

CORE Organic

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Organic Food for Youth in Public Settings: Potentials and Challenges. Preliminary Recommendations from a European Study

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iPOPY



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Providing organic food for millions of Italian pupils

How do we make it?

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Abstract

Italy has successfully improved the quality of school meals over the last decade. Actors from policy and public administration put emphasis especially on the quality of the used products; they should whenever possible come from controlled and certified production. In this paper the focus is on organic products.

This paper analyses three crucial aspects of the procurement of high quality school food: a) strengths and weaknesses of organic supply chains in the perspective of producers and caterers; b) call for tenders being used as a key instrument by municipalities, being in charge of school food procurement, in order to influence the quality of school food; and c) best practice cases of municipal school food systems which combine supply chains on the one hand and municipalities and their activities on the other hand.

The preliminary results suggest that an integrated approach is needed for high quality school meals. Various stakeholders should be brought together, to discuss their demands and increase the understanding between the different fields of school meal procurement, in order to serve tasty, organic meals.

1. Introduction: Challenges of a quality revolution for school food

Italy has a long tradition of school food procurement. Today, more than 750 million school meals are served every year in public schools, about 4.3 million per day (Bocchi et al. 2008). In the early 1990s some municipalities and public administrations started a “school food revolution” (Morgan & Sonnino 2008). Their goal was to increase the quality of the school meals. This ambition is illustrated by the slogan “Turning the school canteens into restaurants for kids” that was coined by the project “The taste of quality at school” carried out ten years ago by the municipalities of Milan, Genoa and Cesena.

Two aspects were of special importance for this quality revolution:

a) The quality of the products used for school food should be improved. Products from conventional agriculture should be replaced by products whose production process is controlled and certified (*filiera controllata*, “controlled chain products”). This category includes organic products, certified typical or local products (labelled as Protected Designation of Origin/PDO and Protected Geographical Indication/PGI), products from sustainable/integrated agriculture (integrated production methods with reduced amount of pesticides and fertilisers), and fair-trade products (Spigarolo 2006).

b) Particular attention was paid to the nutritional balance of the menus. The ingredients and their weight is controlled by the Health Authorities on the basis of national guidelines (LARN = *Livelli di Assunzione Raccomandata di Nutrienti*; recommended intake levels of nutrients).

School meal procurement is a difficult task (Morgan & Sonnino 2008) or, as we call it in the iPOPY project, a complex constellation (Nölting et al. 2009). Thus, improving the quality of school meals requires the involvement of many actors and demands technical, logistical, organisational, financial, political, administrative, and cultural changes. In spite of these challenges, Italy performs very well in comparison to other European countries: It serves school food of high quality especially with regard to the ingredients included in the meals (Nielsen et al. 2009).

How did Italian decision makers, stakeholders, and users manage to improve the school meal systems? This paper presents first results derived from the analyses of the Italian group of the European research project “innovative Public Organic food Procurement for Youth” (iPOPY). It concentrates on the use of *organic*

products in school food because organic food is an important option to provide a sustainable nutrition to young people due to the environmentally friendly form of agriculture producing healthy and tasty food.

The iPOPY project defines public organic food procurement for youth as

“all activities with regard to procurement in public food services for children and young people up to 25 years in schools and other public institutions for youth, such as day-care centres, universities, hospitals, and military facilities. The meal system is organised and its costs are carried, at least partially, by the public institution in question. Youth, or their parents, may need to pay for the food, at least in part. The food contains organic products conforming to EU-Regulations on organic production.” (Nölting et al. 2009, p. 11)

Local actors such as organic pioneers, producer cooperatives, municipal administrations etc. were the pioneers starting to use organic food in Italian school meals. From the mid 1990s, policy got involved in organic agriculture and promoted organic food for school canteens at the regional and national level. Between 1999 and 2002, regional laws (mainly in Northern Italy) were decreed fostering the use of organic products in public food procurement. In the following years, several regions produced guidelines for the management of school canteens recommending the use of organic food and other food from controlled production. As a consequence, the number of organic school meals has risen from 24,000 daily in 1996 to 924,000 in 2007. Data from 2005/06 shows that more than 94 % of the school canteens used organic products at least once a week and that 76 % by weight of all the products came from a “controlled chain”: organic agriculture 40 %, sustainable/integrated agriculture 18 %, typical local products (PDO and PGI) 14 %, and fair trade 4 %. Only 24 % came from conventional agriculture (Spigarolo 2006).

This paper presents first findings from the empirical research that was carried since 2008 in the iPOPY project. The Italian group of iPOPY analyses main constraints as well as success factors for public organic food procurement for youth in schools. This paper focuses on the supply and provision side of the school meal system. It includes three parts and topics that are crucial for high quality school food procurement in Italy:

- Strengths and weaknesses of organic supply chains;
- Call for tenders as a key instrument for municipalities to regulate the quality of school food;
- Best practice cases of municipal school food systems which combine supply chains with municipal activities successfully.

2. Methods

The data presented in this paper derives from several surveys and empirical research conducted by the iPOPY group in Italy.

First, information about the supply side of organic school food was collected by two questionnaires that were submitted to 50 caterers and 50 organic producers from all over Italy in spring 2008. We asked about the costs of the food and the meals, the supply of organic products, and main problems that must be faced when implementing high quality meal services, as well as the participants' personal opinions about these topics. Further, they were asked about preferred organic certification systems for school meal systems. On the basis of this material, in-depth expert interviews with decision makers from producers' and caterers' organizations were carried out in order to characterize the problems and to suggest solutions, using the terms from SWOT analysis, strengths, weaknesses, opportunities and threats (Bocchi et al. 2009a).

Second, calls for tenders for school meal catering are a key instrument for municipalities to influence the quality of the food and the school food service in general. Tender documents are crucial to bring the policies of the municipalities to the point and to put them into practice. On the basis of the call for tenders the contract is closed with the company which wins the bidding. The Italian part of the iPOPY project collected public calls for tender from 96 municipalities from all over Italy in 2009. Relatively more municipalities were chosen from those regions that have a higher share of quality products in their school meals, e.g. in northern and central regions. For the first time, calls for tender were analysed systematically in such a quantity. The analysis focussed on three aspects:

- Procurement policies: What products and what type of requirements are required (compulsory quality requirements)?
- Choice between possible caterers: How is the price weighted in comparison to quality aspects?
- Differentiation of quality aspects that are not mandatory (non compulsory quality requirements): How does the call for tender specifies and weights non-compulsory quality requirements?

Third, best practice cases of five municipalities with different size have been analysed in depth: Rome, Turin, Sesto San Giovanni, Piacenza, and Argelato. For this purpose, a check list was developed to analyse the school meal system in each municipality as a whole. The check list contains quality requirements of the municipality such as the wanted percentage or type of organic products, the organisation of the supply chains (short chain or long chain), the number of suppliers as well as the organisation of the school meal services. Relevant data was collected by expert interviews with managers of the school meals systems, representatives of the administration as well as from catering firms. Further, documents such as calls for tenders, guidelines, political declarations etc. were included. The case studies highlight the weaknesses and strengths of each municipal school meal system.

3. Results

3.1 Strengths and weaknesses of the supply for organic school food

50 organic producers and 50 caterers were asked about their opinions about main constraints for using organic products in public procurement for school meals. In the view of producers, the main constraints seem to be of economical and logistical nature (cf. Fig. 1), whereas caterers perceive the availability of organic products as an important problem (cf. Fig. 2) (Bocchi et al. 2009a).

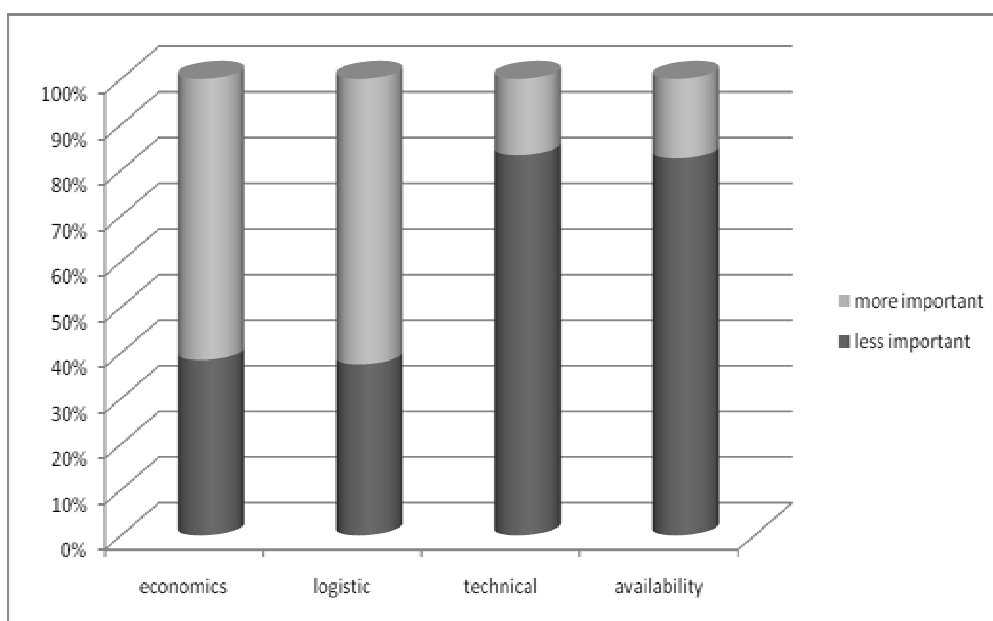


Figure 1: Producers' opinions about constraints for public organic school food procurement. Results from a survey among 50 organic producers in Italy 2008

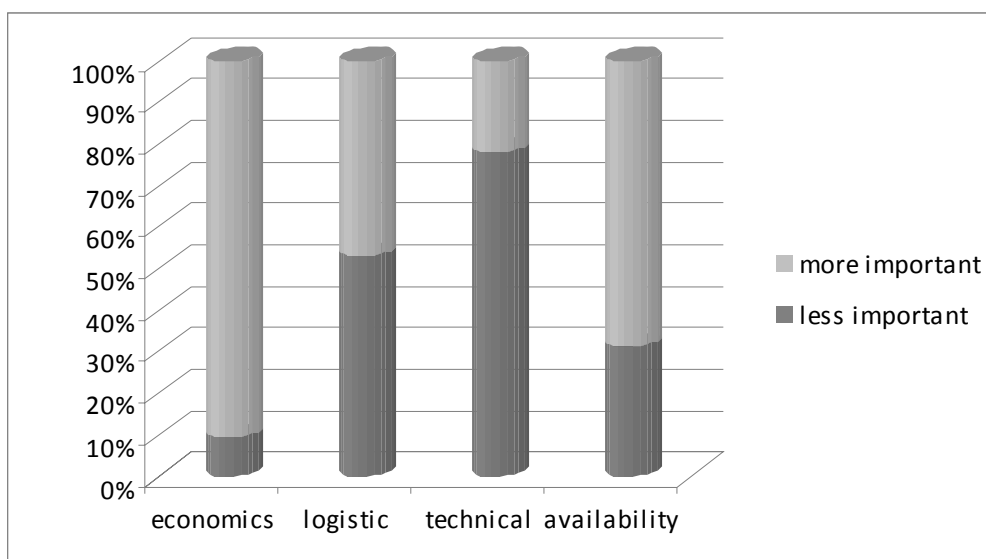


Figure 2: Caterers' opinions about constraints for public organic school food procurement. Results from a survey among 50 caterers in Italy 2008

On average, the producers estimated the additional costs for organic food to be 20% for cereals, fruits and vegetables and 30% or more for meat and meat by-products. Contrary to this, the caterers estimated the additional costs to be significantly higher, ranging from 25% premium prices for cereals up to nearly 50% for meat and by-products.

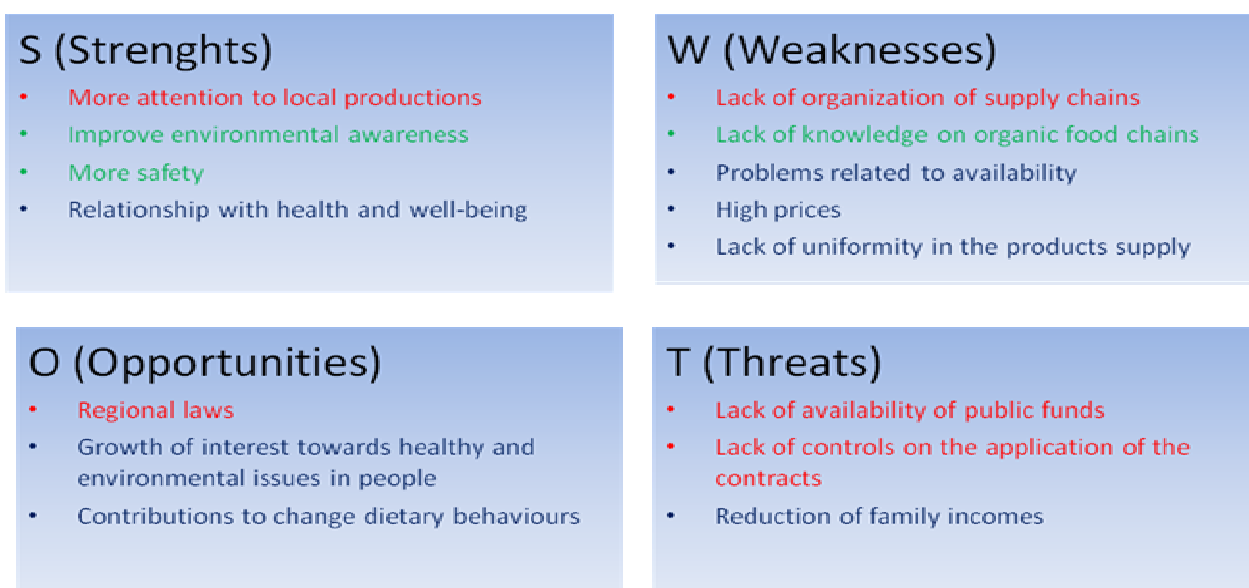
On the basis of this survey data, eleven expert interviews were carried out in order to analyse strengths, weaknesses, opportunities and threats of public organic food procurement in Italy. The interviewed experts were decision makers in various fields of school meal systems, such as the presidents of the main organizations of organic farmers, the top managers of large school catering companies and the managers of the school meal system of the municipalities.

Most experts agreed that a higher public awareness about environmental issues and food safety fosters public organic food procurement in schools, and hence may be regarded as strengths in the SWOT analysis (Fig. 3). Organic producers considered the increasing attention for local production as strength, whereas caterers highlighted the relationship between health, well-being and organic food.

Both producers and caterers agreed that lacking knowledge about organic food chains for public catering is a weakness of organic school food procurement. More specifically, producers criticised the lack of organisation in organic supply chains, whereas the caterers were more concerned about the premium price for organic products, a discontinuous availability of organic products and an unstable quality.

When considering opportunities, the producers pointed to the regional laws about school meals, which promote organic and other quality food as well as food education. Moreover, public health authorities, as well as and some canteen commissions (*Commissione Mensa*) demand dietary changes towards more healthy menus to prevent endemic illnesses caused by malnutrition such as obesity and cardio-vascular problems. The school canteen commissions are found in 80% of the Italian schools, and are composed by parents and teachers to discuss and maintain the quality of the school meal system.

The most important threat, according to the producers, is the scarcity of public funding. The regional laws are only guidelines to promote public organic procurement, but do not finance it. Further, their implementation is not satisfying, especially with regard to the catering contracts. According to the caterers, reduced family incomes are an important threat.



opinion of the producers (in red) – opinion of the caterers (in blue) – shared opinions (in green)

Figure 3: SWOT analysis of supply chains of public organic school food procurement

Summarising this SWOT analysis, higher prices for organic products are obviously only one of several restrictions for public organic food procurement. Problems with the specific supply chains for school catering seem to be even more important. A closer cooperation between producers, caterers and municipal school meal managers is needed in order to spread information about possibilities and specific requirements in this

field, to improve knowledge on all sides, and to equilibrate demand and supply. Important drivers for encouraging the procurement of quality food, including organic products, are the regional laws. Seven regions have actually stated such laws, and four more have developed guidelines in that field.

Another important topic with regard to public organic supply chains is the question of organic certification for canteens and restaurants which is still lacking in Italy. Certification is an important option to make the use of organic products visible for users and to guarantee the organic quality of the used ingredients. In the questionnaire, producers and caterers were asked about their preferred type of certification. Producers opted mostly "to certify the canteens" and "to certify the ingredients", while caterers preferred "to certify the meal" and "to certify the ingredients" (Bocchi 2009a).

In 2009, a working group was stated in Italy in order to discuss and experiment certification schemes for organic canteens, in which FederBio (the Italian Federation of Organic Farmers and Organic Certification Bodies) and Accredia (the Italian national accreditation body for the accreditation of testing laboratories and for certification and inspection bodies) are involved. In October 2009 this group has prepared a draft which was sent to the Ministry of Agriculture, Food and Forestry.

3.2 The analysis of municipal calls for tenders for school meal services

As stated by Morgan and Sonnino (2008), the potential of sustainable public procurement has not been tapped yet. They refer especially to the case of school meal procurement as a missed opportunity, so far. However, they claim that Italy is a pioneer in using calls for tenders as a means to improve meal quality instead of pushing a race to the (quality) bottom by just focussing on the lowest price. The latter option, according to Morgan and Sonnino, is also due to EU-Regulations on public procurement favouring the lowest price because it is often very difficult to define the wanted food quality precisely enough for a contract based on the call for tenders. This may impede more sustainable choices that might in the short run be more expensive.

The analysis of the calls for tenders of about 100 Italian municipalities may reveal whether and how these documents are an effective steering instrument to achieve high quality school meals, e.g. with a high share of organic products, certified typical products etc. In this paper we present preliminary results of this analysis focussing on 24 calls for tenders from the Emilia Romagna region.

3.2.1 Analysis of the procurement policies

In the first step, procurement policies were analysed, identifying all quality products required in the contract as compulsory. Quality products were differentiated into five quality types:

- a) organic products;
- b) short chain products, defined as products from neighbouring areas;
- c) typical products (PDO, PGI);
- d) products from sustainable/integrated agriculture;
- e) fair trade products.

The requirements for these quality types were identified in five product groups: fruits & vegetables; dairy products, meat & by-products; cereals & pulses; and other products.

The analysis shows that a high number of fruits and vegetables were required in organic quality. Table 2 gives an example how quality requirements were identified for the product group of fruits and vegetables. On average, (partially) organic products were demanded in nearly 50% of the tenders. Contrary to this, requirements for fruits and vegetables from short chains, typical products, sustainable agriculture and fair trade were rarely found.

Nominations	Requirements of the products				
	Organic	Short chain	Typical	Sustain.agr	Fair Trade
potatoes	17	3	0	2	0
mushrooms	11	3	0	2	0
leeks	11	3	0	2	0
parsley	11	3	0	2	0
spinach	11	3	0	2	0
onions	12	3	0	2	0
garlic	12	3	0	2	0
carrots	19	3	0	2	0
cabbages	12	3	0	2	0
savoy cabbages	12	3	0	2	0
fennels	12	3	0	2	0
celery	12	3	0	2	0
salads	18	3	0	2	0
cauliflower	12	3	0	2	0
frozen vegetables	3	3	0	2	0
apples	18	3	0	2	0
pears	16	3	0	2	0
oranges	17	3	0	2	0
lemons	12	3	0	2	0
tangerines	12	3	0	2	0
bananas	16	3	0	2	4
peaches	12	3	0	2	0
plums	12	3	0	2	0
cherries	12	3	0	2	0
strawberries	12	3	0	2	0
kiwi	12	3	0	2	0
apricots	12	3	0	2	0
Total nominations	348	81	0	54	4

Table 1: Compulsory quality requirements for fruits and vegetables in organic, short chain, typical, sustainable/integrated and fair trade quality found in 24 calls for tenders of the Emilia Romagna region

In the category *milk and dairy products*, especially milk and yoghurt were required in organic quality, whereas cheese was especially required as typical product (PDO and PGI). In the category *meat and byproducts*, only few products were required as organic, but again products from short chains and typical products (PDO and PGI) were important. In a few cases it was required that the animals should be raised in Italy. In the category *cereals and pulses* a lot of organic products were required. We counted altogether 121 nominations (= specified products). Organic rice, pasta, barley, and bread were mentioned most frequently. Interestingly enough, in this product group no requirements were made for typical, short chain, sustainable/integrated or fair trade products. In the group *other products*, peeled tomatoes and tomato sauce were the most commonly required products in organic quality, but also biscuits and olive oil were mentioned (1/3 of the cases). Altogether we counted 54 nominations in this group.

To sum up, many products were required in organic quality in the analysed tenders, especially fruits and vegetables, milk and yoghurt, cereals and pulses (including pasta) as well as canned tomatoes, biscuits and olive oil. On the contrary, meat and by-products were rarely demanded in organic quality. These requirements mirror well the availability of organic products in the mentioned categories in the Italian supply chains for out of home catering. Moreover, local products (short chain) are demanded relatively often in comparison to an earlier survey carried out only four years ago (Spigarolo 2006). At that time local products were hardly mentioned at all. Now, they are a compulsory requirement in some cases and fairly often demanded as a non-compulsory option.

3.2.2 Weighing price and quality in the calls for tender

A crucial point in public procurement is a good balance between low price and high quality. Therefore, a call for tender should assign points or scores to different aspects or parts of the bidding in order to assess the different biddings and their advantages and disadvantages in a transparent manner. E.g. a call for tender may assign certain number of points to the price, to the share of organic products, to the share of typical

products, to improvements of the technical infrastructure of the canteens and kitchens etc. that may sum up to a score of 100 points at the maximum. By assigning these scores to each offer, the offer with the highest score gets the contract.

The score can be divided into two general categories: price and quality aspects. A joint initiative of EFFAT (European Federation of Food, Agriculture and Tourism Trade Unions - www.effat.org) and of FERCO (European Federation of Contract Catering Organizations - www.ferco-catering.org) has developed a guide for the "economically most advantageous" offer in contract catering. This guide shall assist public and private purchasers of catering services in organizing a well structured tendering process. It is a voluntary standard. According to this guide, tenders may assign scores for price and quality aspects of the bidding in about equal shares. That means that the price decides only to about 50 % on who wins the tender. The score for quality aspects allows the caterers to demonstrate their ability to organize and plan the meal service of high quality.

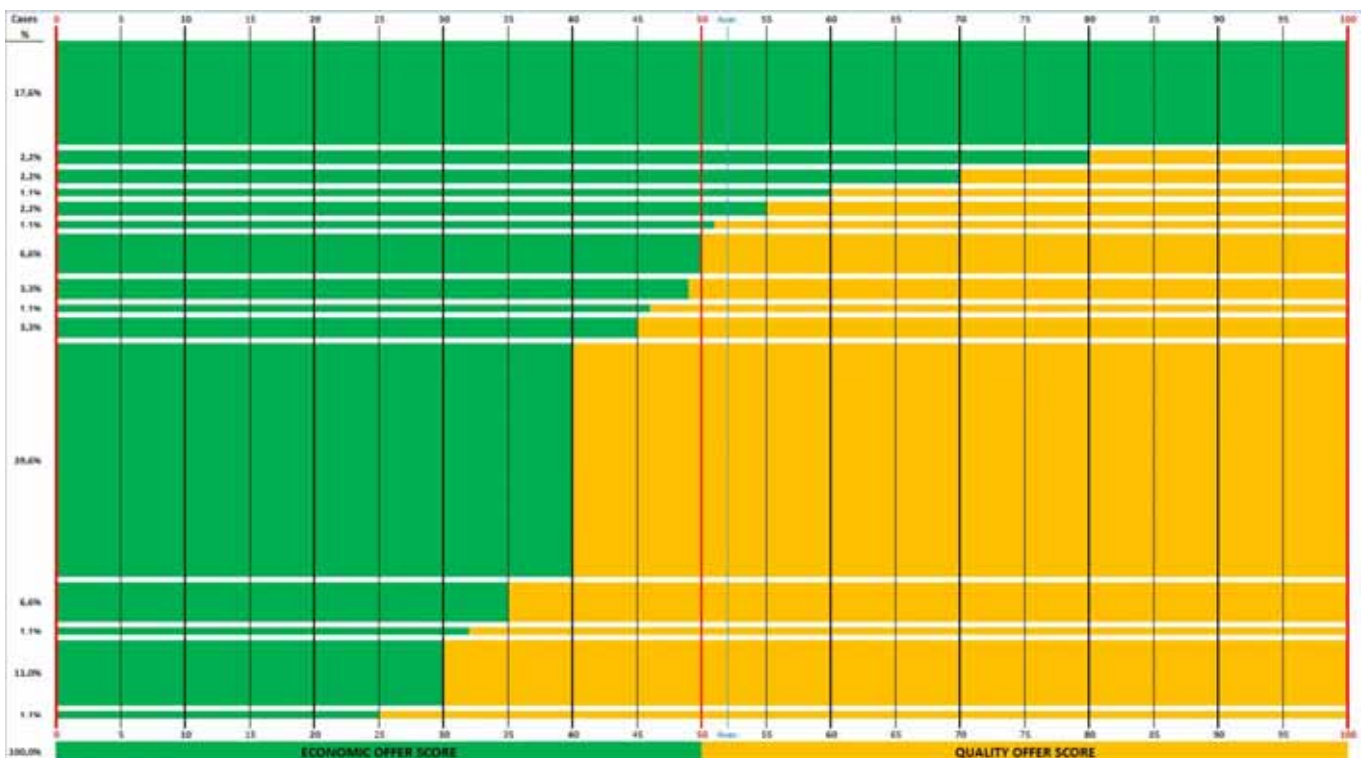


Figure 4: Shares between the weighting of price and quality in 96 calls for tenders for school meal catering in Italy, 2009

The analysis of 96 Italian calls reveals that in the vast majority of the cases, at least some scores were assigned to quality aspects of the offer at different shares (Fig. 4). Only 16 tenders devoted scores exclusively to the price of the offer. On average, 52 % of the scores were devoted to the price and 48 % of the scores to various quality aspects. However, it should be mentioned that some quality requirements may have been mandatory in the call for tenders as shown in 3.2.1. Thus, quality aspects are often integrated in the call for tender even though there is not always a score for quality aspects.

This result shows that mandatory and non-mandatory quality aspects are part of the calls for tenders. This finding underlines that it is possible to define quality aspects and integrate them into calls for tenders. However, not all tendering processes are sufficiently clear about the wanted quality. This is reflected in the next section.

3.2.3 Differentiation and evaluation of quality aspects in the calls for tenders

In the calls for tenders, we identified a large variety of voluntary quality aspects that could win scores in the bidding process. These very heterogeneous parameters can be divided into two categories: quality aspects and other aspects.

Quality aspects (non-compulsory quality requirements) influence directly the quality of the food and the meal service. We differentiated five specific categories for quality aspects:

- a) Food quality aspects: Organic products offered by the companies in addition to those required as compulsory; typical products (PDO or PGI) offered by the companies in addition to those required as compulsory; integrated/sustainable agriculture products; fair-trade products
- b) Aspects related to the supply chain: Short chain products (from neighbouring areas)
- c) Certifications: ISO 9001, ISO 14001 and others
- d) Aspects related to food education: general food education programs offered by the companies, specific education programs about organic products and production
- e) Aspects related to the quality of the school meal system: Staff training; improvements of school canteen structure

The second category includes all other aspects that are not directly connected to the above mentioned quality aspects, such as hygienic issues (that are compulsory anyway), number of employees, professional skills of the employees etc. In this category we considered aspects such as:

- hygienic issues related to food safety: HACCP self-control method that is mandatory by law
- the number of employees resp. number of meals ratio, that is related to the employment contract
- the commitment of companies to carry out nutritional education activities with students which is the responsibility of the teachers and is not the core business of catering companies

In the analysis, we counted the scores devoted to each of the above explained categories in every call for tenders and compared how they were weighted in relation to another. Interestingly, we found out that 27 % of the scores are devoted to quality aspects and 73 % to other aspects (cf. Fig. 5).

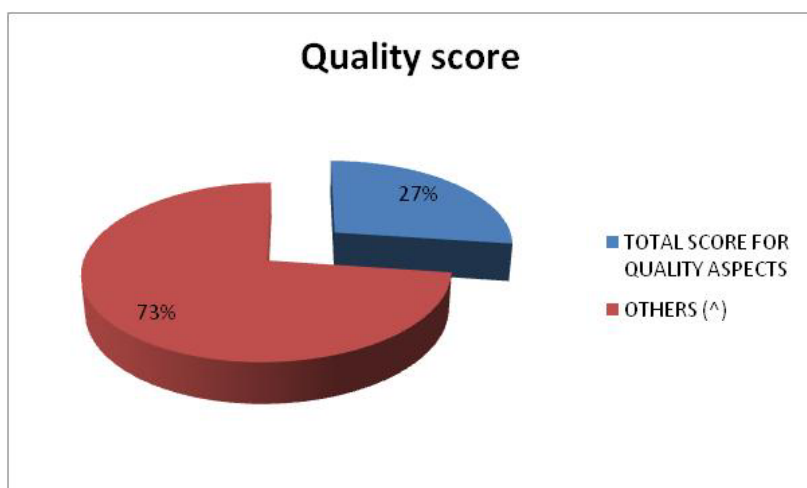


Figure 5: Differentiation of the non-mandatory scores into quality aspects and other aspects

We interpret these findings as follows: The calls for tenders often devote scores to categories that are not directly related to the quality of the food and the meal service but are either compulsory by law or by employment contracts or they are not in the responsibility of the catering companies. In our opinion, such scores may be confusing and hamper the concentration on food quality aspects.

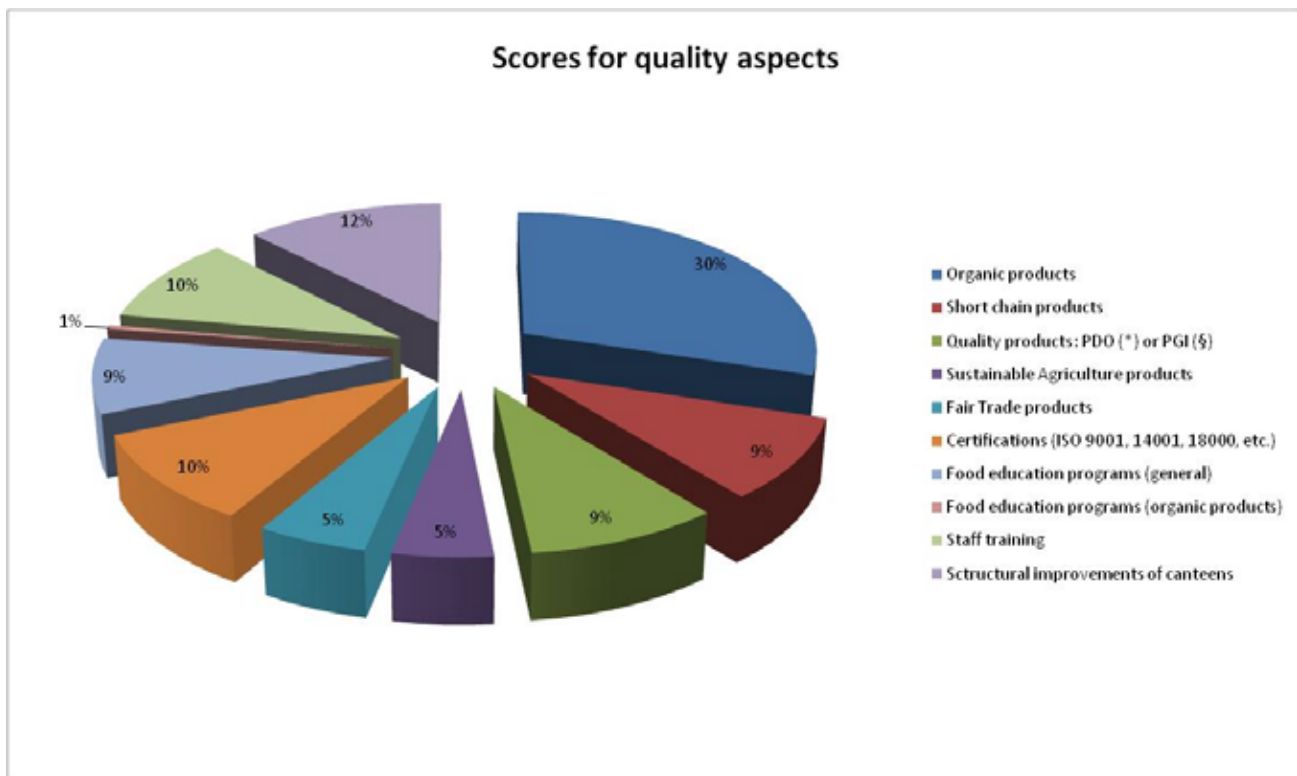


Figure 6: Specification of the quality aspects in the call for tenders

Regarding the above defined non-compulsory quality aspects in detail we identified a broad use of such categories in the analyses 96 calls of tenders (cf. Fig.6). The most important category were scores for additional organic products beyond the required ones, which on average was weighted with 30% of the total score for quality aspects. The average scores for short chain products, typical products (PDO, PGI), certifications, food education programs, staff training and structural improvement of canteens were weighted about 10 %, whereas integrated/sustainable agricultural products and fair-trade products were weighted about 5 %.

3.3 Five best practice cases of the Italian school meal system

The aim of the case studies was to identify the main features of successful school meal systems and to analyse their strengths and weaknesses. Cities and municipalities of different sizes and structure were chosen in order to reflect the diversity of school meal settings: Rome, Turin, Sesto San Giovanni, Piacenza and Argelato (cf. Table 2).

As in all Italian cities, these municipalities are responsible for school meals offered to children who have a full time presence at school during the day. In all five cases food is not conceived as a physiologic need but it is considered as a cultural and social expression. These considerations are very important to understand the philosophy that inspires political guidelines for food catering in school canteens.

Rome is the capital of Italy and the biggest city with about 2.5 million inhabitants, located in the Lazio region in the central part of Italy. Rome serves about 150,000 meals daily in 710 schools. The kitchens for preparing the meals are located at the schools. Over the last years the municipality of Rome developed a policy aimed at increasing the quality of school meal service, implementing the procurement of organic (70 % organic; no organic: cheese, milk and meat that are however typical and quality certified) and local products. In this case "local products" means from Lazio and the other regions of central Italy due to the sheer quantity of the needed products.

Turin is a city of about 950,000 inhabitants, located in the Piemonte region in northern Italy. The city serves 55,000 school meals a day. The meals are prepared in a mixed system that combines centralised and decentralised kitchen structures. There are centres for food preparation that distribute prepared food to some schools as warm meals and to other school as chilled meals which are reheated in the decentralised school kitchens. Further, there are autonomous school kitchens that prepare meals on their own. The municipality's policy for school meals promotes the procurement of high quality products and promotes self-service in the school canteens. The self-service system was introduced in Turin for the first time in Italy. The

reason for it was to reduce the amount of left-over food, which may be substantial when all pupils are served portions of equal size which is the common model in Italy.

Sesto San Giovanni is a city of about 100,000 inhabitants, located in the Lombardy region in northern Italy. A centre for food preparation delivers warm/cold food and meals to 6,000 pupils resp. 41 school canteens. The municipality fosters the procurement of high quality products, in particular organic food that has a share of 80 % of the total food. Other products are mainly of typical and/or certified quality. Moreover, it pays great attention to the cooperation with the company that manages the school catering system in order to organise also the service and the educational activities in close relationship with the caterer and supply chain actors.

Piacenza is a city of about 95,000 inhabitants in the Emilia Romagna region in northern Italy. It serves 5,000 school meals daily. A centre of food preparation distributes chilled food to the kitchens at the schools which reheat the meals, and also prepare some fresh food. Piacenza promotes the procurement of organic and local products, coming from the farms of its province. Farming and food production have a long tradition in this area and are valued as an integral part of the regional identity. Finally, students are involved in educative projects about healthy nutrition.

Argelato is a small city of about 8,500 inhabitants, located near Bologna in the Emilia Romagna region. It serves 800 meals per day to four schools. The food is prepared in a central kitchen. Argelato strives for high quality school meals. Remarkably, it has reached 100% procurement with organic products. This was made possible amongst others through a close relationship with local producers. Moreover, it organised educational projects about healthy nutrition and environment.

<i>City</i>	Rome	Turin	Sesto San Giovanni	Piacenza	Argelato
<i>Meals per day (average)</i>	150,000	55,000	6,000	5,000	800
<i>Number of schools</i>	710	285	41	34	4
<i>Main structure of school meal system</i>	kitchens are situated at the school	mixed system: centre of food distributing warm/cold meals; kitchens situated at the school self service system	centre of food preparation and distribution to the school by warm/cold keeping system	centre of food preparation and distribution to the schools as cool & chill system school kitchens reheat and serve the meal	centre of food preparation and distribution to the schools by warm/cold keeping system

Table 2: Overview over the five municipalities and there school meal systems.

In all five cases, municipalities, sometimes stimulated by regional laws, decided to increase the quality of their school meal system. Often, they started with the procurement of organic food and other quality products from “controlled chains”. A strength of nearly all cases is the high quality of the raw material. All municipalities promoted the increased use of quality products. Often, they are engaged in promoting local or regional supply chains in order to create transparent supply chains and markets for local producers.

Further, the analysis reveals that there are several valid models of successful school meal systems. Each municipality was able to developed particularly good practices which are well adapted to its size, structure, and context. As a consequence, effective school meal structures may well be established in very different settings.

A more detailed analysis shows the following features:

Rome is an interesting model for big cities, which combines the exploitation of local and quality products with the food education programs (cf. also Morgan/Sonnino 2008). The municipality of Rome pays great attention to the relationship with the producers and with the users. It produced guidelines about catering system organization and started learning processes between regional producers, caterers and the administration in charge. Finally, Rome promoted food education in line with its promotion of regional and organic school food, produced educational material and started projects with students about healthy eating. A drawback of its school meal structure that is based on a kitchen in every school is the high costs.

Turin has developed as one of the first cities in Italy a self-service for pupils. Turin has developed for the first time in Italy a self-service system with the aim to reduce the waste. Its school meal system combines the high quality of the food products with low costs due to the centralized cooking centres. However, quality products are not always available in big quantities at low price.

Sesto San Giovanni has developed an interesting model for medium to small size towns in Italy. Its policy combines the high quality of the food products with an effectively organised school meal system.

A specific advantage of the school meal system in Piacenza is the organisation of short or local supply chains. Local farmers built up a consortium named BIOPIACE which is the main supplier of the catering company being in charge of the school meals. BIOPIACE provides fruits, vegetables, biscuits, milk, and cheese in organic quality as well as meat (not organic). The close relationship between the caterer and the consortium was an important reason to get the contract. The increasing number of local (organic) farmers in the consortium allowed for a progressive reduction of the costs of procurement. Moreover, the organization of the meal preparation is very innovative. The caterer uses a central food preparation unit in Piacenza (that belongs to the municipality) where the meals are prepared and to a small part precooked. The prepared food is brought to 27 school kitchens where the meals are finally cooked and served. Seven other school serve warm meals brought from the central preparation unit (Bocchi et al. 2009b). This organization, however, is very costly for the municipality.

Argelato is a pioneer with regard to 100 % organic school meals. Due to the single central kitchen and the low number of meals, its school meal system has no high costs.

A weakness of nearly all cases is the availability of regional and/or organic products as well as relatively high costs. In some municipalities the high number of meals seems to be a problem: for guaranteeing the availability of the wanted quality products, some municipalities accept long supply chains which may also include long distance transportation.

Summarising the results of the case studies, we recommend taking a leaf from the model that is most similar to the particular context. The model of Piacenza is probably not suitable for a great city and model of Rome is not applicable to a small town vice versa. However, some points are highly relevant in all cases or a majority of them: the political initiative of the municipality, public funding, precisely formulated and demanding call for tenders, a close cooperation with local producers and caterers, support for establishing new local supply chains for quality products, initiating learning processes between caterers, producers and administration.

4. Conclusion and Preliminary Recommendations

Bringing together results from different angles of the procurement side of school meals, some points can be highlighted here:

- An important driver for pushing the quality of school food further are the regional laws that promote the procurement of quality foods, including organic food.
- Most producers and caterers still work from their point of view and are embedded in their specific and separate logic. Knowledge about restrictions and needs of the “other side” is rare. A closer relationship and better integrated supply chains from the producer to the kitchen is needed. This exchange can be promoted by a local authorities or non-governmental organisations which can invite all the actors of the school meal system – producers, caterers, and schools – to a round table. An integration supported by shared and clear agreements, like the cooperation of the stakeholders in Piacenza, can overcome these constraints.
- Carefully formulated calls for tenders are an important instrument to foster high quality food in the school meal systems. The analysis of the calls for tenders identified components that an effective tender should include: Specific quality requirements for used products, a balance between price and quality for the weighing of the biddings, and precisely formulated quality demands (compulsory and non compulsory).
- As the case studies reveal, there is not one optimal system for all organic school meal systems but each municipality has to find its own solution adapted to its size and specific context. However, a municipality can learn a lot from the best practice cases, e.g. how to formulate a call for tender, and how to organise organic and/or regional supply chains.

Some more lessons can be learnt from these findings. Common working groups, platforms and working relations between all relevant supply chain actors are able to bridge different logics of action of each group.

E.g. the development a voluntary standard on public contracts for canteens initiated by UNI (Ente Nazionale Italiano di Unificazione; National Organization for Standardization) and the National Observatory of School Canteens brought together stakeholders from the producers and the caterers for the first time and started a valuable learning process. We recommend developing these experiences further because it is precisely in between these groups that many problems should be addressed and solved most effectively e.g. by developing guidelines and shared voluntary standards. Also the analysis of the best practice cases demonstrates that municipalities cooperate effectively with caterers, producers, and schools creating innovative solutions for high quality school meal systems.

With regard to call for tenders a balance between price and quality is important in order to prevent a race to the bottom. We suggest paying more attention to the question how quality aspects may be integrated into a call for tender either as compulsory or as non-compulsory. Clearly defined quality standards that are shared by all stakeholders should be developed. Currently, a working group of UNI is developing such a voluntary standard on public contracts for canteens, in which all undefined requirements that are not directly connected to quality aspects are considered as not applicable.

In Italy, the trend replacing conventional food in school canteens by quality food continues, even grows. While organic products are quite well established meanwhile, the procurement of local products is on the rise. It is motivated by a mix of cultural (local traditions) and environmental concerns (less transportation). In order to improve the quality even further towards the vision of a "sustainable school meal system" a holistic approach is needed that combines these trends and integrates further aspects. Challenges that are worth working on are especially the environment of the canteens, the waste management, and a coherent food education which is, so far, a non-tapped potential (Spigarolo and Donegani 2009).

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