

ECO PRODUCTS

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Abstract. *This review summarizes existing evidence on the impact of organic food. It compares organic vs. conventional food production with respect to parameters important to human health and discusses the potential impact of organic management practices with an emphasis on EU conditions. The perspective of the production system to sustainable food system was explored, and the interaction of the agricultural production system and individual food choices was discussed. We also analyzed the population's interest in eco products and their interest in consumption.*

Keywords: *food safety, eco-friendly, organic food*

Introduction

The word ecology comes from the ancient Greek and means „home”. It examines the damage of all living things in their environment in the life cycle. It is also a branch of biology, but a branch of science. Ecology means environmental science [1].

Organic food - products of animal or vegetable origin that were obtained without the use of synthetic chemicals or genetically modified components, were not exposed to irradiation and after their production the environment did not suffer. In order to be considered organic, agricultural or livestock production must be carried out in accordance with ecological principles for a minimum period of time which differs from one product to another [2].

The characteristics of an organic product are as follows:

- No pesticides, chemical fertilizers and other toxic substances were used for its cultivation;
- Does not contain genetically modified substances;
- It has not been subjected to ionizing radiation (preservation method used to preserve the external appearance of the product for a longer time);
- The production process does not pollute the environment, thus maintaining the natural balance [4].

Types of organic food

Organic food can be of plant and animal origin, in the form of raw materials and processed products:

- Organic plant-based foods are obtained from lands that have not been treated with fertilizers and soil improvers of chemical synthesis or with pesticides (insecticides, herbicides, etc.).
- Organic food of animal nature (meat, milk, eggs) are those products that were obtained from animals raised in organic conditions (unpolluted natural pastures, fodder and concentrates obtained from organic land, without auxiliary substances in the preparation of feed, without products chemicals for cleaning and disinfecting animal and feed shelters, except those allowed in organic farming).
- Foods resulting from processing are considered eco-friendly if they come from organic raw materials and if no food additives or other substances have been used in the manufacture to facilitate processing or ensure their shelf life. No ingredients may be used to increase their nutritional value (vitamins, mineral salts), including blood plasma, gelatin, milk proteins, protein derivatives of vegetable origin, etc., which are not an integral part of the natural structure of the food [3].

- One of the objectives of organic production is to reduce the use of external factors of production. Any substance used in organic farming to control pests or plant diseases must be approved by the European Commission [5]. Domestic farmers, who work in an ecological system and have the appropriate certificates, have the right to apply on the packaging of organic products the national mark "Organic farming - Republic of Moldova", approved by law [6].
- Processed foods must be based mainly on agricultural ingredients (the addition of water and table salt is not taken into account). They may also contain:
- preparations of micro-organisms and enzymes, trace minerals, additives, processing aids and flavorings, vitamins, as well as amino acids and other micronutrients added to food for certain nutritional purposes, but only if the rules on organic farming allow it;
- the use of substances and techniques which restore the properties lost during processing or storage, which correct the results of negligence during processing or which may be misleading in any other way as to the true nature of these products is prohibited;
- non-organic agricultural ingredients can only be used if they are authorized in the annexes to the legislation or if they have been provisionally authorized by an EU country [5].

The Benefits Of Ecological Foods

a) The production of organic vegetables, fruits and meat does not use chemicals (pesticides, hormones, etc.), unlike the usual one. For example, conventionally grown apples contain about 30 artificial substances, concentrated in the shell, even after washing.

b) Organic products contain at least 50% more vitamins, minerals, enzymes and phytoelements compared to conventional ones. Chromium is a deficient micronutrient in the modern diet and is 78% more concentrated in organic foods. Selenium is a powerful antioxidant that protects us from free radicals and has a 400% higher concentration level in organic foods than conventional ones. Calcium has a 70% higher bioavailability in organic foods. Lithium, used in the treatment of various forms of depression, is 200% more concentrated in organic foods, and the magnesium needed by the muscular system by 140%.

c) Organic food is the only practical way to avoid and protest against genetically modified products.

d) Dairy products, for example, should be eaten as natural as possible because everything in the supermarket comes from farms where animals are treated and fed with mixtures of antibiotics, hormones and other medicines to increase production. In addition, there is a risk of feeding animals with genetically modified soy.

e) The taste and aroma of organic fruits and vegetables are much more authentic than those grown conventionally [2].

Organic farming is a way of growing plants and raising animals, without using the means that interfere with natural processes.

Organic farming is a modern process of growing plants and raising animals, without using in the process fertilizers, synthetic pesticides, hormones, antibiotics, growth stimulators and regulators and intensive animal husbandry systems [8].

Organic farming in the Republic of Moldova has grown in the last 5 years thanks to state support by including the sub-subsidy 2.5 "Support for the promotion and development of organic farming". Currently, the value chain of organic farming consists of 152 operators, where the largest share belongs to enterprises with 78% certified organic land. The value chain of organic farming is a promising one in the context of the development of the markets with organic products and the interest of the consumers, as well as for the opportunity for the development of the rural communities [7].

Organic food can be identified by the Ecological / Organic / Bio logo on the packaging. This label may be affixed if the food meets all the requirements of the accredited certification body. The marketing of non-organic foods with the above logo is illegal, but it is safest to check for the certification body's logo on the packaging to avoid attempts by manufacturers to mislead buyers.

Natural Product is not the same as Ecological Certified Product. Manufacturers may use the name natural on marketed products in the absence of clear standards defining what this means. Thus, a product may contain mostly artificial ingredients and yet be labeled as natural. Natural does not mean untreated with pesticides, growth hormones or genetically modified. Therefore, do not be fooled by labels [9].

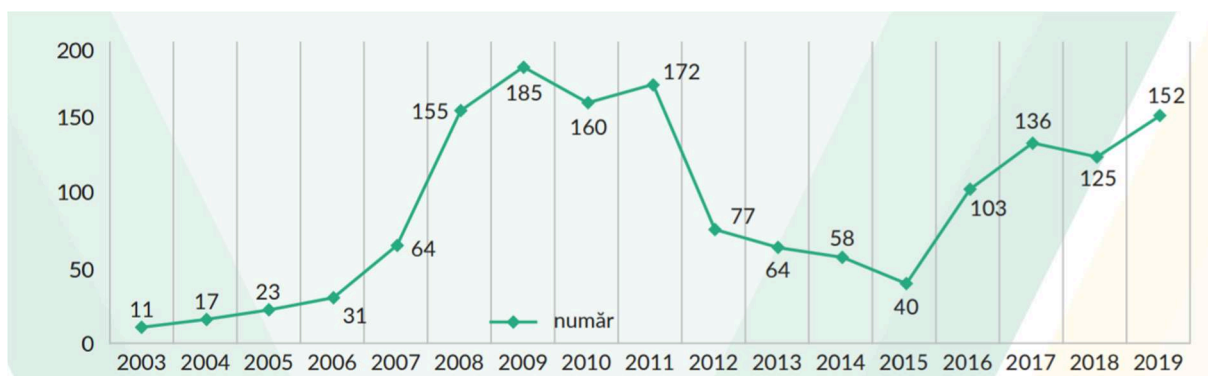


Figure 1 Number of entities in the value chain of organic farming [12]

In 2021, there are 151 agricultural producers in the Republic of Moldova who hold ECO certificates for about 50 agricultural crops. The area cultivated with organic crops is estimated at about 26 thousand hectares [10].

In 2019, an atlas of organic agriculture in the Republic of Moldova was developed. The electronic map indicating the certified producers of organic agricultural products in Moldova is available online. The atlas contains information about each ECO certified producer operating in the territory of the Republic of Moldova, the area owned, the culture that was grown, the authority that issued the ECO certificate. Data on processors and producers of ECO processed agricultural products are also published [11].

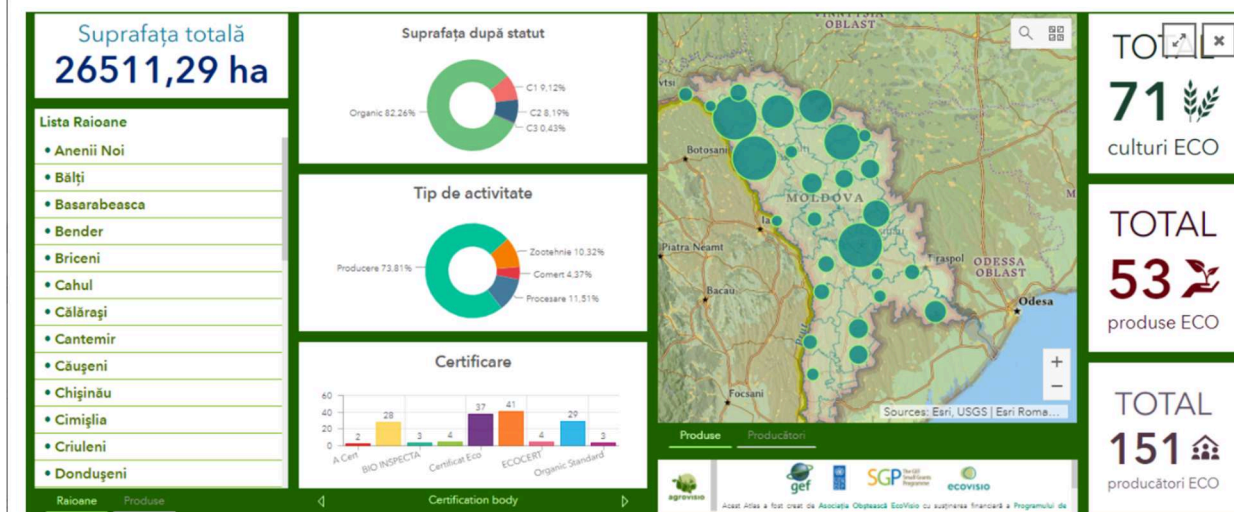


Image 1 Atlas of organic agriculture in the Republic of Moldova [12]

In order to better analyze the ecological potential in the Republic of Moldova, we developed a questionnaire to see what is the consumer's interest in eco-friendly products. This questionnaire was addressed to a group of 30 people with different gender, age and financial background, so we obtained the following data:

Question No. 1. What is your gender?

Male 4 people (13,3%)

Female 26 people (86,7%)

Question No. 2. Please select your age

Ages 18-25 were answered by 19 people (63,3%)

Age 25-35 answered 9 people (30%)

Age 45-55 answered 2 people (6.7%)

Question No. 3. How often do you stock up on food?

17 people a few times a week (56,7%)

12 once a week (40%)

One person once per month (3.3%)

Question No. 4. Where do you shop most often?

28 people in the supermarket (93,3%)

One person in the food market (3.3%)

One person prefers their own household (3.3%)

Question No. 5. What is the most important criterion to follow when purchasing a product?

24 people quality (80%)

3 people the price (10%)

2 people manufacturer (6,7%)

One person expiration date (3,3%)

Question No. 6. Have you heard of eco products?

30 yes (100%)

Question No. 7. Have you noticed eco-badge products on store shelves?

25 people answered yes (83,3%)

5 people answered no (16,7%)

Question No. 8. Do you buy eco products?

24 people answered sometimes (80%)

4 people answered yes, regularly (13,3%)

2 people answered never (6.7%)

Question No. 9. What is the main reason you buy eco products?

13 people answered quality (43,3%)

12 people responded to health concerns (40%)

2 people answered concerns about the environment (6.7%)

2 people answered no to buy (6.7%)

One person answered packaging, design (3.3%)

Question No. 10. What keeps you from buying more organic products right now?

15 answered the price (50%)

6 lack of variety (20%)

4 unclear product information (13,3%)

3 to be able to easily find the right products (10%)

2 no interest in organic products (6.7%)

Question No. 11. Do you agree to pay double the price to buy an eco product?

12 partial agreement (40%)

7 neither agree nor disagree (23.2%)

6 totally disagree (20%)

3 total agreement (10%)

2 partial disagreement (6.7%)

Conclusion

Following the study on the ecological potential of the Republic of Moldova, I came to the conclusion that people know about the existence of eco products and their benefits. However, their high prices are the reason number one why people choose less organic foods. I would also like to emphasize that in the Republic of Moldova is a lack of variety of eco products ,which is second to the problem of the impediment to purchase these products. The population of the Republic of Moldova is ready to buy high quality products and is open to new food opportunities. In the end I can say that ecologically certified foods have only positive qualities and are worth consuming, they are worth the money.

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