

SME Organic Project

4° field visit Lombardy

**Presentations of Good Practice
on SME competitiveness**
*Organic food in mass catering
the case of Lombardy*

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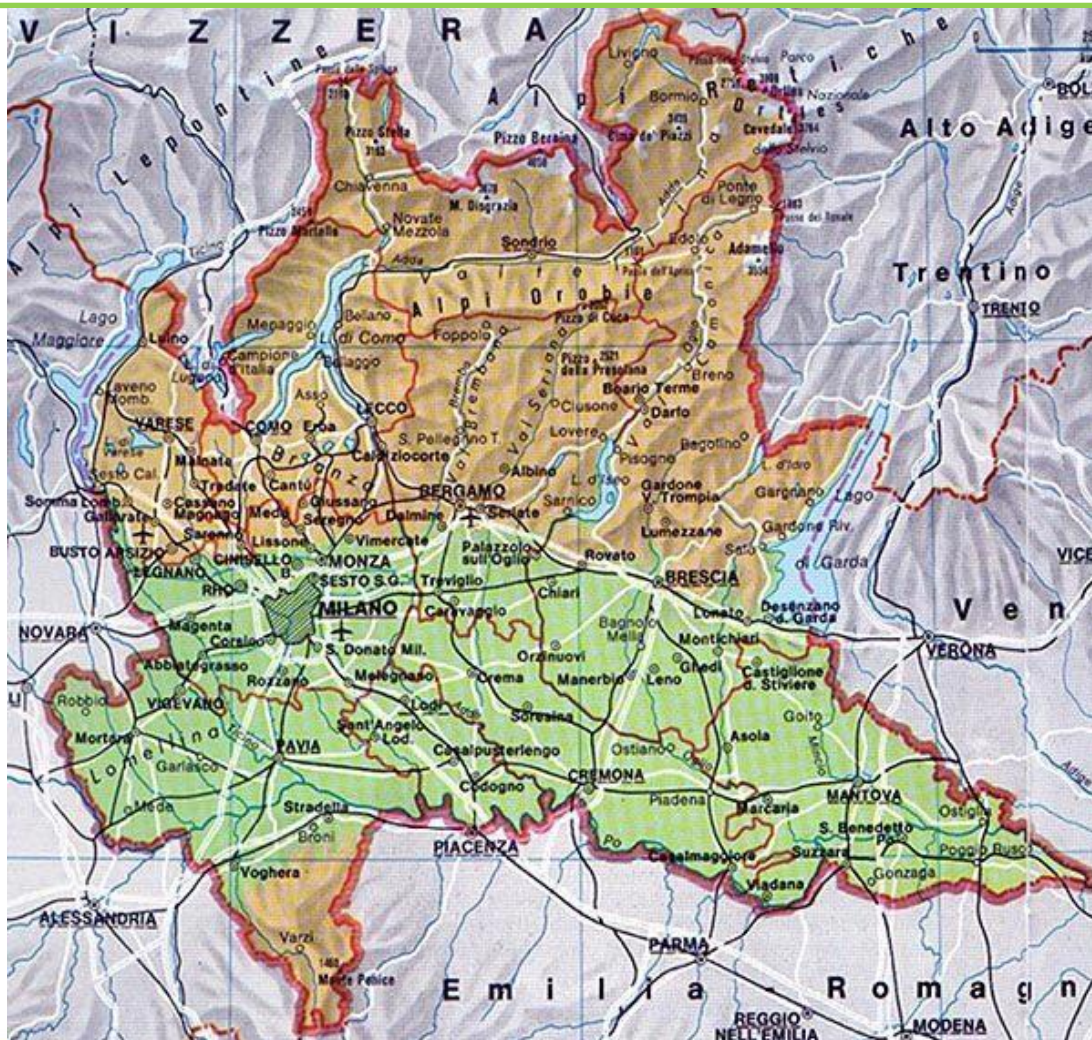
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Lombardy Popul. 2014:
9.992.307
(16,41% of IT – range: 1[^])

Surface: 23.863,65 kmq
(7,90% of IT – range: 4[^])

SAU 2010:
986.825,52 ha
SAU 2000:
1.039.536,72 ha
 Δ SAU 2010/2000: -5,1%



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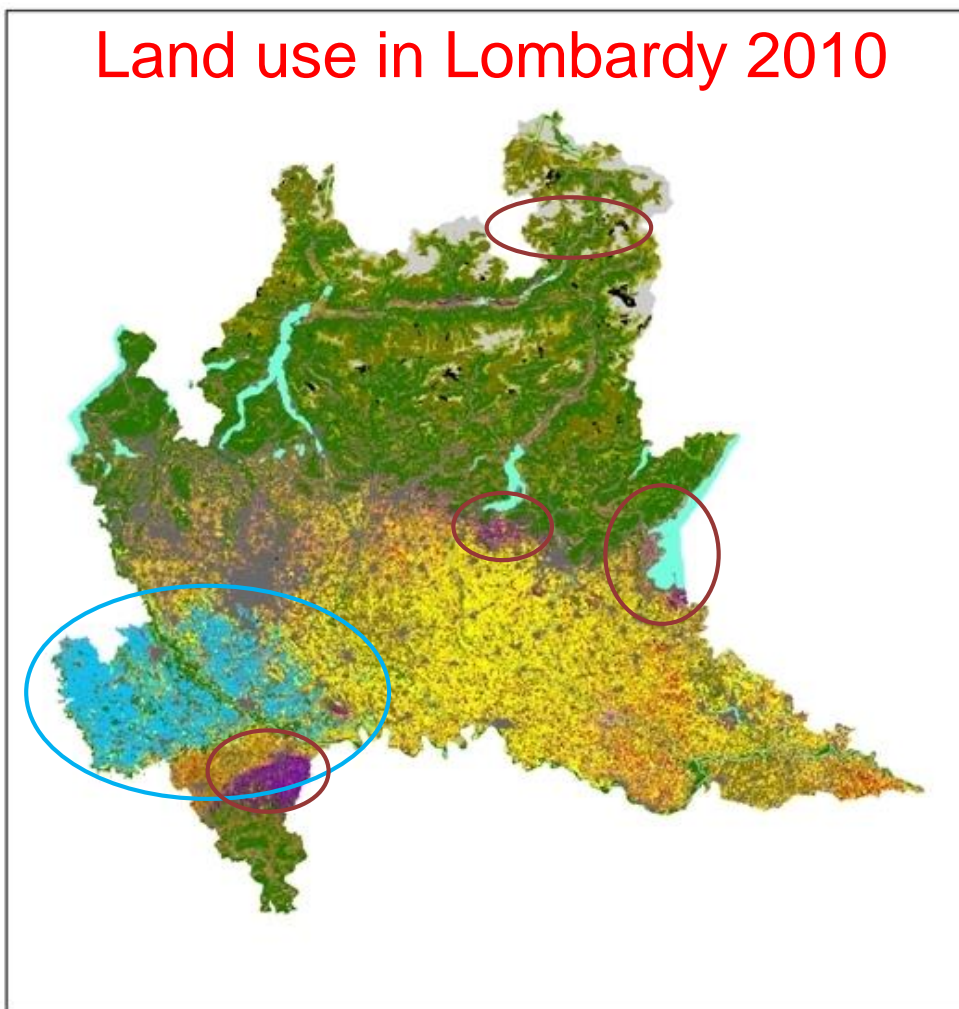
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Land use in Lombardy 2010



- Other crops
- Other cereals
- Populated areas
- Natural sterile areas
- Beets
- Woods and woody crops
- Flowers and nurseries
- Vegetables
- Water bodies
- Forage
- Orchards
- Maize
- Olive trees
- Dry pulses
- Rice
- Seeds
- Wastelands
- Aside lands
- Other farmlands
- Natural vegetation
- Grapevine

The aim of the research BioRegion

The main aim of the research is to **analyze both demand and supply in public procurement** of the mass catering in Lombardy (administrative region of North Italy).

The **public procurement** of the mass catering involves a **potential demand, highly concentrated and of considerable size**.

Through a direct survey in schools, hospitals and other facilities we have tried to quantify:

- the magnitude of this demand
- focusing on the demand for organic and local products.

On the other hand we have analyzed the actual amount of the main products that compose the menu.



Focus on direct sales

There are two groups of activities related to direct sales:

direct sale to the consumer – distribution channel often called “farm to fork”, they belong to different types of activities:

- farmers' markets,
- community supported agriculture (CSAs),
- direct sales in farms,
- solidarity based purchasing groups (in IT GAS)
 - in Lombardy there are 25% of all IT groups,
- “pick your own” operations.

direct sale to catering system – this distribution channel includes the sale to restaurants, local retailers and public procurement organizations for institutions such as schools, day-care centers for elder people and hospitals.



The case of mass catering

The distribution channel that it is considered most interesting and which will then be better explained through the case study of the Lombardy Region and the research project "BioRegion" is the direct relationship between local production and mass catering. This sector represents a great share of the demand of foodstuff and also homogenous characteristics and seasonal menus that make it particularly interesting to a direct relationship with local productions.

Fipe, Federation Italian public exercises, has calculated that in the last thirty years the average expenditure for food consumption outside the home has increased by 78.7% to EUR 2,118 per family. In 2008, 32.1% (national average) of the meals were eaten outside the home (38% in northern Italy). If the trend detected by the latest opinion polls continue in this direction, in 2020 every Italian will spend at least 50% of its food out of home.



The development of LAS

The research analyses the Local Agrifood Systems and in particular the role of the public catering as:

- an innovative instrument for the local development
- an important opportunity for the farms.

The results are the first step of the research project Bioregione which has the aim of:

- developing approaches and tools
 - to design a regional food system
 - capable of economic self-sustainability
- and
- to generate systemic positive effects.

Similar processes are undergoing in different areas of the world with the so-called experiences of Local Food Systems (LFS) (Feagan, 2007), according to the US definition, or Local Agrifood Systems (LAS), which instead is the French definition (CIRAD-SAR, 1996) [in French SyAL].



The objectives of the research

The general objectives of the research are:

- to **improve the sustainability of agrifood cycles** in Lombardy
- **enabling the conditions for a virtuous encounter between an organized demand for quality food and different types of local sustainable production**
- in order **to promote a change in agricultural production** and its sustainability over time.

The main scientific references of this research are:

- ecological agriculture
- the territorialist approach
- the analysis of the territorial metabolism and food chains (Bocchi, 2001).



Methodology – consumption analysis

The research was based, with regard to the school catering, on a **questionnaire sent to all the Municipalities of Lombardy**. In Italy, the municipalities are responsible for providing canteen service in primary schools.

The questionnaire allowed to collect a huge quantity of data, such as the number of meals provided per year, the **frequency distribution of 47 food products and their origin** (conventional, sustainable or organic agriculture). The **data sample** collected represents **72 % of the total public school systems**. With regard to the other types of mass catering, in hospitals, kindergartens and day-care institutions for elder people, 100% of data on the number of meals provided per year were collected.



Methodology – Supply analysis

The supply analysis was carried out by comparing the data of the national census of agriculture (2011) with those of the SIARL (Agriculture Information System of the Lombardy Region). These data, collected at municipality level, allowed to know which crops are grown and how many hectares are allocated to each crop as well as which and how many animals are bred.

By using the data of the average yields, available at the provincial level, it was possible to calculate the production of crops and livestock for each municipality of the Lombardy Region.



Geographical distribution of meals in mass catering in Lombardy by type of structure

District.	School (n. of meals per year)	Hospital (n. of meals per year)	Centers for minors (n. of meals per year)	Centers for elderly (n. of meals per year)	Centers for disabled people (n. of meals per year)	Total Mass catering (n. of meals per year)
BG	6,519,819	4,863,649	5,308,664	4,940,411	658,344	22,290,887
BS	6,831,889	6,663,654	3,956,426	6,730,050	701,928	24,883,947
CO	3,858,990	2,486,295	1,215,078	4,026,318	388,901	11,975,582
CR	2,766,201	1,909,428	888,822	3,939,889	718,041	10,222,381
LC	2,595,052	1,634,554	596,166	1,852,514	258,044	6,936,329
LO	2,052,994	1,006,314	864,112	1,128,306	105,826	5,157,552
MB	7,830,588	5,410,807	1,666,037	2,827,190	342,751	18,077,374
MI	28,850,685	16,302,682	10,072,118	15,404,335	1,459,359	72,089,179
MN	2,150,601	1,977,854	1,048,315	2,917,232	227,720	8,321,722
PV	4,008,025	4,152,545	1,354,721	4,893,544	367,632	14,776,467
SO	1,378,011	1,185,732	212,436	1,156,218	108,728	4,041,125
VA	6,416,812	2,346,052	1,620,095	4,986,535	486,248	15,855,742
Tot.	75,259,669	49,939,566	28,802,990	54,802,542	5,823,521	214,628,289

Source: our direct survey



The fundamental results

The fundamental result of the data collection is the quantification of the importance of the mass catering in Lombardy. As shown in previous table every year **more than 210 million of meals** are served in mass catering.

- **35%** (more than 75 million) of those are served in **schools**
- **23%** (about 50 million) in **hospitals**
- **13%** (more than 28 million) in **Centers for minors**
- **25%** (about 55 million) in **Centers for elderly people**
- **3%** (about 6 million) in **Centers for disabled people**

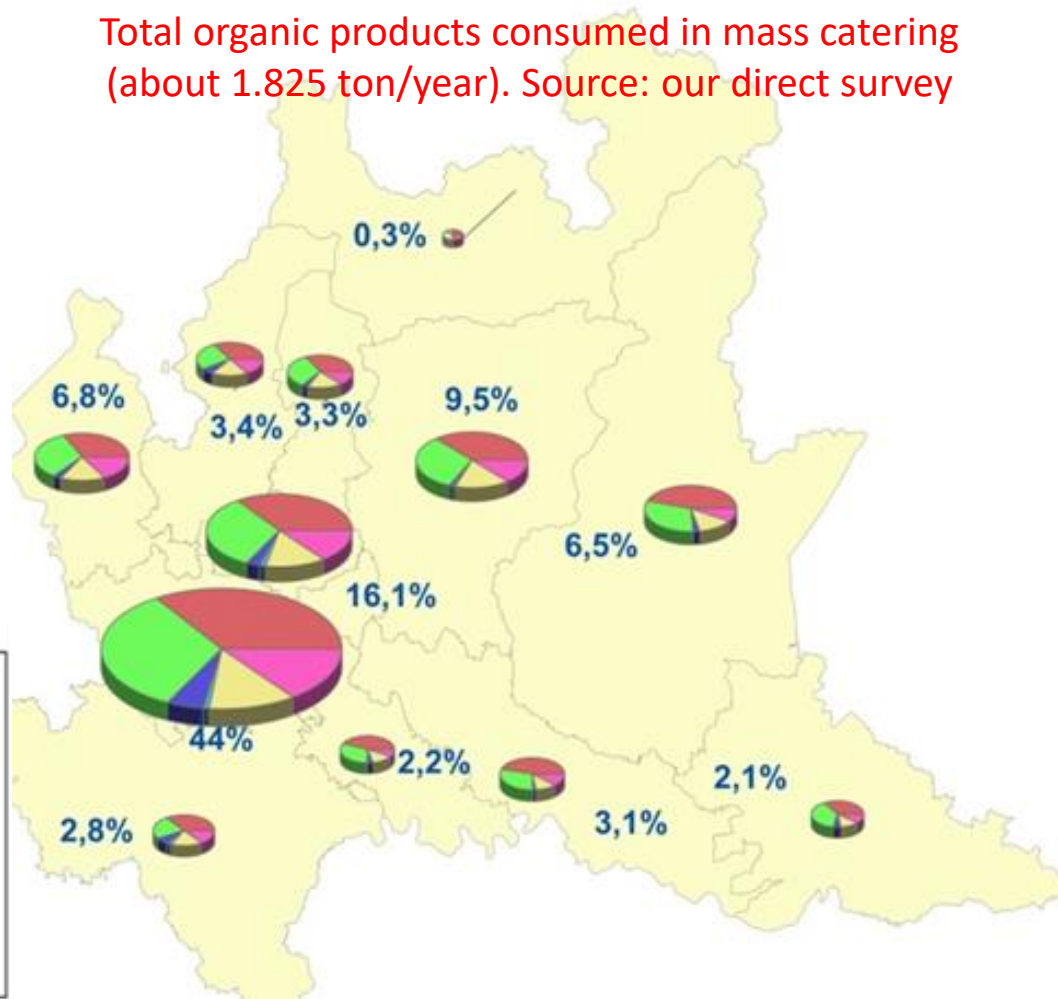
Actually, in some environments, such as hospitals or centers for elderly, the computing unit is normally the “food day” (from breakfast to dinner) and not the single meal, but in order to standardize the calculation, the food days have been transformed into number of meals.



The demand of organic products

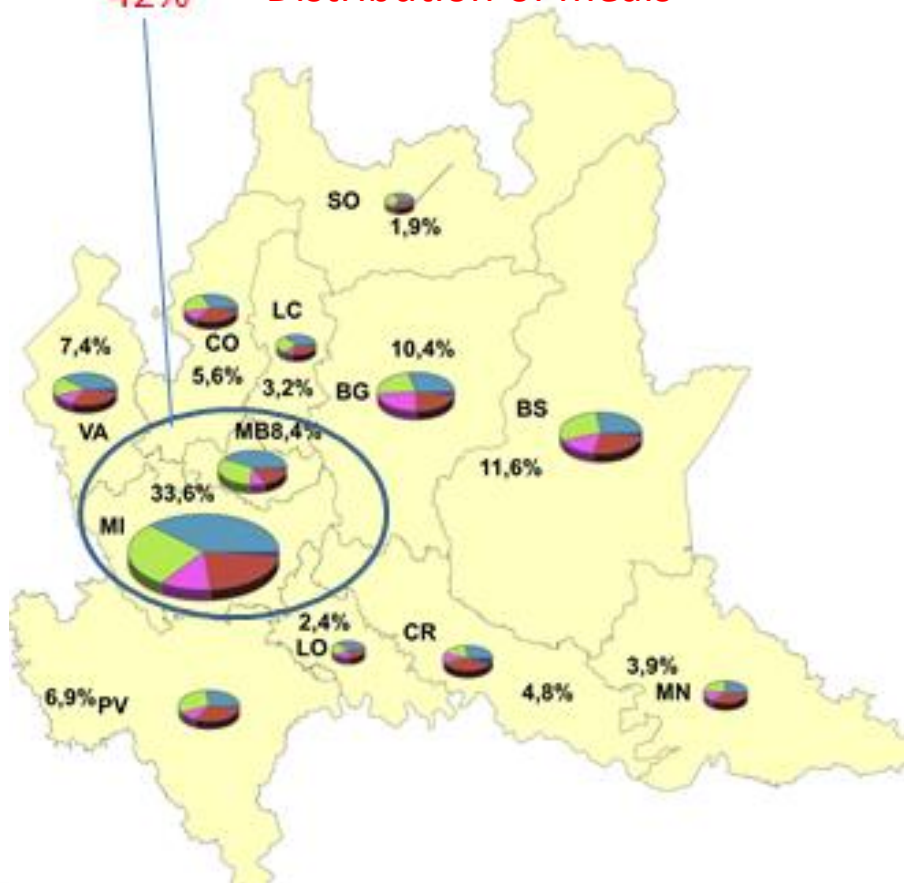
The demand for organic products is more concentrated in the most densely populated areas, as shown in the figure 1. In particular in the District of Milan about 44 % of products served in canteens is organic.

Total organic products consumed in mass catering (about 1.825 ton/year). Source: our direct survey

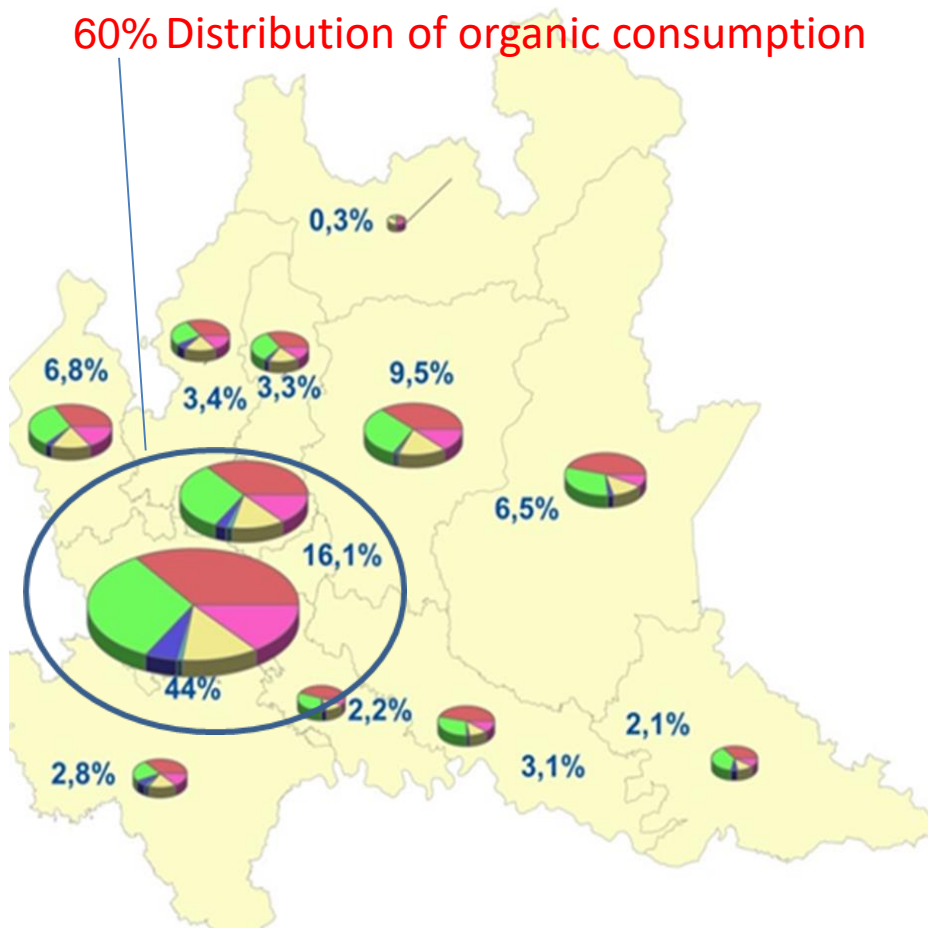


School meals and organic demand

42% Distribution of meals



60% Distribution of organic consumption



Source: our direct survey



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**Demand and supply of organic products at municipality level:
Presence in public school procurement
Production**

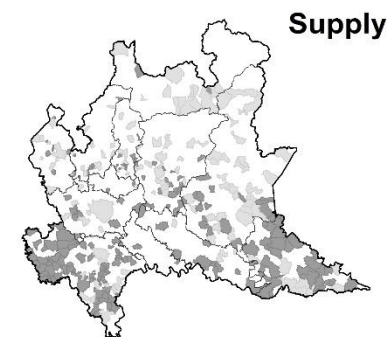
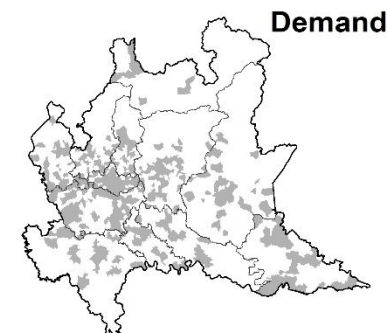
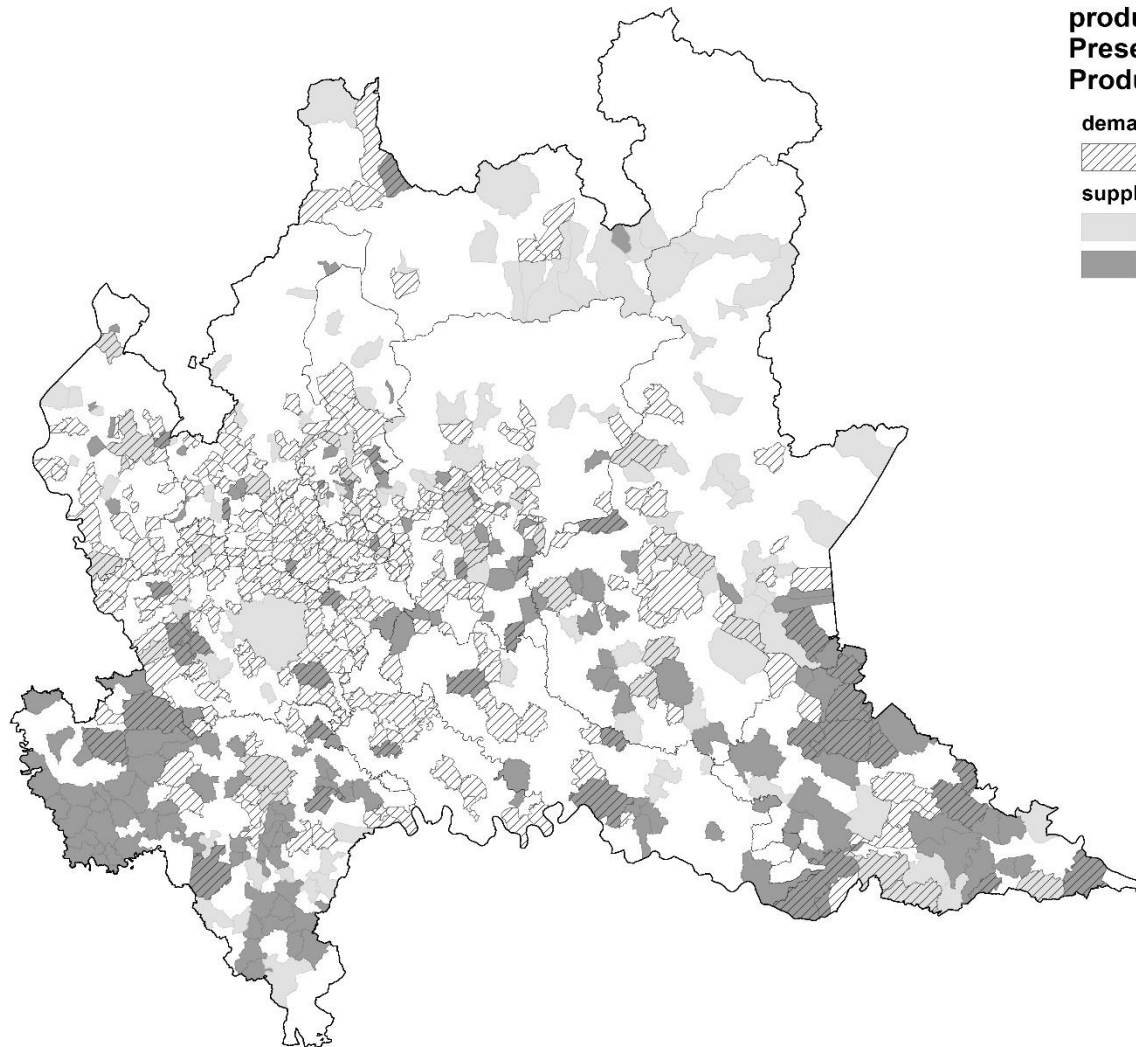
demand: presence in public school procurement

 demand

supply: organic hectares/municipality hectares

 < 0,2%

 0,3% - 55,0%



Comparison between supply and demand

Data collected through direct survey, relating to the **demand for food by the mass catering**, were **compared with the agricultural land use**. In particular, the research has **focused on organic consumption and production**.

Several thematic maps that show the distribution of cultivated areas have been produced using GIS (Geographical Information System) software, such as the examples reported in next slides.

Below are presented some data regarding the main types of products demanded.



Comparison between supply and demand

1 – Cereals and cereals related products

Analyzing the annual demand for **cereals-related products** the results are:

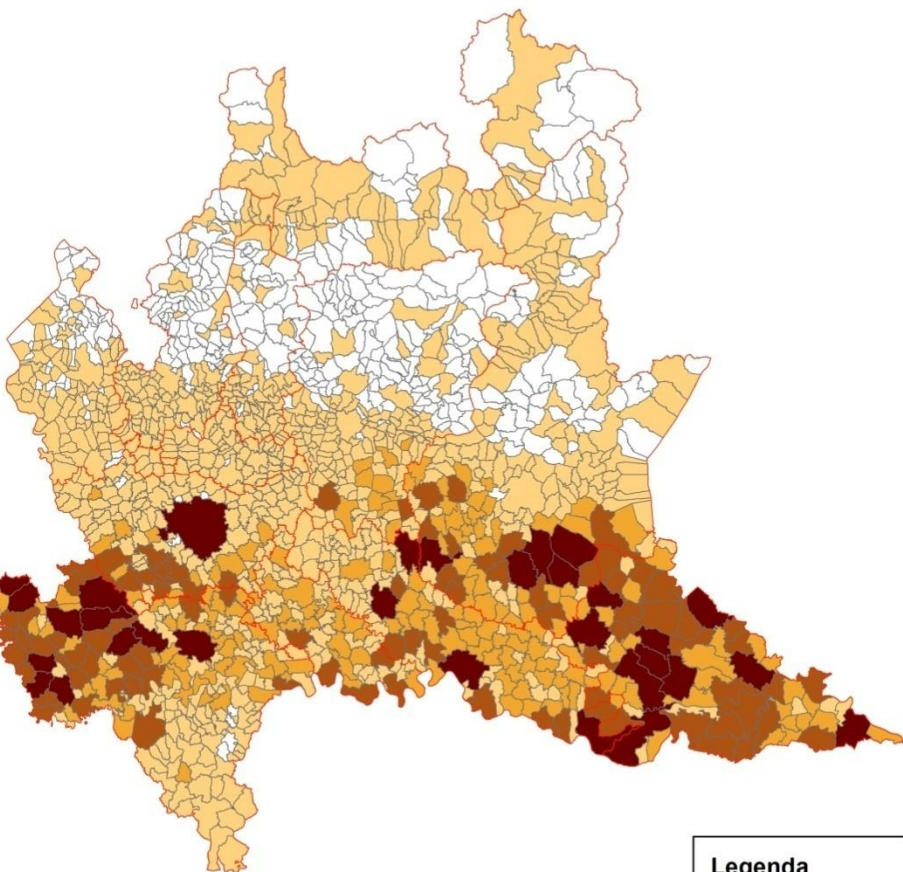
- 65 tons of organic bread
- 113 tons of organic pasta
- 42 tons of organic rice
- 12 tons of organic wheat flour

Comparing this results with the total current organic cereals production the acreage appears enough to satisfy the needs. Also this production is concentrated in the province of Pavia, one of the Region Lombardy administrative district.



Cereals – Total production

Superfici coltivati a cereali - ettari



Legenda

Province

Comuni

CEREAG - ha

0,0

0,1 - 500,0

500,1 - 1000,0

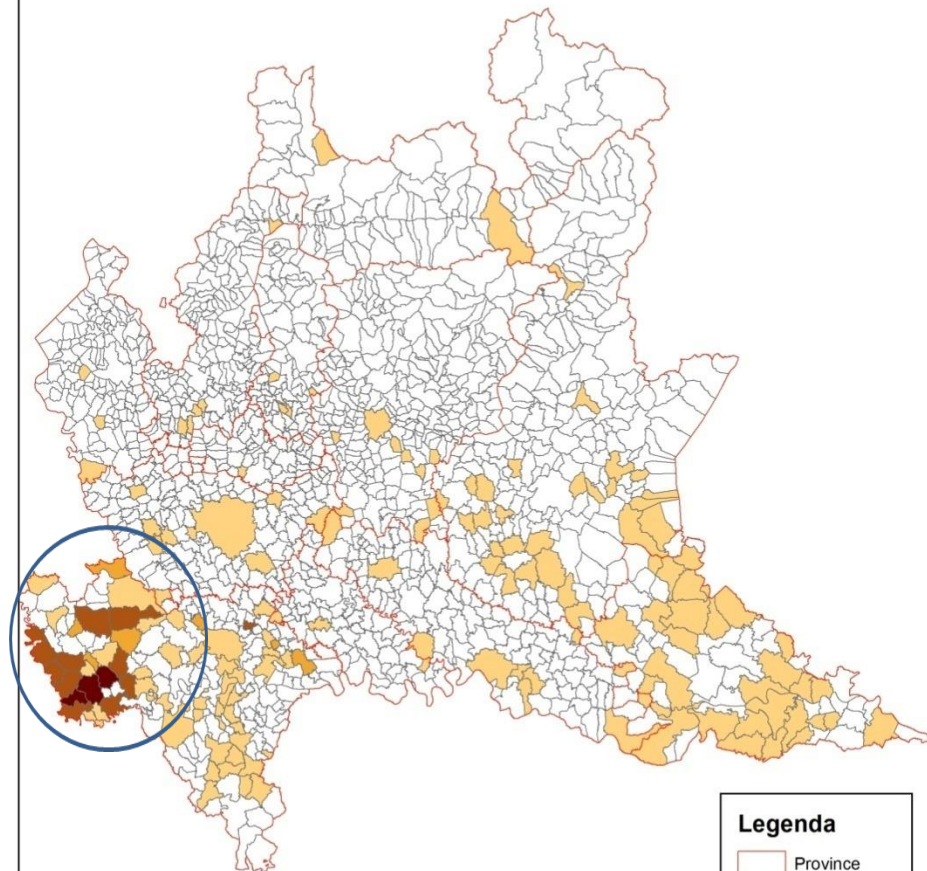
1000,1 - 2000,0

2000,1 - 3588,3

Superficie coltivata a cereali
in Regione Lombardia: 448'671,65 ha

Cereals - Organic production

Biologico - superfici coltivate a cereali - ettari



Legenda

Province

Comuni

CEREAG - ha

0,0

0,1 - 100,0

100,1 - 200,0

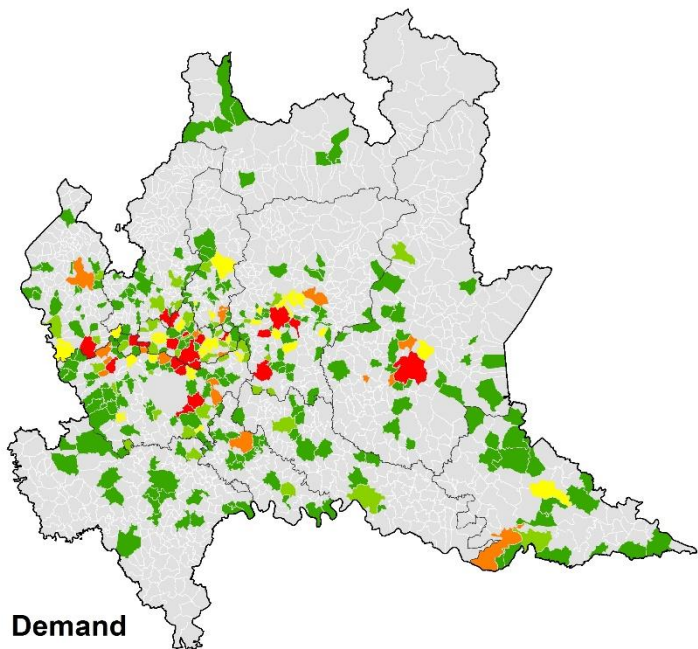
200,1 - 500,0

500,1 - 973,4

Superficie totale a cereali biologici
per la Regione Lombardia: 10154,44 ha

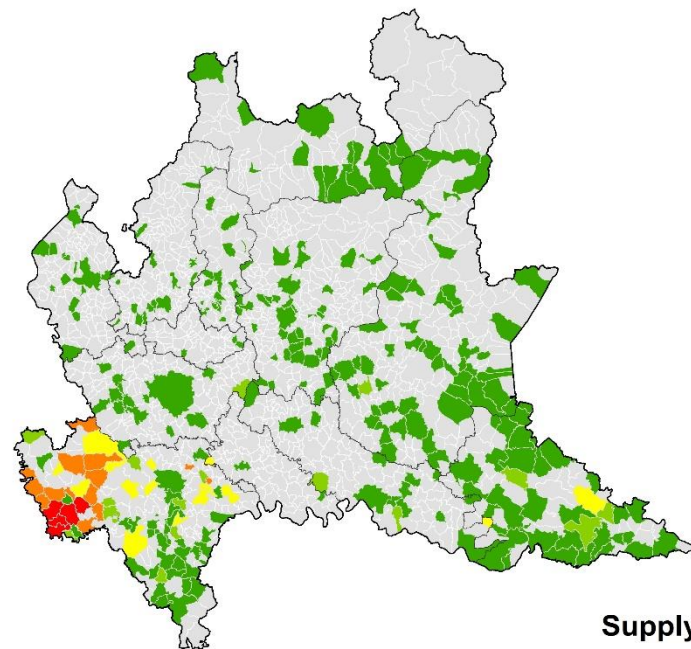
Organic cereals

0 12,5 25 50 Kilometers



Demand

Consumption [(equivalent) hectares]



Supply

Production [hectares]



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Comparison between supply and demand

2 – Fruits

The **annual demand for organic fruit is about 690 tons**, of which more than 250 are citrus fruits and bananas, which cannot be cultivated the Region.

So **the demand to be satisfied is about 440 tons**.

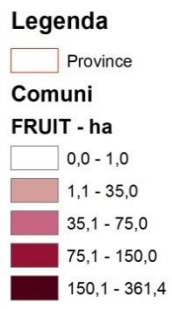
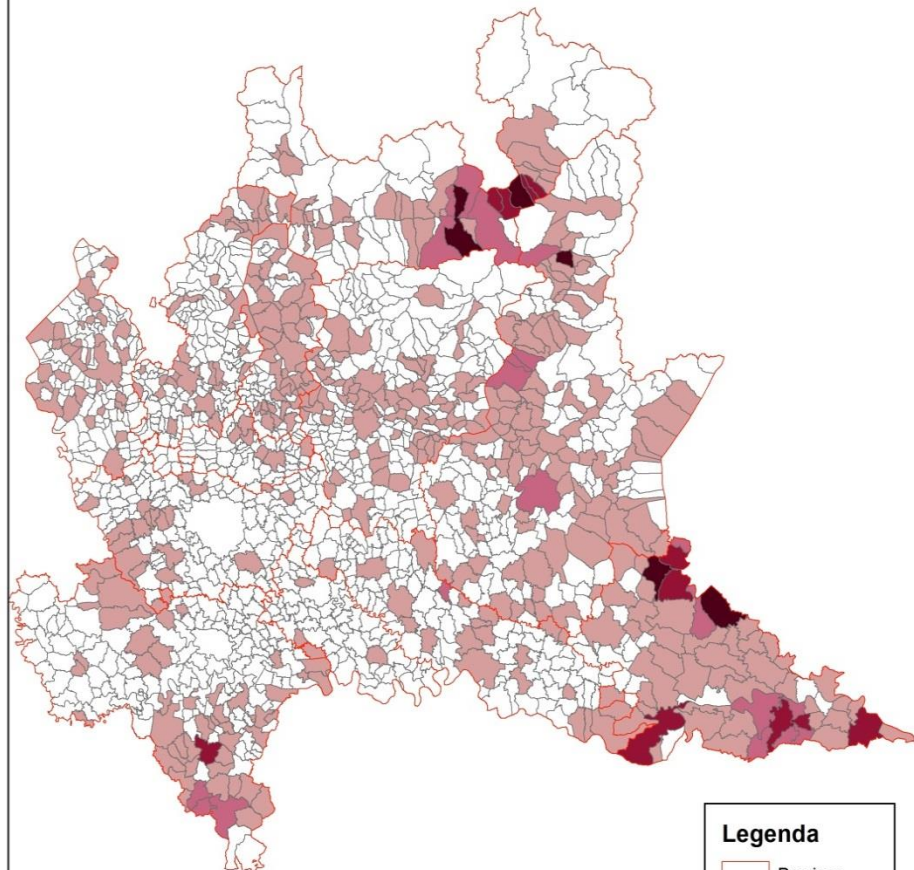
The area cultivated with organic fruits can currently provide the current needs.

The production of organic fruits is mainly concentrated in the districts of Mantova.



Fruits - Total production

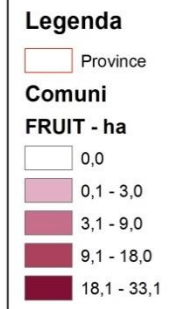
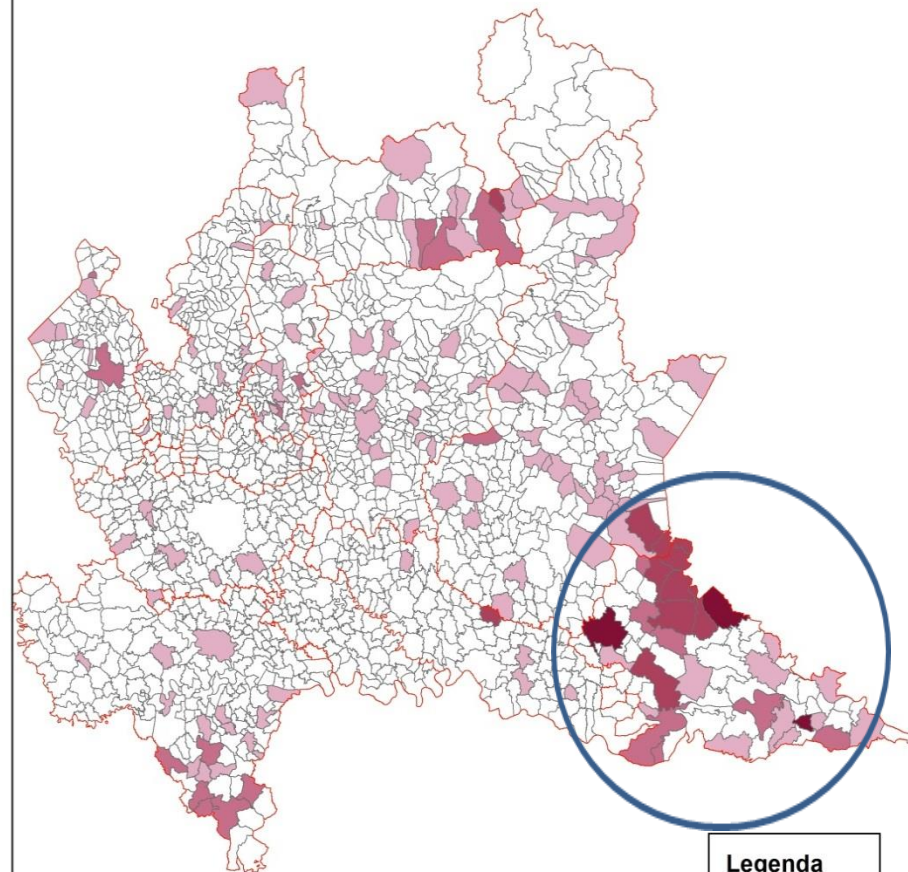
Superfici coltivate a frutteto - ettari



Superficie coltivata a frutteto
in Regione Lombardia: 5'964,47 ha

Fruits - Organic production

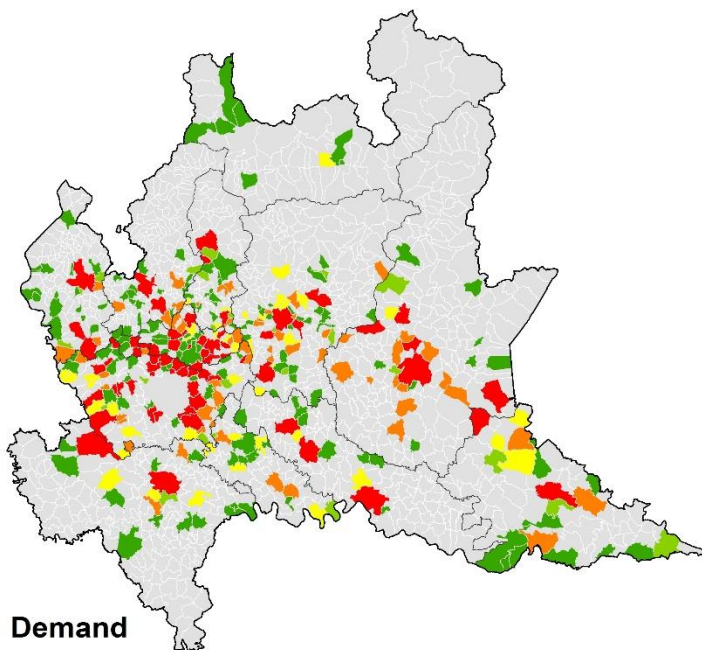
Biologico - superfici coltivate a frutteto - ettari



Superficie totale a frutteto biologico
per la Regione Lombardia: 410,37 ha

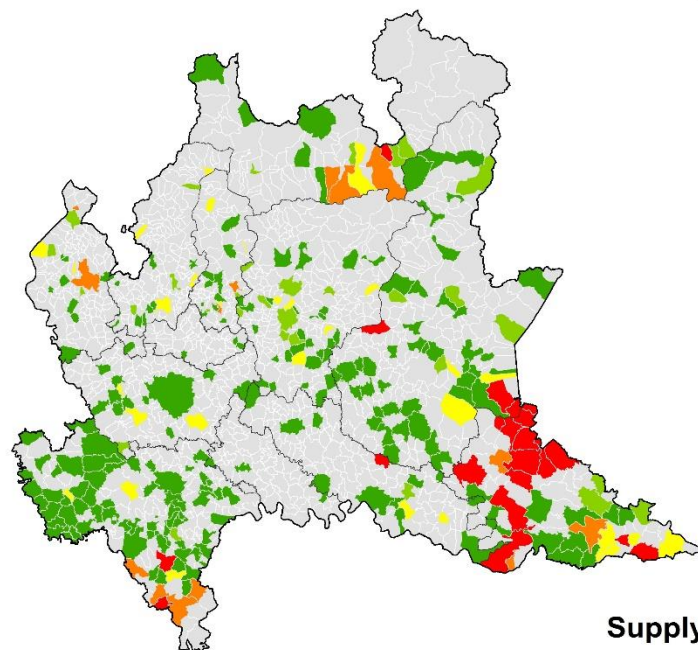
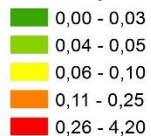
Organic fruits

0 12,5 25 50 Kilometers



Demand

Consumption [(equivalent) hectares]



Supply

Production [hectares]



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Comparison between supply and demand

3 – Vegetables

The **annual demand for organic vegetables is around 510 tons**, of which more than 140 tons consist of frozen vegetables.

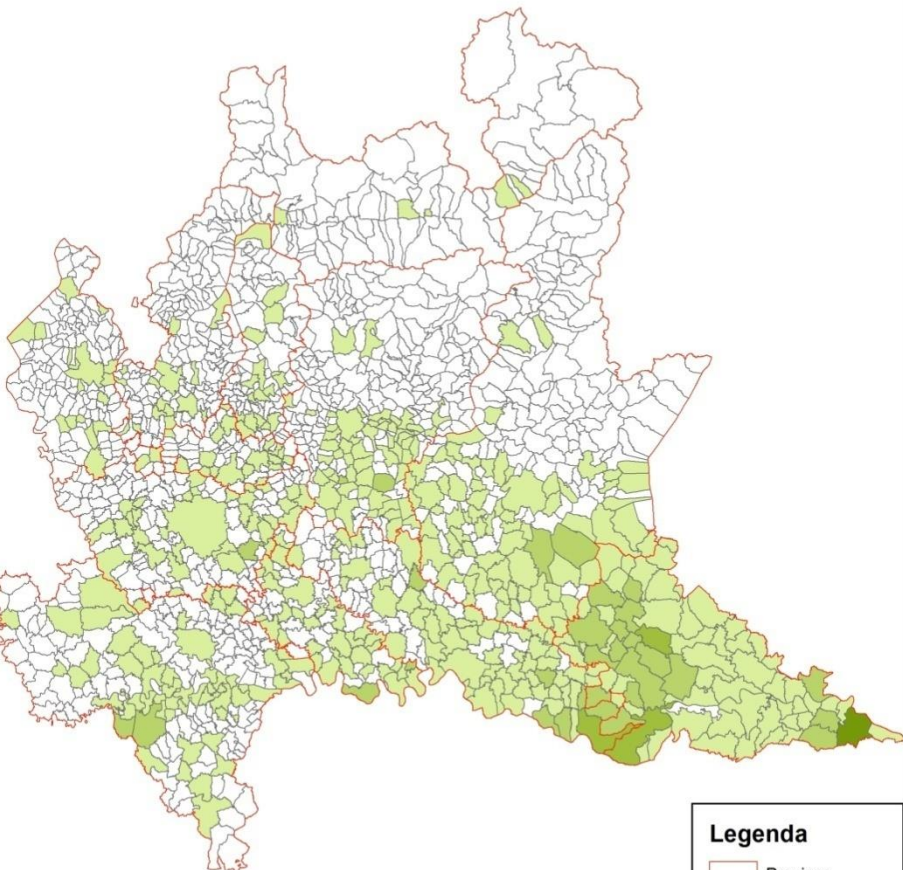
The area cultivated with organic vegetables can currently provide more than double the requirements.

The current organic areas for fruit and vegetable are mainly located in the district of Mantova.



Vegetables - Total production

Superfici coltivate a ortive - ettari



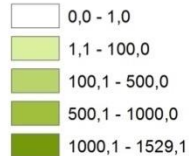
Superficie coltivata a ortive
in Regione Lombardia: 17'526,47 ha

Legenda

Province

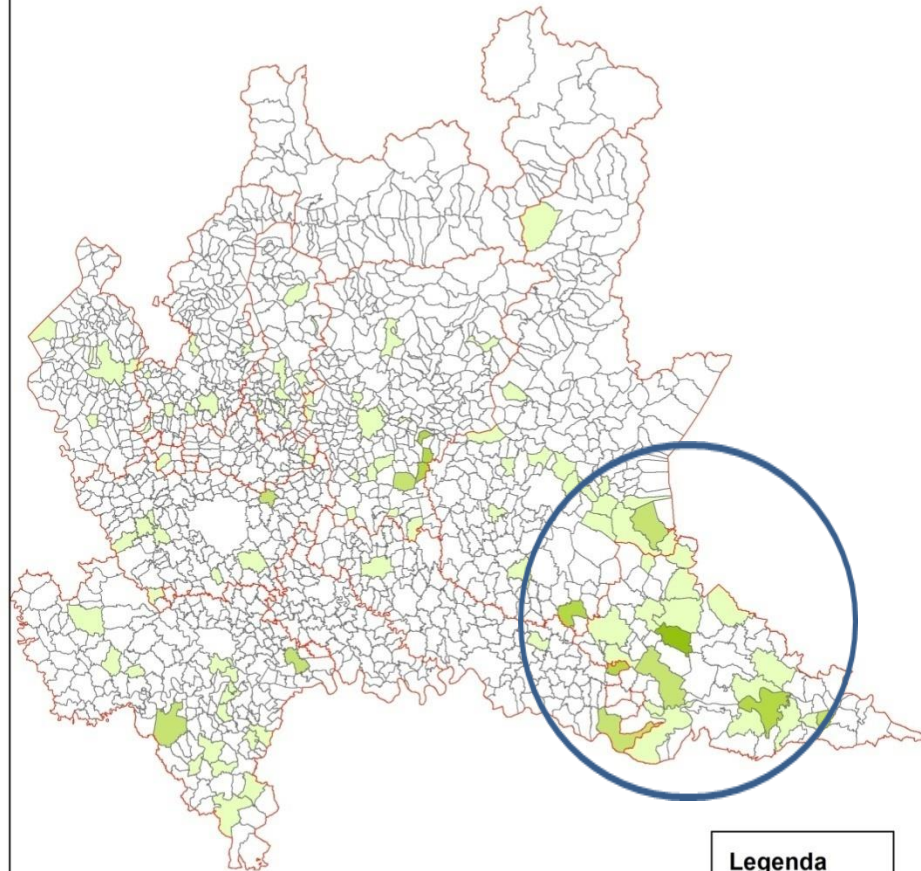
Comuni

VEGFR - ha



Vegetables - Organic production

Biologico - superfici coltivate a ortive - ettari



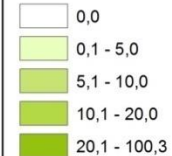
Superficie totale a ortive biologiche
per la Regione Lombardia: 371.39 ha

Legenda

Province

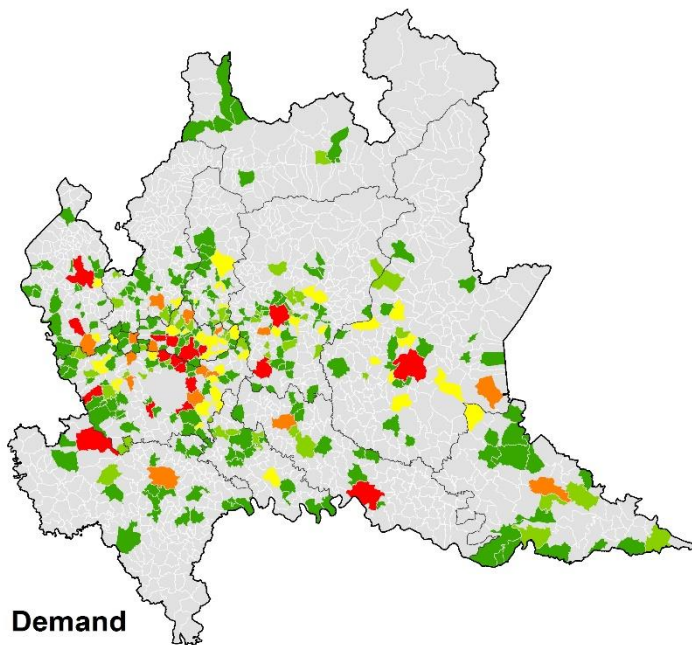
Comuni

VEGFR - ha



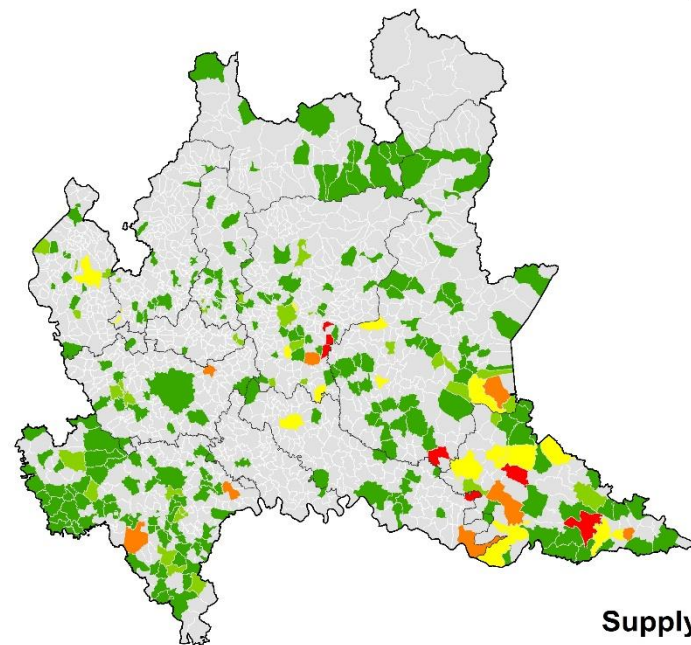
Organic vegetables

0 12,5 25 50 Kilometers



Demand

Consumption [(equivalent) hectares]



Supply

Production [hectares]



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Comparison between supply and demand

4 – Dry pulses

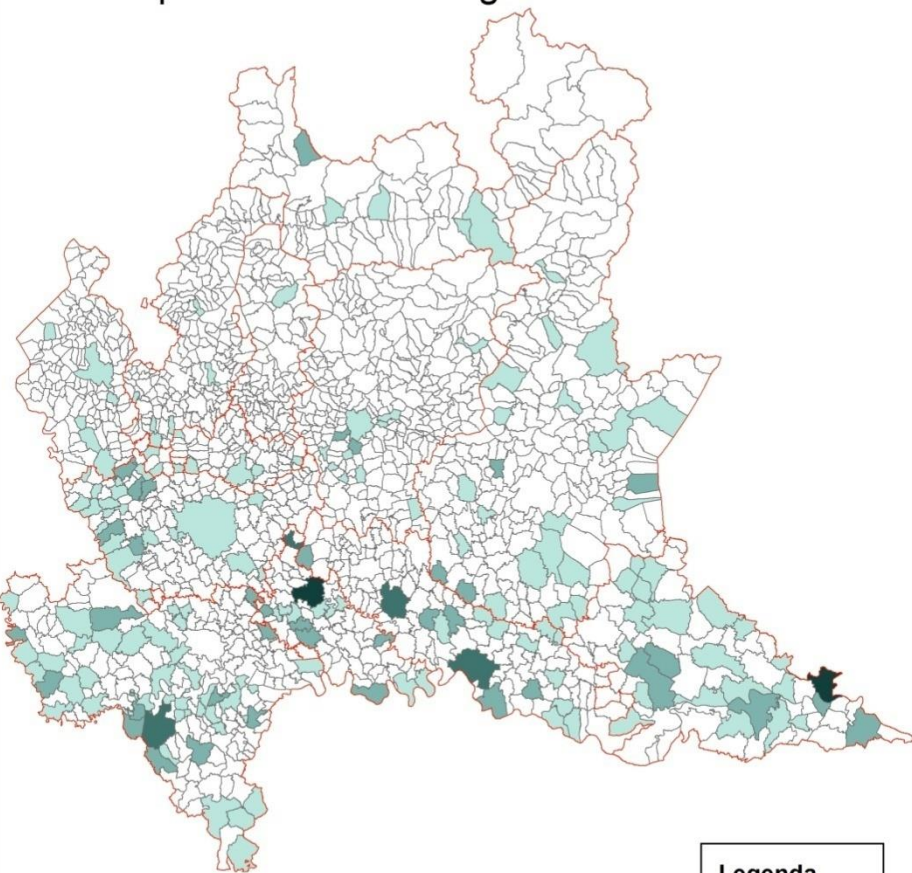
According to an annual demand of slightly **more than 6 tons of organic dried pulses**, the organic pulses acreage appears to be far enough to satisfy the needs.

The production of organic dry pulses is mainly concentrated in the districts of Pavia and Mantova.



Dry pulses - Total production

Superfici coltivate a legumi secchi - ettari

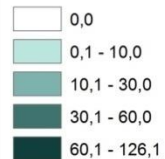


Legenda

Province

Comuni

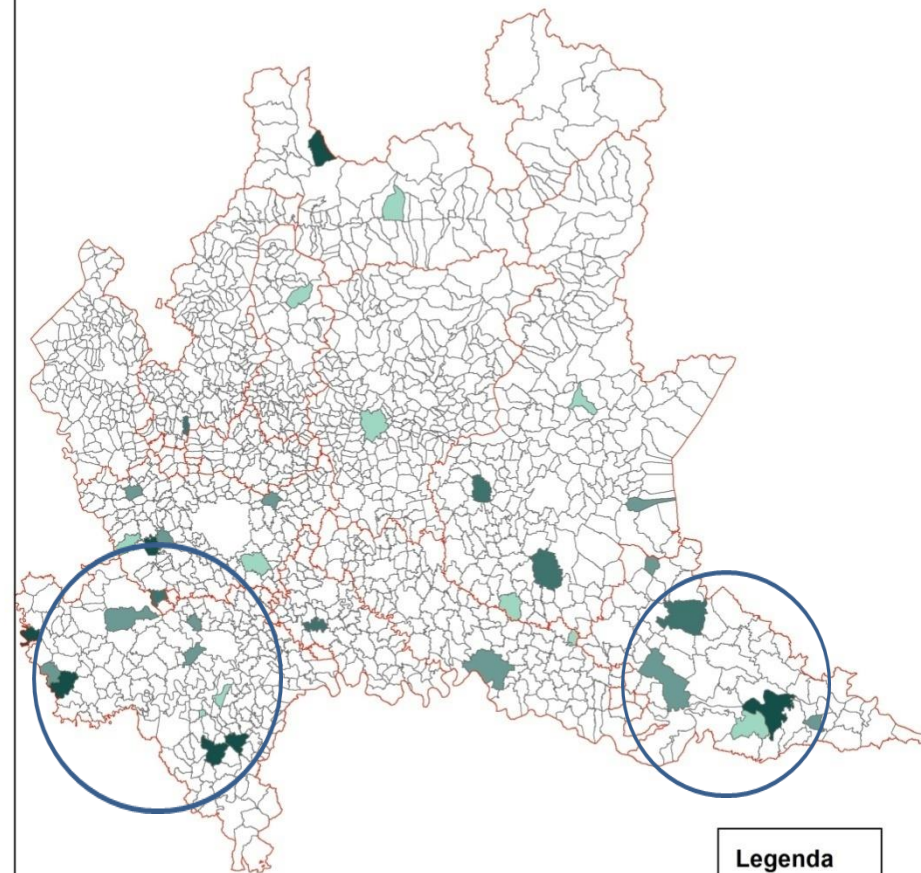
DRPUL - ha



Superficie coltivata a legumi secchi
in Regione Lombardia: 1'561,09 ha

Dry pulses - Organic production

Biologico - superfici coltivate a legumi secchi - ettari

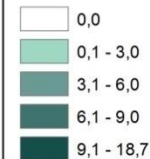


Legenda

Province

Comuni

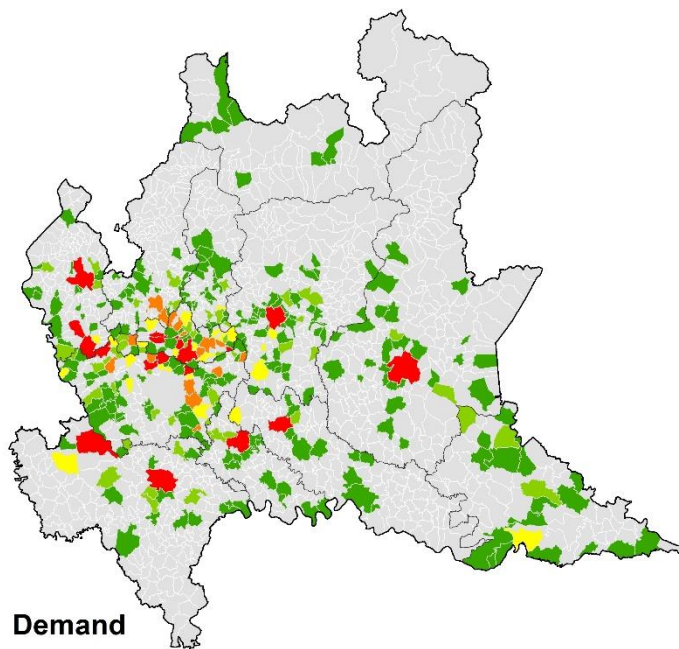
DRPUL -ha



Superficie totale a legumi secchi biologici
per la Regione Lombardia: 202.42 ha

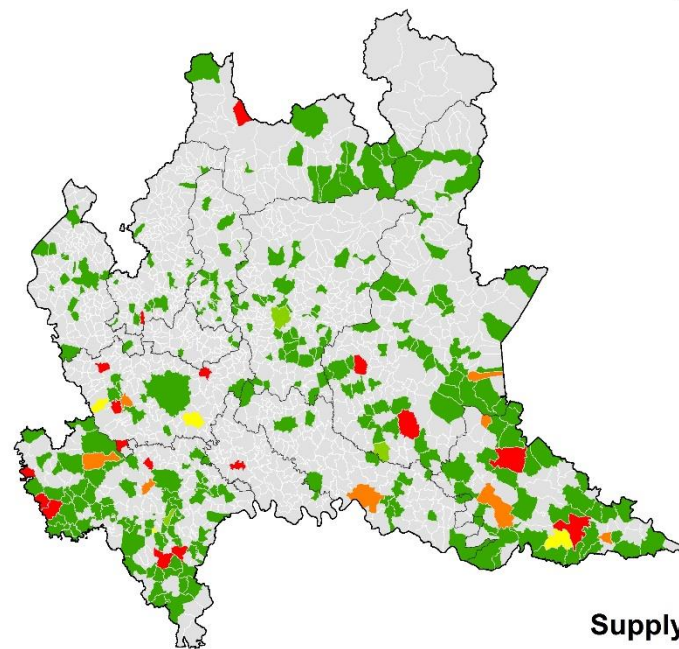
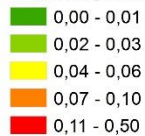
Organic dry pulses

0 12,5 25 50 Kilometers



Demand

Consumption [(equivalent) hectares]



Supply

Production [hectares]



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Comparison between supply and demand

5 – Beef meat

The annual **demand for organic beef is quite limited.**

It amounts to about 45 tons, which would require about 150 heads of cattle per year to meet the need.

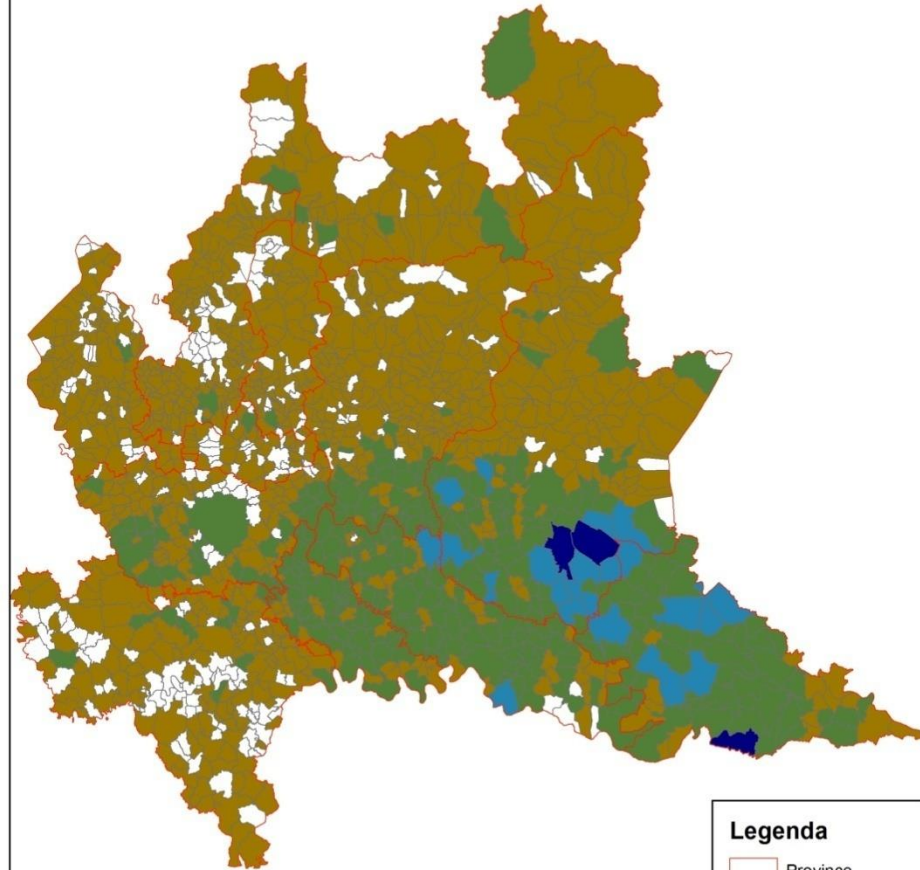
The 8,500 animals actually bred with organic system, of which at least 15% are for meat, are more than enough to fill the demand.

The organic cow farms are spread throughout the region.



All production

Allevamento bovini - n° capi per comune



Legenda

Province

Comuni

TOTCATT - n° capi

0 - 10

11 - 1000

1001 - 10000

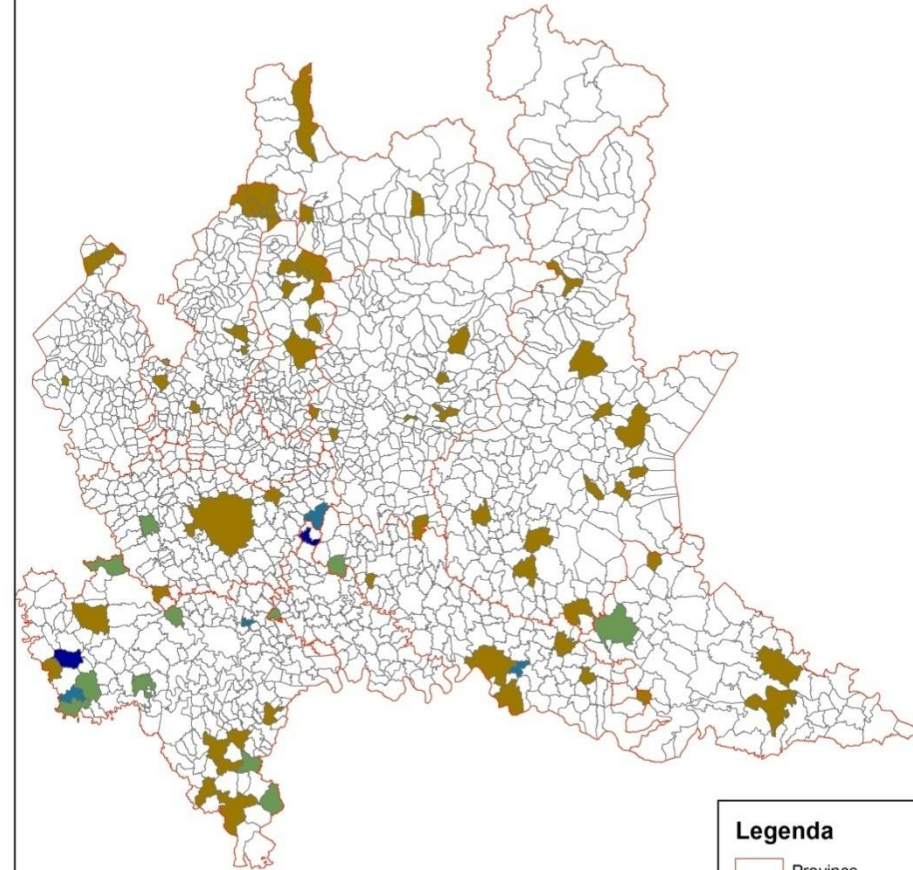
10001 - 20000

20001 - 36724

Allevamento di bovini in Regione Lombardia
n° capi: 1'485'191 capi

Organic production

Allevamento bovino Biologico - n° capi per comune



Legenda

Province

Comuni

TOTCATT - n° capi

0

1 - 100

101 - 400

401 - 800

801 - 1618

Allevamento di bovini biologici in Regione Lombardia
n° capi: 8'511 capi

Comparison between supply and demand

6 – Pork meat

The annual **demand for organic pork meat is quite limited.**

The pork meat annual demand is about 23 tons, which would require about 250 head of livestock per year to be slaughtered.

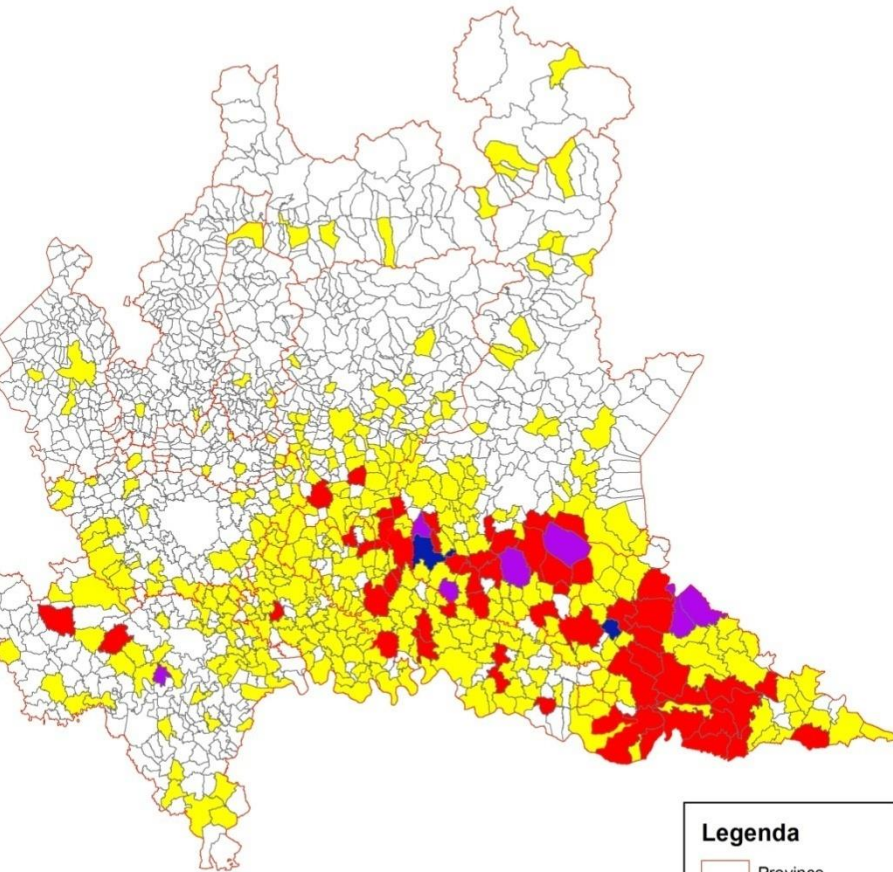
The 21,000 animals actually bred with organic system are more than enough to fill the needs.

The organic pig farms are concentrated in the districts of Brescia and Mantova.

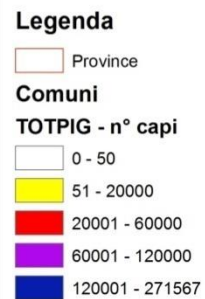


All production

Allevamento suini - n° capi per comune

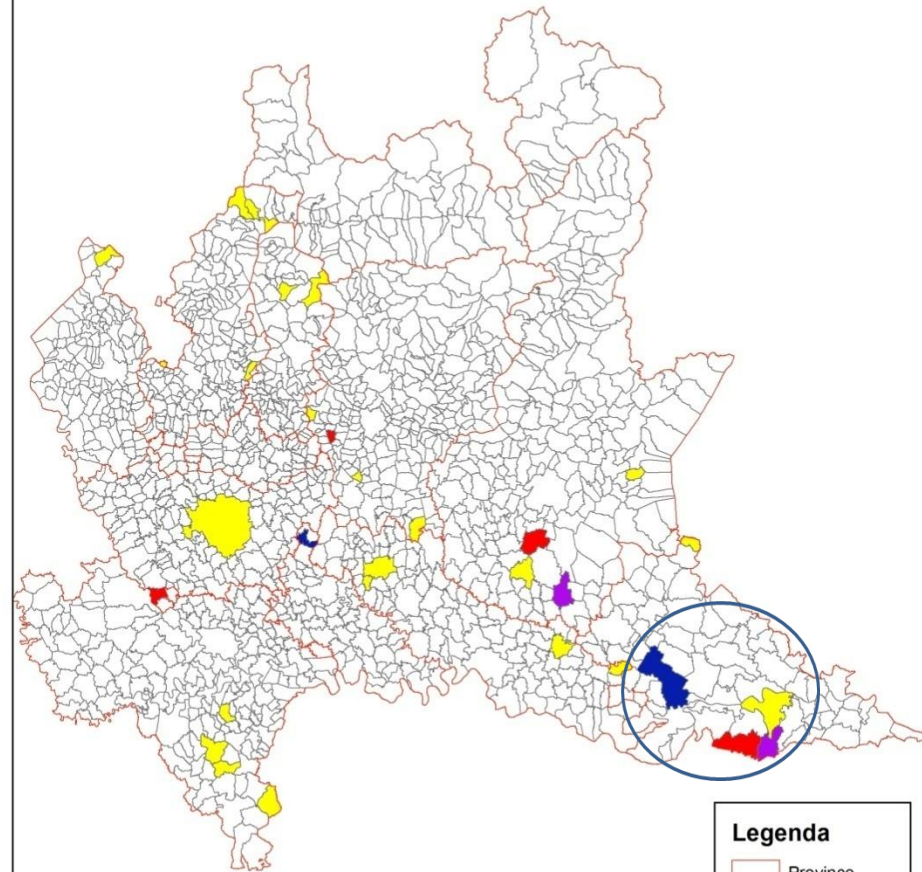


Allevamento di suini in Regione Lombardia
n° capi: 4'758'956 capi

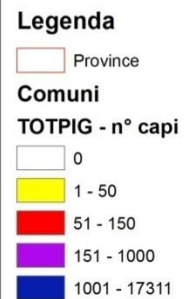


Organic production

Allevamento suino Biologico - n° capi per comune



Allevamento di suini biologici in Regione Lombardia
n° capi: 21'824 capi



Focus on organic consumption in school meals

The increase in the consumption of organic products in school canteens in Lombardy seems to have suffered a setback in the last 2-3 years.

This may be due to the achievement of a "threshold" for some municipalities in which the organic references are many, for others it may be attributed in large part to the problem of the price of purchasing organic foods, which often proves to be more a perception rather than a reality.

It is important to remember that the delta cost should be calculated only on the "food cost" (purchase of food), which in Italy corresponds in average at 1/3 of the total cost of the served meal.

Given an average cost of about € 4.8 per meal, the increase in the real cost of placing 50% of organic products compared with a menu with all products from conventional agriculture is approximately € 0.40 per meal.



Conclusions 1 - Can the the supply of local products meet the demand?

The demand for local products continued to increase in recent years. It is expressed in different forms: short chain products, zero-km products, local products; terms which are often used one for the other.

To prepare the about 214 million meals served annually by the mass catering in Lombardy a considerable quantity of food products are today purchased on the global market.

In parallel, the agri-food production is nowadays devoted mainly to large retailers.

The possibility that a part of this products can be retrieved on the regional market, and most importantly, on local markets can be a driving force for the development of LAS and especially a tool for rural development.



Conclusions 2 – the criticalities for the development of the LASs

The continuous improvement of the quality of procurement and of mass catering service can be realized by **operating several choices** which **altogether can ensure the achievement of this goal**.

First of all **the development of local and sustainable agri-food systems should be fostered, by coordinating supply with demand**.

To increase the percentage of local and quality food (i.e. organic food) in the providing of mass catering it is necessary to **know very well both the demand of mass catering system and the supply chain of local products**.



Conclusions 3 – possible challenges: the integration of catering services

Furthermore, the catering service is very easily suitable to build up win-win strategies on a territorial basis, pursuing different forms of integration:

- **horizontal integration**: small-medium sized municipalities may share call for tender documents, with the goal of making a single tender, as well as share facilities such as cooking centers, that are often underutilized,
- **vertical integration**: is it possible to realize different forms of integration in the same area, between the various sectors of the mass catering: schools, hospitals, day-care institutions for elder people in order to reduce costs and streamline the service.

The development of the integration of services allows streamlining the environmental and economic costs, even by checking the optimal market conditions and sharing facilities and human resources.



Conclusions 4 – possible challenges: the rationalization of the supply chains

The rationalization of the supply chains of mass catering, their qualification and improving the sustainability of the system are a significant challenge for public institutions.

The first important result to be achieved is to make possible a new ongoing relationship between the demand of the mass catering, which requires constant supplies and relevant quantities, and the local food production system.

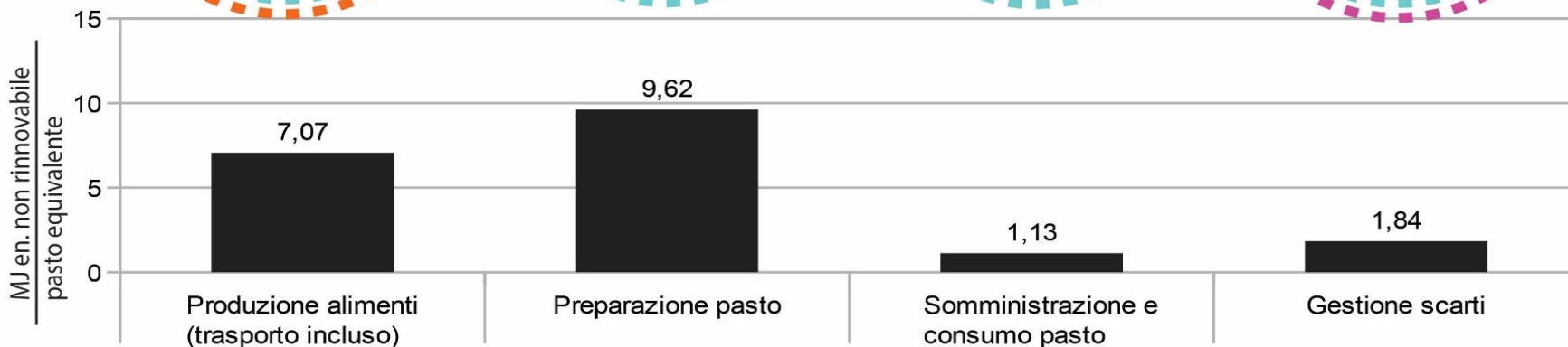
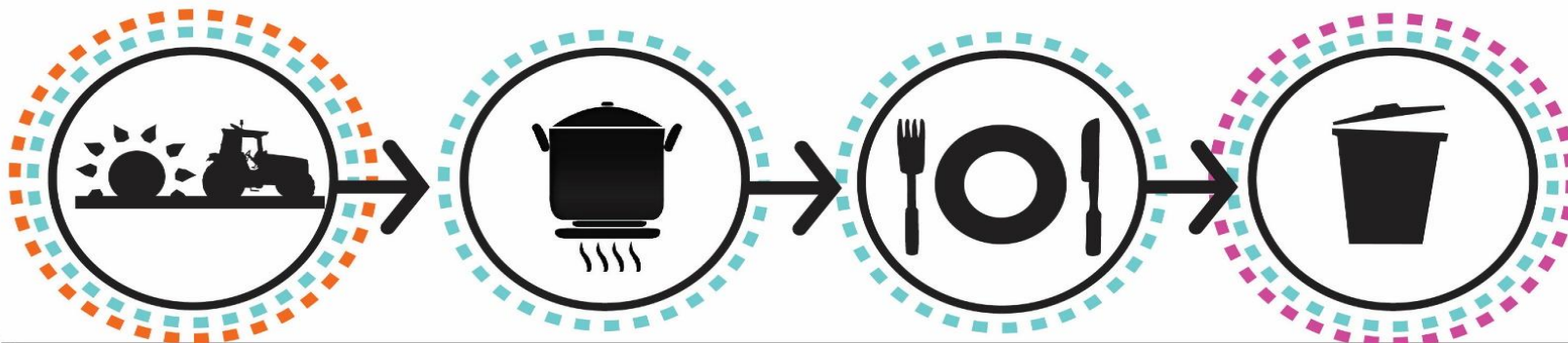
The difficulties in satisfying the current demand can be overcome with a higher/better knowledge of territory, production (quantity, quality, spatial distribution, seasonal availability), required quality standards (food safety, etc...) with an aggregation of offer based on local and multi-product platforms and a more efficient organization of supply chains.



Primary energy consumption in major supply chain steps of a meal, correlated information showing the current level of database development support the evaluation model (FCE).

Avanzamento sviluppo database

- - - - Approfondimento adeguato allo sviluppo di scenari
- - - - Attività di rilievo sul campo
- - - - Dati da letteratura scientifica



Bioregion: Identification and evaluation of energy flows in food chains – the case of potatoes

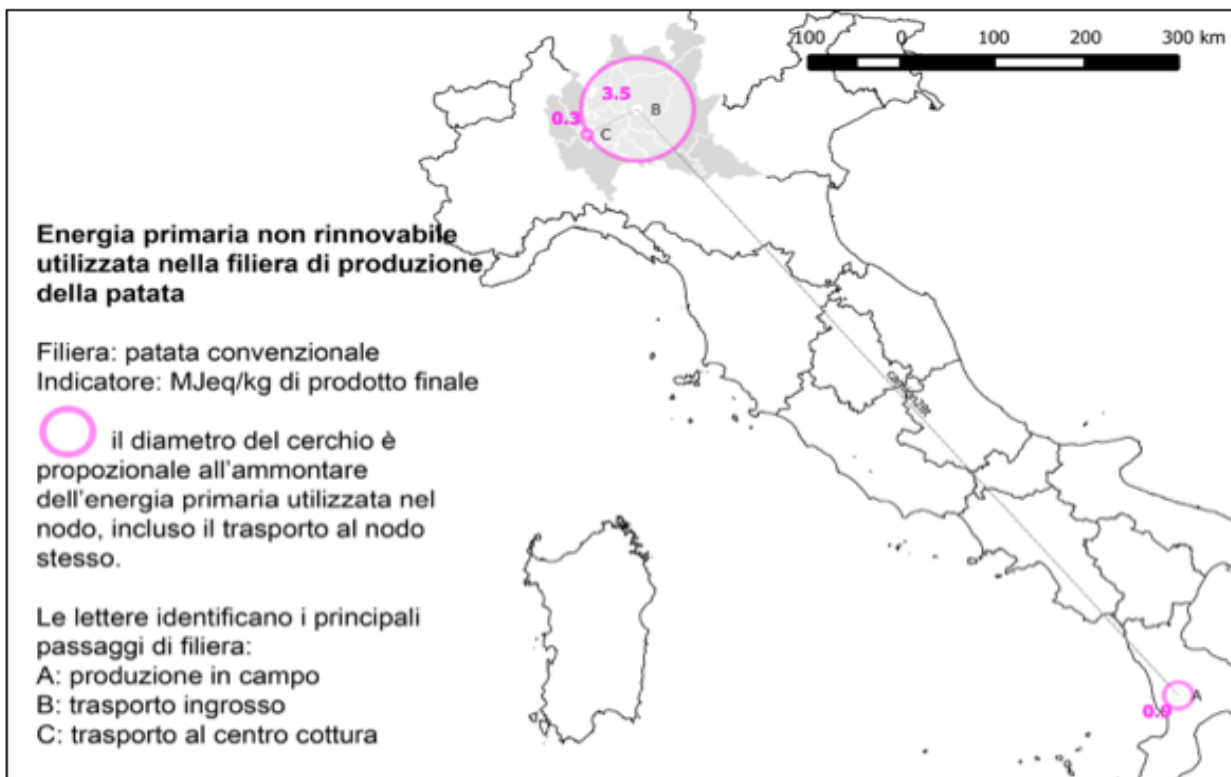
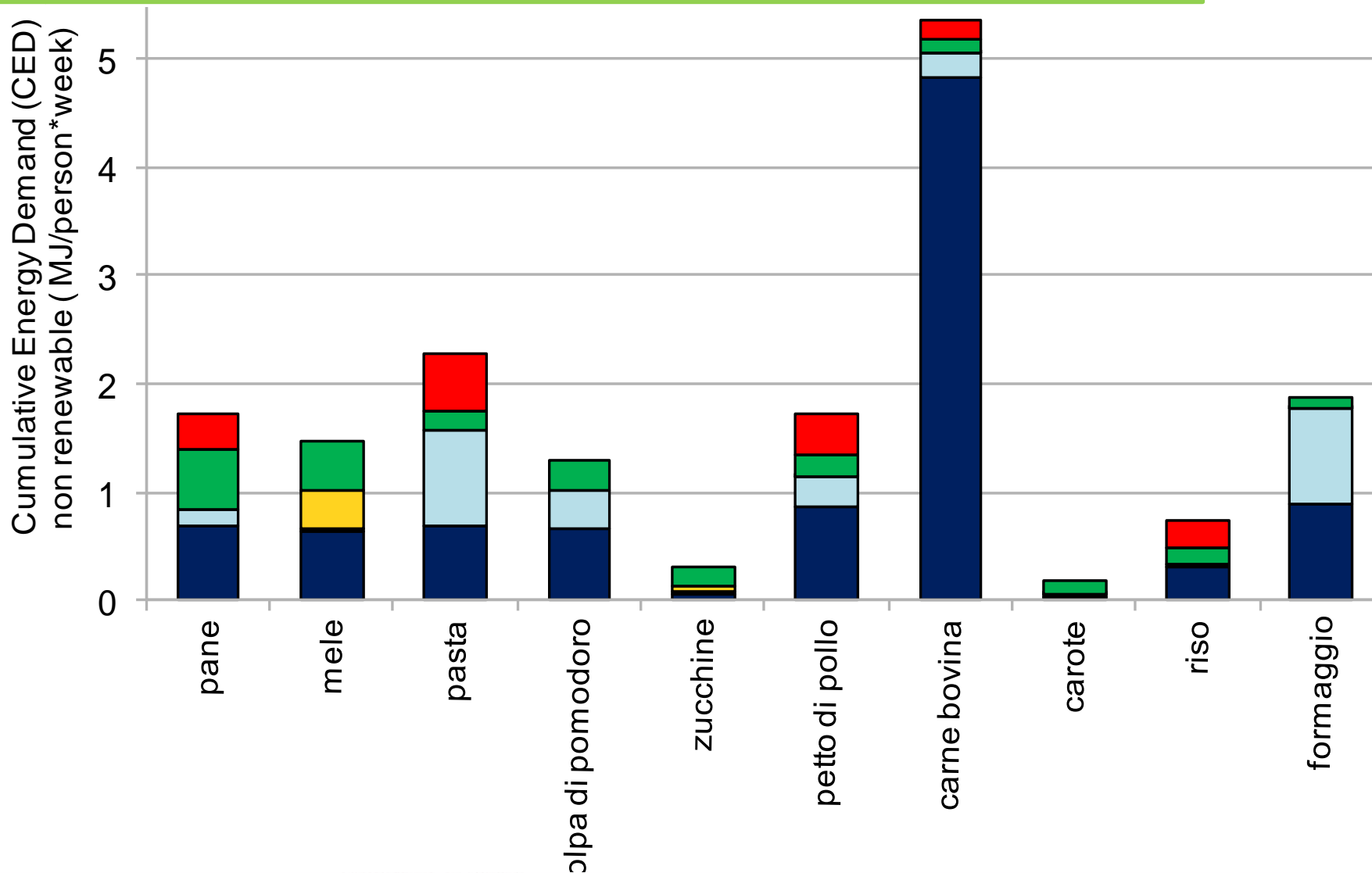


Figura 8. Mappatura dei consumi di energia primaria per la produzione di 1 kg di patate da coltivazione convenzionale.



CED in different methods of cultivation of potatoes

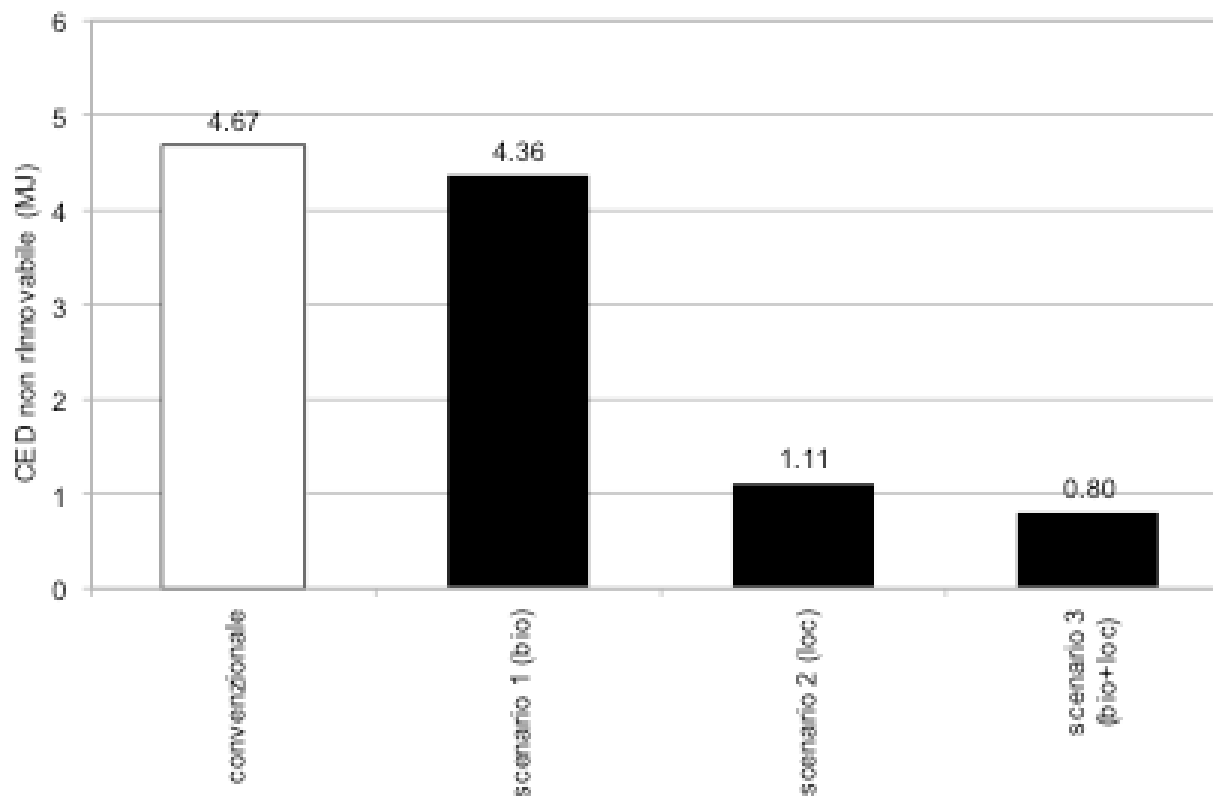
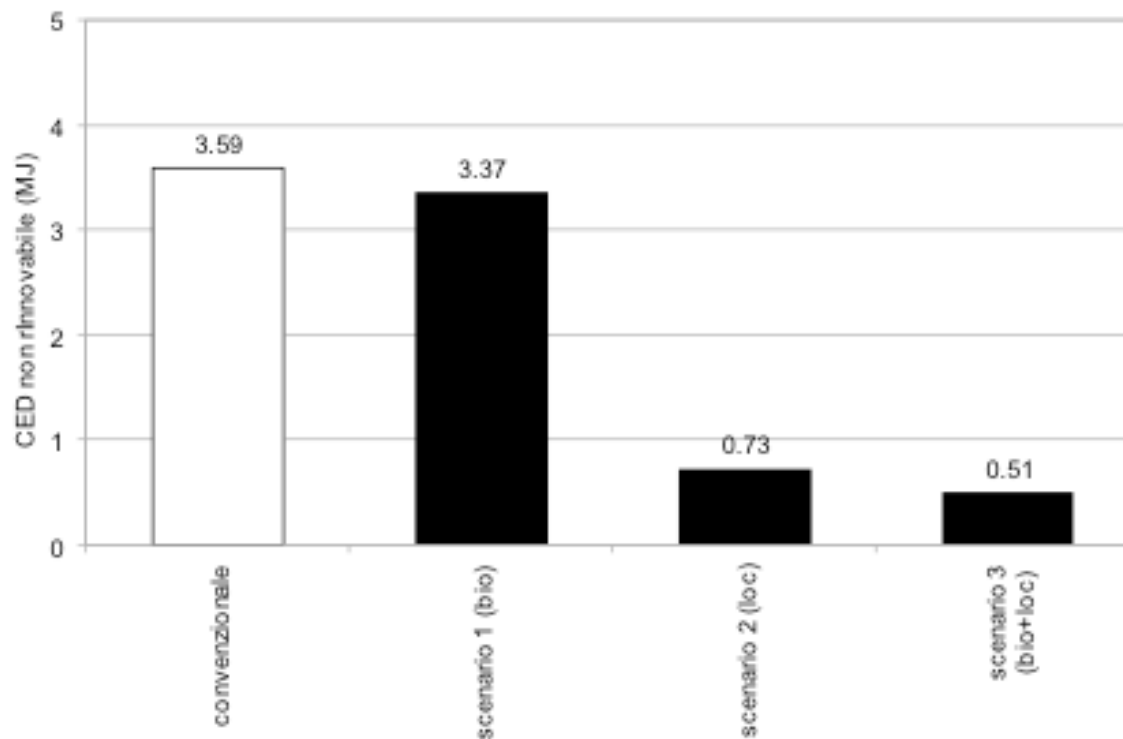


Figura 7. Confronto tra l'energia primaria non rinnovabile nella filiera della patata (dalla fase di produzione al trasporto al centro cottura incluso) considerando la coltura convenzionale, la produzione biologica (scenario 1), la produzione locale (scenario 2), la produzione biologica locale (scenario 3).

CED in different methods of cultivation of tomatoes



ura 9. Confronto tra l'energia primaria non rinnovabile nella filiera del pomodoro (dalla fase di produzione al trasporto al centro cottura incluso) considerando la coltura convenzionale, la produzione biologica (scenario 1), la produzione locale (scenario 2), la produzione biologica locale (scenario 3).

