The Marginal Possibilities of Realizing Organic Production for School Establishments

Marginální možnosti realizace bioprodukce ve školních zařízeních

Hana DOLEŽALOVÁ, Kamil PÍCHA* and Dana HANZALOVÁ

University of South Bohemia, Faculty of Economics, Department of Trade and Tourism, Studentská 13, 370 05 České Budějovice, Czech Republic, *correspondence: kpicha@ef.jcu.cz

Abstract

The aim of this article is to explore the possibility of increasing the sale of organic products through supplying schools and school canteens. Potential of this way of commercialization of organic production is assessed based on the survey on preschools and elementary schools and among parents of children attending the surveyed schools. The article is based on the local survey in the district of České Budějovice and additionally on the results of a national survey that have, however, omitted the region of South Bohemia. Only about one fifth of pre-schools and elementary schools have already experienced the involvement of organic food in the school meals preparation. Some of them are not interested in organic food but most of them fear the strong increase of the school meal's price when using ingredients originated from organic farming. Most parents are interested in inclusion of organic food in the school meals but they also worry about the price. Model cases proved, however, that the increase of the price is not so dramatic, and the real increase of the price corresponds with most parents' willingness to pay higher prices for meals with organic food content.

Keywords: distribution, organic food, pre-schools, schools

Abstrakt

Cílem tohoto článku je prozkoumat možnosti zvýšení odbytu bioproduktů prostřednictvím zásobování škol, školek a školních jídelen. Potenciál této formy zpeněžování bioprodukce a odbytu biopotravin je posuzován na základě výzkumu mezi mateřskými a základními školami a také mezi rodiči dětí navštěvujících zkoumaná zařízení. Tento článek se opírá o primární výzkum realizovaný v okrese České Budějovice a dále pak sekundárně o výsledky celostátního průzkumu, který

však bohužel vůbec nezahrnul školy a mateřské školy z jižních Čech. Pouze přibližně jedna pětina mateřských a základních škol má již zkušenosti s využitím biopotravin při přípravě jídel pro děti. Některé z nich sice nejeví o biopotraviny zájem, většina z nich však zájem má, ale obává se významného zvýšení ceny jídel při použití bioingrediencí. Většina rodičů má rovněž zájem o zavedení biopotravin do přípravy školních jídel a shodně vyjadřuje obavy o zvýšení ceny. Modelové případy však ukázaly, že nárůst ceny při používání biopotravin není nikterak dramatický a skutečný nárůst ceny je v rámci ochoty rodičů připlatit pro své děti za jídlo s obsahem biopotravin.

Klíčová slova: biopotraviny, distribuce, mateřské školy, školy

Introduction

Since 1989 the Czech food supply chain underwent significant changes as for the structure of agricultural production as well as the food production (e.g. Bečvářová, 2004; Svobodová and Věžník, 2012; Klusáček et al., 2013; Krejčí et al., 2014). The changes have resulted from both the political changes and general economic, technological and market development in Europe and all over the world. The market should face to all those changes. One of the emerged fields is the organic farming.

The Czech organic food market has been gradually growing for the last 20 years. In spite of this trend and especially of the important increase during the years 2005-2008 (Hrabalová and Dittrichová, 2012), this part of the food market did not exceed 1%. At the same time the Action Plan for Organic Farming 2011-2015 aims to achieve the market share of 3% of organic food (Ministry of Agriculture, 2010a). Another objective to achieve is 60% share of Czech products in the organic food market; the initial share when the plan was set up was 40%. The effectiveness of the support to organic farming is subjected to critical discussion (Zagata, 2007). The main distribution channels of organic food in the Czech Republic are retail chains (which are estimated to be between 70% and 80%), health-food stores, pharmacies and the first-hand sale. This fact is rather compliant with the effort to support local organic food producers and generally the organic farmers (Jánský and Živělová, 2007), as they have difficulties in launching their products in the market via big supra-national chains. Thus it is necessary to look for other ways of how to let consumers eat these organic products in a situation when the lifestyle preferring organic foods has not sufficiently spread in the Czech Republic yet and the purchase of organic food is often casual (Doležalová et al., 2009). One of the ways that can be used is the health aspect of these organic products. Nutrition represents an important element that fundamentally influences the state of health of each human being. As our eating habits are already formed during the course of our childhood, they are influenced not only by habits within our families, but also through various school establishments that we attend. Therefore it is necessary to make maximum effort to arrange for a sufficient choice of health food for children at schools, pre-schools or other establishments (in school canteens, school snack bars or vending machines). Organic food is an ideal alternative to the conventional food products as they differ in their content of salt, fat, sugar or artificial additives. Supporting the health of children,

through the provision of fresh, healthy and nutrient-rich food and drinks, should be a priority of every school. Tens of schools and pre-schools in the Czech Republic are already involved in “Organic Food to Schools” Projects.

The special character of organic food (compared to conventional food) is not only the results of the mechanical, chemical or microbiological specialties. It is also related to the specific way of production from the ethical, social, psychological or environmental points of view. A consumer should be aware of the fact that the way of producing organic food is not only chemically-free and pesticide free, but also animal friendly (following the welfare rules), environmental-friendly and it should also save nonrenewable sources of raw materials and energy. Organic farmers use natural ways of fertilizing the soil. Instead of synthetic chemical sprays or easily soluble mineral fertilizers, they use natural methods of plant protection, as well as organic fertilizers. One of their main interests is animal welfare, which means they accentuate natural standards and needs of animals. Likewise, the processing of organic products follows the most natural ways. Auxiliary synthetic chemicals, as well as genetically modified organisms (GMO) or products made of GMOs, are forbidden. Also the use of additives (including nature-identical or synthetic flavourings) is strongly limited. With regards to the different way of production and processing, it is possible to expect a different level of quality organic food, compared to the alternative conventionally produced food (Cooper and Leifert, 2007; Zagata and Lošťák, 2012). Even if there is certain amount of criticism in supporting the concept of being natural to characterize organic food (e.g. Trewavas, 2001), this concept plays a role here (Verhoog et al., 2003; Murdoch et al., 2000). Generally speaking, it can even be declared that the quality of food is closely linked to the nature and locally embedded supply. This is a supporting argument for organic food and products.

There are also some disadvantages, two of which are really important. The first one concerns finance. Low demand and the small amount of production are typical for organic food. Higher prices are caused by a lower opportunity to achieve the economy of scale (due to smaller volumes or lower yield. This fact is admitted, for instance by Brožová (2011). Although there seems to be fewer sensible products, so without decrease of the yield; where the organic food supply is limited as compared to the demand (see Artukoglu et al., 2010). Post-harvest handling of relatively small quantities of organic foods results in higher costs because of the mandatory segregation of organic and conventional produce, especially for processing and transportation. And, finally, the marketing and the distribution chain for organic products is relatively inefficient and the costs are higher because of the relatively small volumes. Then the higher price represents an important barrier to buying that food (Radman 2005; Lockie et al., 2002). The second one is that there is a shorter shelf-life of some organic food products. Another disadvantage is particularly in the case of fruits and vegetables – that at first glance they are less attractive than conventional food (Moudrý et al., 2007).

Organic Food Distribution

Distribution channels used for organic products are both direct and indirect. According to their importance for organic food, the most cited distribution channels

are the organic producers themselves, health food stores and retail chains (Baourakis, 2004; Santucci et al., 1999).

Mainstream grocery stores have gradually reached most consumers (Torjusen et al., 2004; Dimitri and Lohr, 2007) as is the case in the Czech Republic. However, the problem is with the structure and variety of the organic food that is delivered to consumers through retail chains (Galletto, 2007). Retail chains also offer particularly organic vegetables and fruits, meat, dairy products, bread and eggs, whereas readyto-eat foods (such as cereals, jam, chocolate, cookies, pastas, pasta sauce or drinks) are missing from their shelves (Hamzaoui Essoussi and Zahaf, 2008).

Direct selling is particularly done in the Czech Republic by means of so-called bioboxes, delivered to order, and selling at stands. The amount of those sales is about 5% of the total organic products sold (Šarapatka et al., 2005).

The practice in the UK or Germany shows a very interesting approach, i.e. the Community Supported Agriculture (CSA), which is present even in the Czech Republic: in this system the farm usually sells all its production to the members of its actual community. This system is also closely interrelated with consumers' seeking for local products – another topical issue (e.g. Turčínková and Kalábová, 2011; Domanski and Bryla, 2012; Pícha et al., 2013; Spilkova and Fialova, 2013; Štensová, 2013; Menival and Charters, 2014).

Another potential place for the sale of organic food could be in school establishments and school canteens. The results of researchers are not unambiguous. For example, Marley (2008) or Nielsen et al. (2009) note that the tradition of school meals and school canteens is different in particular European countries; for example, the support of organic food in student meals in Norway has to be done in another way than through school canteens because of the very low appearance of such establishments. This is not the case in the Czech Republic where the tradition of school canteens and school boarding is quite strong. Some researchers have found quite a low interest in consuming organic food at school or in school canteens (Stobbelaar et al., 2007). However, He (2008) found that there is a relationship between the support of organic food introduced to school canteens and vending machines and the effort for improving the health and wellness of students at schools.

Organic Food in Schools

There is a very strong relationship between people's health and the quality of their nutrition, as proven by a huge number of recent scientific works (Heymann et al. 2006; Wellman, N.S., 2007) including reports of WHO/FAO experts (WHO, 2002). There is also a relationship between the quality of nutrition and the educational performance of children (Galal and Hulett, 2003). Up to 40% of all diseases in civilization are caused by a long-term unsatisfactory and unsuitable diet. Thus the lifelong low quality of nutrition is an immediate or at least an indirect cause of the health damage (Kukačka, 2009). Good health of adults and especially adults of older ages is already based upon the environment and nutrition experienced in childhood. Trnovec et al. (2001) point out the results of numerous research studies according to which childhood environment may be even more important in determining disease patterns throughout life than was previously thought. At the same time, it can be

noted that the nutrition of both ourselves and that of our children is the factor we can influence and good nutrition can be used to strengthen our health. As the main strengths of organic food are a minimal content of residues of chemicals and their high nutrition value, more and more schools in many countries aim to integrate organic food into children's meals (Marley, 2008; Nielsen et al., 2009; He, 2008).

Many projects have been started for supporting organic food introduction to schools, especially in developed countries. For instance, the programme called the Food for Life of the Soil Association (UK) set up an objective, among others, to let the member schools prepare 30% of school meals from organic food (Third Organic Annual Report, 2007). In USA, The National Farm to School Program connects schools and local farms with the objectives of serving healthy meals in school cafeterias, thereby improving student nutrition, providing agriculture, health and nutrition education opportunities, and supporting local and regional farmers. This programme involves about 10,000 schools in all 50 states (National Farm to School Network, http://www.farmtoschool.org). In Austria, the activity involves local governments. Thus e.g. Lower Austria forces public catering establishments (including school canteens) to use at least 25% of their ingredients from organic farming (Zehetgruber, 2008). The first such project in France arose in the Gard Department in 2003 under the management of the Center of the Initiatives for Appreciation of Agriculture and Rural areas (Centre d'Initiatives pour Valoriser l'Agriculture et le Milieu rural). It dealt with the education of people to consume quality food. One of its actions, the project "Eat Bio in Public Catering" (Manger bio dans la restauration collective) aimed, among other things, at the introduction of organic food into school canteens found many followers all over France and in 2000, these activities were unified under the rule of the Un Plus Bio National Association.

Several projects were initiated in the Czech Republic for supporting the students' consumption of organic food. A pilot project entitled "Organic Food to Schools" took place in 2006-2008 within the project "Network of the on Agro-Environmental Programmes Oriented Information Centers in the South Moravian Region and the Vysočina Region". The aim of this project was to promote the introduction of organic food in school canteens and to find a solution for the engagement of organic farmers into the supply system of public catering and especially in school canteens (Václavík, 2008). This experience was offered to other regions.

A subsequent project was "Organic Schools" (Bioškoly). This project involved 66 school establishments (nurseries, pre-schools, elementary and high schools and independent school canteens). The main objective was to create a model distribution chain for organic food supply called "farm to fork". (Ročenka, 2009; Ministry of Agriculture, 2010b).

A smaller project "Organic to Pre-schools" was realized in 2007 by PRO-BIO League for the Protection of Food Consumers and Supporters of Organic Farming to order of the Institute of Agricultural Economics and Information. This small project was aimed at detecting imperfections in the introduction of organic food to schools and created a small "handbook". Another small project (Organic Food to Schools) was done within an umbrella project entitled "School for Sustainable Life, education to the sustainable development and networking of schools and their partners" by the foundation

Partnerství (Partnership) in co-operation with the Center of Ecologic Education and Ethics (within the operational program Education for Competitiveness).

According to Zagata (2012), the Czech organic sector follows the development patterns identified in Western European countries. The promotion and practical support for the organic sector should focus on strengthening positive attitudes towards organic purchases. Supporting the consumption of organic food in schools and increasing awareness of the students and their parents seems to be a good way to attain this goal.

Organic farming in South Bohemia

The statistical survey on organic farming by the Institute of Agricultural Economics and Information (IAEI, 2012) shows there were 526 operating organic farms in South Bohemia in 2011 (3,920 all over the Czech Republic). Other 19 entities with 33 places of business were producing processed organic food (422 entities with 646 places of business in the Czech Republic). As for the agricultural land use, most of the area is permanent grassland (87.6% in South Bohemia and 85.7% in the Czech Republic). Other 11.5% of organic farmland is arable land (12.8% in the Czech Republic), however, still with predominance of fodder growing. The presence of the permanent plantations (orchards, vineyards, hop gardens) is still very low in both South Bohemia (0.9%) and all the Czech Republic (1.6%). However, relatively high numbers of hectares of land are in the transitional period. We can then suppose an improvement of this state within 1 to 3 years. What is also interesting is the fact that in South Bohemia the share of root crops in the organic arable land is only 0.1% (6.3% in the Czech Republic), since the South Bohemian region has very favourable conditions for potato production. It is obvious that the Czech organic farming is generally oriented at the grazing animals and particularly cattle and sheep breeding. As for meat production, beef meat accounts for 87% of all the organic meat, the share of mutton is 8%. Poultry meat production has significantly increased in 2011 but it still remains of peripheral importance. 70 producers (or 77 places of business) operate organic meat processing in the Czech Republic (including 21 farm processors). Czech organic farming shows also an increase of organic milk production in 2011, namely of 53% compared to 2010 (97% of which is cow milk). There is also an important increase of organic cheeses (approx. 33.3% compared to 2010).

The problem of the organic farms is that many of them are dependent on direct selling. Approx. 25% of organic farms sell more than 50% of their production on a direct way. Another 34% sell 10-50% this way. Even more worrying is the sale of organic products as conventional products (without the desirable “organic premium”). Surveys show that 67% of organic farms are forced to sell partially or totally at a conventional price (IAEI, 2012). Only 11% of organic farms have succeeded to sell all their products labelled as organic in 2011, whereas 51% sold them as conventional products. Particularly the organic meat is sold as conventional - 92% of mutton, 78% of beef and 73% of pork. The situation is different in case of the poultry (5%), but it is due to a small number of producers (only 10 organic farms breed broilers) as well as the market demand. 55% of cow milk and 84% of goat milk is also sold as

conventional. Only the selling of organic eggs is very successful (95% sold as organic).

The situation in plant production is slightly better – conventional sale is the destiny of approx. 28% of cereals, 34% of potatoes, and 35% of fruit and vegetable. Surprising is the volume of fruits being sold as conventional (47% of apples and 74% of pears). The survey mentions also the average price for organic products (price of direct selling; final price of indirect distribution is rather higher): potatoes for 10.57 CZK*kg^{-1}, carrot for 12 CZK*kg^{-1}, apples for 15.60 CZK*kg^{-1}, cow milk for 9.62 CZK*l^{-1}, eggs for 4 CZK*pc^{-1}, cattle for slaughter for 45 CZK*kg^{-1} (live weight, sale to slaughter). The conventional prices are regularly published in the commodity reports of the State Agricultural Intervention Fund. The report No. 1/2013 states following prices (see Table 1.):

Table 1. Prices of conventional agricultural products reported in January 2013

Tabulka 1. Ceny konvenčních zemědělských produktů dle zprávy z ledna 2013

Commodity	Farmers prices (FP)	Wholesale prices (WP)
Potatoes (kg)	4.84 CZK	6.0 CZK
Carrot (kg)	5.70 CZK	8.20 CZK
Apples Idared (kg)	13.70 CZK	13.40 CZK
Milk (l)	7.26 CZK	-
Eggs (pc)	2.17 CZK	2.79 CZK

Source: SAIF (2013a, 2013b, 2013c)

The aim of this article is to explore the possibility of increasing the sale of organic products through supplying schools and school canteens. This should be done based upon the results of the survey of pre-schools and elementary schools and among parents of children attending the surveyed schools. Additionally the selected results of the survey by Factum Invenio Agency are also evaluated, as well as present results of surveys exploring possibilities of selling organic food to schools and preschools. As the above cited survey did not cover the region of South Bohemia, the presented survey addressed schools in the area of that district of České Budějovice, including the parents of their pupils, too.

Materials and Methods

The presented survey was carried out among representatives of schools, as well as among the parents of children attending the surveyed schools in 2011 and 2012. The surveyed area was the administrative district of the town České Budějovice as a municipality with an assigned municipal authority. The survey within this area could contribute to the results of the additionally cited survey (Chlumská, 2009), which have omitted the region of South Bohemia. That survey was done in 2009 among 683 of children in the ages from 3-18, and among 727 directors of various school establishments from the Czech Republic.

The number of potential respondents was determined by the number of existing schools in the surveyed area. All schools and pre-schools that were identified in the administrative district of České Budějovice were contacted. Thus the sample of school establishment was equal to the population.

50 school establishments were asked to provide the information for this survey and to mediate contact with parents of children attending those school establishments. The survey among parents was done thanks to kind co-operation of those school establishments that were interested in such a survey. In fact, this quite small sample of schools allowed to establish a closer relation with the surveyed schools and then facilitated the addressing of parents of children.

15 of 27 pre-schools that were addressed agreed to be surveyed, whereas three of them rejected the participation, as they did not have their own cooking facilities and they were not able to influence the diet being provided. Finally, 55% of the addressed pre-schools answered the prepared questions. Representants of the schools were asked, if the organic food is used when cooking school meals; what are the main for no or low use of organic food when cooking school meals; if they have been involved in special programmes of healthy nutrition; if they have ever consulted (have ever done a survey) the approach to healthy nutrition with children's parents; if they agree with undertaking a survey among their pupils' parents; if they consider to include organic food in future.

Concerning the parents of pre-school children, 300 parents were given a questionnaire. 188 questionnaires were delivered back (i.e. a return rate of 63%). Parents were asked if they are satisfied with quality of school meals; if they are interested in healthy nutrition; if they are aware of organic food; if they would welcome the use of organic food and ingredients in his child's school canteen; and if they are willing to pay a premium price for such meals.

In the case of the elementary schools, 13 of 23 schools that were addressed were willing to be surveyed. Representants of the schools were asked, if the organic food is used when cooking school meals; what are the main for no or low use of organic food when cooking school meals; if they are interested in excursion to organic farms; if a shop or vending machine available in their school; if an organic food product is available for purchase in school, if they agree with undertaking a survey among their pupils' parents.

Only 3 schools were willing to ask parents of their pupils to fill a questionnaire. 148 of 300 questionnaires distributed among parents of pupils were completed (i.e. a return rate of 48%). Parents were asked if their child eats in the school canteen; if they are satisfied with quality of school meals; if they are interested in healthy nutrition; if they are aware of organic food; if they would welcome the use of organic food and ingredients in his child's school canteen; and if they are willing to pay a premium price for such meals.

The results of the surveys are put into the context of the current situation of organic farming in the South Bohemian region.

Results

Pre-schools

27% of pre-schools are already involved in some special programmes or projects oriented towards healthy nutrition (e.g. School Full of Health or ABCD Health Nutrition). More than 50% of these pre-schools consult about their approach to healthy nutrition with the children's parents. 60% of these pre-schools allowed the survey concerning organic food consumption to be given to the parents. Only 20% of pre-schools already include some organic food in their meals for children. It is mostly drinks, legumes, cereals, non-perishable bakery products (extruded breads, apple rolls). Only one pre-school is being supplied with organic vegetables from an organic farm. About 27% of these pre-schools are considering the use of organic food in the future. However, they emphasize the question of reasonable prices and good availability of supply. The three most cited barriers in using organic food when preparing meals for children are the higher prices (100% of respondents), the narrow range of products offered and the poor availability of the supply. 20% of these preschools also declared that there was a low interest of children and parents in these matters.

Table 2. Position of organic food in preschools (n=15)

Tabulka 2. Pozice biopotravin v mateřských školách (n=15)

Aspects	Percentage
Involvement in special programmes of healthy nutrition	26.7%
Consulting the approach to healthy nutrition with children's parents	53.3%
Use of organic food when cooking meals for children	20.0%
Existing supply of organic vegetables from an organic farm	6.7%
Considering of including organic food in future	26.7%
Low interest of parents declared	20.0%

The children of all of the parents who filled the questionnaire eat meals that are prepared in pre-schools. 96% of these parents are satisfied with the quality of provided meals; 50% are very satisfied and 46% rather satisfied, the remaining 4% of parents gave neutral answers.

98% of these parents declare their interest in health nutrition. 95% of them are aware of organic food. 13% of parents frequently and 77% occasionally use organic food for preparing home meals and only 13% of these parents regularly incorporate organic food in their children's nutrition. 83% of these parents would welcome the use of organic food in preparing meals in pre-schools. As for their willingness to pay a higher price, 40% of these parents would accept a price increase of 25% (Table 4.). A 10% increase in the price is tolerable for 30% of these parents. The smallest groups would accept a price increase of 5% (10% of the parents) and 50% (12% of parents). In fact, the price increase of 25% counts as 4 Czech Crowns per lunch. It can also be said that 82% of these parents would appreciate the extension of the

educational programme in preschool to provide information about organic food and organic farming.

Table 3. Parents attitude to organic food and its appearance in their children's meal (n=188)

Table 3. Postoj rodičů k biopotravinám a jejich zařazení do stravy dětí (n=188)

Attitude	Percentage
Interest in health nutrition	97.9%
Awareness of organic food	95.2%
Use of organic food when cooking meals	88.8%
Interest in use of organic food when cooking school meals	83.0%
Interest in extension of the educational programme	82.1%

Table 4. Parents' willingness to pay a premium for meals with organic foods in preschools (n=156)

Tabulka 4. Ochota rodičů připlatit za jídlo z biopotravin v mateřských školách (n=156)

Degree of increase of the price	Part of parents willing to pay a premium price
No increase	2.6%
Up to 5%	9.6%
Up to 10%	30.1%
Up to 25%	40.4%
Up to 50%	11.5%
Above 50%	5.8%

Elementary Schools

77% of the schools that participated in the survey have their own school canteen. The meals for the remaining schools are prepared by a partner school canteen.

Based on their reaction, we can suppose that those schools that rejected to participate in the survey are interested neither in organic food problems, nor in the introduction of organic food in school meals.

Only 23% of the responding schools have had experience in using organic food for the preparation of student meals. A representative of one school was unable to answer the question about experience with the use of organic food in school meals. We can suppose that, at least for now, they do not use organic food. The most cited organic products used by schools' canteens are organic vegetables, legumes and cereals.

All of these schools consider the higher price to be the main reason for the lack or very low use of organic food in school canteens (92% of respondents). Among other

reasons, they also mentioned poor availability when compared to the availability of conventional food (31%) and the narrow range of products being offered (23%).

Up to now, only one school has investigated the interest of parents in organic food and its use in the school canteen. The result was the unambiguous interest of these parents, but also the barrier of high price of the ingredients of organic quality. Schools, or else the school canteens are worried about the increase of the price of their meals that could manifest itself in the decreasing numbers of boarders. Likewise, they are worried about the more complicated supply of ingredients of organic quality. Another fact resulting from the surveys is that 69% of these schools also have an establishment or equipment where it is possible to buy some refreshment (a school snack bar or a food vending machine). They sell particularly cooled drinks, sandwiches, sweets and milk products. 22% of those schools offer this way organic food, more precisely muesli bars, milk products, dried fruits (bananas, plums, apricots) and drinks.

All of these schools are willing to increase the awareness of their pupils about organic farming and organic food. 69% of these schools have even shown an interest in excursions to organic farms. 92% of these schools are willing to ask parents about their interest in offering organic food within the framework of school meals.

Table 5. General situation in surveyed schools (number of schools)

Tabulka 5. Obecná situace ve školách zahrnutých do výzkumu (počet škol)

General situation	Number of schools
Use of organic food when cooking meals for children	3
Interest in excursion to organic farms	9
A shop or vending machine available in school	9
Organic food product available for purchase in school	2

Table 6. Main reasons for no or low use of organic food

Tabulka 6. Hlavní důvody, žádného nebo nízkého využití biopotravin

Reason	Number of schools
Higher price	12
Poor availability of organic food compared to provided conventional food	4
Narrow range of available organic products	3

91% of surveyed parents stated that their children eat meals in the school canteen on a regular basis. 54% of the parents are satisfied with the quality of the school meals (20% being very satisfied, 28% being rather satisfied); 28% expressed a neutral position regarding the quality of these school meals (Table 7.).

Table 7. Parents' satisfaction with the quality of school meals (n=148)

Tabulka 7. Spokojenost rodičů s kvalitou školních jídel (n=148)

Degree of satisfaction	Percentage
Very satisfied	20.3%
Rather satisfied	28.4%
Neither satisfied nor unsatisfied	28.4%
Rather unsatisfied	14.9%
Very unsatisfied	8.1%

87% of respondents are interested in health and nutrition. 93% of these parents are aware of organic food and 81% of them would appreciate the use of organic food in school canteens (Table 8.).

Table 8. Parents' attitudes to the organic food

Tabulka 8. Postoj rodičů k biopotravinám

Attitude	Percentage
Interest in health nutrition	87.2%
Awareness of organic food	93.2%
Interest in use of organic food when cooking school meals	81.1%

80% of parents are willing to pay an increased price for the school meal (Table 9.). However, 98% of those parents who would appreciate the organic food to be introduced in school canteens are ready to pay extra money for such meals. Almost 32% of the parents who would appreciate meals with organic food in school canteens would accept a price increase of only 5% for a meal. 23% of these parents agree with a price increase of 10%. The price increase of 15% is acceptable for 18% of these parents. Only 5% of the parents who would like for organic food to be introduced into school meals would accept a difference in the price of more than 20%. 82% of all respondents wish their children to become aware of organic farming and organic food. This result highly correlates to the responses of parents who are interested in the introduction of organic food to their children's school nutrition.

Table 9. Parents' willingness to pay a premium for meals with organic foods in schools (n=148)

Tabulka 9. Ochota rodičů připlatit za jídlo z biopotravin ve školách (n=148)

Degree of increase of the price	Part of parents willing to pay a premium price
No increase	20.3%
Up to 5%	25.7%
Up to 10%	18.9%
Up to 15%	14.9%
Up to 20%	16.2%
Above 20%	4.1%

Discussion

The surveys showed that organic food is not a very common occurrence in school meals. This finding corresponds with the survey of Factum Invenio (Chlumská, 2009) among elementary and high schools; (only 20% of these schools use organic food when preparing school meals, but mostly in very small amounts; the share of organic food in all of the ingredients of these meals is under 5% at 58% of those schools). Thus school meals persist in being of low importance for placing organic food in the market, which corresponds to research results regarding those mainly used distribution channels (Baourakis, 2004; Santucci et al., 1999). Introduction of the organic food to schools is not administratively (and financially) supported even if the organic farming subject to such a support and this support could play a positive role: degree of specific support for organic school food shows a significant relation to the actual use of organic food in school meals (Løes and Nölting, 2011). Introduction of the organic food to schools is not supported despite the opinions and findings of positive effects of presence of organic food in schools: More positive school lunch habits were observed in pupils in the organic schools than in the non-organic schools (He et al., 2012); „organic" schools seem to consider healthy issues more for children than the conventional schools (He, 2008).

Price is an important barrier of introduce organic food to surveyed schools; likewise 75% of those schools in the Factum Invenio Survey see the price to be the main barrier. The consumers' willingness to pay a premium for is strongly related to their income and then their food expenditure, as „a high proportion of the household food expenditures limits the households in deciding about the amount and structure of the consumed food" (Kubicová et al., 2014). The price is generally an important barrier for consumers in buying and eating organic food (Radman, 2005; Lockie et al., 2002), except for a specific group of consumers which actively chooses to purchase 'earthfriendly' products; these people are prepared to pay premium prices for these products (Hartman and Wright, 1999). Similarly Richter et al. (2000) have seen in their survey of 2,600 consumers that in particularly those consumers who do not buy organic food regularly are more conscious of the price. There could also be a relationship with our surveyed consumers, as only a few parents buy organic food for home on a regular basis. As a matter of interest, one of the results of another survey from the Czech Republic found, that parents are more satisfied with school canteens that provide organic food (Dědina et al., 2014) – a rather contradictory statement. Schools quite often worry about the more than 50% increase in price which is due to the introduction or organic food. However, according to the experience of those schools where organic food is already being used for preparing meals, such an increase is less probable (Chlumská, 2009). In 60% of these cases, there was a price increase lower than 10%. Only in 12% of these schools did the price of meal have an increase of more than 25%.

Farmers state the low demand from consumers and a general lack of market opportunities to be the main reasons for selling their products as conventional. The support to the distribution of organic food to schools might be an important factor to market the organic production with some organic premium or even an impulse to increase of the current production.

The in organic food interested schools seem to suffer by higher price and/or the lack of a sufficiently wide range of organic food available. On the other hand, part of the organic crops and products is sold for conventional prices and processed with conventional food processors. For instance Doležalová et al. (2014) concluded the organic production in Czech Republic constantly increases (and concretely in the South Bohemia as well) and one of tasks of researchers should be the topic of organic food processing and marketing in order to simplify the organic food marketing and to increase the sales of organic food as well. The question of organic food marketing is and will be certainly a subject of discussion on short supply chains with organic food (e.g. Santini and Gomez y Paloma, 2013; Fleury and Chazoule, 2014) or may be a part of the community supported agriculture.

Conclusion

Organic farming practices help improve and maintain rural landscapes. They also support the diversity of the species and they allow for the beneficial increase of animal welfare. Those are the reasons why many governments support the development of organic farming. Among the many consequences of such practices and the current character of organic farmers, we can also cite the respective lower yield or smaller volumes of production, which potentially increase the unit cost and thus also increase the price of these goods on the market. That is why governments also make efforts to find ways of helping farmers to sell organic production and make it more profitable.

Alongside of these factors, governments have shown concern about the recent progressive increase of the occurrence of obesity, allergies and various diseases present in our current civilization that are particularly caused by inappropriate nutrition. Consumers also worry more because of recent information regarding the risk of the appearance of harmful matter or substances in food and food products. Organic products could serve to decrease these problems, and result in a double gain indicating a potential point of action for governments. By supporting the increase of organic food, governments can both contribute to the general improvement in the nutrition of people and to an increase in the sales of organic products. The introduction of organic products in school canteens could assist in the change of nutritional and consumption habits and consequently that will change the life style of children.

Surveys on pre-schools and elementary schools indicate that the main barrier for the introduction of organic food into school canteens is the higher price (or the impression of higher price). This experience shows that the increase of the price of school meal does not have to be a dramatic one. The cost related to buying organic products should not necessary lead to an important financial load upon schools or families when buying local and seasonal products.

These schools perceive and respect the interest of parents in healthy nutrition of their children, including the interest of the introduction of organic food. However, most of school managers have little or no experience with the use of organic food. Next to the price, they worry about the more complicated purchasing of those products as well. Most schools also have a positive attitude to increasing the awareness of children

about organic farming and organic food and to the potential excursions to organic farms.

Particular ministries (especially those of education, agriculture and the environment) should co-ordinate their support of organic farming through various channels. Cooperation with the associations of organic farmers seems to also be fruitful with regard to existing experience, such as the “Organic Schools” Project in several regions of the Czech Republic. The education of consumers and the invitation of schools to introduce organic food to school canteens will, in some extent, lead to the desired pull effect in the organic food market. School managers should become aware, not only of the existence of organic food and the real cost effect on their introduction to school canteens, but also of the fact, that diet with a content of organic food could be made quite varied, starting from the use of only a few ingredients of organic quality, the current practice of some school canteens, and terminating with a complete selection of organic food as an alternative choice to that of a conventional meal, in that case parents paying some extra money. Maybe experts could assist in creating diet models for particular social groups of parents. Governments could also consider an analogue of formerly completed projects supporting the nutrition of children (e.g. School Milk and Fruit to Schools). Organic products could also be a part of what is being offered at school snack bars and vending machines.

Organic farmers, especially the smaller ones, should consider the possibility of offering the regular delivery of their products to schools and school canteens and to start negotiations with school managers. A good argument could be in the calculation of the meals prepared with organic food or a comparison of prices of organic products and prices of conventional products. Those organic farmers associated in a professional associations (like Pro-Bio in the Czech Republic) should incite their representatives and members to extend their supporting activities through other projects and to all regions.

The current situation shows the existing interest of parents in delivering meals of organic food content to their children in schools and pre-schools and also the problem of existing organic production being not feasible to be sold as organic products (i.e. it is sold as a conventional food). The practice of conventional selling of organic food is true both for livestock and crop production. In this case, it is worth looking for a solution that could support the organic farmers to sell their products in a more favourable way. The fears of too high prices of meals made of organic food on the part of both schools and parents represent rather a psychological barrier as this fact is not supported by serious calculations or surveys. The problem could consist in the absence of communication and also in the inexistence of the functional distribution channel between organic farms and school establishments. Further survey should focus on detailed analysis of the organic farms’ production with regard to the possibility to supply schools and pre-schools. In case of South Bohemia, schools already showing an interest in organic food supply should be provided with the report on the available products as well as the price analysis. Those activities are already involved in a research project of a team including authors of the present paper. Those who want to support the increase of the organic production should also collaborate with the ministry of education as well as with the regional governments to consider a special program of supporting the assertion of organic food in school meals.

Further research could concern the problems of short food supply chain and the collaboration of organic food farmers in organizing delivery to schools. Other interrelations could be found in problems of the topical phenomenon of local foods and their support.

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