Gastronomic Sciences: Slow Food Revolution versus Gene Revolution

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Abstract

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1. Introduction

The present world agrofood system is a complex set of economic activities, exchanges, human behaviours, that definitely affects the life conditions of the planet and of its inhabitants. Today the agrofood production is strictly connected to the main questions put on the agenda of the big international institutions: Uno, Wto among the others. The agrofood system causes international strains between allied countries too, such as USA and UE, and at the same time popular riots in quite steady nations like Egypt in April 2008 (Gamal, 2008).

Due to its world spread and its political implications, the agrofood system has been the target of many actions to deeply weigh on the production and consumption of food, sustained by governments and involved companies. For example the second half of the XX century was characterised by the so-called Green revolution especially in Asia and Latin America (Gaud, 1968), which together with some advantages such as the increase of productivity, caused heavy consequences. In fact the higher usage of inputs derived or dependent by oil (fertilizers, pests, fuels for machineries), the choice of concentrating the productions on a few plants especially to feed animals, caused damages to environment, biodiversity, economic survival of small farmers etc.

On the end of the XX century, another revolution burst on the scene, daughter of the previous one, but perhaps more insidious: the so-called Gene Revolution, which would like to upset the agrofood system by the genetic engineering. New seeds, a different supply chain management in favour of the patentees, no precaution principles considered, seem to be the hinges of this revolution.

Maybe the world doesn’t need other revolutions, but it needs a re-evolution, that is an evolution with other principles. In this short contribute I would like to define it as Slow Food Revolution, an incorrect expression, but borrowed from the title of a book on the Slow Food Movement. This expression in this short paper comprises a set of realities, as the organic agriculture movements, the farmers’ markets, the Amap (in France), the CSA (in USA) etc. and has as least common denominator a LESS vision of the agrofood system. LESS vision means less inputs, less waste etc. In this vision the Slow Food revolution is connected with the theme of the economic degrowth; think about the agrofood system only in terms of productivism (we can call it a MORE vision) appears unsustainable for

the environment, unequal for the society and also not attractive from a sensory point of view (Schneider, 2006).

2. Gastronomic sciences and degrowth

At the beginning of the third millennium, according to the western calculation of time, in an age of transition, the gastronomic sciences were born or better develop, giving a multidisciplinary approach, partly humanistic and partly scientific indeed, on the agrofood system. In 2005 the first University in the world devoted to Gastronomic Sciences was born in Pollenzo (North of Italy) thanks to the fundamental contribution of the Slow Food Movement, in the meantime other prestigious Universities activated courses focused on agrofood system in a multidisciplinary way: degree in Agroecology as in Berkeley or ecogastronomy in New Hampshire. In reality the role of the gastronomie has a long history, if we think that in the XIX century Auguste Antelme Brillat Savarin wrote “The physiology of taste”. But the time for the attribution of scientific dignity to the interest on food was far, so that we will wait until 2005 for the birth of the first degree in Gastronomic Sciences as I wrote before. I would like to rely on that famous ancestor with two quotes (Brillat Savarin, 2000): the first one is “Animals feed, men eat. Only men of distinction know how to eat (the art of eating)”; while the second is the following: “The destiny of nations depends on the manner wherein they take their food”. I don’t know how much consciously, but with this two references Brillat Savarin put the bases for a modern approach to the agrofood system. On one hand there is a private dimension, which deals with the consumption, the behaviours of purchase, the choices, the life styles, preferences etc.; on the other hand there is another dimension, the social one, that is national or international, that deals with the agricultural and food policies of the governments and of the international institutions, with the global connections, the concept of welfare and wellbeing etc. Today these two dimensions are strictly connected; today in a globalized world the consequences of the mistakes have a global impact: “Does the Flap of a Butterfly’s Wings in Brazil set off a Tornado in Texas?” the meteorologist Edward Lorenz wondered.

The commodities price soaring, the pollution increase, the food scarcity for an increasing number of people, are all problems, questioning everybody, no one excluded. The Gastronomic sciences deliver this message, that nobody can avoid to consider these problems and offer a new point of view, using scientific tools, but also using the humanistic thought; then the gastronomic sciences don’t despise the material knowledge of the producers, of the farmers, because as Wendell Berry claims “eating is an agricultural act” (Berry, 1990).

The Gastronomic Sciences offer a vision of the agrofood system with three key words: good, clean and fair. Each word refers to fundamental concepts, which are the quality (good) meant mainly as sensory quality, that contributes to the human happiness, the environmental sustainability (clean) and the social equity (fair). On the base of these reasoning, I would like to claim that the trait d’union between gastronomic sciences and degrowth is made of two main parts. The first one is that the three key words of the
gastronomic sciences join with the concept *in se* of degrowth, explained by the title of this conference. Both gastronomes and degrowth scholars think about the world in terms of happiness for men and women, sustainability for the environment and equity for the society. We could say that other approaches have the same aims, but the strategies to achieve them could be very different. And this is the second part of the *trait d’union*: the strategies to achieve the objects are LESS strategies, instead of MORE strategies (Schneider, 2006). As I explained in the introduction and as I will explain in the following paragraphs, Less (or More) is referred to the decreasing (or the increasing) of negative externalities or negative inputs in the agrofood production.

I would like to describe briefly the object of our study, the agrofood system and then present an example of More strategy, the Gene Revolution and one of Less strategy, the Slow Food Revolution.

3. The Agrofood system

The first scholars that considered the various steps of the agrofood production as one unique system were Davis and Goldberg in 1944 with the famous book “A concept of agribusiness” where they defined the Primary Agribusiness Trianggreate as a set of the three activities, Farm supplies, Farming, Food Processing and Distribution. In Europe the concept of “filiere” (supply chain) introduced by Malassis (1979) is more common and introduces also the consumer as an active player. A huge set of analysis has enriched more and more the frame, adding the territory factor in the agrofood system, especially in the works of Mediterranean economists (Italy first) until the re-introduction of the concept of Marshallian industrial district, retrieved first by Becattini (1987) and then in the agrofood field by Jacoponi (1990) and other scholars (Cecchi et al., 1992; Saraceno, 1992; Brunori 1999; Pacciani, 2003, among the others).

After the Trianggreate of Davis and Goldberg, the agrofood system developed following the changes in the life style of consumers, in their habits and in their purchase behaviours. In fact nowadays in the developed countries, it’s impossible to talk about agrofood system without quoting the ho.re.ca. sector (hotel, restaurant and catering). The number of outdoor meals is increasing more and more. Nomisma, an Italian Research institute claims that almost 61 billion of outdoor meals are consumed in one year. Another aspect is that the tourism, according to the Wto forecast is going to be the first world industry in 2050. We can observe that this forecast probably don’t care about the peak oil or the terrorism, but anyway it’s clear that a discussion on food can’t forget the outdoor consumption.

In the agrofood system drawn above, two are the weak points. The first one is farming, or better the farmers, which are price-takers, that is they undergo the market price. Usually they undergo the decisions of food processing industry or the distribution, which, thanks to the bug size of the companies, can impose the price taking in no consideration the agricultural costs of production. The second one weak point are the consumers, which are goods takers, because they can’t totally wield their power: they can accept what retailers (not very often) or distribution (more often) supply. Their power of choice is narrowed behind the supply of goods made by retailers and distribution.

The Slow Food Revolution aim is to build an alliance between farmers and consumers, considering them as a new economic player, the co-producer, creating favoured relationships between the world of production and the world of consumption, in order to determine on one hand an improvement in the farmers’ incomes and on the other hand an improvement of the sensory or environmental or ethical characteristics of the food for the consumers. In the following paragraphs I will try to explain how this alliance between producers and consumers, keystone of the Slow Food Revolution, can positively affect the agrofood system and vice versa how the Gene Revolution can cause heavy consequences.

4. MORE Strategy: the Gene Revolution. Some figures to think about it.

Usually, when people talk about Gene Revolution, we are in presence of a real ideological fight between people in favour and people opposed (Lockie, 2006). In this paragraph of my contribute I will try to explain the motivations that support my critic position on Gene Revolution. At this moment the main commercially available kind of GM plants are two: the RR plants and the Bt plants. The RoundUp Ready® plants (soybean for example) are produced to increase the tolerance of the herbicide RoundUp produced by Monsanto. The Bt plants were thought to produce in the behind a toxin usually produced by the *Bacillus thuringiensis*. There is a third kind of GM plant, the so-called second generation GM plants, like the Golden Rice, set to produce β carotene, the pro-vitamin A. This is an example of what is called nutraceutical, because it gathers up food characteristics with pharmacologic characteristics. Specifically, the lack of pro-vitamin A is a cause of eyes diseases and also blindness. Unfortunately the problem is that one should eat at least 10 kilograms of Golden rice to intake enough pro-vitamin A to prevent the arise of eyes diseases. Vandana Shiva claimed that adding curry to traditional rice you get a bigger amount of pro-vitamin A rather than eating Golden Rice (Shiva, 2004).

**Productivity**

Usually it’s said that the use of genetic engineering in agriculture would be useful to increase the productivity and consequentially it would be useful to reduce world starvation. The increase of productivity is a sort of prerequisite to start every discussion on Gm plants. But as Charles Benbrook claims (2004) “no genetically modified plant in USA was modified to increase the productive potential”. He underlined that Bt soybean in USA shows lower yield with a decrease of 4-8% in respect of traditional plants and that in general the increases of Gm plants are almost negligible. Other studies confirmed what, until some months ago, seemed only a rumour without scientific bases, for GM plants in general (Fernandez-Cornejo, J. and Caswell, 2006), for RR soybean (Gordon, 2007, Elmore et al, 2001) and for Bt maize (Ma & Subedi, 2005). So the prerequisite is not so strong as it seems. But let’s talk about the consequences on environment, society and humans.
Environment

Some studies (Benbrook, 2004) showed how more treatments fall on some GM plants (RR soybean for example) in respect of conventional plants, therefore the environment has no benefit. The fact that RR soybean is tolerant to the herbicide Roundup produced by Monsanto induces the farmers to exceed in the herbicide treatments. In the case of maize Bt there are other problems, with the so-called non-target species. Bt plants produce a toxin, that is poisoning for insects; the pollen is able to kill for example the European corn borer, the maize pest, but a research demonstrated that the pollen can hit other species too, the not target one, as the monarch butterfly (Losey, 1999). The biologic hazard is not impossible, and we don’t know at the moment what consequences could occur in the ecosystem; not for chance Usa, the Department of agriculture of United States, considers Bt maize as a pesticide and not as plant and so people find on the table a pesticide or animals fed with pesticides. Last, the introduction of Bt plants could induce resistances in insects, damaging all the plants not only the Bt plants.

At the end of this subparagraph I can claim that these are the first motivations why I consider the Gene Revolution a “More” strategy for the agrofood system, because it’s clear that we have MORE pollution and MORE ecological risks, without the certainty of a higher production.

Society

In the Gene Revolution social consequences are present too. Without forgetting the results of the Green Revolution in developing countries, such as the increase of productivity, I would like to remember that both Green and Gene Revolution cause an increase in the farmers exchanges, because in the case of Green Revolution it should be considered the purchase of fertilizer, herbicides and pesticides, machineries, fuel etc. in the case of Gene Revolution it should be considered the purchase of the seeds, protected by patents. In both cases the farmers run the risk of getting into debt. On one hand it means that only farm with more than 6 ha can survive, on the other hand it undermines the stability of farmers, uploading them with debts not even solved. Farmers’ suicides are not infrequent in developing countries and it’s not for chance that the idea of micro credit took root in a rural country such as Bangladesh, thanks to the activity of Muhammad Yunus and his Grameen Bank (Yunus, 2003); but micro lending can’t cover the big exchanges for the industrialized agriculture inputs.

For these reasons I can claim that the Gene Revolution cause MORE social inequity, MORE marginalization of small farmers.

Human happiness and wellbeing (sensory quality of food)

The GM seeds commercially available are mainly maize, soybean, canola and cotton. They are commodities, with a low level of biodiversity. In reality if we think about maize, Mexico, the area from whom the maize comes, exist at least 100 corn varieties, threaten by the coming of just one variety of GM maize (Fitting, 2006). Also the 160 potatoes varieties of Latin American could be threatened, without considering India and China, which are a huge repository of world biodiversity (Kala et al., 2006). The productivistic agriculture, and the Gene Revolution too, consider as weed what is a source of medicinal principles and oligoelements useful for metabolism of local populations (Shiva, 2004). The case of Golden Rice in India, showed above, is quite helpful to understand which is this approach in respect of the delicate balance of food intake for local populations. The standardization of plants is a loss for the environment (Altieri, 1999), but the standardization of food is a loss for human happiness and wellbeing; the food is standardized when it’s supplied in many different markets for different people; it’s the same food in all the world (Cantarello, 2004): it’s food without particular smell or taste not to be rejected by anybody. This kind of perspective finds some opposition in the geographical indications, especially in Europe, which were born to safeguard the biodiversity and the origin of food. Food is not the same everywhere seems to claim European Union with the Regulations on geographical indications (CE, 510/2006 is the last one of a set started in 1992).

The Gene Revolution is synonymous indeed of MORE plant and food standardization.

5. Less strategy: the Slow Food Revolution. Some examples

Now I would like to explain some aspects of the so-called Slow Food Revolution, in terms of human happiness, social equity and sustainability for environment.

Human happiness and wellbeing

The sensory quality is a concept strictly connected with the happiness. Happiness and economy have a complex relationship, so that scholars talk about “the happiness paradox”, that is a non-linear ratio between economic growth (for example Gnp) and subjective wellbeing (Easterlin, 1974 and 2001). The relationship between economic growth and happiness provoked a huge debate, which involved for instance Daniel Kahneman, who was awarded Nobel Prize in Economic Sciences in 2002.

Talking about food we can claim that the sensory quality doesn’t increase proportionally together with the income, because at a certain time people start to consume other kind of goods such as expensive cars, travels etc. Paying more to eat a better food (not for a bigger amount of food!) is not a priority of our society. Usually we pay more for convenience in food instead of sensory quality: the technologic content of food increases (fresh-cut vegetables, for instance) but not the sensory quality. In this sense the effort of Slow Food Movement to safeguard local food, with local breed and varieties, traditional methods of production, gets two important results. The first one is to protect good food threaten by the modernity of productivistic agriculture; the second one is to protect the biodiversity and indeed the environment. These products are called Slow Food Presidia and have an economic role in keeping some marginal rural areas alive (Antonioli Corigliano et al., 2002). Slow Food Presidia are 200 products in all over the world: guarantying the survival of plants and animals means in some cases to avoid destruction, but also in other cases to restart the use for economic purpose. Red and white cows in Val Padana in
Italy were extinguish themselves because they were substituting more and more by Frisian cows in the Parmigiano Reggiano cheese productions. Now the survival is guaranteed. The same happens with plants or artisan food. This is the reason why we can say that the Slow Food Revolution is a vision with LESS food standardization.

Social Equity

As we said before, farmers and consumers are the weak point of the agrofood system. To get them closer, to build connections it’s possible to make the supply chain short, to make the place where food is produced closer to the place where food is consumed or at least where is bought. A very good example of this aspect is the farmers’ market, a place where food producers sell their own products. The short supply chain give advantages both to producers and consumers: the producers can get higher incomes, because he jumps all the distribution, retailers steps and the consumers can buy fresh food at a reasonable price. In the United States in twelve years the number of operating farmers markets starting form 1.755 in 1994 has arrived to 4.385 in 2006, with an increase of 18.32 % (Usda, 2007). The same happens with the raw milk vending machines in Italy. Farmers put the raw milk, filtered and refrigerated, in the vending machine every morning and they can sell milk at higher price instead of selling to the milk processing industry. And the consumers can drink a very good product rich in oligoelements and vitamins that are lost during the pasteurization process. Then the price is lower than milk price at the supermarket. Raw milk vending machines can be positioned in crowded places like Stazione Centrale of Milan or Piazza Sordello in Mantova or directly in the farm as it happens in many others small villages. Nowadays raw milk vending machines in Italy are more than 600.

Together with the economic aspects, make the supply chain shorter means also to reduce the packaging and to reduce the food miles, that is less pollution and less consumption of fossil fuels. Other examples of short supply chain are of course all the set of movements, which try to build relationships between consumers and producers: CSA in USA, AMAP in France and obviously the tei-key movement in Japan. The consumers engage in buying products in a certain farm and farmers engage in producing in a certain way (organic for example). The local dimension of the exchange contributes to build a sustainable economy (Curtis, 2003).

At the end of this paragraph we can say that the Slow Food revolution propose Less marginalization for farmers and less social inequity.

Environment

As we said before, the short supply chain has positive implications for environment. I would like to take another example of the sustainability of short supply chain. Restaurants, which are getting more and more important in the present agrofood system, due to increasing number of outdoor meals, can adopt strategies to make the supply chain shorter. Coldiretti, an Italian farmer trade union, together with some restaurant owners, worked out a project called “Menù a chilometro zero” (zero kilometres menus) to sustain local and seasonable consumption. A “zero kilometres menu” provides food that is local and seasonable, to reduce food miles and fuels for green houses.

Other restaurants in other parts of the worlds are working out similar strategies of eco-cooking, with attention to energy consumption, the recycling of waste, the water use, environmentally friend materials and the supplier management. A good example is Bordeaux Quay in Bristol (UK).

I don’t want to forget the organic agriculture movement (Ifam, Soil Association etc.), because it’s a perfect example of LESS strategy: less input in agriculture, less oil consumption, less air and soil pollution. The demand is increasing and it’s good news also for extra food commodities as cotton. Organic agriculture has an economic consequence too. Using less inputs, farmers have less exchanges and so they have less problems in borrowing money especially in those country with worst bank systems with difficulties in finding money at a good interest rate.

Also in the case of environment the Slow Food Revolution proposes a LESS strategy: less pollution, less fuel consumption, less waste.

6. Conclusions

The present agrofood system is not able to supply good food for everybody, assuring sustainability for environment and social equity for people. Someone claims that the Gene Revolution, a MORE strategy, can change the agrofood system to improve this situation. But there are other perspectives. The Gastronomic sciences approach, with the three key words good, clean and fair, propose the Slow Food Revolution, a LESS strategy.

Increasing the awareness of consumers and producers, in a bottom-up approach, could be a right way to achieve the aim of the Gastronomic Sciences, which is in common with the degrowth theory: happiness for men and women, sustainability for environment and social equity.

Sitography

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