HAL open science

Multi-actor organization for urban food systems : short but collaborative supply chains

Barbara Redlingshofer, Jean Baptiste Traversac, Jean Guillaume Messmer, Christine Aubry

To cite this version:

Barbara Redlingshofer, Jean Baptiste Traversac, Jean Guillaume Messmer, Christine Aubry. Multi-actor organization for urban food systems : short but collaborative supply chains. 11th European IFSA Symposium: Farming systems facing global challenges: Capacities and strategies., Apr 2014, Berlin, Germany. , 2014, Farming systems facing global challenges: Capacities and strategies. hal-01198240

HAL Id: hal-01198240

https://hal.science/hal-01198240v1

Submitted on 3 Jun 2020

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

Multi-actor organization for urban food systems: short but collaborative supply chains

Redlingshöfer, B.[1], Traversac J.B.[2], Messmer, J.G.[3] and Aubry C.[2]

[1] *INRA, Mission d'anticipation Recherche & Société pour le développement durable (MaR/S), 147 rue de l'université, 75338 PARIS Cedex 7.*

Corresponding author: barbara.redlingshoefer@paris.inra.fr

[2] *INRA/AgroParisTech, UMR SADAPT, 16, rue Claude Bernard, 75231 PARIS Cedex 05*

[3] *Ecole Centrale Paris, Grande Voie des Vignes, F-92 295 CHÂTENAY-MALABRY Cedex*

Abstract: The landscape of food systems in France becomes more and more diversified since CSA-like French Amap have generalized the idea of joint initiatives between food producers and consumers, others than farmers' markets and farm shops which are deep-rooted in French society. This seems especially true for urban and periurban areas. We observe and analyze a new model of short supply chains (SSC) which are organized as multi-actor short supply chains (MASSC). By definition, in these MASSC part of the logistic and marketing activities of one or several farmers is managed by an intermediate organization interfacing with consumers. The research objective is to qualify the configurations and analyze the innovative process of these cooperation models. We place this research in a branch of research related to the understanding of alternative food systems (Marsden, 2011, 2012). We have run semi-qualitative interviews on a selection of fifteen MASSC in France (12) and in the French-speaking area of Switzerland (3).

Key results are related to logistical solutions. MASSC create synergies among farmers, between farmers and consumers, and at a territorial level with a broad set of actors, like local authorities and associations. Cooperation means for individuals to pass a threshold in terms of logistical obstacles due to labor-intensive distribution and marketing activities which require specific skills. The use of ICT and local retail place allocated for free by local governments, firms or individuals limit distribution costs. MASCC also emphasize the use of innovative and sustainable forms of transport (cargo-bicycles, river-based transports, etc.) mostly in a marketing objective. Furthermore, the initiatives we have analyzed are often characterized by a strong social component. Associating structures of the Social and Solidarity Economy appear to be current practice. These examples at hand, we state a tendency amongst these MASSC towards a high degree of professionalization with a strong social component. These multi-actor SSC can be seen as adding to a more general movement towards closely linking rural-urban food systems. As most of them have been founded less than 3 years ago, further analysis is needed to fully understand their strengths, their impact on farm viability, and their perspectives for urban food systems in the future.

Keywords: short supply chains, local food systems, logistics, organization, urban and periurban agriculture, local authorities

A renewal of food logistics and urban agriculture

The expanding society's interest for the place of food in welfare and sustainable development is followed by consumers' interest in the reduction of their environmental footprint. Fifteen years ago, Martin and Marsden (1999) suggested a link between the food issue as part of the Agenda 21 and rethinking urban policies. The strength of this association has not declined until today. Quite the contrary, urban and periurban agriculture (UPA) is increasingly included in urban planning, intentionally or not, and not only with respect to the conservation of open space but more and more for a possible contribution to local food supply. Two dimensions are at stake when it comes to food governance of modern cities. Firstly, it is a question of urban planning components, of rethinking criteria of quality of life inside and near the city, of nature becoming a major positive component of urban space (Houdart *et al*., 2012; Perrotti, 2012); secondly, the environmental and social costs of food are increasingly contested all over the society. This contestation infers important consequences for food systems in their different components, especially for UPA. The rising concern amongst city councils and associations for these questions explains their recent implication in the support of UPA. Interestingly, they are involved in supporting agricultural which is significantly different from the "classic" agricultural policies. At local level, new forms of support to farmers based on innovative intervention and resources models emerge. City councils are progressively involved in the prospective, regulatory, and financial processes related to agricultural development. Regarding the transformation of food systems in Paris region, Guiomar (2013) observes the implication of these new actors in food issues in parallel to their participation to environmental debates. Next to traditional policy makers, associations and local authorities enter into the debate on food politics and more generally in the discussions on the governance of food and farming systems, whereas this question up to now has been the nearly exclusive domain of national and European politics. Weaknesses in the financial support of local policies generate novel and inventive means of support (crowdfunding, microcredit, etc.) mostly dedicated to compensate logistical barriers and farmers' difficulties in settling down. After six decades of agricultural policy supporting the production of agricultural commodities, the boundaries between agriculture and their social environment are moving. Consumers as well as farmers design new forms of relationships in order to permanently anchor food systems in their nearby environment. The main strategy to sustain UPA is based on actions of farmers and other stakeholders to reconnect agriculture to local consumers. Logistics play an important but little addressed role in the overall economic situation of SSC and their day-to-day organization. Based on fifteen case studies in France and Switzerland, this article analyzes the strategies to support and improve multi-actor short supply chains (MASSC) located in urban and periurban areas.

New forms of cooperation between farmers and consumers

In order to better understand the transformation in UPA and of its role for territorial development, it is interesting to have a look on the organizational and logistic innovations in farming systems turned to local markets. Successful local anchoring of agriculture partly depends on these innovations, which are interesting from a scientific point of view for their contribution to the ecological transition of supply chains. Short supply chains indeed are questioned on their capacity to provide good environmental, as well as technical, financial, and social performances (Redlingshöfer 2012). Research has shown that logistical processes often perform badly on energy criteria due to low volumes. Those little optimized logistics strongly handicap a successful development of local food supply (Schlich *et al*., 2006; Mundler &t Rumpus, 2012 ; Coley *et al*., 2009 ; Rizet *et al*., 2008).

Diverse solutions are scrutinized to reduce the energy consumption of SSC logistics. Massification, a major cost reducing strategy of the transport sector, is suggested to be the most promising solution to move down, on a product unit level, the energy consumption of transports. Schlich *et al. (*2006) put forward the principle of "Ecology of scale" which can be obtained by mutual assistance to cooperation to share complementary resources. Cooperation between farm-

ers has existed for a long time in traditional cooperatives for purchasing fertilizers or marketing agricultural commodities. Nevertheless, traditional cooperatives have never specified consumption areas and increasingly turned towards global markets. In parallel, innovative transport modes appear as tools for sustainable food distribution. Companies experiment urban transport on waterways and by cargo bicycles (Beyer & Lecuyer, 2013). From an environmental perspective, other processes in addition to transports are also responsible for a high and sometimes even higher share in the total energy balance. As a consequence, a broader focus on the supply chain upstream is crucial for energy consumption analysis (Blanquart *et al*, 2009). Ongoing initiatives engaged by local authorities to allow farmers to mutualize logistical tools go in the direction of improved performances.

The conjunction of ecological and urban food questions, on one side, and the renewal of politics for territorial development on the other side, stirs up three groups of questions:

- The first group of questions is related to farmers' consciousness of their responsibilities and potential contribution to sustainable supply chains by modifying their logistic practices. Are farmers who are involved in short chain organization and local food concerned about pollution reduction? Beside farmers' intentions, we have to question their strategic decisions on distribution and their consequential impacts on energy consumption. We have to closely study innovations, including the place of energy-efficient means of transport.
- The second group of questions is about the political impact of reorganized logistics. Are innovations of this kind in the structure of food supply chains able to change the lines of agricultural policy? Indeed, traditional support of Europe's Common Agricultural Policy did not consider SCC. Whereas activities of direct-sales are excluded from the first pillar, only rural development programs within the second pillar support investment into SSC. The identity and political priorities of agricultural and food industry lobbies are a strong barrier to the promotion of innovative marketing channels. Therefore it is important to examine the ways city councils and other local authorities seize opportunities to address the food issue at local level.
- The third group of questions addresses the geography of these emerging forms of supply chain organization. The frontier between territories of food production and cities for food consumption are moving. The strict segregation between territorial functions is more and more declining. How to anchor UPA in a territorial development perspective is an important question, especially in the context of reforms in the CAP rural development program.

Methods

A panel of initiatives was selected based on two criteria: the multiple actor character of the initiative and its contribution to food flows from rural areas to the city. This qualitative study was conducted from September to December 2012 and contains interviews with 15 managers of multi-actor short supply chains (MASSC). MASSC are defined as SCC initiatives where one or more farmers are being supported in terms of logistics, organization, communication, financing or access to farm land by a public or a private structure in order to foster local food markets. To cancel out the impact of institutional environment SSC initiatives were selected from very different regions in France (Paris-Region, Alsace, Loire-Valley, Center, Haute-Normandie) and in Switzerland (Vaud, Geneva). The studied initiatives target consumers in urban and periurban areas, in middle-sized or big cities. The supporting structure was a local authority, a consulting firm, an association, a group of farmers, a service provider in logistics and organization and/or a food processor.

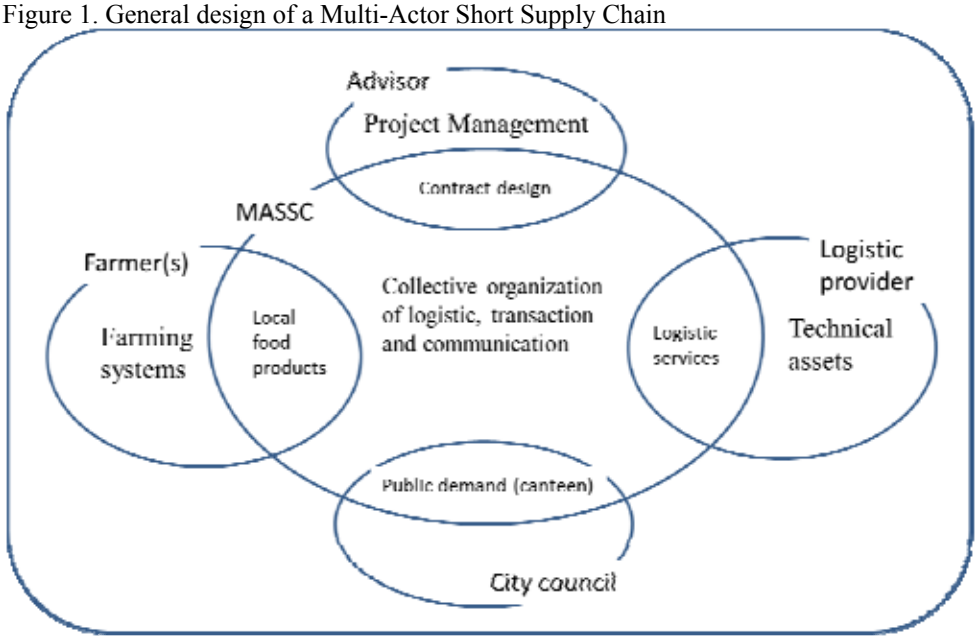
Managers were interviewed on three subjects to identify the general strategy for the initiative and its logistic components. General questions were asked on the project history, on initial objectives, partners, assets and distribution channels. The technical questions were on the initiative's logistics and on the rationale behind their organization and use of indicators. The interviewed managers responded by a detailed description of the logistical processes (Messmer, 2013). An important

point was to identify which actors and assets were involved in the management of information and material flows. Finally, in a perspective of SSC development, the managers were asked about strengths and weaknesses of their initiative, about innovation and requirements for further development of their initiative.

Complex organizational design in MASSC

The French agricultural development project CASDAR RCC[292] inventories 99 process and logistical innovations in SCC in France. Integration of innovation and access to new markets involve organizational forms which are all the more increasingly complex that the supply in product varieties becomes larger and that farmers tend to meet consumers directly (Boivin and Traversac, 2011). The needs for specific assets and financial and cognitive resources stemming from this complexity lead to collaboration of farms with other types of stakeholders. Likewise in other parts of the food supply chain, providers and subcontractors adjust the design of tools to small scale food distribution, e.g. a cutting plant for meat close to a slaughterhouse, a milk or fruit vending machine. Sporleder and Boland (2010) emphasize specific requirements of the logistic of food. The risk issue from the biological nature of the products, the role of buffers and stocks, the differences of the innovation principles with the ones of pure chemistry and physics, the oligopolistic nature of the markets, the increasing market power of distributors all entail important adjustments of tools and of flow coordination. Besides innovative processing and packaging processes, the association of a farm with external stakeholders also impacts downstream the conception of logistics. Our interviews point out the difficulty for providers to adjust logistic knowledge to small scale industry. The direct farmer-consumer relationship limits the number of intermediaries and consequently the design of the organization downstream in the supply chain. The reduction of the number of intermediate supply chain players and the focus on a local market are explicit requirements for these new forms of SSC. Yet, farmers tend to associate external stakeholders as financial, organizational, logistical or communicational support structure. These new configurations of farmers and external stakeholders' organizations are the specific point in MASSC (fig. 1).

Figure 1. General design of a Multi-Actor Short Supply Chain



[292] Based on the data of 550 French farms RCC is a large scale survey on costs and organizational design of SCC innovations. Twenty development organizations carried out this project from 2010 to 2013. Results and methods (in French) are available on http://www6.versailles-grignon.inra.fr/sadapt/Actualites/RCC .

Motivations for multi actor short supply chains (MASSC)

Collaboration, task sharing and task delegation

The multi-actor organization implies a strong collaborative component in the management of the different tasks, either organized as task-sharing either as delegation of tasks. Managers of eight of the fifteen study cases highlight farmers' support as a main motivation for founding a MASSC initiative. Collaboration for a more efficient supply chain organization can take various forms which more or less engage farmers in joint supply chain stages. Some of the initiatives collaborate with deposit locations for box schemes for example, others share transport or storage equipment and infrastructure, and even others jointly organize tasks and delegate them to external support structures (logistics, distribution platforms, communication). Farmers are then restored time for farming, their core activity.

Collaboration takes also place as networking with existing groups, when it comes to finding new financing options with citizen networks (like crowdfunding), addressing new consumer groups or collaborating with structures in the social and solidarity economy sector. This collaborative integration in local economy emphasizes MASSC' strong social component.

MASSC to improve coordination in the local market

Support to local agriculture is the main motivation of the fifteen initiatives we have analyzed. This general intention responds to farmers' economic difficulties which more and more become visible. When it comes to address the past of an initiative, the poor economic performance of farms before being involved in MASSC are always highlighted during the interviews. The association of a third party (not a farmer, not an agro food firm) in the conception of the project is crucial and specific of the MASSC projects. The path of a project is generally the same. Local stakeholders give attention to agriculture. The difficulty to coordinate local offer and local demand raises the question of logistics. An advisory group is created to manage tangible actions, e.g. to promote the diffusion of fruit and vegetable box schemes or the integration of local products into school canteens. In all interviews MASSC are mentioned as to improve transaction processes and reduce transaction costs. In order to reduce these costs MASSC are involved in drawing up the contract and in the conception of collaborative tools. An agency specialized in city council consulting has even stimulated demand for local foods in addition to its role in facilitating the exchange between farmers and central kitchen of school canteens in Paris-Region, in the suburban cities of Bois-le-Roi, Arpajon, and Bagneux. In the first place, MASSC are a means to improve the coordination within the consumer and farmer relationship.

The contribution to local development by sustainable agrifood systems

With respect to MASCC, the support of agriculture today appears as one contribution to local development. In Switzerland as in France, the future of agriculture comes out as a major issue for the initiatives' participants.

Ethical concerns not only include ecological concerns and the preservation of the environment. Different initiatives target the improvement of social welfare of different parts of the society. This dimension holds a significant role in some initiatives. Chiffoleau and Prevost (2012) stress the link to agriculture's social utility, based on a complete set of externalities which go beyond the consideration of environmental amenities or an access to food for economically fragile populations. Different initiatives enable unemployed people, qualified or unqualified, to enter the job market.

Creating link and solidarity with farmers aims to improve the efficiency of local agriculture and to restore a general equilibrium in relations between cities and rural areas. Support to farmers in MASSC involves diverse resources, partly physical and partly immaterial. Advantageous prices and contracts with financial advance are a real financial security for farmers. MASSC can be con-

sidered as a specific form of fair trade. Nevertheless, MASSC have a radical impact on SCC. They deeply transform the nature of the supply chain. The direct link between farmers and consumers is replaced by an indirect relation hosted by a third partner. The use of media to communicate to consumers information on farmers, on their farming practices, and on practical details on the delivery is generalized. The farmer-consumer relationship changes along with the consequences of changing communication supports. The use of NCIT is mainly argued by the necessity to improve the quality of information and to enhance labor performance, as labor is the main cost factor not only in farming but also in the commercial relation. Our analysis of the initiatives' structure reveals the importance of coordination tools to improve farm performance.

The main translation of their environmental motivation is for the interviewed managers to adopt organic farming schemes or purchase of products under organic labeling. When going organic, stakeholders also intend to obtain health advantages both amongst farmers and consumers. Half (7/15) of the initiatives exclusively sell products with the organic label, and one third sells both organic and non-organic. By contrast, if the logistic optimization is central in the analyzed initiatives, evidence of a real impact on the environmental footprint of a new transport system is scarcely invoked. The strategic management steer the initiatives on economic and financial indicators. All the interviewed managers are convinced of the key role of logistic for good results. The paradox of MASSC is on their difficulties to quantify the costs of logistic, be their analysis based on financial or ecological indicators. Except when innovative and low emissive transport tools are used, the objective of a reduced environmental footprint is not clearly implemented.

The place of new SCC organization in territories

The interviews describe MASSC as a consequence of a brutal crisis in a global environment. The global food chains' involvement in recent food crisis makes consumers doubting. Overall, SSC benefit from a degradation of consumer confidence. Sanitary crisis and environmental crisis already act as catalysts in raising societal consciousness of the need of alternative food chains and foster heterogeneous stakeholders' initiatives. Retailers and political leaders share the same analysis about the need to diversify the supply of food and to preserve agriculture. Market uncertainty also calls into question the size and the transparency of the food supply chain. For farmers, the control loss in supply chains even when they are member of a cooperative is unbearable. Another important catalyst of the analyzed initiatives is the lack of political support to SCC. Farmers promoting alternative techniques face additional costs with no compensation for the services they produce, which makes some of them turn to innovative solutions.

Consequently territorial development is now confronted with a supply chain logic based on economic efficiency. MASSC stakeholders transfer a food project into a territorial project. Whether they are public or private stakeholders, MASSC link food and farming services with urban planning. According to Olivier and Wallet (2005) there is a change in the conception of territorial projects: MASSC support the idea of a renewal of the theory of endogenous development. The local character as a source of economic efficiency is not only relevant because a tight contact with local institutions restores confidence in the project management and in transactions. Proximity is also the condition to take into account externalities of economic activities. Our interviews revealed that the need for reducing negative farming-related externalities appears to grow heavier and heavier in local authorities concerns. When integrating a proximity parameter in territorial governance, territories innovate in new politics to include negative (pesticide pollution of water) as well as positive externalities (landscape amenities, safe food, employment) in the management of agriculture. Sub-optimal transport efficiency in SCC calls for alternative ways of distribution, a reason for local public support.

Table 1 summarizes these aforementioned driving forces of MASSC as different kinds of dynamics and illustrates them by a set of examples.

Table 1 Driving forces of Multi-actor short supply chains structured as dynamics (examples)

Institutional dynamics	Supply chain dynamics	Territorial dynamics	Product specification dynamics	Environmental dynamics
Consultancy agency Farmers organisation with an independant logistical organization Extension of farm cooperative Cooperation with another farm cooperative (slaughtering, logistics) Tight connection to local bodies Cooperation with the chamber of agriculture Agreement with local public transport companies for delivery of boxes in public transport stations Private company initiative (logistics, processing) Organisation linking farmers and farmers/consumers	Coordination between farmers and consumers /end of chain actors Improvement / development of new marketing opportunities Professionalisation / improvement of delivery logistics Complete vertical integration Creation of a new distribution platform Association with for farmers non-traditional partners	Widening of intervention options of local bodies towards agriculture Linking rural production with urban consumers Serving all kind of markets Territorial extension to a distance of 250 km Territorial limitation to a distance of 100 km	Organic product certification Innovation in box delivery scheme Adjustment to constraining logistical regulation for meat products Strong effort of product specification embedded in a green strategy Strong marketing activities No product specification in order to maintain price level Focus on « logistic» specified products Specification as a socially responsible company	Organic label, reduction of greenhouse gas emissions Public transport stations as box distribution settings to make use of customers trip from work to home River-based transports Delivery by bicycle Recycling of cardboard boxes

Conclusion and perspectives

Our analysis of fifteen initiatives of MASSC reveal farmers' interest to create synergies with other farmers, between farmers and consumers, and at a territorial level with a broad set of actors, like local authorities and associations, until now not involved in public action towards public procurement of food. Cooperation means for individuals to pass a threshold in terms of logistical obstacles due to high labor costs and lacking competencies in distribution and marketing activities. The use of ICT and local distribution place allocated for free by local governments, companies or individuals limit logistical costs. Multiple benefits appear in terms of logistic with the consolidation of flows and investments. These benefits are for now mainly economic benefits based on scale economies and ICT. MASCC also emphasize the use of innovative and sustainable forms of transport (cargo-bicycles, river-based transports, etc.) mostly in a marketing objective. Furthermore, the MASSC we have analyzed are often characterized by a strong social component. Associating structures of the social and solidarity economy appear to be current practice. Human factor is crucial in MASSC initiatives; the manager plays a central role in the project construction. His ability to promote cooperation, to think through, to rally farmers and consumers, either individually or as networks, requires a high degree of skills, competencies, and social assets.

These examples at hand, we state a tendency amongst these MASSC towards a high degree of professionalization with a strong social component. These multi-actor SSC can be seen as adding to a more general movement towards closely linking rural-urban food systems, closely linking

farmers and consumers within urban and periurban areas. As most of the analyzed MASSC initiatives have been founded less than 3 years ago, further analysis is needed to fully understand their strengths, their impact on farms' viability and their perspectives for urban food systems in the future.

References

Beyer, A. & Lecuyer, M. (2013). Le transport urbain par voie d'eau, vitrine ou fenêtre de tir pour les circuits courts alimentaires ? Oral communication at the conference SFER « Les Circuits Courts de Proximité : Renouer les liens entre les territoires et la consommation alimentaire », June 4th and 5th 2013 (in press).

Blanquart, C., Kebir, L.Y., Petit, C. & Traversac, J.B. (2009). Les enjeux logistiques des circuits courts. Report to the interdepartmental centre of foresight and anticipation of economic changes (PIPAME).

Boivin, N. & Traversac, J.B. (2011). Acteurs et agriculture biologique dans la fabrique alternative des espaces : Le cas de l'Île-de-France. Norois n° 218: 41-55.

Chiffoleau, Y. & Prevost, B. (2012). Les circuits courts, des innovations sociales pour une alimentation durable dans les territoires. Norois n° 224: 7-20.

Coley, D., Howard, M. & Winter, M. (2009). Local food, food miles and carbon emissions: a comparison of farm shop and mass distribution approaches. Food Policy 34: 150–155.

Guiomar, X. (2013). Les politiques et les lois visant à développer l'agriculture (péri)urbaine. In Déméter 2013: 157-180.

Houdart, M., Loudiyi, S. & Gueringer, A. (2012). L'adaptation des agriculteurs au contexte périurbain. Norois n° 224: 35-48.

Martin, R. & Marsden, T. (1999). Food for urban spaces: The development of urban food production in England and Wales. International Planning Studies 4: 389-412.

Messmer, J.G. (2013). Les circuits courts multi-acteurs : Emergence d'organisations innovantes dans les filières courtes alimentaires. Report to INRA-MaR/S, Paris.

Mundler, P. & Rumpus, L. (2012). The energy efficiency of local food systems: A comparison between different modes of distribution. Food Policy 37(6) : 589-770.

Olivier, V. & Wallet, F. (2005). Filières agroalimentaires et développement territorial : une lecture des dynamiques de proximités institutionnelles. Economie et Institutions 6/7, 75-107.

Perrotti, D. (2012). La ruralité urbaine : de plateforme d'expérimentation à lieu de la mise en scène d'un nouveau modèle de durabilité. Les territoires périurbains du Parc Agricole Sud de Milan à l'épreuve de l'Expo Milan 2015. Environnement urbain / Urban Environment (6) : 100 – 117.

Redlingshöfer, B. (2012). Comment analyser les circuits courts de proximité du point de vue de leur durabilité ? Premiers éléments de réponses. In 14èmes Journées Sciences du Muscle et Technologies des Viandes. D. Bauchart and C. Evrat. November 13th and 14th 2012, Caen: 1-8. http://www.jsmtv.org/pdf/archives/ACTES_14e_JSMTV.pdf

Rizet, C., Browne, M., Léonardi, J., Allen, J., Piotrowska, M., Cornélis, E. & Descamps, J. (2008). Chaînes logistiques et consommation d'énergie : Cas des meubles et des fruits & légumes. Report INRETS/ADEME No. 05 03 C 0170. http://hal.archives-ouvertes.fr/docs/00/54/45/63/PDF/2008_dest_rizet_chaines_logistiques_consommation_energie.pdf

Schlich E., Biegler I., Hardtert B., Luz M., Schröder S., Schroeber J. & Winnebeck S. (2006). La consommation d'énergie finale de différents produits alimentaires : un essai de comparaison. Le Courrier de l'environnement de l'INRA 53: 111-120.

Sporleder, T.L. & Boland, M.A. (2011). Exclusivity of Agrifood Supply Chains: Seven Fundamental Economic Characteristics. International Food and Agribusiness Management 14 (5). http://ageconsearch.umn.edu/bitstream/119969/2/20110087_Formatted.pdf