



## **Co-producing Transition: Innovation Processes in Farms Adhering to Solidarity-based Purchase Groups (GAS) in Tuscany, Italy**

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**Abstract.** The growth of localized and sustainable food systems is widely recognized in many Western countries as a response to the increasingly evident crisis of conventional food systems. However, despite the growing consumer demand, the producer capacity to catch up with demand emerges as a critical point. The authors reckon that participation in alternative food chains not only needs a new market opened, but also appropriate farming styles. Adopting new farming styles requires radical changes to knowledge and skills, material assets, organizational patterns, communication practices, etc. To that end, the direct interaction with consumers as well as the co-operation and co-ordination with other farmers become crucial. On the basis of a deep analysis carried out through a case-study – the innovation cycles activated by farmers adhering to Solidarity-based Purchase Groups (GAS) in Tuscany, Italy – the article explores the complex processes linked to transition, and tries to contribute to a theory of alternative food networks by representing changes in the farm as an outcome of interaction within hybrid networks through the definition of new codes, cognitive frames, norms, rules and organizational patterns.

### **Introduction**

The debate regarding alternative agri-food networks (AAFNs) over the last 15 years has created a virtuous circle in terms of theory, practice and policy in many countries.

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Far from being purely academic, the debate has accompanied the evolution of grass-roots initiatives related to food, contributing to a redefinition of strategies, products and processes within the food industry and offering solutions to an increasingly evident crisis in conventional food systems. AAFNs' constitutive elements essentially include: a. a conception of food production and consumption as being simultaneously political, ecological and economic acts (Petrini, 2005); b. involvement of a plurality of actors and artefacts – belonging to different spheres of social and economic life – that come together to build new systems of meaning and new systems of food provision (Guthman, 2002; Roep and Wiskerke, 2005); c. new livelihood strategies for farmers (Renting et al., 2003; Goodman and Goodman, 2007) based on the search for autonomy from conventional chains; d. a search for new trust relationships with consumers (Goodman, 2003), in order to respond to the increase in food anxieties; e. performance measured not only in terms of purely commercial benchmarks, but by the capacity to modify existing consumption, production, technological norms and to establish a 'food democracy' (Hassanein, 2003; Jacobsen and Dulsrud, 2007).

The meeting of AAFNs literature and transition theories (Rip and Kemp, 1998; Smith, 2003, 2006; Geels, 2004; Moors et al., 2004; Wiskerke and Van der Ploeg, 2004; Seyfang, 2006) has opened a new research field by developing analytical tools to better study the contribution of AAFNs to broader social change, through the analysis of underlying processes. Transition theories suggest that: a. economic activity is embedded in relatively steady socio-technical systems, governed by coherent systems of rules and norms called 'regimes'; b. most innovations contribute to the stability of the dominant socio-technical systems as they are generated within these: innovation is therefore generally path-dependent; c. when internal or external variables threaten existing socio-technical systems, existing paths of innovation are not able to provide appropriate solutions, and the need arises for path-breaking innovation; d. new paths of innovation are more likely to emerge when 'niches' – that is, socio-technical systems that experience radically different cognitive frames, resource bases, relational patterns, etc. – have already been developed; e. when conditions of the external context (known as 'landscape') change, innovation paths initiated by niches contribute to change the dominant socio-technical system through integration or even replacement.

According to transition theory, niches create the necessary diversity in the system and provide possible solutions to crises in new political, economic, and environmental contexts. Strategic niche management (Schot and Geels, 2008) can be used as a powerful policy tool to strengthen social change 'from below', and to create a stronger capacity to adapt to change.

AAFNs fit in with the concept of the niches of transition theories. In fact, they are formed around the alternative techno-economic paradigms of food production, consumption and distribution. The size of AAFNs is small enough to guarantee them a protected space of action, but despite their modest impact in terms of quantities in the short term, they can have a tremendous impact on minds and hearts, as they suggest different ways of looking at things, different innovation pathways, and different rules and norms.

AAFNs represent a good case-study to respond to one of the most significant research questions raised by transition theories: to what extent, and in what conditions, can niches significantly impact on regime change? Regimes can in fact be strong enough to contrast emerging niches by raising political, regulatory and technical barriers to change. Moreover, often mere quantitative growth is not sufficient

to generate change, as scaling up may involve deviations from innovative trajectories and regime rules may end up being complied with (Brunori et al., 2008). The debate on 'conventionalization' has explored the problem with reference to organic farming, and has stimulated a fruitful reflection on the trade-offs between growth, integration with the existing food regimes, and consistency with its constitutive values (Guthman, 1998, 2004). However, it has only addressed superficially the strategies that could sustain successful transition pathways at the same time as growth. To go beyond the dilemma 'scaling up vs. keeping the original radicality', we think it is necessary to deeply examine the relationships between niches and regimes and their evolution.

### **AAFNs and Transition: A Theoretical Framework**

As Sonnino and Marsden (2006) have highlighted, there is a continuous tension and dialectic between alternative and conventional networks. According to DuPuis and Gillon (2009, p. 45), 'notions of legitimacy, fairness and credibility are created and destroyed in the practices around the creation of alternative market fields'. These networks cannot be analysed in isolation, as each one can embody parts (symbols, artefacts, norms) of the others, so that innovations that were originally produced in niches can be embodied – through processes of translation *à la* Latour (1987) – into conventional networks that together strengthen the regime. It is not surprising, then, that the dialectic between 'conventional' and 'alternative' patterns may lead to convergences, which end up with a 'hollowing out' or absorption of niches into existing regimes. However, niches can also strengthen themselves by adopting (and adapting) technologies and enrolling actors of the dominant regime, thus detaching them from conventional networks and reattaching them into alternative ones (Callon et al., 2002).

The conventionalization and appropriation of alternative food chains (Goodman and Dupuis, 2002) may help the dominant regime to adapt to change, for example by turning consumer-citizens into new consumer segments and thus weakening the transformative role of consumer-citizens through re-fetishization. When regime attempts to adapt to change of the landscape are not successful, new niches may emerge with a renewed radicality. This is the case of post-organic movements (Moore, 2006; Goodman and Goodman, 2007), which include CSAs (Cone and Myhre, 2000), AMAPS (Lamine, 2005), and farmers' markets (Govindasamy et al., 2002; Kirwan, 2004). These movements build upon points of weakness of conventionalized AAFNs, drawing on a strong political commitment to articulate technical norms, commercial patterns and organizational rules in innovative ways. To maintain alternative innovative pathways, they start new innovation cycles drawing upon lessons learnt from previous experiences.

To properly address the dynamics of these innovation cycles we need to fill a gap in transition theories, wherein niches are treated like 'black boxes'. We need to open up these black boxes to see how and in what conditions the 'closure' of niches occurs. In our view, in fact, niches can be seen as actor-networks (Callon, 1999) whose co-ordination is guaranteed by well established and taken-for-granted routines. If we look at the processes before closure, a lot of failures are evident as well as negotiations, adjustments, trial and errors, aimed at giving stability and organization to new ideas, frames, inventions.

Though not considering them explicitly as preceding phases of niches, Van der Ploeg has described these processes as ‘novelties’, i.e. different ways of doing things (Van der Ploeg et al., 2004). In our view novelties are unstable actor-networks striving for stability through translation processes (Figure 1). The problems emerging from the context activate a process of search for solutions, the outcome of which may turn into a novelty. The more intense the network interaction in AAFNs is, the more farmers, consumers, and other actors align their cognitive frames, developing new production paradigms, technical norms, patterns of interaction and routines. In terms of transition theories, this means initiating new innovation pathways. Novelties, in fact, can be seen as the outcome of learning processes.

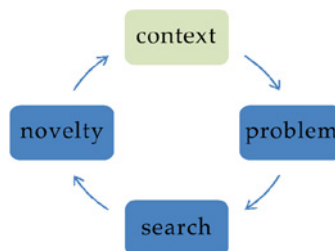
When novelties stabilize, through step-by-step improvements – that is, the relations between components act in a predictable way – they turn into niches.

The more farmers are connected to other actors, the more learning becomes ‘social learning’, improved ways of knowing or doing that are common goods within the network. From this point of departure we have set out a model for understanding innovation as a co-production between all the actors involved in an AAFN.

In this article, we focus on the innovation cycles activated by farmers adhering to ‘Solidarity-based Purchase Groups’ (from now on GAS,<sup>1</sup> from the Italian acronym), which are groups of consumers who purchase collectively through a direct relationship with producers, according to shared ethical principles (the ‘solidarity’ concept). In our view, GAS represent relational contexts wherein novelties are co-created by producers and consumers and develop into niches.

GAS are particular to the landscape of post-organic initiatives as they are initiated mostly by consumers and address specifically the need to develop alternative styles of consumption as an obligatory requirement of sustainability. In this, they build on the critiques made of the rent-seeking strategies of some AAFNs, the success of which has been linked to consumers belonging to higher social classes (Guthman, 2002), and on the awareness of the limits of the mainstream organization of organic food chains. On the basis of the principle that food quality is a right for everyone, but also that production is the weaker link in the chain, GAS represent patterns of consumer self-organization that, by creating partnerships with farmers, by-passing middlemen, employing volunteers, creating alternative logistics based on private/social tools and spaces, avoiding unnecessary operations and materials (such as classification, packaging and conservation), aim to create a win-win situation for farmers and consumers.

GAS operate as networks of individual consumers, who interact collectively with producers, selecting them on the basis of their adherence to sustainable consump-



**Figure 1.** The process of creation of novelties.

tion and production principles, and organize orders and distribution. Farmers are contacted directly by product co-ordinators who organize distribution depending on the type of product: box schemes for vegetables, fruit and bread, periodical orders for meat, cheese, wine and olive oil, pasta and cereals, and seasonal orders for other fruit.

The relational context is created through the communication established among actors, supported by e-mailing, direct interaction, organizational meetings, on-farm visits, participation in virtual and face-to-face forums, and organized events. Established communication patterns facilitate an exchange of information between actors, the definition of common rules, the building of common infrastructures, the organization of events, and communication to the outside world. Mailing lists also allow debate on several issues, spanning from sustainable consumption and production to broader political issues, thus contributing to strengthening the cohesion of the group. The movement also has higher levels of co-ordination (at regional and national levels), all of which are strongly based on communication via the Internet, together with periodical meetings.

#### *Farm Transition Pathways and GAS*

Becoming a GAS supplier is a complex process for a farmer. It is constructed through a profound reframing of the material and immaterial components of the farm's management, both inside the farm and in its relationships with the outside world.

Through participation in GAS, farmers are involved in translation processes (Callon, 1986; Latour, 1987) that help them to innovate through a pathway that entails banning chemicals, diversifying, dealing with multiple clients, responding to consumer needs and concerns, etc.. Innovation covers all aspects of farming, from internal organization (farm lay-out, farm infrastructures, human resources, crops and breeding), to logistics, administration, communication.

This process is not limited to the relation between farmers and consumer groups, but is also open to interaction with wider networks, of which producers and consumers are a part (such as farmers' markets or other forms of co-operation at local and extra-local levels), together with other actors (local administrations, NGOs, political groups) locally involved in building alternative food systems.

Within these networks new identities, new codes, rules and knowledge systems are created; as a result of translation processes legitimization is achieved; new initiatives are conceived and designed (and consequently new opportunities for farms are created). Different discourses around food in the territory and on the possible relations between countryside and town, between the multifunctionality of agriculture and the new needs of the local community start to develop.

Given that these transition pathways are undertaken in the network, through social learning, what are the implications for farms? For farmers, applying learned concepts and values to the farm implies a double adjustment, from the farm to the outside and from the outside to the internal organization. Thus, independent farming strategies undergo processes of alignment with the broader networks.

To explain farm adaptations, we need to look at models that explain farm development trajectories. Recently, Evans (2009) has renewed attention of scholars on the changes in family farming under the rapidly changing agrarian conditions. Reconnecting to the debate about farm household strategies of the late 1980s and 1990s, he underlines the validity of the concept and at the same time advocates the need to

open it up to cultural issues. With reference to New Zealand, Johnsen (2004) focuses on the interaction between agricultural change, farm structures and cultural norms.

Through a large research programme, Van der Ploeg et al. (2000) have developed a narrative to analyse the response of farmers to 'macro' changes in agriculture (and first of all to what they call the 'price-cost squeeze') – which in the language of transition theories we now could name 'landscape change' – by identifying three components of livelihood strategies: a. broadening, that is diversifying farm activities by intensifying relations with the rural territory; b. deepening, that is turning to high quality products getting up the food chain; c. re-grounding, that is reorganizing farm resources and reshaping the boundaries within the farm and outside. In this model, changes in structures, cognitive frames and cultural norms are strictly interrelated.

Wilson (2008) explains the dynamics of change of multifunctional farming in terms of a succession of 'nodal changes' (investments, radical learning, unforeseen events), each of which constrains (or enables) further evolution.

Under the influence of these approaches, we regard farm development as an independent trajectory that at a certain moment – in a changing landscape – encounters the trajectory of GAS. This encounter may initiate a detachment from a conventional network in order to join alternative networks. Joining GAS is a very important nodal change for farmers, as it generates clusters of new problems and the need for creative solutions: it is the beginning of a pathway of radical innovation. Further nodes, such as making investments for on-farm processing or for transporting the products, employing workers, activating an Internet forum, etc., create new clusters of opportunity and choice as well as trade-offs between decisions.

Thus, consumer needs and attitudes provide problems and opportunities for farmers, who search for solutions and select the most feasible ones. Along with the implementation of changes, they have to deal with constraints belonging to the farming realm or to the regime (e.g. hygienic or fiscal regulations, consumption norms, techno-scientific rules). Overcoming barriers requires not only individual solutions. Learning and adaptation both include collective action in other spheres (e.g. at the level of local administrations) in order to tackle the problems related to conflicts with existing regimes.

### **Case-study: GAS Farms in Tuscany**

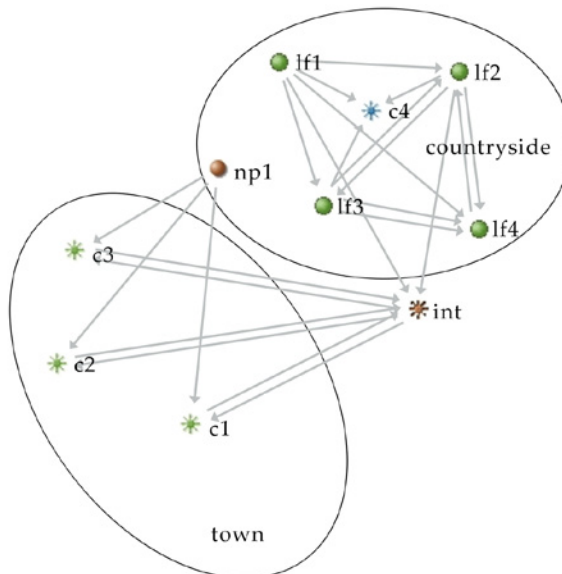
In this section, we analyse the micro-level transition related to GAS farms. By examining the various arrangements between producers and consumers, we focus on how an alternative approach to food provision impacts on the producers. On the basis of a thorough analysis carried out on many direct producer–consumer relationships within GAS,<sup>2</sup> we explored the radical changes being made to the cognitive, technical, organizational, and communication aspects of farming (including all the changes in material and immaterial assets). In our view, these are a result of the negotiation processes with consumer groups and, more in general, the interactions within hybrid networks to which both producers and consumers belong.

The Appendix summarizes the characteristics of the farmers interviewed. Most are small to medium size, family farms. One co-operative is also included. One of the most significant differences between them is related to the different types of farmers involved: we distinguish between 'neo-peasants' and 'local farmers', as they have quite different characteristics, attitude and behaviour.

'Neo-peasants' are quite an important group in Tuscany. They are the most important players in the 'rural renaissance' in this region, as they have been the pioneers of organic farming and of the multifunctional agricultural business model since the 1970s. The meeting of 'neo-peasants' and innovative entrepreneurship and institutions has generated what is now considered the 'Tuscan model of agriculture'. As most of these people settled in Tuscany in the 1970s, they are now in a higher age class; nevertheless, they are very experienced and still very innovative.

'Local farmers' are people with an agricultural family background, but who did not necessarily always choose agriculture as a profession (some retired early from other jobs or are part-time entrepreneurs). Their common feature is that they are native to the place where they operate, so they are strongly integrated with the local community.

Figure 2 illustrates the relational space in which the interaction between farmers and consumers can develop. Np1 is a 'neo-peasant', who has many contacts with individual consumers (c1, ..., cn) but is relatively disconnected from local farmers in the territory. This is not a rare situation, as in many places organic farmers who use direct selling are considered too innovative – or even seen as visionaries – by 'average' farmers. In these cases, farmers are more prone to link up to their peers (organic, innovative farmers) in other places, and to create 'virtual communities' with the support of mailing lists, blogs, Internet sites. Lf1, ..., lfn are 'local farmers', whose networks are more locally dense, but who do not have many direct relations with consumers. Detaching local farmers from intermediaries (int) and attaching them to GAS implies the possibility of reconnecting with a whole social network.



**Figure 2.** Relational spaces of neo-peasants and local farmers.

*Business Model of GAS Farms*

GAS farms follow business models that are very different from conventional ones. The differences between alternative and conventional models are summarized in Table 1.

In terms of conventional business models, farm size and technology are the most important competitive assets. In fact, they force farmers to obtain the highest productivity. In GAS farms, technology and size are not as important as reputation and trust. GAS farms are perceived as 'civic farms' (Lyson, 2004) and regarded as public examples of civic virtue by citizens and also administrations. Therefore reputation and trust-building is key. This is carried out through strong references to values, consistent behaviour, communication and networking. Reputation and trust give GAS farmers a better position on the market. In the best cases, trust replaces bargaining, makes certification for organic products unnecessary, and therefore reduces transaction costs. Farmers linked to GAS have a high rate of participation in publicly funded projects such as training, school visits, research and field trials from which they source additional income; moreover, their reputation facilitates access to public funds.

The survival strategy of GAS farms is centred on quality. Joining a GAS involves a process of qualification (Callon et al., 2002), which turns 'products' (quality concepts and rules of production) into 'goods' (through concrete production) and 'goods' (through consumption) into refined and improved 'products' (see also Brunori, 2007). The GAS network provides qualification with a fertile environment for development, as quality features are endlessly negotiated through the network. The GAS definition of quality goes well beyond conventional quality attributes. Seasonality and local provenance are key criteria, from which a lot of other product characteristics arise, such as freshness, variety, taste, and nutritional value. On the other hand, attributes as size and shape, colour, integrity, and homogeneity are not considered important.

GAS farms tend to internalize inputs (seeds, fertilizers, labour) as much as possible. This is a response to agro-ecological criteria, but at the same time helps to reduce financial costs and enhances the value of family labour. As far as seeds are concerned, internalization is also linked to the choice of producing local and traditional varieties, which are often not available on the market. Knowledge and skills are the fruit of direct experience and of interactions between farmers rather than those acquired externally (extension services, input providers). The abandonment of specialization has led to an increase in the need for new knowledge, which is usually satisfied through co-operation within farming networks.

**Table 1.** Comparison between conventional and GAS farms' business model.

	Conventional farms	GAS farms
Key assets	technology, size	notoriety, reputation and trust
Strategy focus	efficiency	quality
Input sourcing	mainly external	mainly internal
Knowledge, skills	mainly built through external inputs	mainly built through experience and interaction
Product mix	specialisation	diversification
Distribution	managed by intermediaries, concentrated	directly managed, diffused
Communication	none or very little	direct and indirect communication



In GAS farms, the product mix is largely diversified. There are many reasons for diversification, from distributing the risk among crops, to restoring fertility through crop rotations and functional biodiversity, to providing families with a wide range of products. As far as distribution is concerned, selling directly to consumers involves a strong investment of time and money in logistics. Box schemes, in fact, require the efficient management of orders, a complex process of co-ordination within a short time-frame (for the selection, weighing, organization of baskets and packaging) and a large number of points of delivery.

While conventional farmers need fewer communication skills – especially if the product is standardized, the price is already given and there is no contact with consumers – for GAS farms communication is a key function. This is because it is necessary to tune into consumer needs and to maintain and improve the farm's reputation and level of trust. Although most farmer communication is based on face-to-face interaction, there is increasing communication via the Internet. In addition to personal communication skills, networking skills are also important, as participation in networks leads to reputation building as well as opportunities for new projects. Personal communication and networking are very time-intensive activities, thus GAS farmers often complain about work overload or insufficient time to dedicate to farm operations.

### *Key Assets of GAS Farms*

The business model of GAS farms requires a very different mix of assets from the conventional model. As previously mentioned, the survival strategies of GAS farms depend much more on immaterial assets such as reputation and trust rather than on material assets. In many cases in fact, GAS farmers have limited capital, and their capacity to survive is linked to their access to an endogenous resource base, knowledge and skills, which are produced and reproduced through the interaction within networks.

This does not mean that a better endowment of capital and technologies would not be useful. In any case, the business models of GAS farms require the availability of buildings, equipment, vehicles, and would benefit greatly from research into small dedicated technologies.

Apart from farm materials, we identified various critical resources for the survival and development of GAS farms: motivation, labour, and entrepreneurial skills.

### *Motivation*

Farmers who join a GAS are motivated by a combination of 'push' motivations (political and ethical commitments, the search for farming styles that are consistent with their own values, unsatisfactory remuneration of prices from conventional channels, the search for better quality of life) and 'pull' motivations (opportunities emerging from contacts activated by GAS or initiatives started by other farmers). Of the 'push' motivations, personal values are very important, as they provide the energy to commit to alternative networks in difficult economic times and to balance the financial temptations offered by conventional business. The word 'solidarity' (the 'S' in GAS), after all, implies that there is a recognition by both consumers and producers that commercial relations are not between strangers or conflicting sides (Sage, 2003; Offer, 1997), but between members of the same community.

The importance of ethics in this type of business is more evident when there is a shared political, civic or religious commitment (such as members of food movements or radical farmers' organizations).

'Families in the Poggio di Camporbianco co-operative belong to a religious group. They live all together on the farm, sharing money and taking turns in all the activities (nobody specializes in just one sector). The co-operative, with its spiritual and ethical basis, adds a special value to work and ordinary life and regards the production of healthy food, with accessible prices for consumers, as a mission.'

Personal values create synergies with economic behaviour, especially when farmers experience unsatisfactory conditions in the current markets.

There is a large range of positions between the entrepreneurial focus on 'utility' and than on 'values'. In general, it can be said that farmers engaged in a relationship with GAS have a stronger focus on values. GAS, for them, is part of a 'praxis of survival which blends the survival strategies of the old peasantry with the skills and abilities of the educated urban elite' (Willis and Campbell, 2004, p. 317). Neo-peasants are proactive in looking for innovative and appropriate marketing solutions, based mainly on social relationships, and are aware of the importance of a management style that is coherent with values for economic performance. For local farmers, whose ideological commitment is lower, the awareness and endorsement of values evolves alongside the search for a better income.

### Entrepreneurial Skills

Establishing steady relations with GAS involves above-average entrepreneurial skills. Whereas conventional farmers have to strive to comply with existing rules in the most efficient way possible, GAS farmers have to break the rules of the existing food regime and build new ones by trial and error. For this reason, first of all they need to be strongly motivated to overcome the adversities. Second, since they have to deal with different problems compared to those of conventional farms, they need to be creative to innovate. Third, the business model they develop is based on their capacity to establish external relations and to communicate effectively. At the same time, to be consistent with GAS values, their managerial style needs to be based on dialogue and support to workers.

Entrepreneurial skills are also very important for GAS farms, because of the complexity of their organization due to the range of external relations, their agro-ecological approach, their variety of products and customers, and therefore the number and variety of tasks to be carried out. To keep everything under control, both strong organizational and strategic planning skills are needed.

### Labour

GAS farms are labour-intensive. In fact, not only does organic production require more labour per output unit, but also managing orders, keeping public relations, packaging, and delivering all require additional time. The ordinary labour force is expensive, and often farmers try to integrate it with other sources, such as neighbours, volunteers, and partnerships, etc. On GAS farms, labour, as on any peasant farm, is strongly related to entrepreneurship. Ideally, a worker in a GAS farm should have the motivation and skills that are in tune with the farm's mission, and should

be proactive in preventing, identifying and solving problems. This is not an easy task, especially when economic margins are limited.

When the scale of operations grows, the specialization of functions is unavoidable. This specialization frequently follows the lines of gender and age, with men working more on production and women on external relations, accounting, and packaging. When the division of tasks is not possible, mainly when the farms are too small, there may be symptoms of work overload and stress, as well as insufficient dedication to important farming aspects. For farmers well integrated in the local community, the exchange of labour among neighbours is an important labour source. However, ageing in rural areas makes this choice more difficult. Migrant workers are also available, as seasonal workers or (less often) permanent employees.

A particular source of labour for organic farmers is provided by the WWOOF Association (World Wide Opportunities on Organic Farms), which links people who want to volunteer on organic farms or small holdings with people who are looking for volunteer help. In return for help, WWOOF hosts offer food, accommodation and opportunities to learn about organic life-styles. Another source, for which there is increasing focus among farmers, is workers with social or health problems for which the state subsidizes part of their salary. Diversified organic farms adapt very well to the therapeutic needs of these people, as they are characterized by a lot of simple operations that these people are able to carry out successfully (Di Iacovo, 2008). Becoming a 'social farm' also improves a farmer's reputation and helps them become aligned with GAS values.

GAS also provides opportunities to benefit from consumers' labour. There are several experiences in Tuscany where this opportunity has already been put into practice and in general a good number of GAS members are willing to be involved in farm activities. Co-operation between farmers and consumers helps during seasonal labour peaks (as, in Tuscany, for harvesting olives, tomatoes, and strawberries), but there are also regulatory restrictions that are not always easy to solve.

The complexity of farm organization fosters a division of labour, and the diversity of farm activities offers the opportunity to value skills and to respond to needs.

BioColombini farm is managed by Alessandro Colombini, a young farmer. His family has a long experience in the horticultural tradition of the area and has always been part of the local rural network. Some old farmers still work on the farm, because they like both the place and the work; moreover, they are a fundamental resource in terms of skills and knowledge. Also Alessandro's parents are quite old, but they still want to work on the farm: his father is still a valuable reference point for his experience. His mother is a real pillar in the organization of the new farm: she supervises the distribution of vegetables into bags. After participation in a horticultural therapy project, some young mentally disabled people have also been employed as workers.

With the fast growing business activated by adhesion to GAS, the labour force has become a limiting factor for the Nicobio farm. Stefano, who started on his own to grow vegetables with the help of his girlfriend who managed the administrative aspects, has been helped by young men sent by the employment office or by social co-operatives. Now he plans to turn the place into a 'social farm'.

*Relational Assets of GAS Farms*

## Communication Structures and Practices

The success and the sustainability of GAS depend mainly on relational assets. The whole system rests on the special relationship that has been established between the two sides, through which a common base of values and principles as well as a better knowledge of the respective needs is developed. The development of adequate relational skills by farmers is thus fundamental. GAS contribute to develop these skills.

Farmers tend to intensify the dialogue with consumers as a natural outcome of integration into the GAS rationale. Apart from the delivery day of the boxes, most participate in periodic GAS meetings; many use personal web sites and mailing lists; others organize periodic visits to their farm. Patterns of communication vary a lot. In some cases, it is limited to the management of orders and often it is mediated by GAS co-ordinators. In other cases, communication is more intense, allowing the establishment of a direct dialogue between farmers and GAS members.

More and more communication concerns the technical features of production. Consumers, in fact, are often unaware about farming practices and their related problems (e.g. damage by bad weather conditions or from attack by diseases). 'When I was at the farmers' market, a consumer asked me why my green beans had such so high price. I explained to her how long the harvest process takes, and in the end the consumer was convinced' (Rosa, Lucca).

One farmer writes long letters to the GAS mailing list explaining the state of his crops, the problems he is facing (excess rain, pest attacks, particularly high or low temperatures). Another takes photos of the fields and plants to inform consumers on how near to harvest his products are. Others put recipes on the web, especially related to the use of non conventional vegetables that few consumers are aware of.

GAS consumers are eager to learn about food and the conditions of production. Farmers have perceived this need as an opportunity to create and strengthen trust relationships with them.

The Poggio di Camporbiano co-operative has chosen communication with consumers as a key to its livelihood. It places particular attention on informing consumers where the products come from and how they are produced, and encourages guided visits to the farm.

Alessandro Colombini never misses a meeting with consumers. He has also created a farm web site that is a perfect example of its philosophy. All the activities and the products of the farm are described and well documented with photo galleries; a space is dedicated to recipes and suggestions to cook some uncommon vegetables; there is a forum for discussions where consumers ask questions, make new proposals and sometimes complain. He also distributes leaflets and postcards during farmers' markets and other events. To follow all these communication aspects, Alessandro has hired an assistant.

Stefano from Nicobio, a local to the area and grandson of a well-known farmer, is well integrated into a dense social network. Friendships with local consumers have helped him a lot to build the local GAS. He has weekly occasions to meet consumers for the delivery of vegetable bags. He has also organized harvesting days for tomatoes as occasion to meet and have fun.

Consumer work is not only a help for farmers. For consumers, it helps them to be better informed about the nature of farming – its routines, difficulties and satisfactions – and hence to overcome any romantic image of farming.

Communication is not always easy. Sometimes, bad communication arises from the particular communication channel chosen. In this case, opening a direct communication channel (either by phone, mail or otherwise) with consumers would help to clarify and prevent problems.

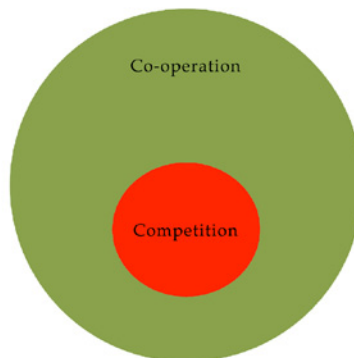
According to Ida Roncareggi of the Contessa Beatrice farm, communication is less effective when groups talk with her through the GAS co-ordinator. She has observed that when a consumer of a group, not directly in contact with her, has something to complain about, he/she spreads this feeling through the whole group. For her, this is not wise, as it may be based on incorrectly reported facts, and a direct explanation could solve the problem easily.

In other cases, interests and visions may clash. GAS are made up of people who do in fact care about prices, and in some groups this may prevail over solidarity. Some farmers complain that consumers in some GAS are ignorant and aggressive. They believe that some consumers just want organic at a better price, while at the same time they want the same level of service as a supermarket. In many cases, this has led to a breakdown in contact. In more successful cases, mediation within the GAS helps to put communication back on the right track by appealing to GAS values.

### Co-operation

Communication is closely linked to co-operation. Good communication influences co-operation as well as the other way round. In order to understand the nature of co-operation in GAS, we have to consider that the actors involved have both common and conflicting interests, thus co-operation and competition interact in an unstable equilibrium.

Competition and co-operation are presented in Figure 3). The outer circle represents the area of co-operation and the inner circle, the area of competition. Between buyers and sellers there is an inherent conflict of interests; however, the range and the potential of this conflict are limited by norms, rules, cognitive frames, infrastructures that consolidate a certain balance of power and allow only limited variations.



**Figure 3.** Co-operation and competition.

Ideally, within GAS, the space for bargaining is much reduced and constrained by a strong area of co-operation. The conflict between buyers and sellers is smoothed by common values and interests. However, the balance between co-operation and competition evolves continuously. When learning processes generate economies for example, farmers may improve their margins as prices tend to remain steady; the same may happen when GAS do not carefully monitor the quality of the supply, so that farmers are tempted to deliver lower value boxes for the same prices. In contrast, aggressive GAS price bargaining may worsen farmers' positions vis-à-vis consumers.

The same dynamics can be seen in terms of the co-operation/competition between producers. On the one hand, GAS farmers belong to the same 'community of values', which is supposed to be about facilitating co-operation. On the other hand, competition may appear when the size of the market is too narrow for the existing producers. In a recent paper, Chiffolleau argues that,

'alternative supply chains decrease or potentially decrease horizontal relations between producers by placing them in markets where the tie with the consumer is privileged almost exclusive, and where the producer's autonomy is promoted. This can not only result in a break with market intermediaries, but also with forms of co-operation between peers' (2009, p. 221).

Empirical evidence in our study confirms that co-operation among farmers is not easy to achieve.

In any case, GAS do contribute a lot to reducing competition and to increasing co-operation among farmers. Through long-term relationships they tend to create relatively protected markets for producers; they also promote synergies between them in the form of complementarity (integrating different products and services) or in terms of supplementarity (creating a critical mass for orders). Complementarity facilitates the diversification of production at a local level without forcing small farmers to manage dozens of crops in a limited space. Supplementarity helps farmers to deal with individual, temporary or structural, shortages or over-production. As all these arrangements are not rigid, different patterns of co-operation/competition may arise. In order to get the necessary balance, farmers need to agree on what basis to exchange their products: some barter (e.g. tomatoes for salad), others prefer to do a cash exchange.

In times of growing markets for GAS producers, often more experienced GAS farmers introduce other farmers into the GAS system and give them technical and organizational advice. The leadership they gain through this activity is remunerated by the improvement of their reputation and professional recognition, which in turn enlarges the size and density of their networks and, in the end, the sphere of their business.

Belonging to a network of networks, each farmer has easier access to a common pool of resources, such as knowledge, social capital in its different forms<sup>3</sup> and agrobiodiversity. The more they use these resources in a reciprocal way, the more these resources improve and increase, whether they are seeds, information or contacts.

Rosario Floriddia is an organic cereal grower with considerable experience. Over the last few years, he has turned his passion and skills into reintroducing ancient wheat varieties. In doing so, he has set up collaborations with organic farming organizations and other NGOs involved in agrobiodiversity preservation. He has also started to directly process wheat in order to produce flour and bread. Within a few years, his farm has become

the centre of a network including other actors: farmers interested in changing their wheat cultivation (and thus need for seeds and knowledge), bakers who need flour to produce bread without using industrial techniques, GAS and individual families who directly purchase his bread, and technicians involved in training activities.

A further source of richness of local networks comes from the different kinds of relationships that develop among farmers. As Chiffolleau (2009) also highlights, farmers can interact on different levels – though a professional relationship, friendship, shared political engagement, each of which have different effects on shaping the relations with GAS.

### **Co-production of Innovation**

To build a business model applicable to GAS principles, farmers have to follow complex transition pathways. Each step of this transition is a ‘closure’ of the actor-networks to which they have contributed to initiate (novelties) into sufficiently steady socio-technical systems (niches). When closure is complete, relations between actors and things follow agreed rules that turn into collective knowledge and attitudes, and new cycles of innovation can start. The process is not at all linear, as many internal and external factors may cause a rupture of already reached equilibriums and the need to restart from scratch. In this section we examine innovation in relation to the above framework. We highlight how the relational context provided by GAS can foster processes of learning and co-producing innovation. We outline five problematic fields.

#### *Coherence between Values and Practices*

GAS generally select their producers on the basis of the characteristics of the farmers: preferably they are small, organic, open to dialogue, trustworthy, with interesting personal stories. These characteristics are often perceived as being more important than efficiency or price, since GAS are aware that alternative farming cannot achieve the same levels of commercial performance as conventional farms (see Table 2).

Many neo-peasants belong to this type, as they have developed these characteristics since the very beginning of their activities. In some cases, given their experience and communication skills, they guide consumers in terms of identifying values. Most of the others, and mainly local farmers, have a much lower degree of awareness of these values, or at least they are not able to communicate them in a coherent way. However, through dialogue within the GAS environment they develop a process of individual and collective reflection. By doing this, they find that personal values and family stories can be used in order to define a distinctive identity. The main obstacle to this identity redefinition may be related to conflicting norms derived from the market discourse (maximization of profits, price as a result of impersonal demand/supply forces, competition as a quasi-natural law).

Tuscan neo-peasants have developed the capacity to pursue strategies of excellence, supplying high quality products with high prices to wealthy consumers and especially to tourists. What GAS demand, instead, is ‘ordinary’ food, to be consumed daily by average (or low) income consumers. This market is increasingly attractive to farmers who are financially and ethically unsatisfied with their link to conven-

**Table 2.** Innovation cycles: coherence between values and practices.

Consumers' input	Producers' problem	Opportunities	Producers' solutions	Problems generated	Individual solution	Collective solution	Regime barriers	Feedback
selection of farmers on ethical criteria	aligning consumer criteria	potential for non conventional farmers	re-definition of identity; image building	mobilising values, personal and family background	self reflection	collective reflection	competitive markets	improved image strengthens farmer reputation
demand for sustainable food	undertaking a sustainable pathway	opportunity for diversification of market outlets	conversion to organic farming	deskilling and reskilling	trial and errors	learning processes	inadequacy of knowledge systems	consumers get awareness of constraints

**Table 3.** Innovation cycles: box schemes

Consumers' input	Producers' problem	Opportunities	Producers' solutions	Problems generated	Individual solution	Collective solution	Regime barriers	Feedback
fresh, local and seasonal vegetables from farmers	to provide a complete set of products	reducing risk related to prices and crop failures	diversification of production	complexity of farm operations	improving management processes	planning together with consumers	fiscal and labour regulation	changing consumer styles of shopping
demand of a complete basket of seasonal products	diversification	create customers' loyalty	turn to old and possibly varieties	need to find seeds; need to develop appropriate knowledge and skills	buy seeds on the market; on farm seed reproduction; trial and errors	seed exchange and improvement	seed national regulation; inadequacy of knowledge systems	awareness of diversity

**Table 4.** Innovation cycles: tackling supply-demand gaps

Consumers' input	Producers' problem	Opportunities	Producers' solutions	Problems generated	Individual solution	Collective solution	Regime barriers	Feedback
instability and seasonal fluctuation of demand	seasonal over-production or under production	valorisation by processing surplus produce	improving and extending time span of planning	strengthening consumers' involvement	selecting customers	pre-payments	consumer incomes	involving consumers in higher level of support to farmers



tional commercial channels. GAS have been the stimulus for conventional farmers to consider organic farming.

Deri farm was a conventional chicken farm. Its owner was interested in changing his commercial channel, so he looked for a contact with local GAS, but since their criteria is primarily organic, this was not feasible in the short term. In any case, he established a relationship with some GAS and together they developed a plan to gradually convert the farm. As a first step of a complete reorganization, he has turned his system of production into a more extensive one and GMO feed has been replaced by GMO-free feed. Moreover, a local chicken breed has replaced the old one. At the moment, the Deri farm is the main GAS supplier for eggs in the area.

Conversion processes have already been studied extensively (Padel, 2001), and the problems faced by GAS farmers are not different from problems faced by other organic farmers, such as the need for de-skilling (to abandon old techniques) and re-skilling (to adopt new technical principles). However, there is a difference with the GAS environment. As trust is the basic element of GAS relationships, GAS do not need official certification, and this helps farmers to undergo conversion in a flexible (and cheaper) way. Moreover, GAS agreements are tolerant about delivery times and quantities, and respond positively to requests of support in the case of crop failures. In addition, as already stated, GAS provide access to diffused knowledge in the network and facilitate distributed learning.

#### *Tackling Supply: Collective Box Schemes*

Box schemes are one of the most characteristic activities of GAS. Symbolically they represent the consumers' willingness to adopt alternative patterns of consumption. They are also the activities that best contribute to develop the GAS network and its learning processes. Unlike box schemes provided individually,<sup>4</sup> within GAS the rules and routines regulating orders, prices, qualities, deliveries, penalties in case of default, etc. are unstable, and are defined and consolidated through continuous interaction in the network (see Table 3).

Box schemes represent a pathway node (Wilson, 2008) both for consumers and producers. As far as consumers are concerned, box schemes contribute to a radical restructuring of food consumption patterns not only at an individual level, but also for families. In fact, box schemes lead to the reorganization of purchasing habits, of family diets, of the conservation and preparation of food. For farmers, the new innovation cycle activated by box schemes is based on diversification. In vegetable box schemes, boxes contain no less than six to seven types of products. To be able to provide six to seven products across the seasons, each farmer needs to be able to cultivate more than 20 crops in a year.

When Colombini used to sell his produce to a big retailer he cultivated only three or four different types of vegetables on large extensions, at first using the conventional farming methods and later with organic standards. Now he cultivates 30 different crops, and when also taking into account the varieties the number rises to 50.

With GAS box schemes, farmers have the freedom to choose the composition of the box. This leaves farmers a lot of room for testing new crop combinations and new

varieties. Consumers participate in this research by expressing their comments and evaluations on the new products. Farmers thus learn about diversification and consumers learn how to make new species and varieties part of their diets. Diversification is a way of compensating for the constraints that seasonality and dependence upon weather conditions impose: consumers gradually become accustomed to appraising the variety of fruits and vegetables that are available in each season.

The variety and presence of local and old varieties keep consumers loyal, rewarding them for the efforts paid in the change by offering them real product difference and adding value to the product.

Agro-biodiversity gives farmers a competitive advantage over conventional channels: supermarkets severely restrict the range of varieties and breeds that consumers choose, either because alternative varieties and breeds are available only in small quantities or because they do not comply with commercial standards (size, colour, integrity of the product, etc.) or with ordinary consumer taste. As GAS generally consist of consumers who are open to innovation, farmers are encouraged to turn diversification into differentiation, by introducing neglected species and local breeds and varieties. In this way, the GAS supply cannot be compared with supermarkets in terms of conventional criteria, and price comparison among channels becomes harder.

Farming diversification can also be carried out through on-farm processing (in the case of wheat, for example, hulling and/or producing flour, flakes, pasta). Apart from being a good way to increase added value for the farm, processing on the farm helps to minimize over-production in critical moments of the year (such as during summer holidays) and to manage periods of production shortages.

For farmers, box schemes also involve several post-harvest operations, such as washing and cleaning, weighing, box compositions, and labelling. Besides production and post-production activities, box schemes require a sophisticated management of orders. First, this involves planning harvesting carefully. The crops must be harvested shortly before delivery, otherwise products lose their freshness. Some farms use fridge-cells to stock some products and to plan orders better.

Order management strategies depend on different combinations of criteria and tools: from standardization of baskets to customization, from computer-assisted ordering to paper and the farmer's memory.

In the beginning, Colombini did not have a clear scheme in mind to organize the logistical aspects. Each group of consumers decided for itself, according to its necessities and preferences for the management of orders (who collects the orders and how they are transmitted to the producer, the frequency), payments (how – cash or bank account – and the frequency), deliveries (who does the delivery and where). Now that Bio Colombini supplies about 1,000 families, this kind of approach is no longer sustainable; Alessandro now believes that a new approach is urgently required, especially to avoid new groups making the same errors as the past.

To forget a box of vegetables or to make a mistake in its composition can become a problem as it generates dissatisfaction and complaints; with so many boxes to prepare every week, such mistakes are not uncommon.

The delivery of prepared bags and boxes to the delivery points is another important phase, and solutions to the emerging problems call for co-operation, both among farmers and between farmers and GAS.

The Poggio di Camporbiano farm has a dedicated van, and members of the co-operative organize delivery turns. The Contessa Beatrice farm cooperates with the Cortevilla farm for the deliveries. Colombini also delivers the bags for another producer. Josef Tscholl, an apple producer, also distributes oranges for a producer from Sicily, delivering them to a delivery point common to several GAS.

The organization of deliveries also involves efforts to optimize the trips. This is another aspect that stimulates co-operation: often farmers become communication channels between GAS, for example to coordinate the delivery times when several GAS have delivery days in common.

### *Tackling Supply – Demand Gaps*

One of the biggest problems for the viability of the box schemes is the demand/supply gap throughout the year: in winter only a few crops can be cultivated, and the risk of crop failures due to weather adversities is high. On the other hand, when production peaks, demand is much lower because many families are on holiday (see Table 4).

Exceptional weather conditions or pest attacks can delay the harvest or cause product loss; on the demand side, there can be a large discontinuity in orders. To respond to a shortage of supply, farmers can try – when possible – to diversify further, thus they have a greater flexibility. The degree of tolerance that GAS allow farmers in the box composition enables them to make use of ‘emergency products’ (e.g. processed products or more durable products – e.g. onions, potatoes, carrots). Although this solution does not fully satisfy the needs of families (they are sometimes forced to integrate with purchases from other channels), there is a considerable degree of acceptance as a form of solidarity.

At the same time, some problems can arise. During the winter of 2008–2009 a lot of people complained about a reduction in quality or variety in the products (including many ‘emergency products’). Some suspended orders (opportunistically waiting for better days), and others asked for a reduction in price. In some cases, the complaints go beyond contingency: as there is a continuous growth in demand for box schemes, there is a suspicion that a too large number of customers will undermine the quality of supply.

The discussions on the forum of the Bio Colombini web site, from December 2008 to February 2009 completely focused on these aspects. In some cases complaints about the farmer emerged: was his business getting too big and thus lowering his concern for his customers? Somebody claimed that the farmer did not programme the sowing well enough for the winter and that he should be better organized for next year. The farmer replied that the season had been very difficult, with continuous rain and temperatures frequently below zero, and that in spring and in summer they will receive more products than agreed.

Moreover, not all consumers are committed enough to the GAS mission to order boxes every month. When there are cases of dissatisfaction, or simply when the burden of adapting to the new system is felt to be too heavy, some families stop ordering. This instability generates financial troubles for farmers. Some farmers have

therefore started to ask for longer orders and pre-financing (e.g. two or three months instead of one), so that they can plan their activity better. Others are thinking of imposing some limitations on the free entry and exit of consumers: seen as an effort to create a basis of loyal and reliable customers. A more advanced solution, being tested in some GAS, is a 'pact' that commits consumers to buying bags for a whole year, with prepayment every three months. These risk-sharing schemes work well when there is a large degree of trust within the network. The supply/demand gap may undermine this trust.

To our knowledge, not many solutions have emerged to resolve the shortage of demand during the summer season. As mentioned previously, some farmers adapt to this situation by processing unsold produce, to be sold separately or inserted into boxes during the winter season. This may provide an important extra income for farmers; at the same time, however, it involves a lot of extra work and investment.

### *Pricing: Between Coherence and Convenience*

Pricing is one of the most important challenges to conventional markets by GAS. In principle, GAS look for a 'fair price', which means that agricultural prices should take into account the full cost (including the environmental and social costs) of food and therefore its real value. As sellers are not strangers to buyers (as in ideal-typical markets of conventional economics), but rather are part of the same community, prices should reflect the willingness to take into account all the interests at stake, including the rights of farmers to a decent income. As we have seen, one of the motivations to become a GAS farm is also the farmers' aim to get a better return for their work. GAS provide farmers with a space to negotiate prices.

The GAS process of pricing is totally different from the conventional method. In the latter case, the price is set on the basis of 'market prices' registered on the national stock exchange, modulated in terms of rigid quality standards. In the case of GAS, and especially with box schemes, prices are part of a broader set of contractual norms that involve the stability of prices, and a high tolerance regarding the amount, variety and quality of the produce.

However, if setting a fair price involves taking into account both farmers' and consumers' rights, which set of elements should be taken into account? If we look at GAS forums, there is an endless discussion between those who compare GAS prices and prices in conventional channels and those who remark that solidarity means overcoming any such argument.

In any case, solidarity is not a solid criterion if it is not supported by information. Information regarding production costs would be a good starting point. However, very few farmers keep accounts and are capable of identifying their costs.

The Poggio di Camporbiano farm is a co-operative and so their accounts must be transparent for all associates. The prices of the products are accurately based on the costs of production, and their policy is also made transparent to consumers.

Until now Alessandro Colombini has applied the old farmers' approach to financial aspects, which he learned from his father: it is all based on empirical observations, from day to day. As the complexity in the farm's activities has increased, Alessandro has recognized the urgency of setting up an information-based farm strategy.

At the Nicobio farm a financial evaluation of the farm activity has just started, thanks to Elena's skills and propensity for this kind of analysis. They choose to keep selling the boxes of vegetables at an average price of €2 per kilo, believing that organic products should be affordable for everybody, but without knowing if they are covering all their costs.

Francesco of the Contessa Beatrice farm used to work in industry before becoming a neo-rural. He was used to keeping account of working times. Now he and his wife take note of the time spent on operations on a calendar in the small farm office. They have also joined a programme to implement an accounting system on the farm.

More accurate awareness of costs may enable farmers to define the relation between prices and income and this, through communication, may help both farmers and consumers to agree on a fair price. Even where there is co-operation between the two sides the difficulties to overcome are considerable, because of the need to take into account several aspects, such as the specificities of different production systems, or a certain level of inefficiency due to the small scale, or the lower productivity of special varieties. Although there is no guarantee of results, exploring production costs represents a good opportunity to highlight the 'hidden costs' of production, thus contributing to learning processes.

### *Scaling Up*

The growth of GAS is creating pressure on producers. Farmers tend to tackle this unforeseen growth of demand as best as they can, but it is becoming increasingly clear that this situation challenges the whole GAS system. On the one hand, the risk of opportunistic behaviour increases (when farmers are not able to fulfil demand they may be tempted to integrate the supply with purchased commodities: this is not illegal, but goes against the GAS philosophy) and trust in the system may be eroded. On the other hand, the scarcity of supply may force GAS to relax standards by accepting conventional producers or enlarge the sourcing area.

To deal with the increased pressure of demand, GAS are actively looking to recruit new farms. This, as we mentioned previously, involves the detachment of these farmers from old networks and their reattachment to new ones. The challenge is not easy, but some already existing experiences indicate the way forward: giving conventional farmers an economic motivation to convert to organic farming; mobilizing GAS farms to support technical transitions through knowledge sharing; mobilizing consumers in trust building; looking for local administration support to finance training, farm investments, communication initiatives; activating links with farmers' unions to involve them directly in the process.

### **Concluding Remarks**

GAS are a peculiar type of AAFN, aimed at fulfilling the demand for fresh, local, sustainable and nutritious food for middle to low income consumers. Rather than looking at typical, locality, and excellent quality food, GAS focus on daily food, which may have a far more radical impact on the structures of daily life.

GAS challenge the dominant food regime by creating a public space where food is thought of, known about, produced and consumed according to alternative norms and rules. Within GAS, the actors involved redefine their identity and modify their socio-technical environment. Commitment, connectivity, diversity, solidarity, and embeddedness replace or integrate specialization, competition and bargaining. To adapt production, distribution and consumption technologies to GAS principles, the actors involved question their daily routines and experiment with new ones. By interacting with each other, farmers and consumers work to overcome material and cognitive barriers to change. Along with this process, they submit 'principles' to a 'real life' test: they align their practices with principles and at the same time work out principles to ground them better into practice. By choosing to set voluntary constraints on their patterns of consumption they explore the possibilities of new consumption and production styles based on different hierarchies of value.

GAS highlight the collective dimension of innovation. Not only do they help to appreciate the importance of social ties for innovative action; they also show the common cognitive frames, rules, norms, and material infrastructures created as an external effect of individual interactions. Innovation is co-produced by all actors in the network, and the outcomes of this process become public goods to which they then have access.

New business models and styles of consumption co-evolve and build a protected environment that helps them resist hostile cultural, technological and regulatory environments. GAS are in fact a. communication infrastructures facilitating the creation of alternative cognitive frames through learning processes; b. deliberative spaces where new concepts of systems of food provision are legitimized; c. regulatory environments providing the necessary flexibility to experiment with new patterns of economic behaviour. GAS define the rules and at the same time provide the necessary flexibility to adapt to them. They replace formal controls and sanctions with trust and moral sanctions. They interpret consumers' and producers' duties and rights in the light of solidarity, and therefore redistribute risks and rewards.

This article has focused mainly on the effects of farmers' involvement in GAS. Initially, GAS provide an alternative market by giving farmers many advantages, related to immediate (or even advanced) payment, stability of prices, and higher added value. When the relationship with GAS becomes firmly established, farmers make physical investments, adapt the organization and lay-out of farms, acquire new skills, reformulate economic calculations and farming strategies, and look for new input providers.

The analysis of GAS in Tuscany shows that they have a high potential for growth. In fact, they interpret the social concern for the crisis of the food regime, made evident by its inability to give solutions to global issues such as resource scarcity, food-borne diseases, pollution, and unfairness. A growing number of consumers are willing to change their routines and to contribute with voluntary work in order to get access to 'good' food at a fair price. The growth in GAS operations puts further pressure on the network, demanding greater efficiency and coherence between parts of the system, and at the same time creates tensions on its boundaries, as it intensifies competition with conventional business and makes regulatory conflicts with the regime more evident.

From the conventionalization literature we know that the reaction of conventional business to food movements can be two-sided: on the one hand, it tries to undermine the legitimacy of GAS (related to quality control, food safety, and fiscal issues)

and, on the other hand, it incorporates innovative parts of the new system into its traditional system. However, as Smith (2006) suggests, incorporation can be also considered an innovation, albeit 'incremental'. Following the same argument, 'conventionalization' may also fall into the same category: it helps the regime to adapt without challenging it radically.

The problem is to keep the dialectic alive between 'incremental' and 'radical' innovation. Innovative ideas and organizational principles are introduced as novelties – radical breakouts from existing rules and norms – and gradually consolidated into routines, institutions and infrastructures. The key, in our view, is in the distinction between novelties and niches. The article has argued that niches are not well understood if there is no analysis of the processes occurring prior to their 'closure'. Most GAS, in this view, are in the novelty phase, with very radical visions and goals, and struggle to face a multiplicity of problems emerging from the radicality of the innovation they pursue. When novelties consolidate into niches, they sacrifice part of their radicality to gain efficiency. But if the conditions that created the novelty are still there, new novelties will emerge.

## Notes

1. GAS is the acronym of Gruppi di Acquisto Solidale (Solidarity-based Purchase Groups). In the text the word is used both for the singular and for the plural form.
2. This analysis draws on the findings of research that was conducted within a regional project active since 2006. We collected information through direct interviews with Tuscan farmers involved with GAS (see Appendix 1) and with GAS co-ordinators, and through an analysis of e-mail communication between many GAS in the region and their providers.
3. Three types of connections have been identified in social capital: bonding, bridging, and linking (Woolcock, 1999). Bonding social capital refers to the links between people with similar attitudes and objectives and characterizes many groups; bridging social capital refers to the capacity of groups to make links with others that may have different views; linking social capital refers to the ability of groups to engage vertically with external agencies, in order to influence their policies or to draw on useful resources.
4. This type of box scheme is the most common in North Europe; it is based on an individual relationship between farms or intermediaries and consumers.

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## Appendix: Sample

Farms	Province	Farmer type	Products	Farm size	Other on farm activities
Bio Colombini	Pisa	local farmer	vegetables, fruit	18 ha	processing of vegetables, direct selling, education
Nicobio	Lucca	local farmer	vegetables	8 ha	agro-tourism, direct selling
Poggio di Camporbiano	Siena	neo-peasant ‘commune’	milk, cheese, pasta and cereals, vegetables	200 ha	processing, direct selling
Contessa Beatrice	Livorno	neo-peasant	vegetables	7.5 ha	agro-tourism, direct selling
La Cortevilla	Livorno	neo-peasant	vegetables	3 ha	agro-tourism, direct selling
Radici	Arezzo	local farmer	vegetables, olive oil	5 arable crops, 35 wood	seed saving, processing of vegetables, direct selling
Bio Renai	Firenze	neo-peasant	vegetables, corn, fruit	4 ha	direct selling
Mansio Romana	Livorno	neo-peasant	vegetables	14 ha	agro-tourism, direct selling
Fattoria di Corazzano	Pisa	neo-peasant	vegetables	12 ha, 40 ha wood	direct selling
Il Cerreto	Pisa	neo-peasant	pasta and cereals, beans, honey, olive oil	150 arable crops, 80 wood	agro-tourism, direct selling
Lydia	Pisa	neo-peasant	cheese and meat	110 ha	on farm visits on payment
Le Corsine of Joseph Tscholl	Pisa	neo-peasant	fruit		processing of fruits (juice, liqueurs), direct selling
Kovatz	Pisa	neo-peasant	olive oil, honey	2 ha	
S. Cristoforo	Firenze	neo-peasant	pasta and cereals, processed vegetables	50 ha	processing of vegetables, direct selling
Il Palazzo	Firenze	local farmer	beef	370 ha (60 ha wood)	agro-tourism, direct selling
Giovanna Bacciotti	Firenze	local farmer	cheese	65 ha (8 ha wood) 400 sheep	direct selling
Luca Frediani	Firenze	neo-peasant	vegetables	3 ha	direct selling
Maurizio Gioli	Pisa	local farmer	bread, olive oil	2 ha (1 ha wood)	direct selling
Paolo Deri	Pisa	local farmer	eggs		direct selling
Gino Corvino	Pisa	neo-peasant	vegetables	3,5 ha	

Farms	Province	Farmer type	Products	Farm size	Other on-farm activities
Pedrazzi	Pisa	local farmers	sheep milk cheese	6 ha	direct selling
La Ficaia	Pisa	neo-peasant	vegetables	5 ha	agro-tourism
Di Grigoli	Pisa	local farmer	beef, eggs, chicken	80 ha, 45 cows	direct selling of beef
Leonardo Puccioni	Pisa	local farmer	cherries, summer fruit	4 ha	processing of fruits, direct selling
Alessandro Donati	Pisa	local farmer	cherries, summer fruit	5.5 ha	processing of fruits, direct selling
Rosario Floriddia	Pisa	local farmer	wheat	120 ha	seed saving, processing of wheat (flour, bread),
Podere Zhaira	Lucca	neo-peasant	olive oil, vegetables and fruit	2 ha	processing of vegetables and fruit, direct selling
Ovidio Rossi	Lucca	local farmer	potatoes, cereals, chestnuts	5 ha	direct selling