

CHAPTER 6

SEEDS AND SPROUTS OF RURAL DEVELOPMENT: INNOVATIONS AND NESTED MARKETS IN SMALL SCALE ON-FARM PROCESSING BY FAMILY FARMERS IN SOUTH BRAZIL

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ABSTRACT

In this chapter we examine how the small scale agro-industries located in Southern Brazil, specifically in the North of the State of Rio Grande do Sul, started to deal with changes in their production processes, how they created and adapted technologies, and devised new products. Among the main outcomes of the study we highlight the novelties observed during the field research, especially regarding the family situation and the agro-manufacturing activities, in which we observed (i) a relative raise in autonomy; (ii) improvement in both the income level and the quality of life of household members; (iii) creation of new nested markets and marketing channels; (iv) development of more environmentally sustainable

Constructing a New Framework for Rural Development
Research in Rural Sociology and Development, Volume 22, 127–156
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ISSN: 1057-1922/doi:10.1108/S1057-192220150000022005

products; (v) improvement of the value added to food products; and (vi) development of new interfaces between families and other social actors.

Keywords: Food production; on farm processing activities; innovations; food markets; rural development

INTRODUCTION

The paths and the trajectories trodden by farmers to facilitate their productive activities and ensure social and economic reproduction are neither linear nor predictable. Similarly, the aspects that contribute to decision making in any case are not teleological and even less structurally dependent. The initiatives, practices, capabilities, and resources mobilized by farmers and their families enable a multiplicity of activities and processes to be undertaken for tackling everyday problems or particular limitations they face. These determinants produce the contingencies that impel farmers to look for and mobilize resources, knowledge, social relations, and even political support. This is what leads farmers and rural families to become social actors. It is the actor condition that allows farmers to give *differential responses to similar structural circumstances, even if the conditions appear relatively homogeneous* (Long, 2007, p. 43).

The power and capacity of social actors stem from their “agency,” a concept defined by Long as the ability of an actor *to process social experience and to devise ways of coping with life, even under the most extreme forms of coercion* (Long, 2001, p. 16; Long & van der Ploeg, 1994). This is also connected with what van der Ploeg, Ye, and Schneider (see Chapter 2¹) claim in the position paper of the Third Seminar on the comparative analysis of rural development processes in China, Brazil, and the EU. In that position paper it is assumed that “(a) *these practices have certain traits in common* and (b) *that there are important and intrinsic relations between the actors and practices*” (chapter 1, p. 9).

The consolidation and the strengthening of family farming in Brazil in recent years have enabled an enormous variety of initiatives and practices, historically developed at the grassroots, to gain room and prominence. This is the case, for instance, of the processing of agricultural products and food stuffs that used to serve only the consumption needs of the farm unit and later became merchandise for exchange or sale. Such initiatives gave rise to small scale on-farm processing, organized around farm household

units, which process raw agricultural products into diverse value-added agri-food products.² Most of the work as well as the business management in these on-farm processing activities is done by family members, who provide these entrepreneurial initiatives with their knowledge and expertise. These on-farm processing units constitute enterprises characterized by a small scale of production, that enjoy economies of scope and operate through strong linkages with local and regional markets, often without registration (Gazolla, Niederle, & Waquil, 2012).

In this chapter, we aim to analyze small scale on-farm processing located in Southern Brazil, specifically in the North of the State of Rio Grande do Sul in a region called Alto Uruguai (High Uruguay) (named after the river of the same name that flows into Brazil's neighboring country).³ We intend to examine how these small scale on-farm processors bring about changes in production, how they create and adapt technologies, and devise new products. Our goal is to explain the process of transition toward these novelties and their integration into the existing socio-technical food regime. We also discuss marketing channels and flows set by these on-farm processors using the concept of *nested markets*, as formulated by van der Ploeg, Ye, and Schneider (2010).

The small scale on-farm processing activities are analyzed here from the perspective of rural development practices, since they may as much arise from contingent and spontaneous innovations as be responses to exclusion or marginalization endured by many farmers who are unable or who are not sufficiently efficient to meet the requirements of the dominant agri-food system. Therefore, on-farm processing emerges both as initiatives – expression of farmers' creativity and entrepreneurial skills – and as responses and reactions from those who cannot afford to follow the hegemonic production model. Many of the featured initiatives are new and others are adapted from previous such enterprises, but they all emerge as strategies devised by farmers and their families to seek ways of working and producing that allow for their permanence/continuance in rural areas.

The analogy of such practices with “seeds” and “sprouts” is a metaphor for examining the socio-technical production processes within agriculture and agri-food production. This analytical approach allows us to go beyond the current productivist rationality that prescribes widespread use and incorporation of external technologies (mechanical, chemical, and genetic) and the pursuit of productivity gains through economies of scale.

In such terms, these practices can be characterized as “seeds” that are yet to be put in fertile soil for germinating and producing something more, and as “sprouts” when they are already sown and emerge, starting to reveal

their configuration and potential. Hence, seeds and sprouts are perceived as both tools and strategies developed by farmers as means and mechanisms for doing things differently and thus creating and developing the ground-work for more substantial changes.

Accordingly, the rural on-farm processing activities described in this chapter express the power of agency of farmers as social actors. According to Long, the agency “attributes to the individual actor the capacity to process social experience and devise ways of coping with life, even under the most extreme forms of coercion. Within the limits of information, uncertainty and other constraints (e.g., physical, normative or politico-economic) that exist, social actors possess knowledgeability and capability” (Long, 2007, p. 48). Farmers who have power of agency seek to solve problems, learn how to intervene in the flow of social events, and continuously monitor their own actions, observing how others react to their behavior and noting various unexpected circumstances. This is the case of small scale rural on-farm processing studied in this research work.

In spite of being small-scale, the importance of family on-farm processing has grown in recent years in Brazil. Estimates by the Ministry of Agrarian Development (MDA) indicate that there were approximately 35,000 on-farm processors in 2008. Gazolla et al. (2012) refer to data from the Agricultural Census (IBGE, 2006) pointing out that 16.7% of farms in Brazil either process or manufacture some raw agricultural product. In Rio Grande do Sul (RS), data from the State Program of Family On-farm Processing (Programa de Agroindústria Familiar – PAF/RS) for the year 2011 indicate the existence of 7,700 on-farm processing units, most of them still unregistered. The micro region of Frederico Westphalen, our research field, encompasses 14.12% of all existing on-farm processing units in RS, thus being the leading region in the state regarding the number of experiences.

This chapter is organized into five sections besides the introduction and final remarks. In the first one, we briefly discuss what is meant by production of novelties and innovations, based on some relevant literature. In the second part, we describe the Medio Alto Uruguai/RS region, where the research was conducted. In the third, the two studies of on-farm processing – Agroindústria Biorga and Ludke – are presented. The fourth part analyzes the main novel products and production processes as well as some of their repercussions for families. The fifth part discusses/examines the main marketing channels, the *nested markets*, and the new collective and network organizations that have emerged, as for instance RECOL – the cooperative marketing network of family on-farm processing.

INNOVATIONS AND NOVELTIES BY SOCIAL ACTORS

By discussing the new ways of practicing agriculture and producing food, we are entering the field of studies on innovation, knowledge generation and transfer, and technological change. These studies have gained prominence in recent decades within the fields of sociology, geography, and economics. We do not intend here either to do a literature review or to enter the debates on the state of the art of this subject. Our purpose is simply to present some selected references and make clear the perspectives that guide our understanding of the concept of innovation and the way it was used in this research.

Generally, an overview of the literature shows that innovations have, almost always, two dimensions, which repeatedly appear in the various definitions (Wiskerke & van der Ploeg, 2004). The first one is the creative or ingenious dimension that can be verified in the effect of its use, insofar as, for something to be deemed an innovation, it must improve some existing artifact, technique, medium, or resource that used to operate in a similar, though less effective way. There are, however, many good and effective ideas and creations that, even so, do not become innovations. What they lack is precisely the social approval granted to those innovations that turn out to be recognized and legitimated as ideas or inventions that make a difference and become effectively as a social practice.

There seems to be a consensus among scholars that changes resulting from innovations do not occur “in jumps,” but rather gradually and continuously through small changes within society, which may be identified overall as transitions (Marques, 2009; Rotmans, Kemp, & van Asselt, 2001). The transition is the result of developments in distinct domains, such as socio-technical systems, networks, organizations or social groups, or even norms and institutions (Geels, 2004). In rural studies, transition leads to the constitution of a new form of organization in agriculture and food production, which is identified with rural development, this latter can be regarded as a multilevel, multifaceted, and multi-actor process embedded in historical traditions (van der Ploeg et al., 2000).

Recent studies on innovation have highlighted the social dimension of the process. Amin and Cohendet (2004) show that the processes of innovation and technological development are embedded in social contexts and that invention and creativity are results of an intense process of interaction and exchange of experiences based on practical and contingent circumstances. For the authors, although novelty generation on the factory floor can happen through learning-by-doing, it is necessary to comprehend both

the social and the institutional environments within which the interactions and exchanges that give rise to creative and innovative solutions to complex problems occur.

At the core of this new way of understanding innovation and learning processes, lies an epistemological shift grounded in the works of Cetina (2005), who suggests that, in the knowledge society, we must recognize that the production of knowledge is not limited to science and the experts. Cetina develops the concept of innovative epistemic practice defined as the practice focused on knowledge produced when problems arise within a particular routine or in the course of a new work.

The interest in farmers' modes of innovation and in the creation of experiments and tools aimed at *doing things in a different way* is embedded in such a perspective – one that comprises the sphere in which individuals change, modify, and confer new functions to a particular resource or device. Farmers are very inventive and ingenious in the art of modifying, adapting labor tools, and/or adapting resources for production. These processes of creation and inventiveness are what we call novelties.

Forms of innovation comprise the repertory of practices and initiatives created and developed by farmers to cope with the unexpected structural and contingent situations that diminishes their autonomy, thus weakening their situation as producers. In a context where agriculture is increasingly embedded in market circuits, within which farmers mobilize production resources (inputs, seeds, etc.) mostly through purchases, thus becoming dependent on external demand for selling their produce, the innovative capacity, creativity, inventiveness, and the creation of room for maneuver grant farmers their flexibility, learning opportunities, and knowledge – elements that become essential for their interaction with the economy and broader society (van der Ploeg, 2008; van der Ploeg, 2003b).

These so described practices and initiatives by family farmers are consistent with what Stuver and Wiskerke (2004) have described as novelties, which are distinct from incremental innovations. These authors claim that innovations are linear and incremental because they are created within a particular environment (laboratory, university, etc.) and then transferred to other spaces where they are replicated, adapted, and possibly improved. Van der Ploeg et al. (2004), furthermore, states that incrementalism is characterized by the addition of the next small step along a predefined route, producing small changes and adjustments in the pattern or in the direction of the adopted technological development. Novelties, in contrast, represent frequent ruptures in a discontinuous and

unpredictable process, which undergoes recurrent adjustments, feedbacks, and alterations (Knickel, Brunori, Rand, & Proost, 2008).

In this sense, we agree with Gaglio (2011), who points out the need of distinguishing innovation from invention (which he associates with the cognitive capacity of creating), from novelty (that is something different, not yet existent), from fashion (that is a trend), and from creativity (that refers to talent, capacity, and ingenuity). He emphasizes that an innovation can be recognized and identified by the following characteristics: (a) processual conception that presupposes a route from an initial project or idea to a final product; (b) integration into the market, which implies that a creation must face and be subjected to public evaluation and judgment; and (c) the commercial success that is the positive sanction of public preferences.

Novelty production constitutes a reference framework where novelty is understood as continued activities by farmers for seeking viable solutions to the everyday problems they face and for which they try to create and devise new and better ways for optimizing the use of production factors (Oostindie & van Broekhuozen, 2008; Stuiver, 2008). According to Oliveira, Gazolla, and Schneider (2011), innovation does not result only from the introduction of technologies or exogenous knowledge. In our view, innovation also stems from a continuous and daily round of adjustments to the conditions that farmers face and tackle.

For Gazolla (2012), novelties are characterized by being based on farmers' knowledge (particularly, tacit and contextualized knowledge), by showing a rather radical nature, being internal to the institutional context in which they emerge and rooted in the socio-spatial territory where they are created. Novelties also have the potential to generate relevant transformations in established social practices by adding greater degrees of autonomy and sustainability to production and economic activities of their creators. Relying on European literature about novelties, Gazolla points out another characteristic, namely that novelties often emerge outside of formally established norms and regulations.

Authors like Hebinck (2001), Wiskerke (2003), Wiskerke et al. (2004), and Moors and Wiskerke (2004) call attention to the fact that the creation of novelties in agriculture is a highly localized process dependent on time, local ecosystems, and cultural repertoires surrounding the organization of work. A novelty can be understood as a change in, and sometimes a break from, existing routines. Hence, a novelty can either imply a change in an existing practice or comprise a novel practice. It can also be a novel way of

thinking or doing things, presumably able to bring about improvements in existing routines (van der Ploeg et al., 2004).

The general analysis of novelties comprises, however, one level that is not referred to as the use of artifacts, techniques, or resources. Such a level involves the creative processes that bear a collective nature, since they are characterized by new forms of social and political organization realized in the form of cooperatives, associations, and other joint activities that lead to social cohesion (Schneider et al., 2014). These are processes that some authors refer to as social and institutional innovation (Piraux & Bonnal, 2011). Such innovations imply a convergence of interests toward a common goal or cause, whose implementation occurs by means of a grouping mechanism that requires organization, governance, and distribution of incumbencies and power.

In this sense, our purpose here is to demonstrate that, whenever farmers try *to do things in a different way*, it involves both the technical practices of production and the processes (creating marketing channels and new markets), as well as of particular forms of social organization. The experiences of family on-farm processing are emblematic. The start-up lies always in the creation of some novelty, either in the field of production processes or in the development and improvement of technologies applied to convert raw materials into merchandise and food. It is also manifest in the creation of marketing channels and sales outlets for the products. Finally, these novelties reach the ambit/level of collective organization when they unfold into mechanisms that lead to the creation of cooperatives and other forms of association – political organizations aimed at consolidating this process and guaranteeing its broader reproduction.

TRADITIONAL “COLONIAL” FARMING AND THE MODERN AGRICULTURAL *SQUEEZE*

The social, economic, and cultural context, in which such innovation practices of family farming in Rio Grande do Sul emerge and develop, is marked by an historical trajectory referred to as the process of immigration and colonization of the State by Europeans. The region called Medio Alto Uruguai/RS was occupied by descendants of European immigrants, mainly Italian, German, Polish, among other ethnic groups, that settled colonies in the region as of 1925, when the State Government established the Land Commission in the city of Palmeira das Missões. As a result of this process,

the Northern part of the state has historically developed production systems predominantly characterized by the production and labor⁴ of the family unit.

To a certain extent, Medio Alto Uruguai region shares many characteristics with the region of Missões, already portrayed by [Schneider and Niederle \(2010, p. 388\)](#). Once settled in the areas of the Atlantic Forest, using a practice of cutting, burning, and planting, the colonists developed an agricultural system known as the Colonial Agricultural System (CAS). This system consisted of growing some crops for sale (potatoes, cassava, and beans) and in the occupation of new neighboring areas by grown-up children, as soon as new family units were created. This constituted a way of life, since it involved both a mode of producing and working that was peculiar to those farmers and which had particular forms of sociality, cultural traits, and social values ([Schneider, 1999](#)). Regarding the mode of production, CAS, was characterized by the diversity of crops and food products primarily intended to supply households (own/self-consumption), holding few connections with existing markets, and selling only some surplus. As to the forms of neighborhood sociality, much importance was attributed to symbolic exchanges of food products, the practice of mutual aid between families, kinship and neighborhood relationships, and also to community celebrations.

This system started to collapse due to soil and native flora degradation as a result of the farming practices that consisted of cutting, burning, and planting, and that led to subsequent abandonment of the area. From the 1960s on, family farming in Medio Alto Uruguai region entered a new stage characterized by the abandonment of polyculture and the introduction of soybeans as the main monoculture. Family farmers left behind other crops and started growing soybeans that, between the mid-1960s and the 1980s, garnered attractive prices in view of the huge export demand for this commodity. With the practice of monoculture, the tradition of cultivating varied crops along with animal raising was gradually abandoned and farmers become dependent on the purchase of external inputs, especially fertilizers and seeds, but also on agrochemicals for the control of infestations and diseases that had started to appear.

As a result of this process, an increasing appropriation of external knowledge and technologies by family farmers took place. Large soybean fields spread throughout the region are the major indicator of such a socio-economic and productivist process. The agriculture also becomes increasingly integrated with agro-technologies, and input and commodity markets, thus becoming dependent on these latter for its own reproduction. Accordingly, we observe a phenomenon called by authors such as [van der](#)

Ploeg et al. (2000) the “agricultural squeeze.” On the one hand, production costs of rural establishments rise due to the acquisition of external inputs and technologies and, on the other hand, such establishments get low prices for their products in the markets, which implies very small margins and ultimately decreased incomes.

The agricultural squeeze led Medio Alto Uruguai region into the second major socioeconomic crisis in its short history. This crisis impelled farmers to mobilize for confronting the negative effects of this productive pattern as well as looking for alternative ways to get out of it. As a result, new agricultural activities and added value strategies began to be developed by families, such as fruit growing, milk production from pasture-fed cows, agri-food manufacturing, diversification of agricultural produce, and sales to institutional markets under the Food Procurement Program (FPP) and the National School Feeding Program (NSFP). It is in this context that the family on-farm processing (food products manufacturing units organized within rural establishments and households) emerges, giving birth to innovative farming activities (new products, new ways of processing food, marketing channels, and organizations), as we will show in the following sections.

Thus, a third phase in family farming development was initiated in Medio Alto Uruguai region – one that is characterized by the creation of technological alternatives and a search for new ways of integrating family farmers into the various food markets. This phase occurs concurrently and coexists with the hegemonic pattern of production of export commodities such as soybeans. In a sense, one may claim that this is an attempt to resume or return to the farming of earlier modes practiced in the region prior to soybean monoculture. Certainly, the context has changed, bringing about both opportunities and new challenges, which will be further analyzed on the basis of the trajectory of two small scale on-farm processing cases.

THE TRAJECTORIES OF TWO SMALL SCALE ON-FARM PROCESSING ACTIVITIES – THE CASES OF BIORGA AND LUDKE⁵

In order to analyze the social process of emergence of small scale on-farm processing activities we chose the cases of Cooperativa Biorga in the municipality of Erval Seco and Agroindustria Ludke in Constantina. As it is

shown in [Table 1](#), both enterprises were established in the 2000s and present a wide variety of products and processed foods. Biorga stands out for working with small alternative grains cultivated in family farms, such as flaxseed, wheat, beans, popcorn, peanuts, sesame, linseed and sesame oils, as well as hominy corn, and flours made of corn, sesame, linseed, and wheat, all of them organic foods. The small scale agro-industry Ludke is distinguished for producing milk from pasture-fed cows and for manufacturing parmesan and seasoned cheeses from the raw material ([Table 1](#)).

Cooperativa Biorga is a rural small scale agro-industry that operates through a networking association, and is formed by 32 associated family farmers from the neighboring municipalities of Cristal do Sul and Erval Seco. Its labor force is mostly comprised of the associated families, and its center of operations counts on one employee, who develops all food processing activities, and one manager, responsible for the marketing and accounting operations.

The creation of Biorga was impelled by two main factors ([Table 2](#)). On the one hand, the appropriation by local farmers of new knowledge on agroecological production, acquired during training courses and visits to enterprises of other organizations and farms. In this respect, the Lutheran Church, the Support Center for Small Farmers (Centro de Apoio ao Pequeno Agricultor – CAPA), and the NGO Terra Nova Mondai/SC were instrumental in supporting these families. On the other hand, the emergence of “awareness” of alternatives to conventional farming, especially because of the harm and damage caused to associated families by pesticides and monocultures.

Agro-industry Ludke stems from the family farming traditional production of milk and cheese that had never been sold in the market and served only to supply a family’s own consumption needs. Production surpluses were sold only in small quantities, without playing an economic role in

Table 1. Small Scale On-Farm Processing in Biorga and Ludke.

Small Scale Agro-Industry and Locality	Year of Constitution	Food Produced and Processed
Cooperativa Biorga (Erval Seco)	2001	Flaxseed, wheat, beans, popcorn, peanuts, sesame, linseed and sesame oils, hominy corn; flours made of corn, sesame, linseed, and wheat
Agroindústria Ludke (Constantina)	2002	Farmhouse natural parmesan and seasoned cheeses

Source: Gazolla (2012).

Table 2. Main Reasons for Family Farmers Setting up Small Scale On-Farm Processing on Their Farms.

N	On-Farm Processing	Reason for Its Creation/Emergence
1	Cooperativa Biorga – Erval Seco Subsidiary	<ul style="list-style-type: none"> • Course of agroecology promoted by the Lutheran Church, providing basic knowledge on the organic farming of alternative grain crops. The course was developed in partnership with the NGO Terra Nova from Mondai/SC; • Visit to a factory of conventional seed oils in Panambi, where visitors acquired some information on the processing of vegetable oils; • Technical agroecology advice by the Support Center for Small Farmers (Centro de Apoio aos Pequenos Agricultores (CAPA) – Mondai/SC);
2	Agroindústria Ludke (Constantina)	<ul style="list-style-type: none"> • Families had traditional knowledge of the production of dairy products, especially cheeses for home consumption; • Visits to other agro-manufacturing initiatives, in the States of Rio Grande do Sul and Santa Catarina, for learning how food products were organized and manufactured; • Incentives by the municipal government and other local institutions (the rural extension and technical advisory agency – EMATER, the rural workers union – STR, and the Municipal Department of Agriculture) for the establishment of small scale on-farm processing in the municipality, and the implementation of a municipal program for family farming agro-manufacturing.

Source: Gazolla (2012).

household income. The agro-industry is currently fully run by the couple, Mr. and Mrs. Ludke, and their married son. All activities in the enterprise are carried out by family members, from the dairy farming stages to marketing.

The agro-industry derived from traditional knowledge about cheese making that has been passed down through generations in the family (Table 2). Before starting up the small scale agro-industry, the family visited other initiatives in RS (Guaporé, Erechim, and Sananduva) and in the state of Santa Catarina (Chapecó), to learn about production processes, social organization, and marketing of food products. With the support of the municipal administration of Constantina, the rural extension, and technical advisory agency – EMATER, the Municipal Department of Agriculture, and the Rural Workers Union, the Ludke family succeeded in structuring their agro-enterprise and enhancing their farming activities to a

higher economic level than that of just supplying their own consumption needs.

NOVELTIES AND AUTONOMY: HOW DO THEY EVOLVE?

Fig. 1 presents an overview of the novelties developed by the small scale on-farm processing activities in Biorga and Ludke, and aims at explaining the main factors, either internal or external to the manufacturing units, involved in the creation of novelties. These factors are characterized as essentially multidimensional, multi-actor, and multi-institutional. The factors that generate novelties can be understood as knowledge that combines lores (contextual, scientific, tacit), available resources, and the labor

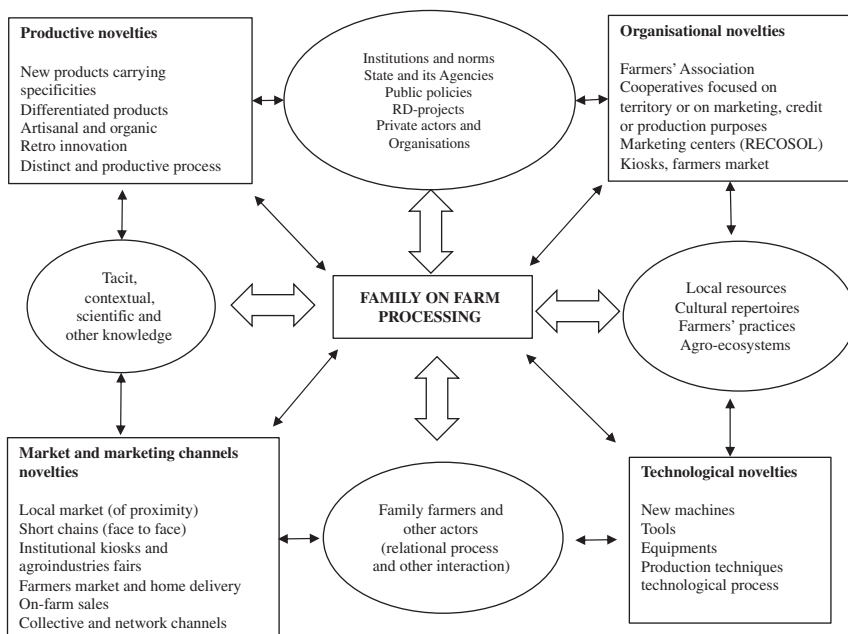


Fig. 1. Multidimensional, Multi-Actor, and Multi-Institutional Overview of the Emergence of Novelties in Family On-Farm Processing Activity. Source: Adapted from Gazolla (2012).

practices developed by farmers. The interactions of farmers with other social actors are also relevant. Although in many small scale on-farm processing units, it is the farmers' knowledge that comprises the basis for the creation of novelties, the interaction with other farmers and agents such as extension technicians also play a role.

In Fig. 1, it is shown how the creation of novelties is influenced by institutions, public policies, private organizations, and social actors that share interfaces with farmers and their activities. In many cases, the institutional environment strengthens the production of novelties as, for instance, the existence of rural credit programs like the national program for strengthening family farming (PRONAF Agroindústria). Conversely, such an environment may hinder novelties, by means of restrictions to the operation of the small scale on-farm processing unit as, for instance, restrictions on informal activities in view of the agri-food legislation. The production of novelties in the small scale on-farm processing environment stems from these determinants.

The novelties can be categorized according to four main types: productive novelties – new agro-ecological differentiated products that imply specific productive processes such as rotation; technological novelties – those that involve the invention or adaptation of technologies by farmers for producing either inputs or processed food products, such as new machines, equipment, tools; marketing novelties – these comprise the New Circuits for sales built by small scale on-farm processing, such as direct selling, kiosks, on-farm sales, networks and collective marketing channels, public events, among others; organizational novelties – these comprised of new social organizations which originate in on-farm processing activity, as for instance RECOSOL and its partner and networking social organizations (cooperatives, associations, farmers groups, sales outlets). We focus, here, on productive novelties and novelties in markets and marketing channels, as well as on the case of a collective social networking organization (RECOSOL) as novelties derived from the two studied on-farm processing cases. To some extent, these novelties can also be contrasted with the established hegemonic socio-technical food regime, so as to verify whether they generate transitions and/or incrementalism in such a regime.⁶

Table 3 presents the productive novelties developed by the two researched small scale on-farm processing cases. In the case of the agro-industry Cooperativa Biorga, the innovative products are organic virgin sesame and linseed oils. As to agro-industry Ludke, the novelties introduced were three kinds of seasoned cheeses. In the first case, there was an

Table 3. Types and Characteristics of Productive Novelties Produced by On-Farm Processing.

Types of Novelties	What was Made?	Characteristics of the Novelties
Sesame and linseed oils	New organic products	Organic virgin and artisan oils; products that do not undergo industrial chemical refining; participative certification by Agroecology Network Ecovida (ECOVIDA); recontextualization of external knowledge.
Cheeses seasoned with salamis, oregano, and bell peppers	Change in one stage of the cheese maturation process	New process for production of seasoned cheeses; recontextualization of external knowledge; product manufactured from raw milk.

Source: Gazolla (2012).

invention of new products and, in the second, a change in the production process.

Agroindustry Biorga stands out in the design of new technical production methods as shown in Table 3. This initiative produces differentiated products like organic linseed and sesame oils, which are innovative in the local context of family farming, because they are the only manufacturers of such products in the region. The oils from these seeds are deemed as agroecological, since farmers develop all stages of the production in compliance with the principles of organic food production and processing. They are also bound by the official regulations of the federal government for organic production, and hold the participatory certification of Ecovida Agroecology Network (Radomsky, 2011).

The oils are manufactured by cold pressing, filtration, and airtight packing. It results in unrefined virgin oils without addition of any of the chemicals common in industrial manufacturing. Such artisan result in integral virgin oils that carry the essential elements of the grain. In this agroindustry, farmers' traditional knowledge on manufacturing of food products interacted with external knowledge for making these new products. Biorga Cooperative mobilized a wide range of social networks and alliances to be able to obtain the required knowledge to develop these new food products. Members sought information about organic production of grains and other inputs in courses developed by the NGO Terra Nova Mondai/SC, with the intermediation of the Lutheran Church, a major institutional actor

in supporting this initiative. Encouragement for the production of novelties came also from the Support Center for Small Farmers (CAPA), the Rural Extension and Technical Advisory Agency (EMATER/RS), Everal Seco Municipal Department of Agriculture, Ecirtek, the company that supplied equipment, and Ecovida Agroecology Network, with which Biorga is also associated (Table 3).

Agro-industry Ludke has also introduced new products, which are considered productive novelties (Table 3). This agro-industry produces cheeses that are typical of the region as those seasoned with salamis, oregano (a medicinal aromatic herb), and bell peppers. The family changed one of the crucial stages of the maturing process of the so-called “colonial cheeses” that are traditionally produced in RS.

The change consisted of adding condiments and herbs to the curd together with the salt before the molding stage, and leaving it at rest for few days (maturation process of the cheese) to allow ingredients to interact. For each flavor of cheese, different ingredients are added to the curd, resulting in the distinctive seasoned “colonial cheeses” produced by the Ludke family. This provides exclusive food products that are distinct in taste, flavor, and palatability.

The basis for the production of these cheeses was the family’s traditional knowledge on the technology for manufacturing colonial cheeses (Stuiver, 2008). This knowledge interacted with that of the other social actors and institutions that supported the agro-industry. A family member, Mrs. Ludke, attended a course at the Farmer’s Training Centre of EMATER associated with the Family Agro-industry Program (PAF/RS), in the city of Montenegro/RS, where she learned techniques for producing seasoned cheeses. These two kinds of knowledge were integrated, being locally recontextualized and producing the novelties, as already demonstrated by studies in this area (Brunori et al., 2009; Milone, 2009; van der Ploeg et al., 2004).

As to the main characteristics of the productive novelties developed by small scale on-farm processing, they stem from the recontextualization of knowledge of both farmers and other social actors and institutions. The productive novelties emerge from ecological/organic/agroecological processes for food production and manufacturing. Furthermore, they are based on artisanal processes, as opposed to industrial ones that use preservatives and other chemical additives. The farmers’ ingenuity is a central element for the generation of differentiated and specific products (Table 3).

NEW SOCIAL ORGANIZATIONS AND NESTED MARKETS

In addition to the generation of novelties, such as new products and specific changes in production processes, the small scale on-farm processing phenomenon also produces two other kinds of novelties. On the one hand, the initiatives succeed in building new marketing channels and new markets, which are seen as marketing novelties. On the other hand, they also make room for the creation of new collective and networking social organizations such as, RECOSOL, a case discussed in this section as an organizational novelty arising from family on-farm processing.

The markets created by family on-farm processing bear the characteristics portrayed by the concept of *nested markets* as described by van der Ploeg, Schneider, and Ye (2012; see also van der Ploeg, Ye, & Schneider, 2015). Nested markets are grounded on social relations among actors who exchange food and products. These relations are historically constituted with a basis on mutual recognition (consumers recognize the distinctive features of the food products and farmers recognize those who purchase their products). The negotiated food products have qualitative specificities such as being organic, stemming from agroecological cultivation and artisanal processes, being consistent with fair trade principles, etc. These specificities endow them with attributes that define their quality on the basis of distinction and social recognition. The resources applied by farmers in the constitution of nested markets come from common resources mobilized by families either on their own or on their associations and cooperatives. Therefore, we may claim that the nested markets are locally and territorially embedded, in what represents a major element providing for its own reproduction and maintenance.

One of the outstanding characteristics of nested markets is that they create reciprocity and interknown relations among participants, either between producers and consumers (between supply and demand) or among the producers themselves. Such relations end up entailing the formation of social networks that help these nested markets to expand their scope and occupy new spaces, a crucial factor for them to scale-up. Another relevant aspect of such relations is related to price formation. In nested markets, prices are not a direct result or expression of production costs, related expenses and depreciations added to expected return rates. Price formation here also takes into account attributes embedded in existing relations of proximity between producers of the same product,

who often are in contact with each other or seek information on prices. It is a resource for an equalization of prices that reflects less the relationship between demand and supply than the interknowing relations among producers. This is also reflected in the status of food products sold, which are more valued for their known origin or the trust in the producer and less for its price. Similarly, nested markets present a coevolution both in time and space and are susceptible to trade (of goods, services, resources, social networks, etc.) showing some degree of flexibility and innovation that distinguishes them from “market niches” (Milone & Ventura, 2014; van der Ploeg, 2014). Some of these characteristics of nested markets are clearly identified in the family on-farm processing cases, presented here.

The new nested markets⁷ comprised/supported by family on-farm processing can be seen in Table 4, which shows both the marketing channels built by the two studied initiatives and their respective situation with regard to food regulatory institutions. Both are formally registered with food

Table 4. The New Marketing Channels Built by On-Farm Processing at Biorga and Ludke and Their Respective Institutional Situations.

Agro-Industry	Situation Regarding Food Regulation	Types of Marketing Channels
Biorga	Formal: Certification Ecovida, CNPJ, Regional Health Department (MS), and FEPAM (environmental regulation).	Long chains (supermarkets in SP and RJ), RECOSOL kiosks (Ervall Seco and Frederico Westphalen), local supermarkets, on-farm sales, municipal and local fairs, Fair of Palm Heart Producers (SC), institutional markets (Food Procurement Program – FPP), CORAC (FPP) and FPP purchases for provision (National Company of Food Supplies – CONAB), cooperatives COOLMÉIA and COOPERBIORGA.
Ludke	Formal: Municipal Inspection Service (Serviço Municipal de Inspeção – SIM)	Family farming fairs (Porto Alegre, Distrito Federal, Rio de Janeiro, and some regional ones), on-farm sales, RECOSOL kiosks, supermarkets, direct sales at consumers’ homes and workplaces, restaurants and canteens, other fairs, institutional markets (PAA), COOPERAC.

Source: Gazolla (2012).

regulatory agencies. Biorga is registered with the National Register of Legal Entities (CNPJ), the Regional Department of Health (MS), and the State Foundation of Environmental Protection (FEPAM), besides holding a “participatory certificate” from the Agroecology Network Ecovida. The second agro-industry (Ludke) holds a license from the Municipal Food Inspection Service (SIM) and can sell food products only in the municipal area of Constantina. This restricts both its socioeconomic viability and its integration into larger markets.

The second noteworthy aspect observed in [Table 4](#) is the wide diversity of marketing channels used by the small scale on-farm processor. These built nested markets most often depend on the family’s history, local context, type of product manufactured, regulatory norms on food products, personal relationships, knowledge, among other aspects. This strategy of market diversification provides farmers with the necessary autonomy in transactions, since, if some markets do not operate properly, they can focus on others, thus avoiding crises, deception, or other unexpected events. This is what happens, for instance, in fairs and with on-farm sales. These sales are seasonal, occurring only in some periods of the year, and farmers cannot rely exclusively on these channels to survive, because their sales are uneven and uncertain.

We organized the analysis of these marketing channels into groups, so that they could be described according to their key characteristics and dynamics. The channels were grouped into six similar sets, which are: (a) institutional markets (NSFP and FPP); (b) short chains or direct sales from farmers to consumers (farmers markets, work/home delivery, on-farm sales); (c) marketing events (family farming fairs, festivals, and expo fairs); (d) long chains (sales to supermarkets, wholesalers, and distant middlemen); (e) formal outlets (supermarkets, “*bodegas*” (grocers’ stores), restaurants, bars, and canteens); and (f) new marketing channels of collective and networking social organizations (cooperatives, RECOSOL, kiosks, farmers’ associations).

These different marketing channels can be understood as kinds of nested markets fostered by the small scale on-farm processing ventures, as is shown in [Fig. 2](#), which is based on the CAAF⁸ survey ([Pelegrini & Gazolla, 2006](#)). The first set of marketing channels is comprised of institutional markets which, in 2006, accounted for 4.7% of the sales from on-farm processing activity ([Fig. 2](#)). The institutional channels are those in which family farm products are purchased by the State for supplying social programs. The programs created by the Brazilian State are FPP and NSFP. These markets are characterized especially by approaching and reconnecting

farmers and local consumers, enabling family incomes to rise, allowing diversification of production, and institutional strengthening of on-farm processing. A major problem identified in this channel was that informal on-farm processing cannot access such markets because of existing food regulatory requirements.

The short chain or farmer–consumer direct sales comprise the main nested markets built by on-farm processing, accounting for 51% of total sales (Fig. 2). The main features of these chains are: direct relationships between farmers and local consumers, autonomy of the social actors involved in transactions (contracts, pricing, negotiation possibilities/flexibilities), facilitation of exchanges due to social and geographical proximity, established social relationships and mutual knowledge among actors (Wilkinson, 2008). The high institutional informality of on-farm processing is the main explanation for the dynamics of these markets of social proximity (Gazolla & Pelegrini, 2011).

Such marketing channels operate based on prices and the “highest qualities” assigned to products in the perception of consumers. Prices in these markets are usually lower than those in traditional outlets like supermarkets and grocery stores, which works as an appeal to consumers.

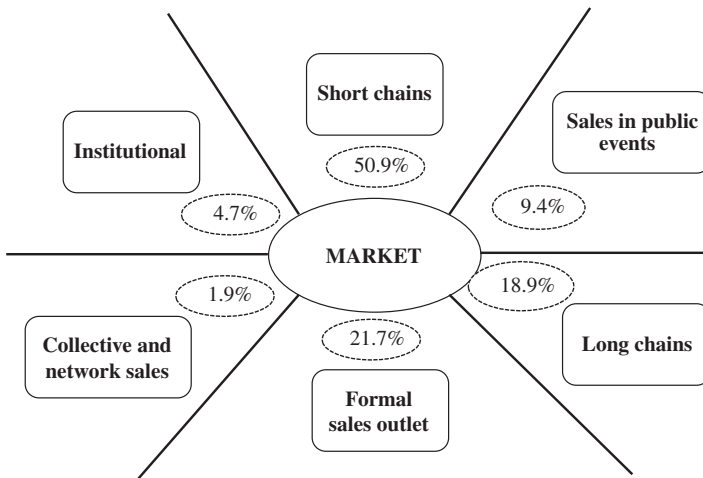


Fig. 2. Market Channels Built by Family On-Farm Processing and Respective Percentages of Sales. Source: CAAF Survey (Pelegrini & Gazolla, 2006) and fieldwork (2011). Note: The collective and network were considered within the percentages that CAFF Survey named “other markets.”

These prices are also negotiable, rather than set a priori by farmers, insofar as the transacting agents already know each other (Brunori et al., 2009). Moreover, consumers see these food products as having “higher qualities” and assign them attributes such as “natural,” “without preservatives,” “organic,” “nutritive,” “ecological,” “fair trade,” among others (Brunori, Rossi, & Malandrini, 2011). Such special qualities of food items produced by on-farm processing activities comprise an appreciable dimension in the creation of nested markets, since all these products bear some degree of productive specificities and are differentiated (van der Ploeg et al., 2010).

Sales at events like farm expositions are also characterized by the proximity and connectivity between farmers and consumers in transactions, although sometimes it occurs far from the farm base (Fig. 2). These channels are comprised of sales at fairs, events, festivals, and exhibitions. Although some sales are made through these channels, their main characteristic is advertising the products by means of tastings, attractive food displays, and conversation with the visiting public. Such marketing channels account for 9.4% of total sales. They are also distinguished for comprising both formal and informal channels, a mixed situation with respect to food regulatory requirements.

On-farm processing also accesses long chains (Fig. 2). Through these channels, the products reach long distance markets, being transported from the area of production to markets and consumers located in other cities or states. In this case, the food products will supply supermarket chains, jobbers, wholesalers, and industries that resell and redistribute this produce. The long chains represent 19% of sales, being relevant from the point of view of social reproduction of on-farm processing, as they account for almost one-fifth of the volume of production. Among the main characteristics of these channels that is worth highlighting is the long distances traveled by food products, the high economic and environmental costs of these trips (food miles), the dominance of big agribusiness players, and the restricted autonomy of farmers (in setting contract conditions, prices, and dynamics of these chains) (Pretty, Ball, Lang, & Morison, 2005).

Such research findings ratify the conclusions of Marsden and Sonnino (2006) that alternative agri-food networks develop interfaces with the conventional agri-food system so that there is no clear-cut distinction between them. This fact reveals the potentiality of these initiatives and channels in that, under favorable conditions, they can expand their room for maneuver and broaden their scope. Therefore, apart from the competition, we

perceive an imbrication of these processes, which involves the coexistence of conventional marketing channels and alternative networks.

The formal marketing outlets are local supermarkets, bars, “bodegas” (grocery shops), restaurants, and canteens (Fig. 2). Many of them are restricted to informal enterprises due to hygiene and sanitary certification requirements. These channels account for a significant part of the on-farm processing sales (21.7%), being second only to short chains as the largest marketing channel. These channels are characterized by the demand for a regular supply of food products throughout the year, for quality standards, transportation, and placement of products on supermarket shelves, as well as, in some cases, fees charged to farmers for the shelving units in supermarkets.

The sixth type of marketing channel used by family on-farm processors is comprised of networks and other collective arrangements, and is represented here by the experience of RECOSOL as illustrated in Fig. 3. RECOSOL can be defined as a solidarity network set up by the on-farm processors, which aims to promote associative culture and the social organization of the enterprises, cooperatives, and associations, as well as to consolidate new marketing channels by means of networks and collective efforts. RECOSOL develops nested markets that are comprised of

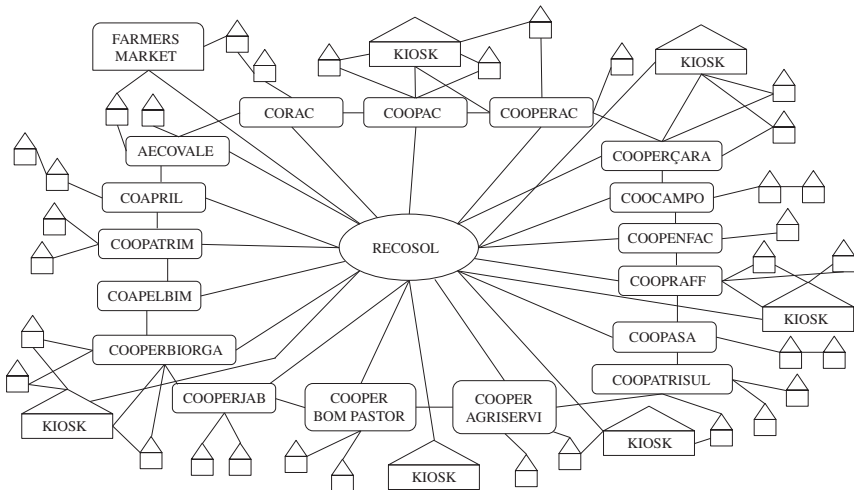


Fig. 3. Social Organization of the Network of Family On-farm Processing Cooperatives (RECOSOL). Source: Gazolla (2012).

cooperatives, associations, farmers markets, kiosks for selling the products from on-farm processing activities, formal groups of farmers, among others. In 2006, previous to the creation of RECOSOL in 2007, these channels accounted for 1.9% of the total annual sales of small scale on-farm processing. Current figures are believed to be much higher in view of the large number of social organizations associated with RECOSOL, although data have not been updated since then.

As can be observed from [Fig. 3](#), RECOSOL represents about 70 family on-farm processing activities involving diverse production chains. As to the number of participant cooperatives and associations, by the time of the 2011 survey, there were 17. All of them were related to agriculture and family on-farm processing, and were distributed within a range of 34 municipalities. The spatial distribution matches that set by the territorial policies of the MDA, which granted many of these organizations and enterprises with public resources. Six kiosks and one farmer's market complement the territorial network of collective sales. Both the studied cases of on-farm processors participate in the social organization of RECOSOL and sell their products through the social network.

The small scale on-farm processors, which comprise the nucleus of the network, form the basis of RECOSOL ([Fig. 3](#)). These on-farm processing units are connected to regional cooperatives or associations involving family farming and/or on-farm processing. Such cooperatives and associations, in turn, are the link between individual or collective initiatives and RECOSOL. In addition, kiosks and a farmers market complement this regional structure, by constituting sales outlets gradually established by RECOSOL and that are located in strategic high pedestrian traffic places, such as downtown zones, areas near to bus stations or public squares, and on the side of roads where other kiosks are usually found.

Both single and collective on-farm processors can freely sell their food products through the previously described marketing channels, and the cooperatives, and other means which RECOSOL makes available to them. Cooperatives count on supermarkets and other sales outlets where the on-farm processors place their products. The cooperatives also sell other products that do not come from on-farm processing, since it has to meet the interests of all its associate members. Kiosks and farmers markets offer a commercial structure scattered over the territory and are a further option for on-farm processing to sell their produce. Such kiosks usually serve a region, comprising several municipalities, and exchange food products among all localities within the region, since each of them produces certain kinds of food products and not others. The exchange of food products

among social organizations allows communities in the region to access the whole range of existing products and helps to increase sales from small scale on-farm processing.

The formation of RECOSOL can be understood as a novel entity, in view of the creativity of social actors and organizations that constitute it. The collective and network arrangement is a typical characteristic of both organizational novelties and nested markets. Another specificity of RECOSOL is that it was the first solidarity network in the State of Rio Grande do Sul to focus on marketing the produce of family on-farm processing, thus revealing the pioneer and inventive/innovative character of the experience.⁹ The new market spaces created by RECOSOL also represent a novelty, because they provide small scale on-farm processors with a wide range of unprecedented marketing channels for selling their produce.

The new market spaces built by RECOSOL represent the major novelty created, that is, the social construction of marketing channels and also of a new form of collective and networking social organization, developed by social actors in recent years in the research region. RECOSOL reflects the effort of farmers and their organizations to build nested markets. In sum, this effort is directed toward three purposes: (a) to increase production and sales by acting collectively, so that to survive in a context of adversities, food crises, and an increasingly globalized economy; (b) to reduce transaction and production costs, by sharing these costs among the various on-farm processing units and social organizations (e.g., a single brand, label, registration, barcode, team of technicians, etc.); (c) to gain political strength for bargaining with the State for appropriate resources related to public policies and agri-food legislation.

SOME FINAL REMARKS

Among the main outcomes that can be pointed out from the analysis of the trajectory of the two small scale on-farm processors, it is worth noting that the novelties generated – either productive, organizational, or related to marketing channels – contribute to the propagation of continuous transitions in the established socio-technical food regime, transitions that can be described according to four main directions:

- (a) the first transition refers to the production of food products that carry some specificities (artisanal, “colonial” features, typical, agroecological,

- ethnic, etc.), which distinguishes them from highly industrialized products. The transitions take place when these foods with specific qualities and values compete in the market with the food products of the established economic and technical food regime;
- (b) the second source of transition is related to the new marketing channels created by farmers, as in the case of local outlets, short chains, and collective markets that are alternative to the long chains, which comprise supermarkets, wholesalers, middlemen, and the conventional sales outlets for food products;
 - (c) other transitions are in connection to newly emerging organizations such as RECOSOL and its member associations and cooperatives. These new organizations become spaces where new practices, organizational processes, routines, rules, and norms can be conceived, which will gradually change the institutional environment in which they are embedded;
 - (d) a fourth example of a relevant transition is the existing governmental programs, at federal and State levels, created as a result of the emergence of on-farm processing. In this respect, it is worth mentioning the National Program for Strengthening Family Farming (PRONAF – Agroindústria) and the Program for Family Agro-industry (PAF/RS) of the State government of Rio Grande do Sul, as two examples. The creation of these programs suggests a transition in the traditional regime, since a possibility (a window of opportunity) was opened to the small scale on-farm processor for influencing such regimes, albeit to a still limited degree.

In addition to these transitions introduced in the socio-technical food regime, other effects of the novelties were observed during the field research, especially regarding the family situation and agro-manufacturing activities: (i) a relative rise in family autonomy in relation to other social actors, institutions, and markets in which the on-farm processors are embedded; (ii) improvement in both the income level and the quality of life of household members; (iii) creation of new nested markets and marketing channels, such as RECOSOL, and the set-up of short chains; (iv) development of more environmentally sustainable products, such as the organic food of Agroindustry Biorga; (v) value added food products as a result of their innovation and differentiation; (vi) development of new interfaces between families and other social actors, institutions, and organizations, especially with regard to the processes of co-construction of the knowledge required to generate novelties and nested markets.

NOTES

1. The position paper presented in November 2012 in China is shown in Chapter 2 of this book.

2. Wilkinson, Durigon, & Mior (2012) adopt the concept of “small and medium-sized agro-industries” for describing what herein we call “small scale on-farm processing.” The article by Wilkinson, Mior, and Dorigon deals with the context of formation of these small enterprises in the Western region of Santa Catarina State, a region that shows many characteristics similar to those described in the present work.

3. Empirical data used here are drawn from Marcio Gazolla’s doctoral thesis presented in 2012 to the Graduate Program of Rural Development, Federal University of Rio Grande do Sul (PGDR/UFRGS). We also made use of data drawn from a CAAF survey (Pelegrini & Gazolla, 2006) that researched 106 family agro-industries as well as of secondary data from the 2006 Agricultural Census conducted by Instituto Brasileiro de Geografia e Estatística (IBGE, 2006).

4. The term *colônia* (colony) does not refer to a region that is colonized by another country and/or people, as we usually understand it. The term is referred to the notion of colonization in the sense that outsider immigrants enter into a new area of land to start up economic activities. In the case of RS, the “new” colonies of the Northern region descend from the “old” ones, as the first European immigrant colonies such as Serra Gaucha (the Mountain Region) (Italian colony) and São Leopoldo (German colony) are called. See Schneider (1999) for further elaboration on this topic.

5. The information on the two cases study described in this section were taken from the PhD thesis made by Gazolla (2012) to which the reader is recommended for further details.

6. The socio-technical regime is understood to be set of norms and regulations governing the production, distribution, marketing, and consumption of food. The current socio-technical food regime is characterized by standardization of food products, monopoly of big retail and production chains, mergers and acquisitions of large firms, predominance of long chains, growing industrialization of food, nutritionally unbalanced diets, centralization of agribusiness capital and, occasionally, by severe economic crises and food related illnesses (see, e.g., Roep & Wiskerke, 2004; Moors, Rip, & Wiskerke, 2004).

7. According to van der Ploeg et al. (2010) and Hebink, Schneider and Ploeg (2014), the *nested markets* are defined as real places where concrete transactions occur, involving producers, consumers, and reference frameworks that help to understand the emergence of new markets.

8. CAAF – acronym for *Caracterização e Análise das Agroindústrias Familiares* – a survey project for characterization and analysis of family agro industries.

9. The formation of RECOSOL was inspired by the Support Center for Rural Family Agro-industries of Santa Catarina West Region (Unidade Central de Apoio às Agroindústrias Familiares Rurais do Oeste Catarinense – UCAF), which is similarly organized, although much stronger and more advanced in terms of length of existence, resources, and structure for providing support to farmers. For further

details, see: <http://www.ucaf.org.br/Site/index.html>. This experience (of UCAF) is also analyzed by Wilkinson, Durigon, and Mior (2011).

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