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“Organic District”: identification methodology and agricultural policy objectives

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Abstract - Italy, unlike other countries, has included the territorial dimension in the recent interventions and regulations of organic agriculture, introducing explicitly the concept of “organic district”. It is defined as a local productive system with a high agricultural vocation where organic production and processing practices are predominant. The main object of this new subject is to promote the diffusion of organic agriculture focusing on the productive and environmental territorial characteristic.

In this poster, after a general definition of the organic districts, as they are introduced in the Italian regulations, a method for their identification in a region is proposed. In the final part, some considerations about the role of the organic district within the general framework of agro-environmental policies are developed.

Keywords - organic district, agro-environmental policies, organic agriculture

I. THE CONCEPT OF ORGANIC DISTRICT

Italy, among European countries with a large organic area, is characterized by a small/medium farms fabric which represents the main requirement for a productive district [1].

Indeed, data on the dimension of organic agriculture at international level show a marked dichotomy. On one side it is possible to place the countries where organic agriculture, due to a low dimension in absolute terms or in relation with the total agricultural area, has a marginal role. On the other side, there are those countries in which organic agriculture, even if covering significant areas, regards a small number of large farms¹. Only in Italy, among countries with a consistent part of land organically cultivated, the average organic farm size is small (24 ha).

Thus, it seems like outside Italy, either there is a small amount of land organically cultivated, or where organic land is present there is a lack of small/medium farms, which is one of the bases of the district.

Therefore, it is quite understandable that Italy, unlike other countries, has included the territorial dimension in the recent interventions and regulations of the sector, introducing explicitly the concept of “organic district”.

This term appears for the first time in an official document in 2005 [3] and it assumes a definitive connotation in the draft of the new Italian law about “Organic Agriculture” of 2007, where an article titled “Organic Districts” is included [4]. An organic district is defined as a local productive system with a high agricultural vocation where organic production and processing practices are predominant. Since the criteria to determine these characterizing aspects have not been identified this definition appears quite vague. Concepts like “local productive system”, “high agricultural vocation”, “predominant organic production” are not so easily provable and thus administrators have a high degree of freedom in establishing the areas interested in the implementation of an organic district.

As it regards the objectives of the organic district, the cited Italian law specifies that “they are implemented to facilitate and simplify environmental and territorial certification”, “to favour the development of the best organic agricultural practice”, “to safeguard local cultural heritage and agricultural and natural biodiversity”. The organic district becomes a tool to develop organic agriculture on a territorial scale, proposing an organizational and administrative model, providing technical services to the farmers, promoting valorisation paths for the local products and pursuing environmental goals.

According to law the areas candidate to become organic district must be selected by the regional administration. This prescription is formulated in order to distinguish, logically and temporally, the stage of identification of those areas having the requirements to become organic district from the stage of institution of the territorial subject. In other terms, according to this interpretation, it is more likely to have a first phase in which the administration identifies those areas responding to the indicated requirements and a second one in which, for each recommended area, the conditions that permit to reach the objectives stated by law are verified.

In view of these considerations, we developed a method concerning the first phase of the process, which is the procedure to identify the areas having the requirements to become an organic district.

The general outline of this method is presented in the second paragraph, while an empirical application of the proposed methodology to an Italian region is the object of section three. Then, in the last paragraph some general considerations about the role of the organic district inside

¹ In the three countries with the highest organic land (Australia, Argentina and China) the average farm size is greater than 1,500 ha; and among the first twelve countries, where organic land is more than 500,000 ha, excluding Italy, the average farm size is greater than 50 ha [2].

the general design of agro-environmental policies are developed.

II. A METHOD FOR THE IDENTIFICATION OF ORGANIC DISTRICTS

According to the Italian law, a “local productive system” is an area characterized by “high concentration of small enterprises” and “productive specialization of all enterprises”. Referring to the agricultural sector, indicators able to verify these two requisites can be respectively the presence of small/medium farms (AGR_SMF), and the rate of employed in agriculture (AGR_EMP).

The indicator selected to verify the presence of “organic production” can refer either to the total area (ORG_TOL), to the productive area, represented by the arable land, (ORG_ARL) or to the number of farms (PRG_FRM). Despite the fact that these three dimensions have a high correlation, they look at the presence of organic agriculture with different perspectives and therefore, to take into account all three, a synthetic indicator can be calculated (ORG_IND).

To maintain the organic district dynamic and successful it is necessary the presence of a human capital able to share the aims of the district as well as sustain its activities. This involves an agriculture system characterized by young and motivated farmers, by an adequate generational turnover and by an elevated tendency to technical and commercial innovation. Variables able to catch these aspects, such as the farmer’s average age (AGE_FRM), the number of young farmers (YNG_FRM) and the growth rate of innovative forms of farm management (GRW_ORG), can be combined in a synthetic indicator of innovation tendency in the agricultural sector (INN_IND).

Table 1 summarizes the four dimensions considered for the individuation of organic districts, the related indicators and the sub-indicators selected for the evaluation of two of the main indicators.

Table 1 – Indicators for organic districts identification

Dimensions	Indicators	Sub-indicators
Presence of small/medium farms	AGR_SMF	
Productive specialization in the agricultural sector	AGR_EMP	
Presence of organic agriculture	ORG_IND	ORG_TOL ORG_LND PRG_FRM

Innovation tendency in the agricultural sector	INN_IND	AGE_FRM YNG_FRM GRW_ORG
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The four indicators, once calculated for each municipality of the region, have to be combined to evaluate if (and how much) they meet the organic district requirements.

The proposed method starts scaling each indicator within the values 0 and 1, where values close to 0 show a lack of the related requirement, while values close to 1 indicate a high fulfilment of the requirement itself. This way of rescaling is based on the *fuzzy* set theory [5] and uses the “membership” function (1) defined as follows [6] [7].

$$I = \begin{cases} 0 & \text{if } I < \mu_{\text{reg}} - \Delta \\ \frac{I - (\mu_{\text{reg}} - \Delta)}{2\Delta} & \text{if } \mu_{\text{reg}} - \Delta \leq I \leq \mu_{\text{reg}} + \Delta \\ 1 & \text{if } I > \mu_{\text{reg}} + \Delta \end{cases} \quad (1)$$

So the (1,1,1,1) condition represents the maximum (*ideal*) vocation, while the (0,0,0,0) condition the minimum (*anti-ideal*) one. For each municipality the distance from the ideal condition can be calculated using a specific metric [8]. These distances represent a measure of deficiency of the requirements necessary to be included in an organic district ².

Decision makers can manage the result of this measurement in two ways. The first one is choosing the thresholds that distinguish different levels of vocation; the second, more relevant from the political point of view, is the delimitation of the organic districts, a process in which the choice of territorial contiguity criteria and the inclusion of municipalities with different levels of vocation play a fundamental role.

III. AN EMPIRICAL EVALUATION

The methodology described in the previous section has been tested in Lazio, a region of Central Italy.

To this purpose the data of each municipality necessary to calculate the 8 indicators (2 main indicators and 6 sub-indicators) have been collected and verified. Then the values of the indicators have been determined as follow.

- Presence of small/medium farms (AGR_SMF):
Number of farms with arable land between 2 and 40 hectares / Total number of farms

² The concept of distance from the ideal point, as a measure of lack of requirements from the optimal conditions, derives from the multicriterial theory decision. More specifically, from the compromise programming method [9].

- Productive specialization in the agricultural sector measured by the employed rate in agriculture (AGR_EMP):
Employed in agricultural sector / Total of employed

- Presence of organic agriculture (ORG_IND):

i) Share of organic land (ORG_TOL):

Organic land / Total land

ii) Share of organic arable land (ORG_ARL):

Organic arable land / Total arable land

iii) Share of organic farming (ORG_FRM):

Number of organic farms / Number of farms

- Innovation tendency in the agricultural sector (INN_IND):

i) Farmers average age (AGE_FRM):

Average age of farmers / Average age of population

ii) Young farmers for 1,000 farmers (YNG_FRM):

Number of installations of young farmers / Number of farmers) x 1,000

iii) Growth rate of organic farms (GRW_ORG):

Variation index of organic farms between 2000/01 and 2004/05³

The values of each indicator have been rescaled between 0 e 1 using the membership function (1). The regional average (μ_{reg}) of each indicator and the corresponding value of chosen delta (Δ) are shown in table 2.

Table 2 – Regional average of indicators and chosen delta

Indicator	μ_{reg}	Δ
AGR_SMF	23,7%	0,5 μ_{reg}
AGR_EMP	3,4%	0,5 μ_{reg}
ORG_TOL	4,1%	0,5 μ_{reg}
ORG_ARL	9,8%	0,5 μ_{reg}
ORG_FRM	1,2%	0,5 μ_{reg}
AGE_FRM	1,37	0,1 μ_{reg}
YNG_FRM	13,8	1,0 μ_{reg}
GRW_ORG	0,17	1,0 μ_{reg}

The three indicators related to the presence of organic agriculture and the three indicators related to the innovation trend in the agricultural sector, as explained in the methodology section, have been aggregated into 2 synthetic indicators: ORG_IND and INN_IND.

For each municipality the Euclidean distance from the ideal condition represented by the point (0,0,0,0) has been calculated. The potentiality level for the inclusion in an organic district of each municipality can be evaluated on the base of this distance. Considering that the distance from the ideal condition ranges from 0 to 2, it is possible to set a

³ The variation index is calculated as a ratio between the difference and the sum of organic farms in 2004/05 and 2000/01. The choice of the variation index is due to the fact that in many municipalities the number of organic farms in 2000/01 was equal to zero.

classification of vocation to belong to an organic district as shown in table 3.

Table 3 – Classes of potentiality to organic district

Distance	Potentiality
0.0 - 0.5	High
0.5 – 1.0	Moderate
1.0 – 1.5	Low
1.5 – 2.0	None

The result of this empirical analysis is reported in the following map.

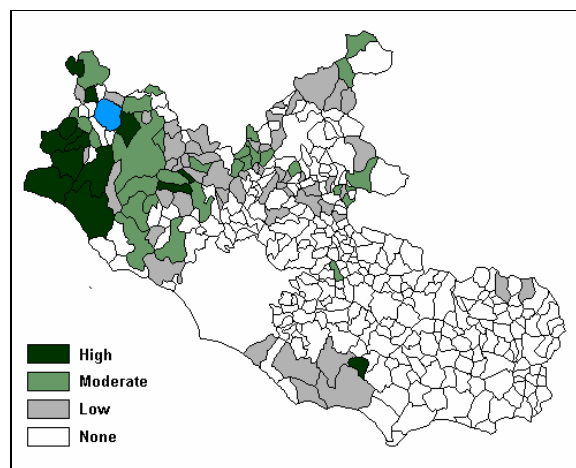


Fig. 1 Level of vocation of the Lazio region.

In order to draw the line of the potential organic districts of the Lazio region, it is necessary to consider some aggregative constraints that must be defined by the regional administration. However, in this case study, it is quite easy to identify a homogenous area in the northwest part of the region, which is potentially candidate to become an organic district.

IV. THE ORGANIC DISTRICT IN THE AGRO-ENVIRONMENTAL POLICIES FRAMEWORK

The Italian law on organic agriculture suggests an analytic path for the identification of the organic districts considering specific structural and territorial characteristics and providing the key to place this tool in the composite strategy of the agricultural and environmental policies. The method presented in the previous paragraph is based on socio-economical parameters but could be easily integrated with environmental parameters, in order to identify other potentially suitable areas for the implementation of organic districts.

Indeed the law, beyond the indication of the specific objectives to follow for the district implementation and the explanation on how these are considered instruments for the development of the sector, enunciates a set of relationships both with agricultural and environmental policies.

More specifically, in the general framework of the organic agriculture some environmental goals such as natural resources protection, environment conservation, landscape preservation and a high level of biological diversity are pointed out.

Even taking into consideration the supply side, the consequence of the implementation and the development of organic districts regards both market and environmental aspects.

As the cultivation of organic areas is increasing, the market of organic products is likely to become similar to the conventional one. If on the one hand trade flows of organic products can generate social and economic benefits within the producer countries, it is also true that on the other hand a rising concern about the environmental impact of food distribution and commercialization is growing. In the case of organic products, the debate on *food miles* [10] assumes specific implications since they should guarantee an environmental sustainability not only in the production processes, but also in all the phases that follow out of the farm gate.

Concluding, the organic district can be considered an instrument that favours a model of agriculture (organic) that, given the assigned objectives, is able to give an answer to the need of sustainability and multifunctionality of the European agriculture. The challenge is to draw and to implement a model in which the mentioned objectives are effectively pursued in a coordinate and coherent way. In other terms, it is not sufficient to increase organic land and farms, but it is also necessary to evaluate the contribution of the organic agriculture in the greenhouse gas control, in the biodiversity preservation and in the production of high quality food. The organic district is functional to this path.

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