# THE AGRICULTURE ECOLOGICAL NEED OR AN EXPERIENCED

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**Abstract**

The man and the environment are two inseparable entities from the birth of man. They performed together in harmony and later started since 1750 with some of the industrial revolution this harmony outsider continuously degraded environment reaching as XXI century , the degradation of environmental factors on planet Earth the reached levels that worries the international community jeopardizing the very future of mankind. It is known that human existence is dependent on the environment and environmental factors such as air , water and soil change ( negatively ) from their use by humans. This phenomenon is generally called pollution and has the effect of changing the characteristics of products of human and animal activity. Most affected are the products of farming which is daily food for all (7.5 million) inhabitants of Earth. Contaminated foods create serious health problems for people fighting humanity spends huge sums sometimes without results or poor results. Rapid growth of population pressure on Earth, will put great pressure on agriculture, which should ensure a level of quality food at least 300-400 kg food / person / year . Is this possible with current agricultural technology and organic products are an alternative.

**Key words**: organic agriculture productivity, food, sustainability, cost.

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Most affected are the products of farming, which is daily food for all ($ 7.5 billion) inhabitants of Earth. Contaminated foods create serious health problems for people fighting humanity spends huge sums, sometimes without results or poor results. Evolution of the population of Earth is an upward and experts say that the maximum variation in the 2050 Earth and there will be 11.1 billion people Earth's population in 2150 will include 12.4 billion people (UN estimates 1988). Rapid growth of population pressure on Earth will put great pressure on agriculture, which should ensure a level of quality food, at least 300-400 kg feed / person / year. Is this possible with current agricultural technology and organic products are an alternative?

In general we can define human activity as against the normal natural order and replacing it with a " new order " considered man as rational and necessary. Let us recall that from the beginning of human life exclusively in the natural environment being employed in the food chains of natural systems. Feed used in the initial phase which gives man the fruits, different plants and some small animals they could hunt. Later it was discovered that allowed the fire to expand human habitat through small forest fires and building and various primitive weapons man becomes a hunter and thus begin to consume more over other animal species. Then become tame animals and shepherds which requires large areas of grassland that obtained at the expense of forests thereby interfering environment sweeping away some medium-sized animals such as the cave bear woolly rhinoceros and mammoths .

## MATERIAL AND METHOD

This research aims to investigate whether organic products could be an alternative to industrial agriculture currently practiced where soil chemical

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processing and mechanization plays an important role.

We started from the premise that the Earth's surface the surface area available for agriculture and pasture worldwide using modern agriculture where water demand plays a crucial role can provide resources and food industry an ever-growing global population while the pollution increases temperature increases in the greenhouse effect, deforestation is emphasized, and every year thousands of hectares of agricultural land to urban move to satisfy the ever-expanding urban need. Potential maximum productivity per hectare has been achieved now in decline and the need for food for the world population is steadily growing global demand far outstripping supply.

Agriculture is at a crossroads and innovative solutions fail to appear. In these uncertain conditions lately across more farmland is organic farming which contributes to improving the health of people. Is this a solution for the future and can be practiced on a global scale?

Organic farming is less productive, organic products are more expensive and they would restrict the volume much. Due to the high price organic products are produced "exclusive" accessible only to those with high incomes. To these must be added that organic farming produces pollution, but within acceptable limits.

The solution is simultaneously practicing modern agriculture and partly - experimental farming until scientific research will be able to make farming as productive and cheap.

For this study we used the literature on agriculture and organic farming, European and national legislation governing organic production materials of national and international conferences direct talks discussions with managers of green. We also studied the available materials used by the United Nations FAO EU agricultural policy consumer opinions organic products.

The results are presented as graphs charts formulas interpretations.

## RESULTS AND DISCUSSION

Agriculture is the branch of industry which has the task of ensuring the daily food of the 7.5 billion people on Earth as there currently and alarming trends in the future. Earth's population increases every year by about 80 million people making the task more difficult in the future of agriculture.

To these are added to reduce future water resources vital to the development of agriculture, if we consider that for a kg of grain consumed 10.000 liters of water.

For this reason and still others facing modern man not only less food but also offer quality food products inferior poor nutrient substances harmful to health, excess saturated fats artificial colors taste enhancers and flavors with different preservatives chemical residues from the production to the processing of food products such as nitrogen, mercury lead iron etc.

Have to mention the waste of elements derived from the production-consumption chain end, which according to the FAO report generally amounts to over 30% of the finished food.

In these difficult conditions for providing food agriculture needs to increase global production by 70% by 2050 to ensure food needs of the approximately 9 million people very difficult target to achieve.

In southern geographic areas of the planet hunger is present and affects over 600 million people (Haiti Malaysia the sub Saharan Africa etc).

The agricultural sector has developed into an approximately constant over the past 1000 years managed to cover global demand but currently cereals agriculture broke the natural environment. A threat to agricultural production is the increase in global temperature, which in recent years has increased by 0.60 C and in future it will vary greatly.

In order to grow the plants normally require an optimum temperature, which variation does not exceed the range of from 1ºC to 2ºC during the growing season. Exceeding these limits of variation in temperature can reduce or even stop photosynthesis negatively influences pollination destabilizing global agricultural production.

Specialists from Ohio University in the U.S. have found that up to 20ºC photosynthesis between 20ºC and 35ºC grow plants photo synthesis remains constant over 40ºC photosynthesis stops. The most vulnerable period of development of any plant, is the pollination, the most vulnerable being corn which to reproduce pollen must fall on threads of silk at the end of the ear because it is attached to a kernel cob the pollen grain must reach the kernel for it to develop.

If the temperatures are higher, and dried corn silk is no longer fulfill its role in the fertilization and harvest of corn is compromised.

Low temperatures lead to dehydration plant stomata on leaves close behind to save water consumption of carbon dioxide in the atmosphere is reduced and the plant (corn) enters the heat shock. We presented these few prerequisites to demonstrate how vulnerable agricultural production to climate change is occurring worldwide particularly by increasing temperature due to the greenhouse effect.

All these external pressures exerted on order agricultural system as a reduction in world agricultural production, food insecurity that could jeopardize the future of humanity. In these extremely difficult conditions the increasing

development of ecological food products as an alternative?

With the dawn of agriculture about 10.000 years ago, there is a significant shift in human evolution: the shift from a predominantly living in natural surroundings rural life and appear villages. Mesopotamia is the one who laid the foundation of agriculture. During this period developed language which facilitated communication between people appeared transmitting experience and knowledge of agriculture and thus appears kind of anticipatory thinking.

Later there is a shift-type human life in the urban areas must be kept until today of course with superior shape and modes of social organization and a state type. And agriculture has evolved. It benefits from mechanization chemical treatment irrigation scientific research and so on which increased three times the productivity per hectare to around 1970 followed by stagnation and even decline creating great problems to the agricultural population and the industry.

The use of fossil fuels especially coal led to the release of carbon dioxide, which is the origin of the pollution in the modern era. But pollution is not only responsible for coal.

According to the law of entropy it is considered that any use of energy beyond 7000 – 10.000 calories / day / human individual inevitably leads to pollution. Plant man their natural resources to satisfy in different ways by biologic and economic needs. Natural resources are considered as resources of life used as a substance or energy contributes to existence all living systems existing in nature.

Earth's natural resources cannot meet the demand global economy whose growth rate exceeds the regeneration of the Earth which currently exceeds 25% power to support the Earth's present civilization anticipating indirect decline unless urgent action is taken to balance between supply and demand Earth expanding global economy.

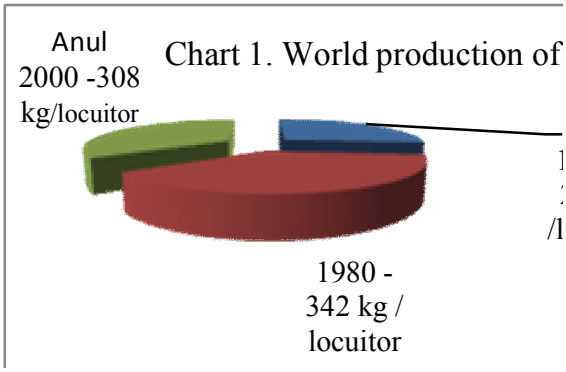
Appealing to history remember that powerful civilizations of the past have disappeared when they lacked food resources. Thus Sumerian civilization appeared about eight millennia BC, the most advanced at the time, giving the first news of the world, creating the world's first written language (cuneiform writing) have developed agriculture based on dams on the Euphrates (Iraq today ) and when they have not worked, there was a layer of salt in the agricultural areas agricultural production was drastically reduced there was famine and internal armed conflicts combined with other external causes finally led to the disappearance of the Sumerian civilization.

Later and mayan civilization that reached its peak between 317-987 d. Hr was based on farming based on irrigation and when the system has not worked mayan civilization appeared famine and remained only in the history books.

These two examples lead us to the idea that the greatest threat to human civilization is the scenario of a drastic decline in world agricultural production due to various causes.

Experts estimated that only 10% of Earth's surface is used for agriculture: 40% for pasture the rest being covered by forests or areas that are not favorable for agriculture. Archaeologists us that due to human activity not only from the beginning of life on Earth there have been five mass extinctions and now we are at the beginning of the sixth extinction due to human activity which destroys a part of life on earth and at the same time they disappear and some features of nature such as pollination transport various seeds nutrient recycling, biodiversity loss irreversibly altering the Earth's ecosystem and ultimately will have the same destiny unhappy man.

If we chart the growth of world cereal production in the period 1950 - 2000 the figures are not likely to settle.




Source: Matei,Gherman,C,2014, p.240.

We must also keep in mind that over the centuries the global surface was covered with a relatively thin topsoil of 16 cm of soil which are essential elements to support the development of human civilization until the twentieth century which has increased or developed plants protect the soil from erosion and to feed external factors of an ever-growing global population.

Lack of food can trigger devastating conflict between nations, especially in those countries where per capita income is low.

Researchers have shown that a GDP less than $ 250 per capita the potential for conflict is greater than 15% to GDP over $ 1,000 / capita, the likelihood of outbreaks of conflicts is reduced significantly to a GDP of $ 5.000 / capita probability of conflict falls below 1%. These

figures come to confirm what studies show that especially in countries of the Global South, food is not lacking, but the funds (money) to buy food is hunger.

In 1995, the global population of 5.7 billion people to feed every inhabitant support incumbent 0.26 hectares 3.8 persons per hectare of arable land with small differences from one country to another.

The situation becomes dramatic in the year 2100, when Earth's population at the current rate of growth will double every person will return 0.13 ha provided that the current agricultural area to maintain constant.

There are problems that make waiting period in making a response to cease. Otherwise, population, natural gas liquids and also will migrate to lower density areas, accounting for the massive population migrations in search of food and water with violent impact on the natives creating bloody conflict for survival. This huge mass apparently is about to move as says geneticist Norman Burlang winner of the Nobel Peace Prize in 1970.

Organic production has been defined European Union only in 1993, where they were set rules on organic production: processing, certification testing, labeling import and export of organic products. We have introduced incentives to organic production, which increased the amount of land on which organic farming, so that in 2005: 4% of the EU's agricultural production is destined for organic farming.

More recently the market demands more and more food products produced in the natural system the so - called organic natural and healthy environment more favorable culture in complex and beautiful landscapes. Buyers say this type of wealthy organic products although prices three times higher than other food products.

Organic farming is a response to consumer confidence in our food safety measures and the occurrence of disease by eating products containing banned additives or pollutants.

These products bear nuisance arose with the use of technology for intensive agriculture - industrial soil using super fertilization using growth regulators. Today organic farming uses clean technologies, clean, without synthetic chemicals.

Emergence of organic farming has been driven by three factors:

1. appearance over agricultural production in developed countries since 1980;
2. agricultural underproduction in developing countries;
3. environmental impact on agriculture.

Worldwide, about 31 million hectares are used for organic production. In Romania, organic farming is practiced on 3% of the agricultural area, growing from year to year. Genetically modified organisms and their derivatives are prohibited in agricultural production and organic food. Energy in agricultural technology and unconverted stream in agricultural products is converted to environmental risks.

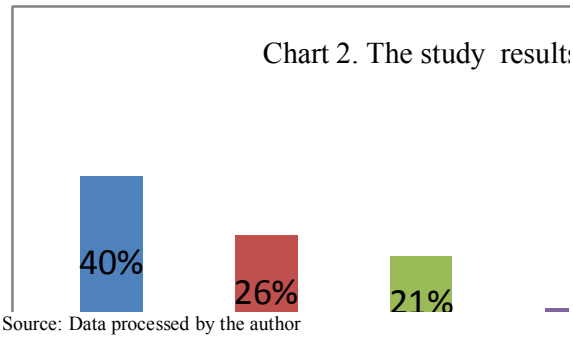
Do not understand that organic farming means "return to nature the savage nature " but it involves complex technologies cleaner but more expensive harder to implement and control, monitored and promoted by detergents technical and marketing methods. The products are more expensive and in limited quantities have satisfied the demand for organic agricultural products market, but to preserve human health and the environment, it is worth a higher price.

These products are healthy, clean, and do not contain toxic pollutants (nitrates, nitrites, pesticides, heavy metals, etc.) And products they can become "green", "natural" or "green" products.

A disadvantage of organic production is that the first 2-3 years the production level is low within the period of conversion to intensive agricultural production and environmental. The landscape is attractive and recreational green companies especially for locals attracting a large number of tourists due to biodiversity ecological crop harmonious combination of forests fauna and flora of domestic generating feelings of naturalness and tranquility.

The conversion period lasts 2-5 years but not more than one cycle of rotation and it must include the time necessary transition from intensive farming to organic so the land animals crops and crop production takes specific qualities greener the year "zero" and to obtain authorization for accreditation and certification of production concerned.

A study of consumers of organic food highlights:




Source: Data processed by the author

- 40% have considered their own health care (PS);
- 26% to consider the naturalness of the products (N);
- 21% considered the great taste of organic products (G);
- 9% were considered protection (PM);
- 4% had no concerns to consume organic products (NCPE).

It is observed from the graph that the main motivation of consumers of organic products is care for their own health.

Table 1

**Global organic farmland by category of use**

| Use categories | Area - ha |
|---|---|
| Permanent pasture | 19.939.595 |
| Surfaces arable | 4.156.754 |
| Permanent crops | 1.393.595 |
| Other cultures | 1.550.272 |
| Other categories | 289.379 |
| No data | 3.228.387 |
| **Total** | 30.557.982 |

Source:SOEL-FiBl Survey, 2007.

And agriculture in the organic farms pollute the air, but insignificantly lower and practically acceptable. It occurs due to loss of greenhouse gases such as $CO_2$, $NO_2$, $SO_2$ and ammonia derived from animal shelters the manure produced by it during handling storage or land application composting station and household activities and in minimum loss of soluble substances - nitrogen phosphorus potassium and calcium salts - in surface water and groundwater.

Research in the USA, Germany, France, Austria, shows that pollution caused by environmental firms are below the limits allowed by law. Compared to conventional farms these values are usually higher than the allowable limit.

The price of food products in Romania is still high, share of food expenditure of a person in 2008 is 31.5% compared to 16% as was the european average although Romania is the sixth EU country with an agricultural area that is 7.7% of the European Union.

Romania has a number of about 3.931 million agricultural holdings, being in this respect ranked last in the European Union with the largest share of employment in agriculture where the European average is 5.4% and on the value of agricultural production in the last place we stand.

With regard to some aspects of food problems of the future, the Institute of Planetary U.S. Politics says that the planet "puffy under the weight of over 7 billion earthlings, drained of resources and power" (Dr. Lestes Brown, Speech at reception receiving the honorary member of the Romanian Academy, 2010). Therapeutic cure for the disease has not yet discovered the earth, the seasons have gone bad, the air temperature rises due to global warming, the pool of fresh water is running out, the soil is invaded chemicalization amounts of forest were cleared in space is weapons are ready to destroy mankind.

Because of this concern is the need to each nation and therefore agriculture. Referring to Romania, we must show that the country had 14.4 million ha land of which about 9.5 ha land. This area was reduced to about 7.8 to 8 mil. ha by the entrance of the urban areas.

Food for the overall population (H) is a function of:

$$H = f\left(Sa, Cl, A, T\right) \approx optim$$

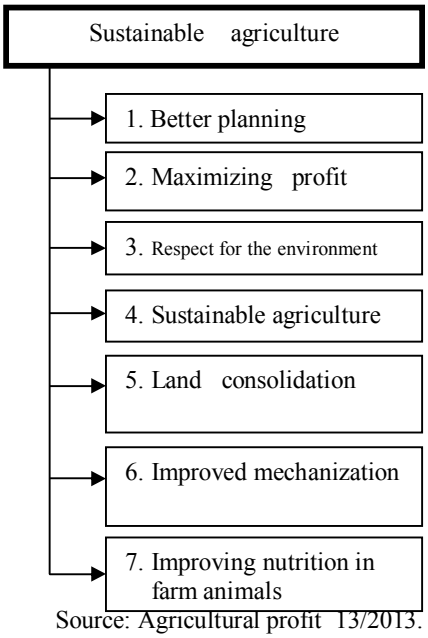
Where: Sa - agricultural area,
Cl - climate, water-, T-temperature

For obtaining optimum all four variables should be about the average value. Organic farm and environmental activities in the household is that organic production closed circuit, circuit we have to give warranty on the product's traditional character ecological insurance from raw material source, processing them according to rules specific and original recipes, marking products marketing, all these activities must ensure the security and authenticity of origin.

In this way may be excluded agricultural market counterfeiters organic products and thus the

way these products from the manufacturer to the seller is long and difficult, reason enough to unite these manufacturers as they did their ancestors guild reputation after interests they had.

Counterfeiters take advantage of organic products too permissive legislation of Romania should provide that the said product traditionally been produced to prove that the recipes of the region of origin. For sustainable agriculture have acted in seven areas:




Source: Agricultural profit 13/2013.

**Figure 1 Directions of action for sustainableorganic farming**

Organic products and traditional is a niche for people with money who can afford to pay more and want to be sure that they eat healthy, but do not think this is the model to solve the problem or future national and global nutrition.

It should be noted however that genetic engineering insist on the creation of varieties and hybrids resistant to pests and diseases specific laboratory methods using biotechnology leading to increased agricultural production.

Worryingly, that in Romania there are still three million hectares unworkable, four million are exploited superficial and ineffective. Currently, in Romania national policymakers do not pay enough attention to land, agriculture and farmer. AGML League calls for better strategies to lead Romania to ensure food safety, to participate in a real way to support food supply at least 80 million people, as much as the real potential of Romanian agriculture (www. agroinfo,8 februarie 2013). However measures taken by policy makers are far from changing anything on the market. Are expected measures to a greater requirement in how some companies get approval to sell organic products.

In other countries every inch of land is cultivated. Joking with the words of the great humorists and grace, today is no longer a servant of two masters, but three four master to servant. Whenever humor can be turned into its opposite. And when?

## CONCLUSIONS

Work and natural shapes its course of evolution via their life cycle - death. Fanciful speculation about other unrelated evolution scenarios and concrete harsh reality in which we live and evolve.

The current organization of the global economy is not sustainable, its requirements go far beyond the earth's resources can provide.

World agricultural production is to limit its growth, which requires new investments in technology and agricultural research to ensure global food needs of a growing population that seems uncontrollable.

Increased pollution of the environment by human activity, massive deforestation of forests, glaciers due to global warming, occupying large areas of land for ecological agriculture whose products are accessible only to a small niche of the population, and others, emphasizes food insecurity globally with unpredictable consequences for the future of humanity.

The current form of human society seems unable to find adequate responses to the challenges of the future, which is why it must innovate. Organic and traditional agricultural products, however, are for people with high incomes who can afford to pay large amounts for a healthy diet, but it is not a solution to the problem of national and global nutrition.

## REFERENCES

**Berca M.**, **1998** - *Strategii pentru protecţia mediului şi gestiunea resurselor*, Editura Grand, Bucureşti.

**Brown L.R.**, **1996** - *Probleme globale ale omenirii, Starea lumii,* Editura Tehnica, Bucuresti.

**Brezuleanu S., 2005** - *Management agricol - teorie şi practică*, Editura Performantica, Iaşi.

**Canton J., 2010 -** *Provocările viitorului*, Editura Polirom,Iaşi.

**Câltan I.L., Constantinescu G.D., 2010** - *Impactul reziduurilor tehnologice asupra poluării*. În: Lucrarile Simpozionului ştiinţific internaţional „Mediul şi cooperarea transfrontaliera TransEco", Suceava.

**Chiran A., Dima F.M., Gându E., 2007** - *Marketing în Agricultură,* Editura Alma Print, Galaţi.

**Csorba L.M., 2010** - *Strategia forţelor de vânzare în marketingul produselor agro-silvice*, Revista de comerţ, nr.2, Bucureşti.

**Dumitru C., 2004 -** *O abordare strategică***,** Editura Tehnopress, Iaşi.

**Florea C.G., Horaicu C., 2010** - *Protecția Mediului în Uniunea Europeană*, Editura Tipo Moldova, Iaşi.

**Gându E., 2006** - *Marketing-organizare, strategii, decizii, comportamentul consumatorilor*, Editura Tehnopress,Iaşi.

**Ionescu A.,1997** - *Ecologie şi agricultură*, în „Probleme ale agriculturii contemporane",Editura Ceres, Bucureşti.

**Ladislau F., 2009** - *Ecologia secolului XXI-lea,* Editura Ecological University Press,Piteşti.

**Luca P.G., Bacali L., 2003** - *Managementul Marketinguui Ecologic*, Editura „Gh.Asachi",Iaşi.

**Matei Gherman C., 2014** - *Agroturismul şi Insecuritatea Alimentară, O Amenințare La Nivel Global,* în volumul Cercetarea Motor al Dezvoltării, Editura PIM,Iaşi.

**Matei Gherman C., 2013** - *Marketing agroalimentar*, Editura PIM, Iaşi.

**Nistreanu V., Nistreanu G., Dumitran L.C., 1999** - *Elemente de ecologie*, Editura Bren, Bucuresti.

**Matei V., Matei Gherman C., 2013 -** *Marketingul, agricultura ecologică şi principiile sale în Euroregiunea Siret-Prut-Nistru***,** în volumul Rolul Euroregiunilor în Dezvoltarea Durabilă în Contextul Crizei Mondiale, Exemplu Euroregiunea Siret-Prut-Nistru, Tehnopress, Iaşi.

**Matei V., 2012** - *Tendințe şi particularități în distribuirea produselor agroalimentare***,** IEFS, Chişinău, Republica Moldova.

**Pădureanu S., 2011** - *Poluarea mediului şi ocrotirea naturii*, Editura Tehnopress, Iaşi.

**Parpală, O., 1995** - *Economia agriculturii sau Politica agrară la români***,** Agroprint Bucureşti.

**Rusu T., Albert I., Bodiş A., 2005** - *Metode şi tehnici de producție în agricultura ecologică* (ecotehnica), Editura Risoprint, Cluj-Napoca.

**Săvoiu G., Ghereş M., 2010** - *Economia mediului. Tratat*, Editura Universitară, Bucureşti.

**Zaharia M. S., 2010** - *Structura fermelor ecologice*, Editura „Ion Ionescu de la Brad" ,Iaşi.