



EVERY FARM COUNTS

The text 'EVERY FARM COUNTS' is rendered in large, bold, yellow-to-green gradient letters with white outlines. The word 'EVERY' is on the top line, 'FARM' is on the middle line, and 'COUNTS' is on the bottom line. Various farm-related icons are integrated into the letters: a cow in the 'E' of 'EVERY', a sun in the 'Y', a tractor in the 'R' of 'FARM', a house in the 'A', a tree in the 'R', a house in the 'M', a tree in the 'C' of 'COUNTS', and a pig in the 'S'. The background is a solid green color.

**WHY WE NEED TO KEEP AS MANY
FARMS AS WE CAN ON THE LAND**



Foreword



The EU's Common Agricultural Policy (CAP) has its roots in the post-war period, aiming to free Europe from hunger. The productivism of this historic period still persists today: The vast majority of political and economic decision-makers seem to be convinced that a highly specialized, industrialized agriculture is more efficient than peasant farming and agroecological methods.

Given the discussion about the ongoing CAP reform, it is more important than ever to dispel this myth! There are many examples of very efficient farms, even with a small economic turnover, that provide better income, more jobs and are more resilient than big farms. Agroecology offers an interesting economic perspective in this regard.

The ecological strategy of agroecology consists in replacing fossil fuel-based agricultural inputs (such as synthetic nitrogen fertilizer and pesticides) by ecosystem services. Furthermore, it relies on short, regional supply chains and processed products, which allows for a much higher income per labour unit and per hectare than in industrial farms.

The aim of agricultural policy must be to support farms in the transition to agroecological and organic methods. On the one hand, to protect the environment and the climate. On the other hand, because it also makes more sense economically and strengthens rural regions. Every year, we lose about 3 to 4 percent of farms in the EU. This is way too much and should no longer be ignored. Every single farm counts and is needed for the transition towards a more sustainable agricultural system!

We hope that this brochure provides you with arguments and information for this important societal debate.

Yours

Maria Heubuch
Linnéa Engström
Tilly Metz
Michèle Rivasi
Molly Scott Cato
Philippe Lamberts
Bas Eickhout
Benedek Jávor
Florent Marcellesi
Bart Staes
Davor Škrlec

Introduction

Most of the work in European agriculture is done by family farms. They make up 96 percent of EU agricultural enterprises; they carry out 85 percent of the work and keep 70 percent of the livestock. But they only manage two-thirds of the total agricultural surface¹.

The remaining third of the EU's utilized agricultural area is controlled by a small number of large farms, most of which are organized as corporate bodies. These farms only employ 15 percent of the agricultural workforce, but receive well over one third of agricultural subsidies. However, many politicians consider these large-scale farms to be very productive and therefore a model for the future of European agriculture. Many argue that, at least, both small and large farms should be supported.

They overlook the fact that on the surface area of a large farm, hundreds, or even thousands of small farms could manage very well. They also ignore the fact that huge agro-industrial companies are often responsible for poorly paid workers, the decline of villages, enormous resource consumption, environmental damage, the deterioration of the price and quality of certain products due to mass production, the displacement of entire agricultural branches and production techniques, a drastic reduction of biodiversity, and neglect of animal welfare.

The tragedy of European agriculture is that many companies are only successful economically because they are allowed to play a damaging role for society as a whole. Their impact on the affected municipalities and regional economies, as well as on biodiversity, soil fertility and climate is often a negative one.

Society as a whole must pay for these follow-up costs. In economics, the term „externalized costs“ is used in this context – meaning costs which are passed on to society.

The main cause of this development is the EU agricultural policy, which is characterized by area-related direct payments and an overly complex application system for other subsidies, which favours large enterprises. An equally important structural cause lies in the upstream and downstream industry, which offer significantly better conditions to bulk buyers and suppliers than to smaller companies. As a result, regionally embedded food supply systems, which allow small family farms to hold their ground, find themselves squeezed and undermined by world market prices.

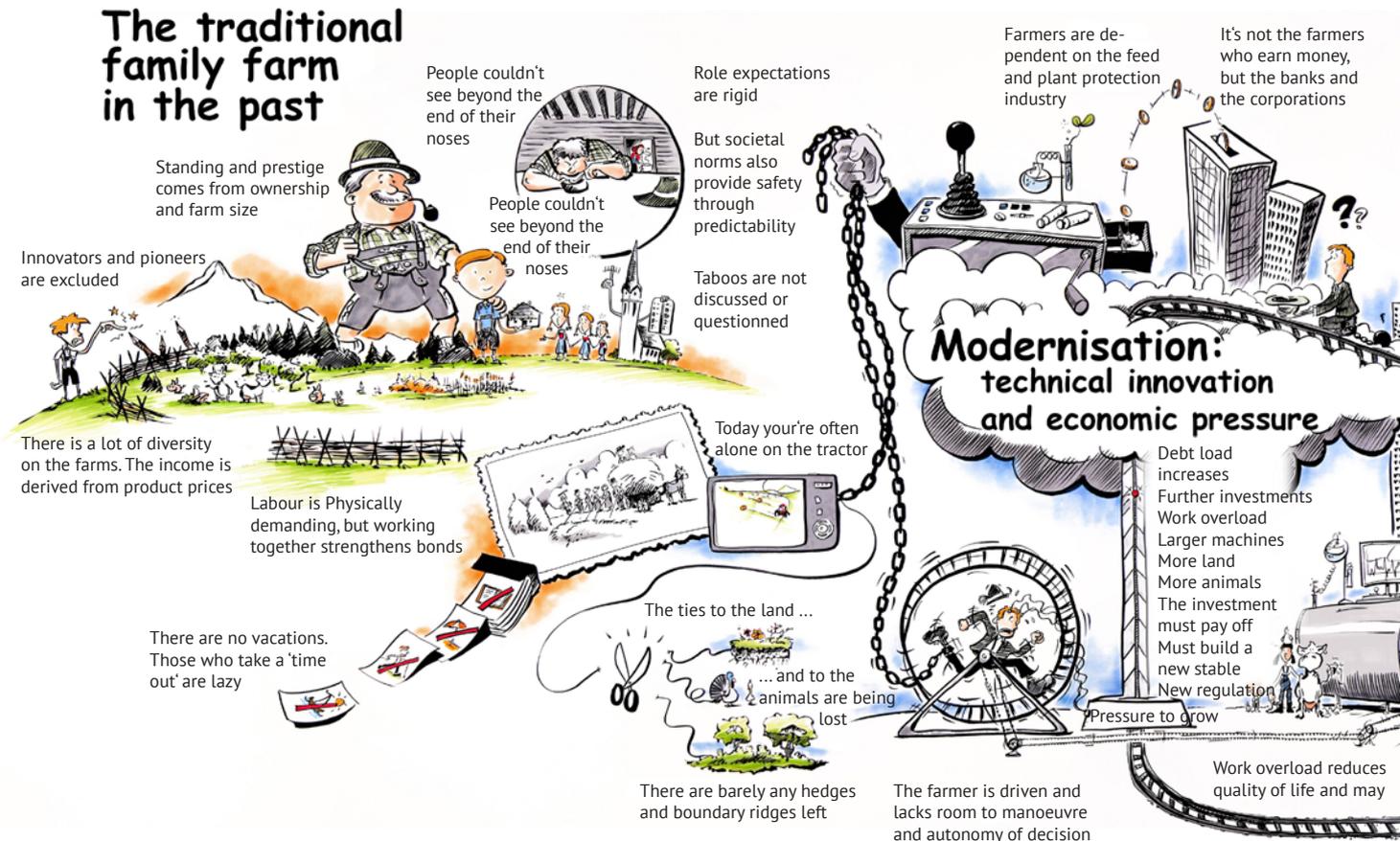
This has created a vicious circle in many regions of Europe, resulting in a continuous reduction of the number of farms. This also affects the economic and social attractiveness of rural regions. Many local businesses that are directly or indirectly dependent on agriculture are made to suffer. Finally, rural infrastructure and services like schools and public transport erode.

Still, farm loss is not necessarily perceived as a problem on the political level. The European Commission belittles it as a „natural and even necessary process of structural change“. Less than 3 percent of all farms in the EU are larger than 100 hectares, the Commission argues, leaving enough room yet for further structural change².

The enlargement race and the myth of a necessary structural change in European farming

The current dilemma has historical roots. After World War II, Europe was not food self-sufficient. Farms were small, produced a large variety of products and were judged as not competitive on the world market. The American model of very large, highly specialized and mechanized farms was presented as the solution. In Europe, the Common Agricultural Policy (CAP) became the main vehicle for modernization.

Accordingly, European farms had to enlarge, and many farmers were advised to give up their businesses to decrease the total number of farms, so that only the largest and most efficient entities would remain. At the same time, farmers were encouraged to specialize their production, to buy great quantities of synthetic fertilizers, pesticides and animal feed, acquire large machines and tools, and to construct new

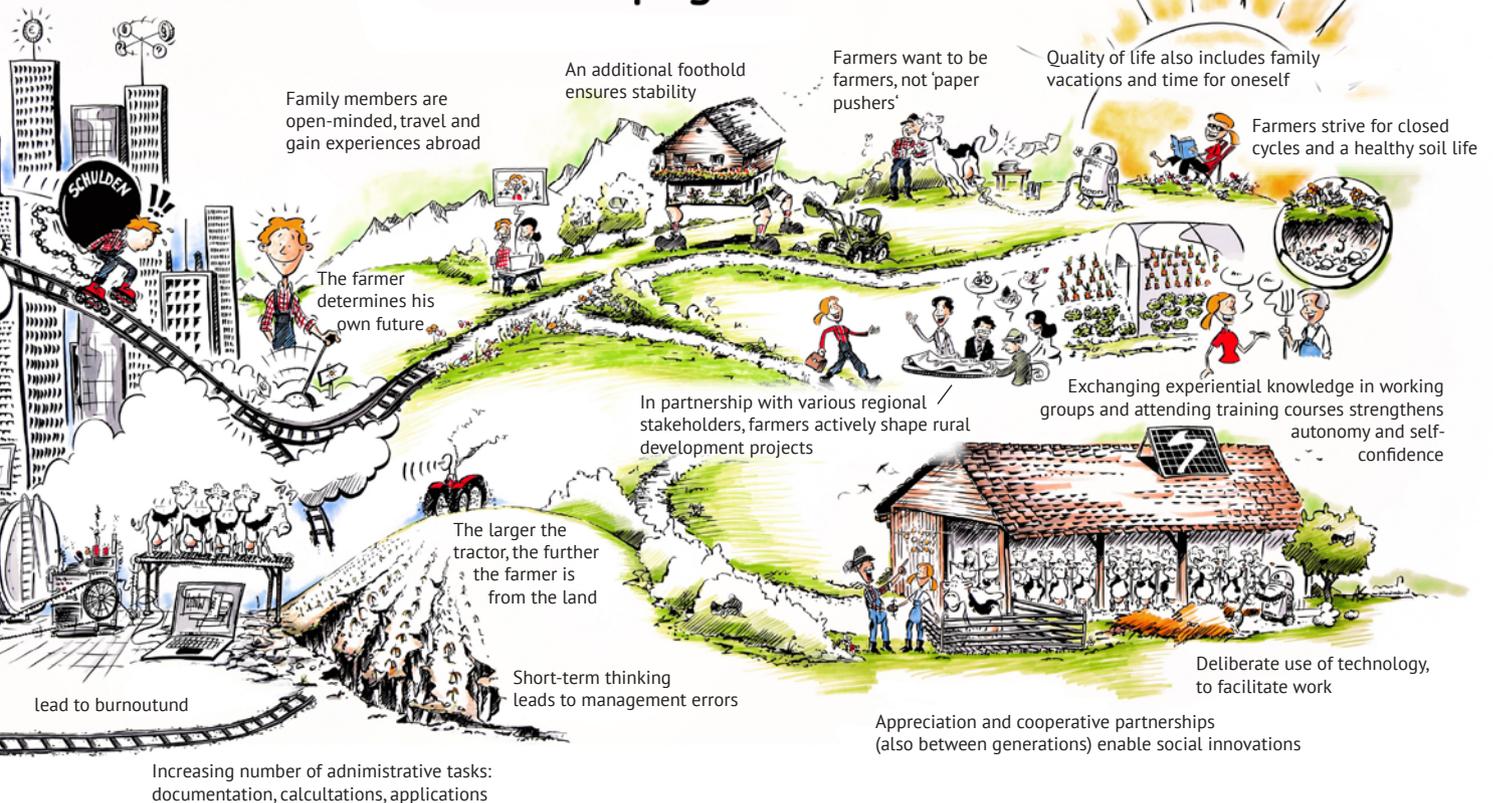


buildings and facilities. This induced a tremendous increase in variable commercial inputs and fixed investment costs. This system worked well for a while, but as farms became more industrialised, negative side effects on biodiversity, water, soil, air, animal welfare and human health became apparent. While public awareness of these side effects is already high and still growing, it is much less known to society at

large that agricultural modernization has also had serious repercussions for the economic viability of farms and thus, of rural areas as a whole. When product prices became unstable and tended to decrease while the price of inputs and machines increased continuously, farmers faced profitability problems. Income per hectare or animal dropped, forcing farmers to increase the size of their farm:

The diversity of family farms shaping the future

Due to on-going changes in directives and regulations, farmers find themselves on the verge of illegality



their land area and their herd size. The race of enlargement was portrayed by many politicians and lobbyists as inevitable and critical to survival. The disappearance of small farms was fated by European agricultural modernization policies. 'Structural change', as the process of disappearing peasantry was euphemistically called, still continues today, with a loss rate of 2-3 % of all farms per year.

Agroecological systems are challenging this trend. They provide the remaining European farms, as well as newcomers, with an economically viable perspective. By applying agroecological methods, farms can earn more per labour unit and per hectare than conventional farms. This is made possible by a combination of cost reduction and higher product value. Farms can thus survive and thrive without a continuous increase in size. Incidentally, this situation changes the relationship between neighbouring farmers. Neighbours are no longer seen as competitors for access to the land, and they can become partners more easily. This opens up avenues for collaboration such as jointly buying machines or marketing products, which in turn has the potential to increase profitability.

A diversity of farm system types

The way in which European agriculture is organized varies a lot. In order to draw a comparison between the advantages and disadvantages of different models, the following section defines the main farm types.

Peasant agriculture

existed for thousands of years. It is based on self-controlled resources that include biodiversity and the knowledge of farmers that gives them the capacity to convert biodiversity into food and other products. These resources are largely available in the farm itself and are part of the farming family's heritage, and usually have been for many generations. Peasant agriculture can be highly productive. "Peasant farming cares for nature and it also cares about the links that relate it to wider society"³. Peasant farming is not just about farming, it is a way of living. While the word 'peasant' has a long history of pejorative use, new peasant movements take pride in redefining peasant agriculture as a way to move into the future.

In family farming

the family owns the main resources, takes the decisions and provides the largest part of the work force. These characteristics distinguish family farming from corporate farming. However, this institutional definition does not specify how natural resources are used or how production is organized. Family farms can develop very different types of relationships with nature and society⁴. For instance, they can follow a peasant, agroecological or industrial model. Family farms are usually passed down from one generation to another over long periods of time. Unlike employees of corporate farms, family workers are directly interested in the economic result.

They are therefore often more motivated than salaried workers. They are very flexible, which is particularly important for absorbing workload peaks. Many family farms also provide non-agricultural services that diversify and complement their incomes. Family businesses are usually smaller than companies set up as corporate bodies. They usually buy inputs from local merchants, while large companies buy directly from manufacturers, importers or wholesalers. Family farm purchases support other small and medium-sized enterprises such as retailers, specialist dealers and workshops. As a result, family farms create more vibrant and dynamic economies in rural areas than large corporate farms⁵.

Conventional agriculture

developed rapidly since the 1950s in Europe when large amounts of nitrogen fertilizer became available to European farmers. Shortly thereafter, farmers adopted the techniques of the Green Revolution, a reductionist approach combining notably dwarf cereal cultivars and other 'new' hybrid crop varieties with high amounts of synthetic fertilizers and pesticides. It is highly mechanised, which allows for a significant workload reduction: cultivating one hectare with arable crops such as cereals typically requires as little as eight hours of work per year. The underlying logic is to replace natural and locally available resources, such as soil fertility, with external, fossil fuel-based inputs. While this strategy allowed high increases in yield, it created a series of new problems: environmental pollution, greenhouse gases, and the loss of biodiversity and farmers' knowledge.

Industrial farming

is based on the same rationale as conventional agriculture but with an even higher level of disconnection from local natural resources and rural economies. Examples are factory farming of pigs and poultry, intensive aquaculture with a high degree of imported inputs, hydroponic vegetable and fruit production in greenhouses, or very large-scale agricultural enterprises that require huge investments in machinery and enormous amounts of commercial inputs and result in homogenized, monocultural landscapes.

Industrial agriculture is not just about production techniques, but also about economic and political strategies of expansion. This includes the creation of new markets for consumption, the application of patent protection to genetic information, and a concomitant impact on global trade⁶.

Organic agriculture

appeared in the beginning of the 20th century as a movement for restoring a 'more natural farming' in opposition to the emergent industrialized agriculture. Since the 1990s, organic farming and food have been defined by labels and rigorous regulations that prohibit the use of synthetic pesticides and fertilizers, processing additives, and genetically modified organisms or products. The market for organic products is now growing fast, which is an incentive for small and medium-sized farms to provide quality organic products. At the same time, large farms are investing in the sector and adopting minimum standards of organic production within the framework of industrial systems.



A **mixed crop bed** on the permaculture farm Bec Hellouin. In their book „Miraculous Abundance“, the founding couple, Perrine and Charles Hervé-Gruyer, write that setting up a fossil-fuel-free permaculture farm costs about 50,000 to 100,000 euros, which is roughly equivalent to three years of state support for an unemployed person. Such farms could supply food to 70 million people in France and employ three to five million people. In other words: They could allow all of the unemployed people in France today to earn a living.

Agroecology

is a science, a practice and a movement⁷. As a practice, it is based on the use of local natural resources, local farmers' knowledge and objectives, smart use of biodiversity to provide ecosystem services and resilience. As a movement, it defends smallholders and family farming, farmers and rural communities, food sovereignty, short and local food supply chains, diversity of indigenous seeds and breeds, healthy and quality food⁸.

The ecological strategy of agroecology aims to replace fossil-fuel-based agricultural inputs such as synthetic nitrogen fertilizer, pesticides, and at least part of the fuel for machines, with ecosystem services provided by biodiversity. For instance, biological nitrogen fixation by legumes (e.g. lucerne or pea) can replace nitrogen fertilizer. Agroecological systems

also have the potential to store carbon in soils and to decrease greenhouse gas emissions. It is a system that is based on biodiversity and that conserves biodiversity. The economic strategy consists in reducing production costs and investments, and increasing revenues by targeting quality products, by processing products whenever possible and marketing them in short and local marketing chains. In this way, income per labour unit and per hectare can be higher than that of conventional farms.

There are similarities between agroecology and organic farming, but they are not equivalent⁹. Organic farming uses only a part of agroecology's practices and principles. The picture gives an overview of similarities and differences:

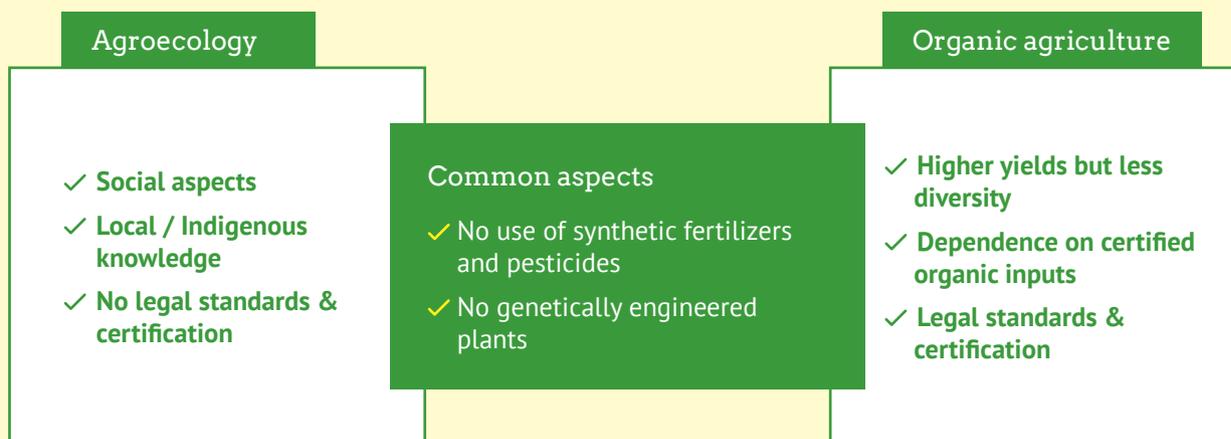


Figure 1: Agroecology and organic agriculture – similarities and differences

Small is beautiful

Small and large farms: A classification

Farm size cannot be reduced to mean only the farm's surface area. A mountain farmer can manage great swathes of land because livestock densities and numbers on these mountain grasslands are low. At the opposite end of the spectrum, a factory farm that raises thousands of sows and piglets on less than one hectare can be considered a large farm in terms of its number of animals and income level.

Any farm larger than 500 hectares – whether livestock or crop farming – exerts a considerable spatial displacement effect. The land is taken: No small or medium-sized farms can operate on this land anymore. There is a tendency for such large farms to realign their surfaces by purchasing and leasing more and more land.

Neither farm surfaces nor animal numbers are sufficient for assessing a farm's significance. A few examples:

A five-hectare vegetable farm is a large vegetable farm. Its surface area is small and there are no animals, but income per hectare and per labour unit is significant. Several people are needed to run it. However, the farm does not produce any spatial displacement effects in the area. It also receives only 1,250 € in direct payments, while a 500-hectare crop farm receives € 125,000 from EU funds.

A thirty-hectare arable farm, on the other hand, can be considered small even if it is much larger than the aforementioned vegetable farm in terms of surface area. Its income is modest and it can easily be

managed by a single person. Thus, 'small' and 'big' is not a relative concept, but one that must be used to differentiate between agro-industry and farming (in the original sense of the word).

Some authors and organizations have tried to use economic parameters to define small farms. The French statistics, for example, define small farms according to income level. They believe that small farms can be identified by their small income per farm or per labour unit. This implies that small farms can never generate high income per labour unit – which, of course, sends out a rather discouraging message to potential successors or newcomers in the business.

The French alternative farmers' union Confédération Paysanne, which is also a member of the international small farmers' federation, Via Campesina, proposes a classification system based on a combination of income, surface area and livestock figures¹⁰. However, in their own view, this definition of a small farm cannot be harmonized across Europe because the realities in the agricultural sector diverge strongly between European countries. Each country should base its definition of a small farm on its own reality.

Conversely, specific criteria were identified for large industrial corporate farms like those of Eastern Germany¹¹:

- affiliated corporate structures with a dominant regional position,
- companies or parts of companies that are not permanently managed by a locally based professional farmer,
- groups of companies bound to the food industry by long-term contracts (more than two years), especi-

ally if these companies are located directly next to each other ('regional cartels'),

- animal stocks of more than 500 heads of cattle (livestock units) and/or more than 2,000 pigs, or more than 380 sows with 3,000 piglets and/or more than 9,000 poultry,
- farms with more than 500 hectares of agricultural land.

A farm that meets at least one of these criteria can be considered as industrial.

Who are the smallholders?

Between 2003 and 2006, more than 170 interviews were conducted as part of a sociological survey which examined seven regions in France in order to better understand the profiles of small farmers¹². The results of this study show that the majority of these small farms are far more than merely survivors of a supposedly obsolete form of agriculture of the past. Five groups were identified:

→ The small traditional peasant

This type includes elderly farmers who never could or never wanted to 'modernize' their farm. Their training level is low, they learned on the job. Their farm structure today is a mixture of the traditional, complex peasant system and simpler conventional practices. They hardly invest anymore and are waiting for retirement. They live on a low income and have a high proportion of self-consumption.

→ The farmer in transition to entrepreneurial agriculture

These farmers operate on a model similar to that of the 1960s when a husband and wife ran the farm together. Their production is intensive, specialized, mechanized, and the final product is standardized. Their farm is integrated into the agro-food sector. Their strategy is to enlarge their farm, and in their mind they will succeed. They depend very much on

economic assistance and have serious profitability problems. They feel stressed about their future.

→ The cautious small farmer

Like the two first types, these farmers came out of the local farming environment. They inherited a conventional farm. Their management is cautious. They try to reduce production costs and investments. They have no intention to enlarge or increase their profits, but instead want to preserve their heritage, remain small and have no desire to change. They are well integrated into their community, are concerned with having a good quality of life and enjoy their natural environment.

→ The small independent and entrepreneurial farmer

The establishment of these farmers on small farms is a personal life choice. They did not originate from the farming community. They gave a lot of thought to their project before they started it. The launch of their farm may have been progressive, with or without a predefined plan. They are on the lookout for opportunities, open to innovation and confident about their future. They have two main strategies: cost reduction and increasing the added value of their production through direct sales, product processing and regional trademark (AOC) products. They are independent people who like to take decisions and to be their own boss. Their goal is maximizing income.

→ The small territorial and entrepreneurial farmer

This type of farmer is similar to the preceding one, but different in that they develop a clear vision of the role of agriculture and the place of farmers in society. They are people who want to solve territorial and environmental issues. Their motivation comes largely from an open relationship with others and with nature. They are guided by an ideal, are proud of it and believe that their lifestyle is in harmony with this ideal. They see them-

selves as small farmers, are very critical of the current conventional agricultural system and are of the opinion that the farmers' profession has lost its meaning in this system. They are often involved in local associations and networks and engage in other local responsibilities.

This study is an illustration of the fact that small farms are extremely diverse. Small farmers can be very traditional, or in sharp contrast to this, dynamic leaders of tightly run small enterprises. The newcomers in the sector are often on a quest to give purpose to their life. They often come from an urban environment and could have had executive positions in their previous job or worked in a liberal profession (for instance, as a lawyer or medical doctor). Small farms are attracting more and more young people who cannot accept working in a hierarchical administration or large company. They want to be their own boss and to reconnect with nature.

The importance of small farms for prospering regions

Worldwide, there are 1.5 billion farmers living on a total of 380 million farms. They produce at least 70% of the world's food on small farms of 2 hectares in average. Actually, most of the food consumed today in the world is grown by peasants without any commercial inputs^{13,14}.

After the EU accession of the new Member States of Central and Eastern Europe, two thirds of the 11 million EU farms were smaller than 5 hectares in 2016. About 70% of all EU farms were small or very small according to 2013 Eurostat data¹⁵.

The size structure of agriculture has massive effects on regional development. Regions with a high number of small and medium-sized farms are better off economically, i.e. in terms of value added in the agriculture and food sector and in terms of job creation, than regions with large holdings. The area pro-

ductivity, or the average yield per hectare, is clearly lower in countries with large-scale structures than in countries where peasant family farming prevails.

The recent history of Germany created an open-air laboratory that resulted in a steep gap between farm size in the eastern and western part of the country. The largest German farms are located the extreme northeast of the country, in Mecklenburg-Vorpommern. Here, the average farm size is 287 hectares compared to the national average of 60 hectares. The labour input per hectare is the lowest in Germany (1.3 labour units/100 hectares compared to 3.1 for the country as a whole).

Helmut Klüter from the University of Greifswald compared the economic efficiency of Eastern German farm structures with the West German structures based on the data of 2015¹⁶. Interestingly, the productivity (gross value added per hectare) is 1.200 € to 1.380 € per hectare of agricultural area in the Western states with their small to medium-sized farms, while it is only 640 € in the industrialized Eastern states. The farm net value added is only 183 € per hectare in East Germany, while it reaches 557 € per hectare in Germany as a whole.

This is possible because family businesses have a bigger workforce and can therefore engage in the production of high-priced quality products and in the cultivation of fruits, vegetables and other sensitive crops. They often combine crops and livestock, and have a higher diversity of crops, as well as additional activities and processed products. These are sometimes made and marketed on the farm, while agro-industrial companies produce cheap mass products. The result: The net value added per labour unit is about 12,000 €/labour unit in the industrial agrarian companies of Mecklenburg-Vorpommern, while it is at least twice as high in full-time family farms.

In countries and regions with mainly large farms, EU subsidies usually account for a far higher share of farm income than in rural areas with many small to medium-sized farms. In summary, small and medium-sized family farms on average perform better in terms of value added per hectare and per labour unit, and rely less on subsidies. Regions with a high proportion of large farms are affected much more strongly by rural exodus and depopulation than regions with a healthy small to medium-sized structure.

Misleading and incomplete statistics

Many misconceptions about the economic importance of family farms are often caused by misleading or incomplete statistics. This begins with the share of agriculture in terms of gross value added in the EU, which is greatly underestimated as being only around 1.5 percent. Gross value added alone measures only the goods and services bought and sold by agricultural enterprises. In this calculation, all the goods and services that are produced and distributed without payment fall through the cracks. This includes the high level of self-consumption: In half of EU farms, the products are consumed on the farm. This is the case in 4.8 million out of a total of 10.8 million farms. 3.8 million of these subsistence farms are located in Romania, Poland and Italy. These three countries are home to almost 50 percent of all farms and 45 percent of agricultural workers, while accounting for only 23 percent of agricultural surface area. In Germany, on the other hand, micro-enterprises under five hectares are no longer even recorded in the statistics.

In farming areas, a variety of services that people in the city need to pay for with hard-earned money, are at least partly rendered without markets. These include rent, care for the elderly and children, the reciprocal support in agriculture and forestry, but also

construction, repairs, maintenance and many more. Even if they are not registered statistically, these services are essential for the economic and social attractiveness of many regions in the EU.

Survival strategies of peasant agriculture

Moreover, family farms combine diverse sources of income, allowing them to guarantee their own livelihoods and add economic value to their regions. Many of these income combinations are only possible on the basis of the self-owned farm. They include various forms of direct marketing, food processing, energy production, horse-riding stables, tourism, services for other farms and forestry work.

When these activities become the main source of income, agriculture is regarded as a sideline. However, the farm still remains the family's economic basis and safety net.

The survival strategies of farms can be grouped into three categories:

Diversification of activities refers to adoption of organic farming, high quality and regional products, on-farm processing and direct marketing. It also refers to non-agricultural activities such as management of protected areas, energy production, agrotourism and provision of a range of other services.

Cost reduction can, for instance, consist in increasing forage self-sufficiency in livestock farms for decreasing the share of purchased commercial feed, replacing green maize and soybean meal with pasture grass and hay, adopting no-till or reduced tillage techniques, and reducing and replacing pesticides and fertilizers.

Pluri-activity (= part-time job outside the farm) was considered in the past as a resistance mechanism of declining small peasant farms but is now seen as a way to develop new dynamic farms that are adopting a rationale of peasant or agroecological farming.

A survey among 3,264 farms in six countries (Ireland, United Kingdom, the Netherlands, Germany, Spain and Italy) showed:

More than half (51%) of the surveyed farmers had diversified. This delivered a total extra net value added of 5.9 billion € to the agricultural sectors of the 6 countries. Cost reduction was adopted by 60% of farmers and contributed another 5.7 billion € to the farming family income. 27% of those interviewed relied on pluri-activity, and its economic significance was huge since it generated 20.4 billion €.

Thus, these economical strategies produced a total additional income of 32 billion € for the farmers' families, compared to the 41 billion € generated through agricultural production alone.

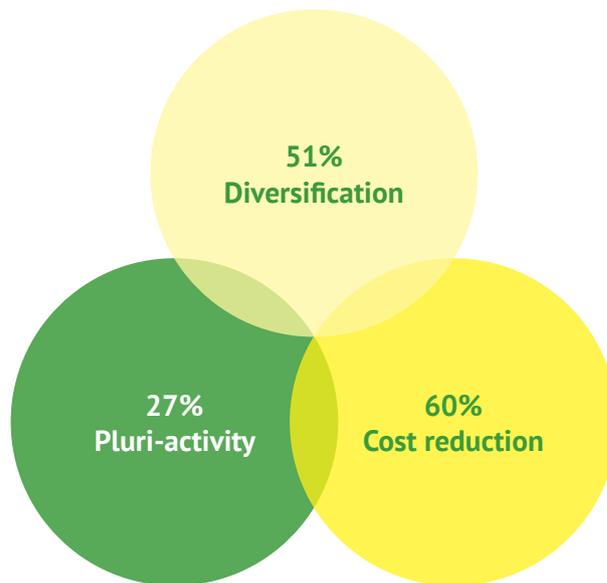
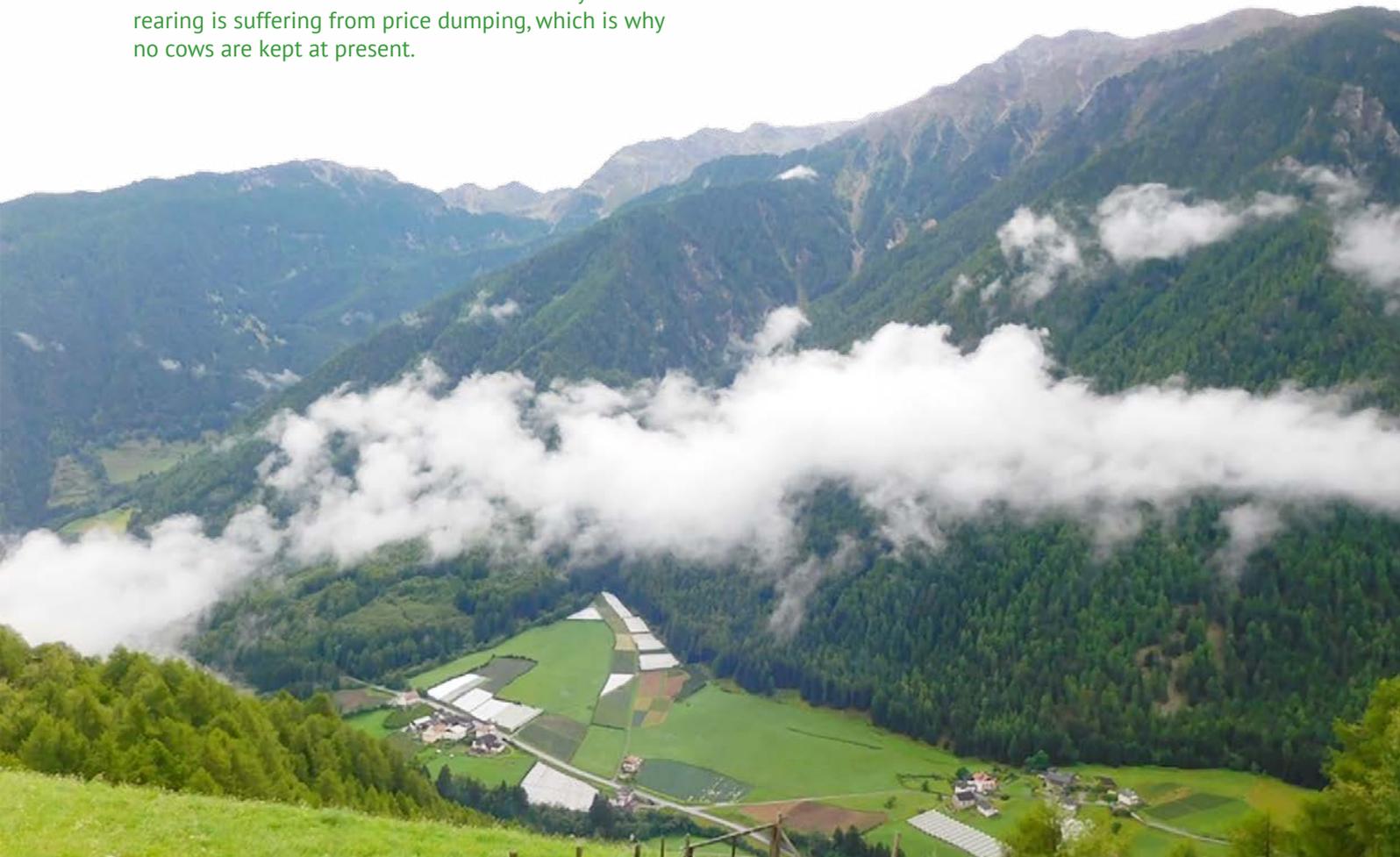


Figure 2: The economic importance of diversification, cost reduction and pluri-activity in 3,264 farms in the EU (van der Ploeg, 2012). Only 17% of the farms surveyed adopted none of the three strategies.

Example: Pluri-activity as a survival strategy

The „Berghof“ (estate name literally meaning „mountain farm“) in the South Tyrolean Martell valley is one of the farms for which Aldo Gorfer saw little chance of survival in his 1973 book „The heirs of loneliness“. But unlike many other farms, the Berghof faces no farm succession problem, but an accommodation problem. Due to the high quality of life, both sons decided to stay on the farm and raise their own families there. To solve the lack of space, they built several new buildings, including apartments for tourists. Agriculture currently plays a subordinate role in the income of the three families. Dairy cattle rearing is suffering from price dumping, which is why no cows are kept at present.

Likewise, the cultivation of strawberries was abandoned again because of new pests. All adults hold jobs outside the farm. But if the general situation and funding conditions changed, they could go back into agriculture, says the old farmer. The future of the farm lies in meeting special demands as early and flexibly as possible, to intelligently compensate the disadvantages of the mountain location, and to inspire the next generation to live on the farm.



Peasant farms are more economical than industrial farms

The case of mixed farms combining crops and livestock

CIVAM is a network of farming businesses in France. Some of them are conventional, others are certified organic. The aim of the network is to support each other through knowledge exchange in order to work in a more eco- and animal-friendly as well as to operate more cost-effectively. In a word: to transition towards agroecology. Every year, the CIVAM network's agricultural observatory publishes economic reports.

They compare the „sustainable“ farms of the network with conventional farms from the same region. The comparison is based on the official statistical data from the French Ministry of Agriculture (RICA).

A few lessons learnt from these comparisons are as follows:

The farms of the CIVAM network are smaller, they hold a smaller agricultural area and fewer dairy cows. They produce less milk, but also have lower production costs, and receive slightly more subsidies from the 2nd pillar of the CAP than conventional farms. They are characterised by an economical and self-sufficient forage system. They are grass-based and maximise grazing. Organic farms benefit from milk prices that are 35% higher. Production costs of the CIVAM farms are significantly lower compared with other farms, also because they buy less feed.

The revenue from product sales (activity product) per labour unit of CIVAM farms is 17% lower. However, their value added per labour unit is 24% higher and their net result per labour unit 139% higher. Grass-based farms have also smaller investments and thus lower loans.

Large conventional farms are much more sensitive to decreases in milk prices than smaller CIVAM farms because they produce more milk and their production costs per litre of milk are higher. Grass-based farms in transition towards agroecology are therefore more resilient to price volatility.¹⁸

Example: High yield through mixed cultures

The permaculture farm Bec Hellouin in the French Normandy region is an example of how productive small innovative organic farms can be. According to a study by AgroParis Tech, the farm's revenues generated by the sale of around 800 different products are ten times higher than those of a conventional farm. This is despite – or rather, because – of the fact that the 15-person team works completely fossil-free and relies only on light equipment and horse power.

In its forest gardens, mulch beds and greenhouses, the farm harvests products worth 28 to 80 euros per square meter and year. The proceeds from pure manual labour amounted to 33,000 euros on 1,000 square meters of intensive cultivation in the first year, 54,000 euros in the second year and 57,000 in the third. The picture shows the farm's founder, Charles Hervé-Gruyer.



4. Peasant farms are more economical than industrial farms

	Conventional comparison farms	Conventional CIVAM-farms	Organic CIVAM-farms
STRUCTURE			
Agricultural area in hectares	93	76	80
Thereof: Cereal area	27 %	16 %	12 %
Thereof: Green maize area for silage	25 %	10 %	5 %
Thereof: Grassland area	48 %	72 %	82 %
Labour units	1.9	1.8	1.7
Agricultural area per labour unit	50	46	43
Total annual milk production in litres	454,01	344,31	305,62
Number of dairy cows	66	57	62
Annual milk production per cow	6879	6040	4929
Farm capital in euros	450360	397209	385808
Milk price in euros per 1000 litres	332	336	447
REVENUES	€	€	€
Products	206,918	149,369	162,427
Milk	146,864	112,179	130,665
Meat	33,813	25,103	24,637
Cash crops	21,637	9,546	4,661
Forage	880	-245	822
Miscellaneous	3,724	2,787	1,641
Subsidies	27,844	28,477	32,113
1 st pillar subsidies	23,943	23,645	24,837
2 nd pillar subsidies	3,901	4,832	7,424
Side products	2,359	3,337	2,860

	Conventional comparison farms	Conventional CIVAM-farms	Organic CIVAM-farms
COSTS	€	€	€
Production costs	146,447	83,577	74,152
Feed	35,815	11,917	6,125
Livestock	15,478	15,752	13,522
Cash crops	14,991	5,581	3,085
Forage production	23,793	13,086	11,855
Machinery	31,191	16,570	15,951
Other	23,633	16,711	18,701
Building and land property maintenance	1,938	3,959	4,914
Rents, taxes, loans	62,658	52,062	52,302
Labour costs	15,618	16,405	21,814
Total receipts	237,121	181,183	197,400
Total costs	224,723	152,044	148,268
Product/labour unit	111,624	92,729	93,668
Value added/labour unit	33,321	41,435	51,433
Result/labour unit	8,621	20,598	34,715

Table 1

Comparative data of large conventional and smaller non-organic farms and organic farms that are in transition towards agroecology in three regions of France (Higher and Lower Normandy, Brittany and Pays-de-la-Loire) (2015). Sample size: 354 conventional farms (Agriculture Accounting Information Network of the French Ministry of Agriculture – RICA); 58 non-organic and 112 organic farms in transition towards agroecology (CIVAM network).

The same study analysed four farm size categories: small (< 38 hectares), medium (38-58 hectares), large (58-77 hectares) and very large (> 77 hectares). In the RICA database, revenues from product sales increased with size (+146%). However, economic efficiency (value added/product) did not increase, but stayed stable at approx. 28%. Result per labour unit first increased with size but decreased above 77 hectares. Above this threshold, economic return decreased despite higher investments.

In this database, the number of jobs created per surface unit decreased almost linearly. The smallest farms created twice the number of jobs per square kilometre (3.2) than the very large ones (1.5).

Analysis of the RICA and CIVAM databases allows for a comparison of the effects of farm size enlargement and production system changes on farm profitability. The result: For each farm size category, the transition to a more agroecological system was always more profitable than size enlargement. In other words, it is more profitable for a small farm to change its production system than investing in becoming larger and larger.

The case of dairy farms

Another French study compared average data of grassland-based and more intensive dairy farms¹⁹. On average, grassland-based farms are smaller than the intensive farms, use more grass and less silage maize, and produce less cereal. In spite of lower dairy cow numbers, milk production per cow and total milk production, as well as lower added value, grassland-based farms achieve a result per annual labour unit and per hectare that is higher than the average of intensive farms, mainly due to savings in production costs. These avoided costs relate mainly to the purchase of concentrated feed and inorganic

fertilizers, in total 70 € per 1,000 litres of milk. The savings are possible thanks to a higher contribution of grassland to animal diet.

In small grassland-based farms, the surface per labour unit is lower but the result per person is higher (+2,400 €).

The proportion of value added per product and the share in revenue per product are much higher in grassland-based farms (Table 2). For a given amount of milk, grassland-based farms produce more wealth. The favourable result/product ratio in grassland-based farms is due to more economical practices.

Small farms can thus again be more profitable and efficient than larger and more intensive farms. These small farms are also easier to take over; their capital is 86,800 € lower per farm and 27,000 € lower per labour unit.

The reason why smaller farms can be more profitable than larger ones is that they pursue a different strategy. Many other studies confirm these results. Smaller, more economical farms are more efficient, more resilient and more profitable than larger, high-output conventional ones.

	Intensive	Grassland-based
STRUCTURE		
Farm area in hectares	87	64
Thereof: Main forage area	77 %	91 %
Thereof: Green maize area	24 %	11 %
Thereof: Grassland area	53 %	75 %
Thereof: Other forage area	0 %	5 %
Thereof: Arable crop area	23 %	9 %
Number of dairy cows	57	50
Labour units	1,89	1,68
Milk production per cow in litres per year	6,852	5,910
Milk sold in litres per year	385,435	290,197
PRODUCTION COSTS		
Production costs (seeds, fertilizer, pesticide) in € per hectare	245	100
Feed costs in € per 1,000 litres	119	84
ECONOMIC RESULTS		
Operating result from sale of products in €	232,122	161,232
Value added in €	78,632	66,426
Value added in € per labour unit	41,604	39,539
Result in €	43,611	43,364
Including aid	32,473	28,337
Result in € per 1000 litres milk sold	113	149
Result in € per labour unit	25,359	27,772
Result in € per hectare	555	729
Value added/product	39 %	48 %
Result/product	19 %	27 %

Table 2

Average data of smaller grassland-based and larger more intensive dairy farms in three regions of France (Lower Normandy, Brittany, Pays-de-la-Loire) (2011). Sample size: 70 grassland-based farms (Sustainable Agriculture Network, RAD); approx. 2,800 intensive farms (Agriculture Accounting Information Network of the French Ministry of Agriculture – RICA).

How do small farms achieve these surprisingly good results?

Two models are presented below to explain the strategies adopted by dairy farmers and by crop and mixed farmers, two very important farming populations in Europe. These models are a synthesis of the results of several studies and observations.

Milk: Intensive livestock rearing vs. pasture-based grazing

Compared to conventional farms, agroecological dairy farms are characterized by a smaller surface and a smaller herd. Moreover, they produce less milk per hectare and per cow. This should reduce income, but that is not the case. In fact, they choose dual-purpose (meat and milk) breeds instead of highly specialized, high-yielding Holstein-Friesian cows. Consequently, they generate income not only from milk, but also from meat. They can also cross Holstein-Friesian cows with other breeds such as Jersey cows. In both cases, dual-purpose breeds or crosses, these dairy cows are better able to convert grass into dairy and meat products than specialized dairy cows. They mainly produce on the basis of grass, thus requiring less maize crop for silage and less concentrate feed per litre of milk produced.

Grassland requires far less commercial inputs than cropping maize, especially if the grass is not heavily fertilized but includes a good proportion of nitrogen-fixing legumes such as clover or lucerne. Usually, no pesticides are used on grassland. More attention is given to grassland management, which increases grass and animal production at a very low cost. The grazing period can be extended in spring and autumn, which also decreases winter-feeding costs.

The milk is also higher in protein and fat contents and therefore sells at a higher price and is better suited for processing into cheese or butter. A greater share of the milk is processed into a variety of dairy products such as cheese, yoghurt, ice cream or butter. This raises the selling price of the milk considerably. These products are also often sold in short and local marketing chains, which increases revenue as well. Moreover, compared to milk sold to dairy factories, the milk price in short marketing chains is stable since it is determined by the farmers themselves and does not fluctuate with the world market. Lastly, income per person is higher and more stable. Farms can create one or several additional jobs in the processing and the marketing of products.

Arable farming: Diversity in crop rotations and business segments

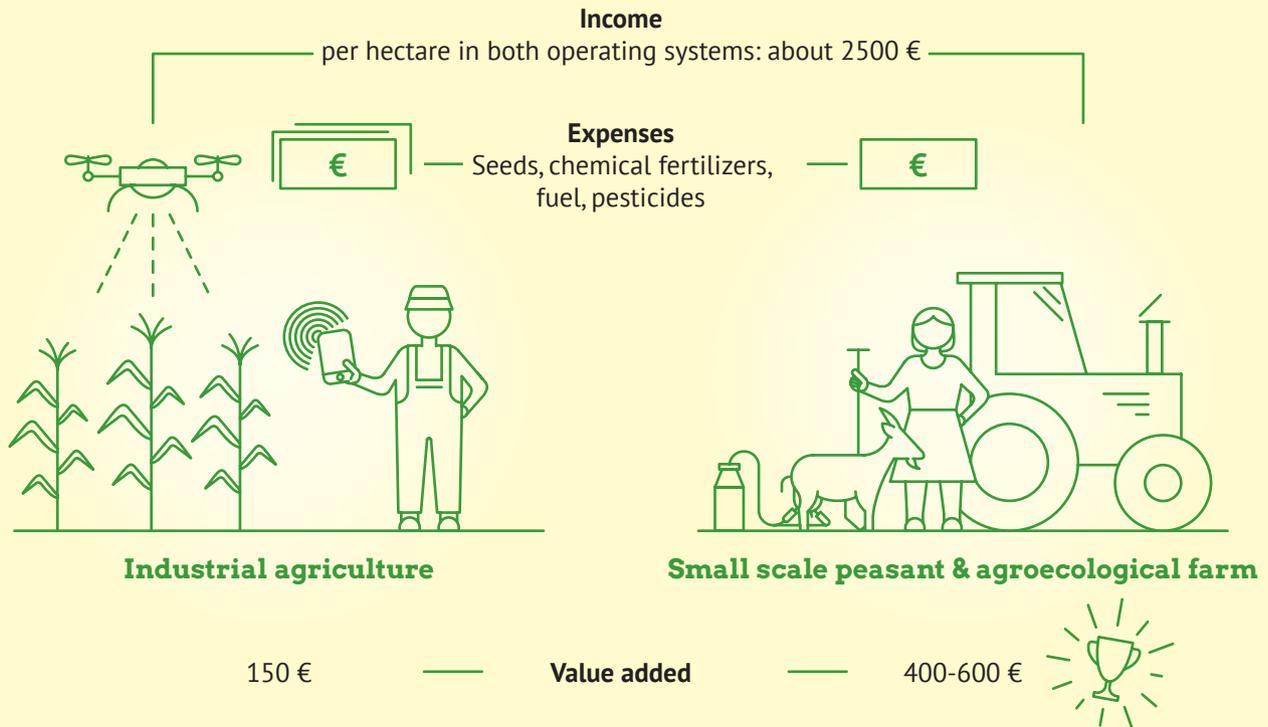
Compared to conventional arable or mixed farms, agroecological farms are often much smaller. They are not specialized in forage cereals and industrial crops such as sugar beet or oilseed rape but produce a higher diversity of food crops such as bakery cereals. Their crop rotation is longer and more diverse, which decreases weed, disease and pest pressure, and thus the need for pesticides. They often integrate crops and livestock, which allows cropping legume-based temporary grassland in the crop rotation.

These forage legumes fix high amounts of nitrogen that are partly available for the following crops, reducing the need for synthetic nitrogen fertilizer. Soils are covered as much as possible during intercropping. This fixes carbon in soils and controls weeds, as temporary grasslands do to an even greater extent. An ecological infrastructure, such as herbaceous strips and hedges, has a positive effect on the populations of natural enemies of crop pests. Livestock is not just cattle, but also

includes pigs, poultry or small ruminants. This diversifies and augments the income sources.

All these animals produce farmyard manure that fertilizes crops and increases soil organic matter. As in dairy farms, products are often processed and sold in short and local marketing chains. As a result of all these practices, income and employment levels are higher in smaller agroecological farms than in larger conventional farms.

The economic strategy of transitioning towards agroecology



A basic course in economics: choosing the right indicators

In the productivism context of the last 60 years, an emphasis has been placed on maximizing total yields per hectare or per animal. A good crop was a 'clean' crop, one without weeds and which reached the maximum yield. Profitability was largely forgotten. Most farmers know their yields and selling prices but very few farmers could name their production costs per crop and thus their crop profitability. In addition to the size enlargement race, farmers were driven into a race for crop and animal yields. It was a question of pride and honour. This attitude led to farmers losing money or even going bankrupt.

It is thus essential to restore the right indicators of farm profitability. Productivity can be understood in two ways. The technical productivity of a crop or an animal is production per surface unit or per surface and time units (yield per hectare and per year). The economic productivity is the ratio between output and inputs such as capital, labour and land. It could be defined as the economic efficiency of a farm. If priority is given to the first definition, labour value is underestimated, and this causes numerous problems in the many systems where labour is the limiting factor.

Net value added measures the creation of wealth intrinsic to the productive process (subsidies not included). It is equal to the difference between the value produced (the gross product, including the self-consumed part of that product) and the value of goods and services consumed in whole or in part during the production process. The difference between the gross product and the value of intermediate consumption (goods and services consumed entirely during the production process: seeds, fertilizers, feeds, services to the company) is the gross value added²⁰. Net value added, mentioned below as "Value added", is an essential economic indicator.

Surface area productivity is one of the most important success indicators for agriculture. It is a means to illustrate the special economic achievements of small and medium-sized farms and the dysfunction of industrial agriculture. As shown in the chapter "The importance of small farms for prospering regions", area productivity is significantly lower in Eastern Germany at 640 € per hectare when compared with Northwest Germany (€ 1,368 / hectare).

The economic strategy of agroecology

In small agroecological farms, farmers tend to maximize the ratio of value added to gross production value. In conventional and industrial agriculture, the objective is to maximize the total value of production per labour unit. This encourages farm size enlargement and/or the reduction of labour input, which in turn necessitates investments in new technologies and, especially, an increase in input-levels²¹.

Agroecology dramatically decreases variable costs (intermediate consumptions) and fixed costs (investments; annual consumption of fixed capital). This is possible because intermediate consumptions are replaced by ecosystem services provided by biodiversity. For instance, synthetic nitrogen fertilizers are replaced with symbiotic nitrogen fixation by legumes; insecticides are replaced by the development of an ecological infrastructure that favours the wild populations of natural enemies of crop pests; herbicides are replaced by long and well-designed crop rotations, weed-suppressing catch crops, mulch and competitive crops. Investments are controlled by limiting expenses for expensive machines, buildings and high-tech. When expensive machines are needed, they can be bought through a machinery cooperative or rented to a contractor.

Agroecological farms also target quality products that are sold at a higher price (e.g. bakery instead of forage cereals). Their products are processed whenever possible (cheese, yogurt, or butter instead of raw milk) and sold in short and local marketing chains. These three strategies – quality, processing and marketing – increase selling prices. Compared to conventional farms, value added is increased by lower intermediate consumptions, lower investments, and by higher selling prices.

Small agroecological farms are not, however, producers of luxury foods and high-cost items. When they sell their products in short marketing chains, farmers obtain a higher price because they can keep a greater part of the added value which would otherwise remain with the processing and retail companies, yet consumers do not necessarily have to pay more than they would in a supermarket, and also benefit from higher quality products. Innovative marketing schemes such as community-supported agriculture (CSA) can make quality products from small farms available at a reasonable price.

Agriculture produces public goods

Farming is an activity that not only produces private goods. Agriculture utilized 39 % of Europe's land surface in 2013²². Therefore, it has an important effect on landscapes, biodiversity, soils, underground and surface water, the atmosphere and on human health and well-being. A financial accounting that was limited to private economic goods would neglect this reality and severely underestimate the benefits as well as the negative effects of agricultural activities.

However, the usual accounting methods do not take into consideration the ecosystem services rendered to society as public goods. For example, conventional farming systems have largely destroyed soil organic matter and decreased soil fertility. The natural capital has thus been reduced. Moreover, this soil organic matter has been transformed into carbon dioxide and released into the atmosphere as a greenhouse gas. It is one of the ways in which conventional agriculture contributes to climate change. These detrimental effects should be taken into account in an adequate accounting system.

This reality motivated a German citizen shareholder

Example: Arable farming and livestock complement each other

More understatement is almost impossible: The administration of Usedom Agrar GmbH resides in an inconspicuous building by a bend of a country avenue. With a staff of 38, the company is the largest employer in the town of Usedom on the Baltic Sea island of the same name. Usedom Agrar cultivates 1,540 hectares, of which 596 hectares are own property and 944 hectares are leased. Agriculture and livestock complement each other: In addition to green fodder, crops are fed if needed, so that the farm can usually self-supply its cattle. On the other hand, manure from livestock is used as a valuable fertilizer for the arable land. Managing director Jörg Espig emphasizes

that he wants to maintain the mixed farm structure. According to Espig, this allows the farm to react more flexibly to product-specific sales problems such as the milk crisis of the years 2014 to 2016. With 2.5 workers per 100 hectares of agricultural land, the farm employs almost twice as many people as the regional average in Mecklenburg-Vorpommern. The company tries to keep agriculture's negative effects on the environment as low as possible. Even though pesticides are used, the farm makes sure to inform beekeepers in the vicinity of the respective fields, so that they do not let their bees fly on those days.



Social	Ecology	Regional economy
Employee structure	Soil fertility	Distribution of value added
Remuneration	Biodiversity	Value added in the region
Quality of workplaces	Application of the EU Eco-regulation	Commitment in the region
	Development of organic farmland	Dialogue in the value chain
	Resource use	

Table 3

The three categories and twelve dimensions of the RegionalWert AG sustainability indicator system.

company to develop a set of indicators that could reveal the true benefit of human-scale farms, a term they use for qualifying small farms. They created the RegionalWert AG Indicators (RWAG) as a tool for improving the accountancy system. They defined 87 qualitative and quantitative sustainability indicators, which fall into three categories and span 12 dimensions²³.

The indicators are social, ecological and economic (Table 3). These indicators are used for communicating information about social and ecological services to shareholders. They can also serve as a basis for an integrative model of accountancy. This accounting model extends traditional bookkeeping by adding new parameters related to public goods.

EU agricultural subsidies benefit large farms more than small ones

Because Common Agricultural Policy (CAP) subsidies are linked to the number of hectares, they mainly benefit the largest farms. At present 80% of European subsidies go to only 20% of the farms. CAP subsidies distort the economic efficiency of farms, since large farms depend on subsidies more heavily than small farms and would not be competitive without them.

Out of the 10.8 million farms in the EU, only 7.5 million applied for direct payments under the Common Agricultural Policy. 80 percent of them received less than 5,000 euros a year. The vast majority of peasant and family businesses do not receive any noteworthy grants. The lion's share of the subsidies goes to a small group of agricultural enterprises, a significant proportion of which are, of course, also run by families, especially in the small to medium-sized segment. This is true both for direct payments and the so-called 2nd pillar funds for investments and environmental services, access to which is usually hampered by a significant bureaucratic burden. Germany has by far the most companies that receive more than 300,000 euros in yearly direct payments from Brussels. The number is 1,390 farms, of which over 80 percent are located in Eastern Germany. This means that Germany is particularly affected by industrialized agriculture.

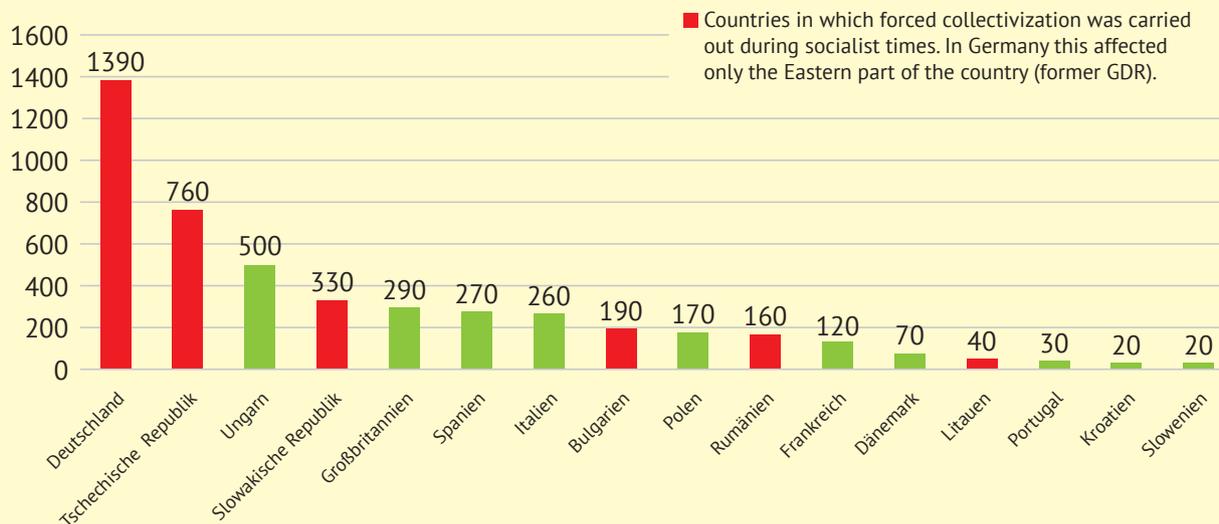
EU subsidies mask the economic viability of agricultural enterprises. In large industrial farming companies such as the ones in the German state of Mecklenburg-Vorpommern, for instance, the average economic output is lower than the amount of direct payment. That means that most of these large farms cannot survive without EU subsidies²⁴.

In France, the scholar Delord compared different size classes of several farm types in terms of income per labour unit²⁵. He concluded: While the superiority of large farms in terms of the physical and even economic productivity of the work is indisputable, it only translates into greater income through direct aids. This is true for large companies that produce cereals, other field crops and beef, but is also often applies to other specializations, with the exception of viticulture. Thus, the efficiency (in terms of results) of large farms relies heavily on public support; without it, large farms would have incomes comparable to or even lower than other farms.

Moreover, the superiority of large farms in terms of productivity must also be qualified: Often, it is true for one production type. But if farmers produce too much of this product, the prices fall. If farmers do not produce enough, the wholesalers will buy on the world market – and push the domestic producer against the wall in the following year.

Since small farms produce a different and much larger range of products, this effect is reduced by the diversity of income sources. Small and medium-sized farms (especially low-cost types) are much more resilient. The support furnished to large farms induces a subsidy concentration and not a productivity gain. Distributing roughly 80% of the EU CAP budget to the 20% of large farms is therefore an anachronism.

Number of agricultural holdings that received more than 300.000 € direct payments in 2014



Calculated on the basis of: Stastical Yearbook on Food, Agriculture and Forestry of the Federal Republic of Germany 2016, S. 449. Calculation: Helmut Klüter.

Conclusions and recommendations

This report is not an indictment against large farms. Agroecological farms can be small or large. Their strategies remain valid at all scales. However, smaller farms can create more jobs, are more resilient and can provide a higher income per labour unit than larger ones. This is especially true if they adopt the agroecological strategy described above. It is a combination of reasonable size and adequate production system that can lead to efficient farm structures.

Large farms with more than 500 hectares are part of industrial agriculture, because by their sheer size they trigger a spatial displacement effect. But even within this category, there are great differences. Some of these industrial farms employ a significantly larger workforce than others, because their product range is more diversified. The example of the mixed farm Usedom Agrar GmbH illustrates this well.

Smaller farms usually deliver more ecosystem services than large farms. They create more complex landscapes and more habitats for biodiversity, they can more easily take care of soils and organize nutrient cycles, they are encouraged to target quality and tasty products, they can develop relationships with their clients, reconnect producers and consumers, rural and urban areas, and they stimulate the economies of rural areas. They keep traditions alive and contribute to the conservation of regional cultures and European cultural diversity.

When looking at the profile of small farmers, it appears that a new type of small-scale entrepreneur is emerging.

They often originate from urban environments, are looking for meaning in their lives and are very creative. The invention of another kind of agriculture thus appears to be in progress. These new farms are rejecting the conventional standards of modernity in favour of designing and developing a new farming type that is more humane and closer to nature. This model has the potential to develop and create jobs.

The question is, therefore, how to support them.

The 2014-2020 CAP gave some opportunities to small farms, but not enough²⁶. The main positive measure was the redistributive payments that increased the amount of basic aid for the first hectares of a farm. This measure benefited small and medium-sized farms.

But the challenges, such as climate change, biodiversity loss, pollution of soil and water, animal welfare and the destruction of peasant structures, have not decreased since then; in fact, the opposite is true. The ongoing 2021-2027 reform should therefore initiate a paradigm change in the CAP principles.

The future EU agricultural policy must follow the principle „public money for public goods“ and support only environmentally friendly farming methods. It needs to help farmers in the transition to adopting agroecological methods. Industrial farms should not receive public funding anymore.

This could fundamentally change the equilibrium and orient European agriculture in the direction that



Access to land is a major problem for many newcomers to agriculture, but also for existing small and medium-sized farms. A creative solution may be to lease a piece of land from a large farm. By producing and directly marketing labour-intensive products such as fruits and vegetables, micro-farms generate several times the income of what the piece of land earned under previous conditions. This allows both sides – tenants and landlords – to profit from this win-win partnership.

EU citizens want: an agriculture that provides local, reliable quality products at a fair price and that has a positive impact on the environment, climate, farm structures and rural development.

Small farms allow young people to settle, but access to land remains a challenge. Large farms often have better access when land becomes available. Small farms usually have fewer financial means: less capacity to mortgage, less access to credits and subsidies. This has to change. Banks should become more familiar with business plans that are different from the productivism model. They should be convinced that small farms can be profitable and viable.



A determined land policy should be developed by local communities, provinces, regions and states. Legal reforms should be undertaken for favouring access of small entrepreneurs to the land of large landowners in win-win partnerships (see also: illustration on page 33). At EU level as well, all necessary measures need to be taken to curb cross-border land speculation. The European Parliament has made a set of recommendations in this regard with its resolution on the „concentration of agricultural land in the EU“ of April 2017.

Citizens and consumers can directly support small farms by buying at local farmers' markets or by engaging in community-supported agriculture (CSA).

Farmers must also help themselves by adopting a smart production system based on the principles described above. Advisors and scientific research, as well as a high-quality vocational training which includes information on different modes of production, should help farmers in their transition.

At these conditions, agriculture still has a future and could spread out again for the benefit of new generations of farmers and citizens.

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FOR A HEALTHY ENVIRONMENT FOR PROSPERING RURAL AREAS FOR A TRANSITION TOWARDS AGROECOLOGY



The Greens/EFA Group in the European Parliament is committed to a sustainable agricultural policy that delivers for climate, environment, animal welfare and rural areas. The necessary transition can only be achieved together with the farmers. This brochure shows that it also makes more economic sense to rely on small to medium-sized, agroecological and organic farms. Europe must stop supporting and subsidizing industrial agriculture now!

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