy to acquire new land, and thus a bigger production scale, in northern Santa Fe is through partnerships with other farmers. When entering into partnerships previously individual farmers achieve more land, share risk and can exchange services. According to Luis Miguel (2012), farmer and member of the UAA, cooperation between farmers can maximize production through sharing and contributing with various functions

¹¹ Translation from Spanish to English is done by the author.

within the production cycle. Lending or renting machines is a very common trend in the region since there is almost no existing presence of machine contracting firms (Stølen, 2013).

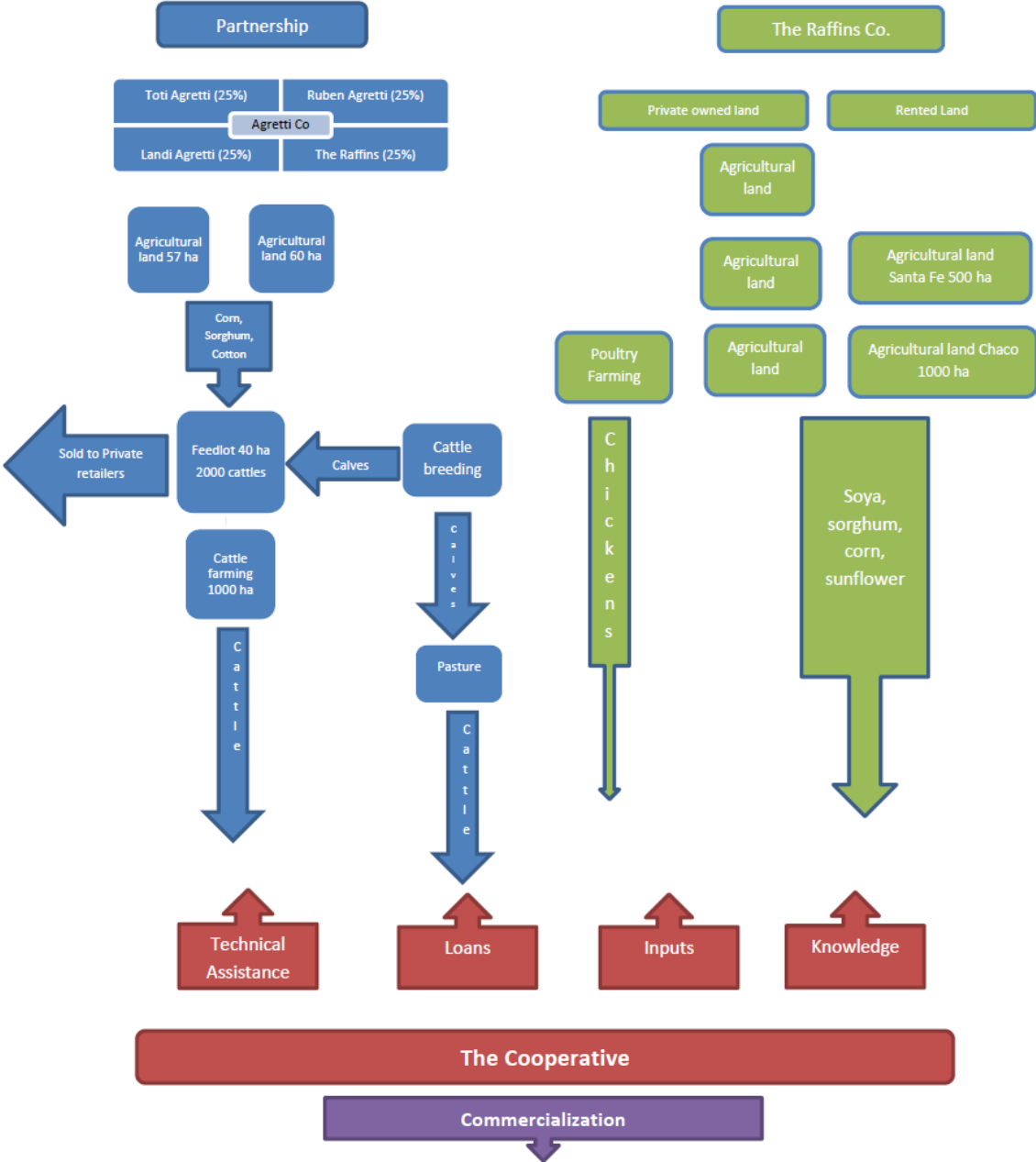
Seen from a macro level increasing partnerships among farmers in Argentina can be a result of weak governmental institutions, such as financial and insurance institutions, and mitigation from risk taking. The emergence of partnerships can also be connected with the economic crisis of 2001 when farmers had to find other methods to finance agricultural activities.

According to Dávila (2012), agronomist specialized in agribusiness, increased use of partnerships, such as cooperation through sharing land, labour, technology and knowledge, is a tendency which has emerged during the last decade in the agricultural sector in Argentina, and has generated development and curbed social consequences within local rural communities. One type of partnership is presented through sowing pools. Sowing pools are a form of cooperation where different actors unify to organize the production cycle and may take various forms. Dávila (2012) suggests that sowing pools are the new social actors which have made the agricultural production more innovative and dynamic. This collaboration between several social actors encompasses land, labour and capital. Small producers can merge land and in this manner scale up their size of agricultural land. Chinchin (2012), the president of UAA, told me about a sowing pool in Santa Fe where 65 farmers have gathered to cultivate on 3000 hectares of agricultural land. Sowing pools involving many small farmers in the organization of the production cycle is mainly a self-defence strategy, and can be related to Schneider's (2004:32) theory of how government policies can create self-defence mechanisms among social actors. But, these types of sowing pools also reflects Ostrom's concept of how subjects, through informal structures, organize the management of resources to solve social dilemmas. Other types of sowing pools are financed by external actors where a mediator organizes the production cycle through connection with investors, landowners and contractors of agricultural machines. This type of sowing pools is more common in agricultural regions with access to large areas of arable land, and is almost non-existing in northern Santa Fe.

None of my informants were engaged in sowing pools, and this type of organization of the production cycle appeared less present in the region. Among my informants it was most common to establish partnership through family relations. The partnership between the Raffin brothers and their four uncles has gone through many stages. In the initial stage they rented land over a ten years period to raise cattle. At the time the landowner sold the land, the eight

stakeholders could reinvest their profits from the cattle business in land for agricultural production, feedlots and cattle farming. According to Agretti (2012) through partnership we can split risks and stand stronger towards political and economic changes. In this context informal institutions can provide a better framework for governing natural resources (Agrawal, 2003:244). The UAA does not contribute directly to the establishment of partnerships. However, they are vital for the survival of these collaborations by providing associates with collective goods through their operations. The figure below illustrates the economic activities of the Raffin brothers and how these are connected to the cooperative.

Figure 7: Model of the relationship between the Raffins and the UAA



Source: Elaborated by the author, 2013

As visualized in the figure The Raffins have a 25 per cent share in the partnership with their uncles through the Agretti Company which is mainly concerned with feedlot production and cattle farming. In addition the Raffins have their own company which encompasses four areas of private owned land where one is used for poultry farming. In addition, the brothers rent several fields of agricultural land in Santa Fe and Chaco. In all these economic activities commercialization, production inputs, credit, technical support, and arenas for common problem solving are arguably central to support the production activities and processes involved in the two partnerships.

6.1.4 New production activities

A final way to cope with economic and production limitations connected to the size of arable land is through engagement in other production activities or agricultural diversification which demands less land such as poultry farming, horticulture and feedlots. These activities are usually combined with crop production, but they enable farmers to generate greater revenues. Surplus from engaging in several production activities can be reinvested in land and can, in a long term perspective, help farmers to increase cropping area. The Raffins use for instance surpluses from the cattle farming and feedlot to invest in more agricultural land. In this interconnected system grains produced on new agricultural land are also used as food in the feedlot production to lower the production costs. Agricultural diversification is in this section only treated as an economic strategy to reinvest in more arable land and achieve profitability within the current soybean oriented production system. However, as analysed later in the thesis, agricultural diversification can also be used as a strategy to conserve natural resources and promote socioeconomic distribution in local and regional areas.

Knowledge and resources to engage in alternative production can be achieved through both formal and informal structures. Social interaction among farmers, through face to face communication and community participation, can lead to locating mutual social dilemmas and make farmers acquire knowledge about where to buy inputs, technical aspects of the production process and potential markets. Farmers who are already engaged in these production activities can also help other farmers through the initial start-up phase. New production activities can thus emerge within informal structures, but farmers usually address the cooperative to get a second opinion, buy inputs and locate markets (Raffin, J., 2013). The processes of social interaction which take place between farmers when engaging in new

production activities reflects several central concepts in Ostrom's (1990) theory on CPR's. Strategies for farmers to engage in new production activities can also be done through the organizational structures of the UAA. The cooperative, as mentioned, arranges meetings and workshops for farmers to promote new economic activities. Farmers can also on their own initiative contact the cooperative's expertise to obtain help to initiating new production activities. In northern Santa Fe there exist several levels and types of production. The cooperative tries to promote growth and possibilities regardless of the size of arable land or type of agricultural activity (Agretti, 2012). Moreover, the cooperative provides inputs and technical advice during production processes and the final product is usually sold to national and international markets through the cooperative.

To sum up these sections, the cooperative provides collective goods to their members through credits and technical assistance to meet challenges related to the size of agricultural land. These goods also support farmers who engage in partnership and new production activities. Moreover, social interaction for common problem solving, facilitated by the cooperative, enhances the establishment of partnerships and helps farmers to initiate new production activities. The technical and economic functions of the UAA are not just a measure to provide socioeconomic security to associates, but also an initiative to conserve natural resources in the region. In this context, there is a close linkage between improved resource management and socioeconomic distribution. The next sections highlight agricultural diversification as a linkage between the mentioned relationships, and put a focus on how the cooperative supports and facilitates agricultural diversification practices towards their associates.

6.2 Agricultural diversification

Contrary to urban workers, farmers are presented with a conflictive issue since their socioeconomic situation is connected to the management of natural resources. An increased production on land can in short-term give economic benefits, but in longer terms lead to soil erosion and loss of assets (Blaikie & Brookfield, 1987:3). The technological change and pre-eminence of soybean production have as mentioned counteractive effects on agricultural diversity both with regard to varieties of crops and other production activities. Soybean production also exports many nutrients from the soil and an overproduction can easily lead to soil erosion. Another element encompassing the casual relationship between natural resource management and socioeconomic distribution is linked to the lack of government institutions

representing farmers and undermining government policies towards the rural sector. Previously presented in the thesis, farmers who experience damage on agricultural production caused by climatic changes cannot for instance get compensation or financial support from the government. Moreover, policies such as export restrictions and high export taxes on agricultural products have favoured soybean production and a concentration of agricultural production in larger farms, and done little to support farmers who lack the economic resources to adapt to this new reality. The UAA has limited economic capacity to support all their members who suffer under the mentioned situations. Therefore the promotion of agricultural diversification may be a central tool for socioeconomic distribution and conservation of natural resources in the region. Agricultural diversification entails that farmers re-allocate some of the farm's productive resources, such as land, capital, labour and farm equipment, and engage in new production and economic activities. This can involve new crops, livestock, poultry farming and horticulture. However, setting up a local business or leasing out your own labour as for example carpentry services can also be a way to diversify your production activities. Agricultural diversification is a frequently used risk management strategy in agriculture (Katchova, 2005:984).

A primary strategy to conserve natural resources and disperse economic risks is through the diversification of crops which involves cultivation of several types of grain in various production cycles. The most common way of achieving this is by introducing rotation and diversification techniques on arable land. A second strategy is diversifying the agricultural production activities. Involvement in non-crop production activities disperses economic risks and reduces the dependency on land-based activities which also eases ecological pressure on the soil. According to Eduardo (2012), farmer and member of the UAA, diversification of agricultural production is a preferable alternative faced with unstable international prices on agricultural commodities and uncertain national legislations. To seek incomes from multiple economic activities the Raffin brothers are involved in rotation and diversification of crops, poultry farming, feedlots and cattle farming. They also lease out machines and services used in the production cycle of crops. Thirdly, agricultural diversification implies in many cases engaging in production activities which involve several social actors. Related to this reality agricultural diversification can be identified as a strategy which favours socioeconomic distribution since it involves more local suppliers and workers in the production chain compared to the soybean production. The following sections focus on how the cooperative supports some central agricultural production techniques and promotes alternative agricultural

activities which have a positive effect on the conservation of natural resources and socioeconomic distribution in the region.

6.3 Facilitating for a diversified resource use

“There exists a contradiction between environmental concerns and development: Production or no production? We need to find a balance between the two” (Dávila, 2012)¹²

Some agricultural techniques are central to conserve the soil, and hence maintain productivity. I chose to emphasize the rotation and diversification of crops and no-till farming since there exists a synergy between the methods, and all protect the soil and increase productivity on agricultural land. Moreover, I chose to include the promotion of other production activities, focusing on the positive effect generated not only in terms of natural resource conservation, but also for socioeconomic distribution.

6.3.1 Rotation and crop diversification techniques

Land under agricultural production needs to restore nutrients in the soil to remain productive. A well-known technique to conserve the environment and increase the productivity is through rotation of crops. Rotation means switching crops in time and space or in other words changing crops through an annual cultivation cycle. Moreover, it is important to consider the sequence of crops in the cycle to improve the productive capacity and consequent increase of profitability in the whole agro-industry (Solbrig & Adámoli, 2008:29). Depletion of carbon increases when soybean is included in the cultivation sequence and decreases when corn is included. This implies that the combination choice of crop and rotation mitigate the loss of carbon (Solbrig & Adámoli, 2008:24). Delgado (2012), who occupies the job as national director for the information, communication and quality systems in INTA, confirms that soybean production extracts more nutrients from the soil than other crops which make the use of rotation more critical when cultivating this crop. There is a strong positive connection between soil fertility and land productivity, and preserving natural resources can also be a way of achieving economic security. Rotation of crops can also be combined with following various production cycles of crops. Hence, farmers with access to several areas of arable land can spread the economic risk by following different production cycles. Different crop species

¹² Translation from Spanish to English is done by the author.

and varieties enable farmers to apply the same, shorter or longer production cycles. A farmer can for instance cultivate soybean, sunflower and corn on one field and corn, soybean and sunflower on another field to mitigate the risk of losing the whole harvest. Furthermore, farmers can also cultivate crop varieties which have short production cycles to generate income more frequently. According to Solbrig & Adámoli (2008:29-30) rotation techniques and diversification of crops disperse risks since even though the environmental conditions are unfavourable for one crop it is less likely to be the same for other crops integrated in a rotation cycle. The Raffins have access to various agricultural fields, through ownership and rental agreements, and practice rotation of crops and a diversification of crop cycles to conserve the soil and as an economic strategy.

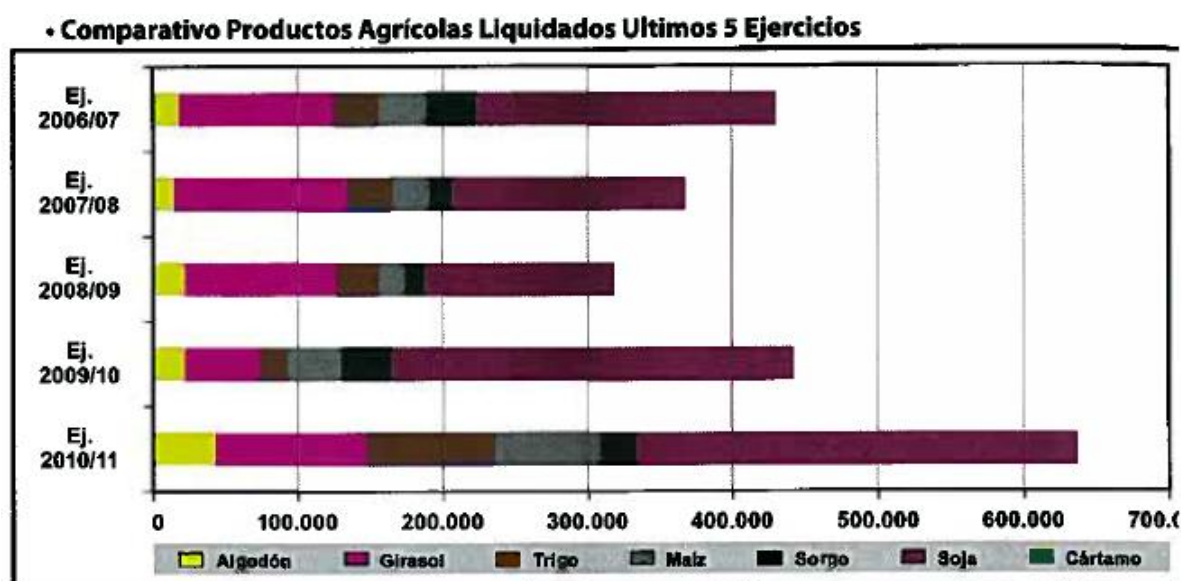
Rotation of crops is a well-known practice among Argentine farmers to preserve the soil and increase productivity. The cooperative supported the previous implementation process of this practice in northern Santa Fe, and the UAA continuous the promotion of the mentioned farming practice through its operations. The cooperative provides for instance farmers with financial support and technical assistance to incorporate different crops in the production cycle. The cooperative also negotiates with private suppliers of seeds and agrochemicals, and with the help of their own expertise and through cooperation with INTA the cooperative can locate agricultural inputs which are adapted to the ecological condition of their region. In addition, the cooperative ensures that farmers have access to markets to commercialize the final products (Nicklis, C., 2012). Farmers in northern Santa Fe usually follow a two year crop cycle of soybean, sunflower and corn or sorghum, but this can change according to international prices on agricultural products, prices on the land market and government policies (Stølen, 2013). Since northern Santa Fe is a marginal region compared to the Pampa the farmers follow strategy policies to preserve natural resources. Sunflower and other products which compensate for the nutrients extraction done by soybean production are for instance favoured by the members of the cooperative. Statistics collected from the annual report concerning social and economic activities performed by the cooperative reveals how the promotion of rotation and crop diversification has led to the production growth of other agricultural products than soybean. The statistics below illustrate the production of seven agricultural products in number of kilos registered and sold by the cooperative in the seasons 2009/2010 and 2010/2011. The chart illustrates the production volume in kilos between season 2006/2007 and 2010/2011.

Figure 8: Agricultural products registered by the UAA in kg

Product	2009/2010 /Kgs.	2010/2011 /Kgs.	Difference %
Cotton	21 693 677	42 172 315	+94,40
Sunflower	50 517 591	105 118 400	+108,08
Corn	37 375 138	74 622 158	+99,66
Wheat	20 377 731	87 231 027	+328,07
Sorghum	33 234 434	23 055 652	-30,63
Soybean	276 835 631	304 207 791	+9,89
Safflower		1 081 087	
Total	440 034 193	637 488 430	+44,87

Source: Elaborated by the author, based on statistics from Avellaneda, 2011:31

Figure 9: Agricultural products sold by the UAA from season 2005/2006 to season 2010/2011 in kg



Source: Avellaneda, 2011:32

Compared to the yield season of 2009/2010 cotton, sunflower, corn and in particular wheat have witnessed a substantial increase. Between these two seasons soybean production had only a minor increase of 9, 89 percentage. However, external factors such as drought, government policies or international prices on agricultural products could also serve as an explanation for the modest growth of the soybean production. The extreme production

increase of wheat from the 2009/2010 season to the 2010/2011 season is for instance due to export restrictions on wheat during the former season. On the other hand the chart also shows that the production of cotton, sunflower, corn and sorghum hold a significant position through the five agricultural seasons.

Based on the previous sections it became evident that government actions in terms of export restrictions and taxes and centralization of decision-making impair the farmer's capacity to diversify agricultural production which leads to further concentration of the soybean production. According to Barsky & Dávila (2008:58), if production of soybean is more profitable than other products you cannot blame the soybean or the agricultural producers, but the state which has not elaborated policies which promote other products. Hence, the soyaization is not a process produced by the farmers. Farmers and organizations such as la Asociación Argentina de Consorcios Regionales de Experimentación Agrícola (AACREA), a national association of agricultural producers who work in groups to share experiences and knowledge, have always considered the importance of crop rotation to maintain the soil and as an economic strategy. According to Barsky (2012), researcher at CONICET specialized in agricultural studies, have governmental measures which favour the production of soybean destroyed this practice. The government criticizes the soybeanization, but simultaneously promotes it through policy actions. Challenges related to government policies may force farmers to neglect rotation techniques to achieve profitability. Eduardo (2012), farmer and member of the UAA, claims that when the farmers in the region face economic pressure they have in some circumstances to ignore ecological matters. However, farmers who are members of the cooperative have the advantage of buying inputs from the cooperative and are ensured to sell their products at good market prices. In addition, farmers have access to technical assistance to tackle problems related to weeds, soil quality and technical training. In this context the UAA supports farmer's capacity to conduct rotation and diversification of crops through internal trading, commercialization of products and technical assistance.

6.3.2 No-till farming

The no-tillage system is based on the absence of tillage and maintenance of soil covered by crop residue. No-till farming is done by cutting only the surface of the soil which opens a planting line and thereon deposits the seeds and closes the open furrow (Solbrig & Adámoli, 2008:27-29). No-tillage farming reverses the negative consequences from conventional tillage

or ploughing practices. In Argentina no-tillage farming became more significant in the end of the 1980s due to increasing soil erosion in the Pampa region caused by traditional farming. The introduction of no-till farming has reduced this tendency, and the Argentine soil holds a better quality today compared with 40 years ago (Barsky, 2012). Raul Nicklis (2012), farmer and mayor of Lanteri representing the PJ, claims that their region they have practiced no-till farming for more than 20 years. This has improved the quality of the soil. The fact that the water which flows from the fields is clean is a clear sign of limited soil erosion. Moreover, no-till farming shortens the time span between wheat harvest and soybean planting, and makes an extra wheat-soybean cropping a feasible option to increase the productivity (Trigo, 2011:34).

On the other hand the cultivation of GM soybean is adjusted to the no-till farming system. The introduction GM seeds tolerant to glyphosate favoured the use of no-till farming since it has complete control over weeds and inflicts a minimum harm on the quality of soil. Earlier agrochemicals inflicted heavy damage on the soil because of a high toxic level and therefore limited the positive function of no-tillage farming. However, through no-tillage farming in combination with rotation of crops allows farmers to maintain soil nutrients and productivity. The UAA had a close cooperation with the regional office of INTA to implement the no-till farming system in northern Santa Fe (Spontón, 2012). The UAA promotes the use of no-tillage farming in the region through providing loans to farmers who need to invest in sowing machines, tractors or machinery components. The cooperative can also provide technical assistance through agronomists who work in the technical administration of the cooperative and promote new seeds and agrochemicals used in no-tillage farming. This knowledge is transferred to associates through monthly meetings or distributed reports (Raffin, J., 2012).

6.3.3 Diversification of production activities

A new target area for the cooperative is, as mentioned, land intensive agricultural activities to respond to the farmer's lack of economic resources or access to acquire land in the current production system. However, agricultural diversification also conserves natural resources by limiting the dependence on incomes from activities on arable land, and has a socioeconomic distribution effect through using more local and regional labour compared to the GM soybean production. Poultry farming, horticulture and feedlots serve as an alternative to large-scale agricultural production. The UAA as an institution has for several years promoted agricultural

diversification to achieve sustainable rural development and generate stable family businesses and predictable economic cycles for its associates (Avellaneda, 2011:35).

A continuing expansion of poultry farming is one measure to meet national and international food demand while simultaneously diversifying the agricultural production. The current government supports this production by giving compensation in grain prices for food used to feed poultry. In northern Santa Fe farmers have exercised poultry farming for more than 20 years, but innovating measures from the cooperative have made this production more efficient and profitable. The current poultry farming involves a high level of technology since the production process is fully mechanized and computerized. This production activity also represents the highest investment of the cooperative during the 2010/2011 campaign. During this campaign the cooperative arranged meetings with the members to exchange experiences concerning problems, solutions and future objectives related to poultry farming (Avellaneda, 2011:35-42). The Raffins were currently investing in chicken breeding when I conducted my fieldwork. Their plan was to build four chicken breeding houses with the capacity of 27 000 each. One was under construction, and the future income from this production would cover the expenses for the three latter. Leo (2012) claims that in the construction phase of the houses, which will cost 1000 000 pesos¹³ in total, they contribute to labour through buying material, painting, constructing and laying pipelines for water and installing electricity. Each breeding house has a full automatized system where feeding, temperature and dimming are regulated by machines. Baby chickens and food, which represent the main inputs in this production, are bought through the cooperative. When the chickens reach a marketable size they are sold back to the cooperative. Poultry farming requires big pre-investments, but meets challenges related to production scales since farmers neither need big space nor access to agricultural land to make the production feasible. Production activities such as poultry farming complement other economic activities and allow the farmers to achieve profitable productions. Moreover, residual from the production contains many nutrients and can be used as fertilizer in agricultural production (Raffin, J., 2012).

Another economic activity which both contributes to socioeconomic distribution and production diversification is horticulture. Horticulture or cultivation of vegetables does not require a large area and is inexpensive to operate. On the other hand, this activity is labour

¹³ 194 062 US\$ according to current currency, 18.04.2013

intensive and involves several workers in the production process. During the last year an agronomist from the cooperative invited farmers with limited arable land to invest in vegetable farming as an additional income. The farmers received training and several farmers are making great progress. One farmer which last year was highly indebted plants 3800 salad plants every tenth day and other vegetables which he sells to the cooperative. In combination with agricultural production on his own and rented land he can both achieve a decent living and repay his debts (Stølen, 2013).

Feedlots are an increasing economic activity in northern Santa Fe which is organized without the help of the cooperative. In this production cattle are kept within a subdivided fenced area with continuous access to concentrated food. The Raffin brothers use a mix of grains and residuals from cotton, corn and sorghum production as food for the cattle. This system is based on a rotation of cattle after size. When cattle reach a certain size they are moved to another fenced area. In the final stage the cattle are sold nationally to private retailers. The production area is less space demanding compared to agricultural production and there is no need for fertile soil since cattle are fed in troughs from a passing tractor. In the partnership Agretti Company, the Raffins share the ownership over 2000 cattle which are raised within a feedlot system. Leo (2012) has administrative charge over the feedlots business. He claims that this activity generates plenty of labour in the production chain. From the one million US\$ which circulate within this business each month the brothers only keep 10 000 US\$. In the feedlots business they have six employees.

Compared to the soybean production many of these agricultural activities have more backward and forward linkages which are connected locally. Agretti (2012), farmer and former president of the UAA, claims that agricultural activities performed in the region produce more development than large scale production of soybean. The soybean production process is very automatic. All you need is a mobile phone, one car, one fumigator, one contractor and access to land. The inputs are owned by big companies and do not support any local development. There exist many areas with a high level of soybean production which generate great national incomes, but this economic growth and development is not inclusive for the areas in question. Spontón (2012), the regional director of INTA in Santa Fe, explains that the new production model involving GM soybean can be very exclusive since farmers in Santa Fe who owns arable land in Santiago de Estero can buy all the inputs from their proper

province and after harvest they bring all products back to their province and consume all income there.

The analysis from this section illustrates that the cooperative takes either a proactive or supporting role towards contributing to socioeconomic distribution and agricultural diversification. The cooperative supports rotation techniques and no-tillage farming, and members seem to adhere to these agricultural techniques in spite of short term profitability of the soybean production and lack of government policies which support the farmers. In the case of implementing new production activities face to face communication and common agendas for problem solving through meetings arranged by the cooperative emerges as an important factor for finding solutions related to size of agricultural land and resource use. The analysis also highlights that agricultural diversification generates local and regional socioeconomic distribution since the production cycle involves more local labour and suppliers than soybean production, and conserves arable land from careless exploitation. The last part of the analysis recaptures the theoretical framework and proposes why the cooperative may represent a better model for achieving an improved resource led management which encompasses socioeconomic and environmental factors.

6.4 Resource governance

This last part of the analysis compares local with private market and government led resource management in the investigated region. The analysis recognizes the vital socioeconomic and environmental functions of the cooperative and opts for a polycentric governance model where the cooperative have bigger influence in the governmental decision-making processes.

6.4.1 Common rather than individual management of natural resources

This section is based on the comparison of local versus a private market led resource use. In a private market the competition is meant to be equal, and institutions to mitigate negative socioeconomic and environmental impacts are absent. Olson (1965: 68-72) emphasizes the importance of economic benefits to achieve collective action, and that subjects will not act collectively if the benefits of doing so do not surpass the profits of acting individually. The selective incentives provided by the UAA for its members may be a central factor for the

farmer's capacity to meet economic challenges. As it got clear throughout the investigation of this thesis, farmers in northern Santa Fe farmers who are connected to the cooperative have several economic advantages compared with unorganized farmers. Primarily, the individual farmer can suffer under more expenses from buying inputs at higher prices and are stripped of the possibility of temporarily borrowing inputs through a pre-established cooperative structure. Secondly, individual farmers must go through more obstacles for locating markets and have no guarantees of final sale when trading solo. Moreover, the lack of storage for agricultural products can force farmers to sell their products when international prices are low, and thus they are excluded from the system of future markets. Forth, unorganized farmers have only access to high interest loans and few economic options if crops fail. Individual farmers must expect to pay more than 20 per cent interest on loans while the cooperative operates with an interest of 12, 5 per cent. In addition, farmers connected to the UAA are also linked to ConInAgro and can draw more benefits from government policies. In other words, farmers represented by large agricultural organizations stand a better chance to gain attention and support from government agencies. Olson (1964:53) points out that changing national legislation in the favour of their members is the main focus for larger rural organizations. In Argentina many small and unorganized farmers, who often cultivate other crops than GM soybean and are important groups for maintaining agricultural diversification, lack representation at the regional and national level. The advancement of the agro-business to regions in the north has forced some of these communities to relocate. Teubal (2012), researcher at CONICET specialized in the Argentine agrarian economy, mentions that many family farmers and indigenous communities were forgotten during the agro-state protests in 2008. La Mesa de Enlace, the emerged cooperation between the four agricultural organizations against the 125 resolution, do not represent family farmers and indigenous communities further inland. In contrast, members of the UAA achieved greater support for their cause and managed to the reverse the law with the help of a larger organizational structure. This situation can also reflect Schneider's (2004) theory where individuals strive to be part of an organization as a self-defence mechanism against governmental reformist policies.

The cooperative also has a wide network which accumulates knowledge and economic possibilities and facilitates for common problem solving. Primarily, the UAA has a close cooperation with INTA to solve challenges concerning natural resource use and technological adaptation. However, the cooperative also cooperates with other rural organizations, firms and

cooperatives. The UAA has for instance an ongoing cooperation with La Asociación para Desarrollo Regional (ADR). This organization encompasses private and public actors from 15 municipalities with the objective of supporting small farmers. Furthermore, there exist collaborations and linkages to organizations representing cotton and sugar farmers, but also companies providing insurance, animal health and vaccination. Agricultural activities in the region are often interconnected to the farmer's socioeconomic situation, and the cooperative works to assist everyone to avoid potential repercussions (Nicklis, C., 2012). In Ostrom's (1994:6) opinion social interaction and cooperation between subjects increases the overall economic and environmental benefits. Exchange of knowledge and services among farmers to solve social dilemmas implies more opportunities and increases chances of better resources management compared to farmers who do not engage in collective action. Mutual problem solving can either be done through formal structures organized by the cooperative or informal structures where the cooperative operates as a facilitating institution for cooperation between farmers. Moreover, the resource units harvested by one individual are not automatically available to others (Ostrom, 1994:3), but with the presence of the rural cooperative, farmers are presented with the same possibilities for adapting to new crops or production activities. In a region with diverse agricultural activities and production such as horticulture, cattle, poultry and pig farming the cooperative has to respond their members in an honest way. They also stress institutional participation by the members to reach a better understanding on what is working and what is not. Based on Ostrom theory the associates of the UAA, through collective choice arrangements, stand a better chance to adapt to new conditions and information over time than unorganized farmers. Finally, through the 93 years of operations the cooperative has always sought to recruit new members, and in that manner the UAA strengthens their business position and improves the potential of other members. During the last years the cooperative has spread its operations to various provinces to give farmers a better insight into what the cooperative does and especially how they can commercialize their products through the cooperative (Nicklis, C., 2012).

6.4.2 Local rather than governmental management of natural resources

According to Ostrom (1997:1-2) local institutions, such as the UAA, have many advantages to approach and manage resources in a more economic and environmentally adequate way than the state. In northern Santa Fe, as in other agricultural regions, land is the most important

input used in agricultural production. However, resource systems are in most cases under influence of local, regional, national or international authorities, but participants in self-governed systems elaborate the most important rules to sustain and use resources. Compared to the government, the UAA has better knowledge of regional resources, both natural and human. Primarily, this makes the rural cooperative better equipped to meet local interests and needs. Secondly, a deeper understanding of regional eco-systems and how these are affected by human interaction enables the UAA to elaborate strategies based on environmental and economic considerations.

In terms of natural resources the Argentine government has implemented some measures to protect the environment. The environmental law of 2002 ensures minimum rights and protection of natural resources. Furthermore, the government has implemented laws which prohibit the use of agrochemicals with high toxic levels, such as endosulfan. But faced with conflictive economic interests and lack of economic resources on the regional level the national environmental laws can have limited effect (Dávila, 2012). Barsky (2012), researcher at CONICET specialized in agricultural studies, claims that today we have more restrictions and regulations concerning the use of agrochemicals in Argentina, but regional governments have limited capacity to monitor and enforce laws. Argentina is a federal state where the provincial authorities have a lot of autonomy in regional decision making processes. In 1994 the government of Menem transferred the administrative power over natural resources back to the provinces. In other words, the state has few tools to intervene in regional resource management (Teubal, 2012). Based on Schneider's (2004:5) perception of government actions, government control over natural resources is not a good alternative since the government has no interest in developing local communities if it is not in their own interest. In this context, the government uses organizations for its own benefit to gather political support or overcome economic challenges on national level. According to Landgraf (2012), the financial director of ConInAgro, the Argentine government treats the agricultural sector as a source of financial revenues since the national treasure depends on the amount of soybean being produced. Chinchin (2012), the president of the UAA, confirms this argument suggesting that the government does not seem to care about the increasing presence of monocropping, the MNC Monsanto's control over agricultural inputs or environmental considerations. They only care about extracting incomes from the rural sector to promote their own policies.

According to Ostrom (1990:25) cooperatives can be used as an example of how local institutions develop their own internal governance mechanisms and formulas for allocating costs and benefits to their partners. In contrast to the state, northern Santa Fe is one of the richest regions in Argentina in terms of organizational activity despite economic and ecological limitations compared to other agricultural regions in the country. Within this context the UAA plays a central role. Spontón (2012), the regional director of INTA Santa Fe, suggests that the UAA's organizational model can be a good basis for approaching environmental issues. By carrying out environmental studies concerning waste management and atmospheric pollution and efforts to meet environmental norms elaborated by the regional and national secretary for environmental issues, the UAA works to strengthen and transfer the practice of social and environmental responsibility to its members (Avellaneda, 2011:27-28). Moreover, well established institutional channels for support and representation within the organizational structure of the cooperative enable farmers to meet environmental related issues. The UAA has many monitor mechanisms, but these have largely positive functions to meet member's interests and demands. Another aspect of this discussion is the cost of developing replacing local institutions (Ostrom, 1994:2). Government policies and lack of institutional security can undermine the activities promoted by the rural cooperative. Agretti (2012), farmer and former president of the UAA, claims that the cooperative represents a valuable socioeconomic alternative in the region compared to weak government institutions, but this is on a micro level, and it is hard to maintain a sustainable production when institutions fail economically on macro level. For instance, the cooperative gives credits to buy inputs for crops, but if we have a severe drought and farmers cannot pay their debts shall the government not support the cooperative for ideological reasons? If the cooperative gets dissolved it is costly to develop replacing institutions. According to Leo (2012), the government does not understand how advanced and value adding the agricultural sector is, and all of the social actors involved in the production chain. Local based family businesses can for instance generate many jobs in the rural communities.

To sum up the last two sections, in contrast to the private market which makes no distinction between social actors and takes no considerations to unequal distribution of socioeconomic and environmental pros and cons the cooperative can meet the specific demands and objectives of its members in a more efficient and sustainable way (Nicklis, C., 2012). The second section illustrate that the Argentine government has inadequate information on regional agricultural production and ecosystems and regional governments lack financial

resources to implement environmental laws. Moreover, considering the context where the national government only favours certain groups of the society and the costs of replacing local institutions limits the trust in a government led resource management.

6.4.3 Polycentric management of natural resources

From the previous discussions it is clear that neither a purely private market nor a government led resource management satisfy socioeconomic and environmental preferences in the investigated region. However, the close linkage between government policies and agricultural production in Argentina cannot be discarded, and the government will continue to intervene in the rural sector. This calls for a closer cooperation between the government and the rural cooperatives which can be based on what Ostrom (2007:18-19) defines as a polycentric governance system. In such a setting, governmental policies can be elaborated in cooperation with cooperatives to facilitate rural progress locally. One argument for a more agro friendly approach is due to the investment capacity of the rural sector. The agro-industry represents the sector with the highest levels of investments and reinvestments, and the majority of these investments take place in local communities. Leo (2012) explains that continuous investment is the only way for farmers to maintain profitability. If they have one peso or one million pesos they invest it all. Based on this reality governmental policies should aim at local investments and production added value in local contexts to make products and farmers more competitive (Trigo, 2012). In this context the UAA emerges as an interesting candidate for agro-state collaborations due to their organizational structure. Chinchin (2012), the president of the UAA, claims that the cooperative gets visitors from political parties, firms and universities because they illustrate an interesting case for how farmers organize and face environmental and economic challenges in a marginal region. The cooperative also takes part in policies being designed at the local and regional level, and they have a leading role in the design and implementation of new laws. The rural cooperatives have displayed strong organizational structures for more than 50 years, and exercise a lot of influence and autonomy in their areas of operation, but they lack institutional influence and representation at the governmental level (Horacio, 2012). From a CPR perspective, governmental actions should enhance and not counteract long lived social capital on the community level (Ostrom, 1994:1). Hence, a closer cooperation between the UAA and the government could strengthen already established socioeconomic and resource management structures in the region. On the other hand larger regimes, such as the government, can also make valuable contributions in

regional-national collaboration. By providing proper infrastructure, land market regulations, trade possibilities and local development projects government efforts can facilitate local and regional self-organizing institutions. The probability of participants adapting more effective rules in macro regimes that facilitate their effort over time is higher than in regimes that ignore resource problems entirely. Therefore self-organized groups can be sustained for a longer period if they develop governmental arrangements (Ostrom, 1999:2). The current situation for farmers in northern Santa Fe is characterized by a government which extracts great income from the region without doing any significant reinvestments in regional or local areas or production. To prevent this negative development the government must promote a more local based development. According to Spontón (2012), director of INTA in Santa Fe, farmers in the region need politics which favour local businesses and local processing of products that bring work back to the place of origin.

Related to these topical sections we can highlight that the UAA emerges as the best option to manage natural resources compared to the state or market. Considering the fact that local institutions have more knowledge about available production possibilities and local ecosystems enable them to elaborate strategies which encompass both conservation of natural resources and productivity. The synergy effects between these two processes contribute to socioeconomic distribution and improved management of natural resources. Governmental policies and involvement in the rural sector should reinforce the present organizational and production structures.

7 Conclusions

I have in this thesis analysed how rural cooperatives can contribute to socioeconomic distribution and improve natural resource management in the agricultural reorganization oriented on the production of GM soybean in Argentina. To start with I showed how the diffusion of GM technology and the following soybean boom is generating socioeconomic and environmental implications for farmers in Argentina. First, I discussed that the GM technology used in soybean production is not scale neutral. This means that the technology is more profitable for large scale farming which leads to the exclusion of many small and medium sized farmers. Second, I showed that the soybean production has replaced other crops and agricultural activities. Third, soybean production extracts more nutrients from the soil compared to other crops. Finally, I presented how the policies and actions from the government of Néstor Kirchner and Cristina Fernández de Kirchner undermine rural representation and farmer's economic capacity to meet challenges related to the GM soybean production. In this context agricultural cooperatives are central to mitigate socioeconomic and environmental impacts produced by government actions and the transition to the GM soybean production. Based on this conclusion I sought to answer the following research question:

How do rural cooperatives contribute to socioeconomic distribution and improve the management of natural resources within the agricultural reorganization oriented on the production of GM soybean?

In order to understand why individuals seek representation and collaboration in cooperatives, and which benefits can be derived from a potential cooperation, I decided to apply the concept of collective action. The theories of Ostrom, Olson and Schneider present us with different perspectives on collective action. The main arguments of the theories illustrate how the analysis of collective action has gone from only treating individuals as isolated rational actors to also encompass several social factors such as face to face communication, community participation and engagement in common problem solving agendas. Finally, collective action can also emerge on government initiatives, and the state incentivize collective action, and thus influence the organization of business associations, labour unions or rural organizations through giving privileged access to policy-making circles or implementing reformist policies.

Theories discussed shows that the origin, development and maintenance of collective action are largely embedded in economic and social benefits produced by an ongoing social interaction between individuals engaged in similar activities. In this context participants of a community will use many formal and informal social structures to cope with common dilemmas. When analysing collective action within a broader political arena, government actions also play a crucial role for how collective action is exercised on local level. The agro-state conflict in 2008 is highlighted in the thesis to shed light on this argument. Based on this information I can at this point claim that collective action to cope with negative impacts from the soybean boom and government action is achieved through social interaction and the presence of local institutions.

The next challenge was to apply the theoretical framework on to my case. Collective action in the Argentine agriculture is complex since farmers and rural organizations are organized and interact with authorities on several levels and are intervened in a highly dynamic and advanced production chain. In my thesis it became important to capture how farmers engage in collective action within this larger system. First, I used Olson theory to understand how the cooperative generate collective action by providing members with selective incentives and how the cooperative manoeuvred within the broader political system. In this context farmer's access to economic and political benefits through participating in the cooperative is a central argument for collective action. Secondly, with help of Ostrom's theory I analysed collective action seen from a local level. This involved analysing the interactions between farmers and the cooperative, but also processes of interaction in informal structures where the cooperative plays a supporting and facilitating role. Given the Argentine context and previous and the current agro-state conflicts, how government actions influence the cooperative and farmer's strategies for collective action, presented by Schneider, was analysed as a final question. So far I can conclude that the investigated cooperative provides economic and social incentives and therefore takes a proactive and supporting role in the processes of collective action. The cooperative gives economic incentives through providing members with commercialization of agricultural products, agricultural inputs, loans and technical assistance. Moreover, lobbying work conducted by ConInAgro at the national level may bring legislative benefits for the cooperative members. ConInAgro's involvement in the rejection of the proposed mobile tax law in 2008 reflects this argument. Social incentives are accumulated through participation in the cooperative, frequent meetings, workshops arranged by the cooperative and close monitoring of the cooperative members. Finally, I show that the policies and action carried

out by the Kirchner governments promotes the production of GM soybean and have a negative impact on socioeconomic distribution and natural resource management. On the other hand, undermining government policies have generated a closer cooperation between members of the cooperative which can reflect a kind of self-defence strategy.

The second chapter of the analysis focuses more specifically on measures, provided by the cooperative to their members, which contribute to socioeconomic distribution and improve natural resource management. First, the cooperative has several functions, such as providing loans, technical assistance, partnership and new production activity, for coping with the question of handling production scale or size of agricultural land. Second, the cooperative provides economic based support of agricultural practices which maintain agricultural diversification and conserve natural resources through crop rotation and diversification combined with the use of no-till farming. In addition, through an ongoing cooperation between the cooperative, INTA and bio-technological companies, the cooperative can help their members to introduce new crop species and varieties and agrochemicals into these production processes. The cooperative also support farmers in initiating new production activities, which can be combined with ongoing cultivation practices, to spread economic activities and conserve natural resources. Findings from this analysis illustrate that the cooperative play a crucial role for mitigating negative socioeconomic and environmental impacts brought about by the soybean boom and government policies.

The last part of the analysis recaptures the theoretical tools and illustrates why a local instead of a market or state driven resource management is preferable. Due to knowledge of regional and local resources and ecosystems and economic and social strength make the UAA more equipped for coping with socioeconomic and environmental challenges. However, the analysis illustrates that due to the historical and current connection between the government and the agricultural sector in Argentina a development based on a polycentric governance model, where rural organizations play a more central role, may present the best solution for future resource governance.

7.1 Locating the findings within the broader discussion

In a broader perspective my research can be located among other studies concerning socioeconomic, political and environmental changes brought about by the GM technology in Argentina, and in particular the production of GM soybean. Previous studies mentioned in the introduction of the thesis mainly focus on two topics; the environmental and socioeconomic impacts of GM soybean production and the power struggle involved in this agribusiness.

Newell's research focus on how international biotechnological companies involved in the agribusiness, through providing inputs or export services, are dominant political and economic actors in the GM soybean production. On the contrary this theory can appear simplistic when we consider the complexity of the rural sector in Argentina. Findings from my research show for instance that the government and farmers, represented through rural organizations, are to a great extent involved in the political and socioeconomic interplay linked to the GM soybean production. The government intervenes in the agricultural sector to generate income to make their urban-centred policies feasible, which is also emphasised by Richardson. On the other hand, the emerged collaboration between the four agricultural organizations during the agro-state conflict in 2008 illustrates how farmers engage in collective action at the national level and are powerful agents in the struggle for economic resources derived from the soybean production. From an environmental stance the soybean production replaces other crops and agricultural activities and can produce ecological damages as suggested by Pengue and Teubal. However, farmers and rural cooperatives are not passive recipients of environmental impacts brought about by the soybean production. The research from northern Santa Fe illustrates active and creative farmers who interact in collective action through informal and formal institutions to find alternative economic solutions and conserve natural resources. Unlike the studies done by Trigo the research show that the GM soybean production in Argentina it is not automatically a win-win situation either since socioeconomic and environmental consequences from the soybean production are distributed unequally within the country and agricultural regions. This claim can be related to Rodríguez study which emphasize how the GM soybean production results in a substitution of other agricultural products and has sever social consequences for farmers how are excluded from this current agricultural reorganization process. How farmers deal with emerging social

dilemmas, and thus meet socioeconomic and environmental challenges, is to a large extent related to the presence of local institutions such as the UAA.

7.2 Contributions and future research

The research's main contribution is related to the agro-state relationship. Throughout the thesis I have emphasized the need for a deeper understanding of the multiple important functions of rural cooperatives in Argentina, farmers who participate in them and how they are interconnected to the agricultural chain of production. The investigated cooperative already have, on a local and regional basis, incorporated central functions for resource use and socioeconomic distribution to cope with situations brought about by technological changes such as the transition to GM soybean production. The government needs to develop regionalized agricultural policies which meet different demands and interests according to ecological zones and local or regional economic, institutional and technological capacity, and link partnership and investments across several sectors. This notion can be related to what Ostrom calls a polycentric governance model. The world increasingly demands more food, and the agricultural production in Argentina is expected to continue to grow. One way the government can contribute to national socioeconomic distribution and conservation of natural resources are through promoting local based development focusing on local productions and local added value within the various agricultural regions of Argentina.

Concerning future research Agrawal (2003:246) mentions that a weakness with the CPR approach is the unilateral focus on case studies and the lack of putting the empirical findings into broader perspective through comparative studies. My thesis can serve as a good basis for future comparative research of rural cooperative in Argentina, and other countries as well, to get a deeper understanding of similarities and differences between cooperatives and achievements and remaining challenges.

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Appendix 1: Interviewees

Agretti, Ruben – Farmer and former president of the UAA • Interviewed 9 November 2012.

Barsky, Osvaldo – Researcher for CONICET (The National Scientific and Technical Research Council), specialized in agricultural studies • Interviewed 2 November 2012.

Dávila, Mabel – Agronomist, Master Degree in political science and currently writing a PhD, specialized in agribusiness, international agricultural trade and agricultural technology • Interviewed 5 November 2012.

Delgado, Gabriel – National director of communication and information systems in INTA • Interviewed 19 November 2012.

Fortunato, Mallimaci – Professor in social history of Argentina, University of Buenos Aires (UBA) • Interviewed 15 November 2012.

Horacio, Quarín – Former secretary of the board of directors in ACA • Interviewed 7 May 2012.

Landgraf, Federico – Financial director of ConInAgro • Interviewed 16 November 2012.

Longoni, Matias – Journalist for el Grupo Clarín, specialized in agricultural issues • Interviewed 7 November 2012.

Nicklís, Chinchin – Farmer and current president of UAA • Interviewed 11 November 2012.

Nicklís, Raul – Farmer and mayor of Lanteri representing the government party (el Partido Justicialista) • Interviewed 10 November 2012.

Raffin, Eduardo – Farmer and member of the UAA • Interviewed 8-12 November 2012.

Raffin, Javier – Farmer and member of the UAA • Interviewed 8-12 November 2012.

Raffin, Leo – Farmer and member of the UAA • Interviewed 8-12 November 2012.

Raffin, Luis Miguel – Farmer and member of the UAA • Interviewed 8-12 November 2012.

Spontón, José Luis – Regional director of INTA Santa Fe • Interviewed 10 November 2012

Stølen, Kristi Anne – Professor in social anthropology, Center for Development and Environment (SUM), specialized in gender, ethnicity, power and violence and migration in Latin America, ongoing project about gender and changes among Argentine farmers related to GM soybean production • Interviewed 7 & 14 February & 26 March 2013.

Teubal, Miguel – Economist with PhD from the University of California, researcher CONICET, specialized in agrarian economy • Interviewed 19 November 2012.

Trigo, Eduardo - Senior Researcher with the FORGES Foundation and Grupo CEO, both institutions focusing on the provision of research and advisory services to the agricultural sector, specialized in agricultural economics, science, technology and innovation in Argentina • Interviewed 15 November 2012.

Appendix 2: Interview guide

- General information about interviewees or organization: Profession, research field or history, structure and objective of organization.
- General tendencies in the national and regional agricultural sector after the introduction of GM technology.
- The role of GM soybean in the technological and agricultural changes.
- Environmental and social changes and impacts, national and regional, brought about by the transition of the new technology and how this influence farmers and agricultural organizations.
- National policies towards the agricultural sector during the government of Néstor Kirchner and Cristina Fernández de Kirchner: Differences and similarities, changes and current policies.
- Relation between the increase and expansion of GM soybean production and government policies.
- Political and institutional representation of farmers and rural organizations at the regional and national level.
- The agro-state conflict in 2008: Origin of conflict, escalation of conflict, conflict development, result of conflict, aftermath of conflict.
- Relation between UAA and the members.
- Relation between UAA and ACA and ConInAgro.

- Relation between UAA and rural organizations, government institutions (INTA), biotechnological companies and other associations.
- Members/UAA's perception of social and environmental changes and impacts brought about by the technological transition.
- Members/UAA perception of government policies and actions towards the agricultural sector.
- Members/UAA's perception of socioeconomic and environmental impacts brought about by government policies and actions.
- Members and UAA's perception of and participation in the agro-state conflict in 2008.
- Importance and function of UAA in rural reorganizations: Curbing socioeconomic and environmental impacts.
- Comments/suggestions.