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The Common Agricultural Policy promotes a US-like development of the European agriculture

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Abstract

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The Common Agricultural Policy (CAP) is a substantial part of the European subsidy policy. However, this policy could not prevent the increasing displacement of small and medium-sized agricultural enterprises so far. The agriculture of the USA has experienced a systemic decline in small and medium-sized enterprises for decades and already negative consequences can be observed from this development. In Europe, the same tendency can be seen. To find a solution for small and medium-size enterprises we present our research that compares the subsidy mechanisms of the EU with that of the USA.The scope of this paper includes the examination of the development of small and medium-sized companies within the conditions of the current CAP and which steps in the development have been taken in the US agriculture. In order to identify which threats exist for the European agriculture, the influence of subsidy payments on the agricultural development is examined and assessed. The analysis reveals that the US agriculture has been dominated by industrialized farms due to the concentration development so far. Small and medium-sized companies hardly play a role in this system, which is geared towards continuously increasing efficiency. Thereby, negative side effects on the environment, climate, fauna, animal welfare and health etc. are accepted. According to the previous concentration process in European agriculture one cannot exclude the possibility that a further development towards a US-like situation in agriculture can be prevented. The results of the comparison indicate the need for changes of the EU policy to avoid a US-like evolution of the European agriculture.

Keywords: Common Agricultural Policy; subsidies; farm structure; sustainable agriculture; decreasing of farms; influences of subsidies in agriculture

Introduction

To manage the challenges of various forms of agriculture, the European Common Agricultural Policy (CAP) was initiated 50 years ago with the aim of increasing the production of food at affordable prices. Although ecological and social systems of the European Union (EU) changed in general until today the CAP has not been adjusted to these changes. As a consequence, numerous agricultural enterprises have been displaced from the EU market by large competitors. This development is still continuing. Thus, the existing agricultural areas in the EU are more and more intensively cultivated by fewer and fewer but constantly growing companies (Becheva & Rioufol, 2019).

The agricultural sector is intensively regulated by EU rules. More than a third of the total EU budget is spent on the agricultural sector each year. The subsidies are financed by two funding areas of the CAP, referred to as pillars 1 and 2.

Almost three quarters of the funding is allocated to pillar 1 and spent as area surcharges. Rural development programs and a sustainable agriculture are promoted by pillar 2 of the CAP. (BUND, 2019a). The bias of CAP on pillar 1 has the effect that around 80% of the total funding is spent on only about 20% of all enterprises. More than half of the total agricultural area is presently managed by only about 3.1% of all companies. One third of all farms in Europe gave up between 2003 and 2013.

At the same time, self-imposed goals regarding climate protection, soil protection, water conservation and goals concerning a global justice by a sustainable use of resources and fair-trade conditions have currently not been achieved yet (BUND, 2019b).

The agricultural sector in the USA is very similar to the European one and therefore comparable. Over decades US agriculture has developed towards a profitability driven oligopoly of mega-farms, including negative side effects such as soil erosion, job loss, dominance of unsustainable production methods, loss of biodiversity and progress in the concentration of the company structure, which favors almost exclusively very large agricultural holdings.

Research problem: how should the European CAP is aligned to secure the market presence of small and medium-size farms in Europe?

Research aim: to assess the influence of subsidies as key instrument of CAP by using the US agricultural sector as example.

Research objectives:

- To analyze the current version of the EU CAP and its planned reform with regard to the sustainability of small and medium-size farms;
- To analyze the development of the US agricultural sector in that sense;
- To present the research results in view of the influence of subsidies on the development of the European agriculture especially of medium-sized-enterprises.

In the following we take a closer look at the EU CAP pillars to point out the conflicts between the overall goals and the real effects of the EU CAP in practice. In a second step we briefly outline the development and status of the agricultural sector in the USA to illustrate the likely development of European agriculture, if the current CAP is continued without significant reforms. The paper closes with a discussion of potential steps to realign CAP in order to achieve the still valid goals.

Materials and Methods

To understand the consequences of the current European subsidy policy for the future development of European agriculture, especially its impact on the market exit of small and medium-sized enterprises, the relevant factors and processes of the US agricultural subsidy system as a comparative model were elaborated by literature research. Furthermore, context-related statistics were considered. These figures have been analysed to show the current structural functioning of the US subsidy system. The interpretation of this analysis is the subject of this article. All statistical data come from publicly accessible databases. The literature research is based on publications of official institutions, as well as on international literature.

Results

In this section we would like to elucidate the current European agricultural subsidy system and its already passed reform, which will be valid from 2021 in terms of its functioning and impact. Furthermore, we take a look at the American agriculture with regard to its historical development and its peculiarities, as well as the American subsidy policy focusing our attention especially on its effects on the agricultural sector.

Agriculture and its Subsidization in Europe

The EU is a consortium of 28 Member States and consists of an area of approximately 4 237 681 square km. There were 510 Million people living in the EU in 2016 and the gross domestic product (GDP) of the EU was about 15.0 Billion Euro in the same year (Statista, 2019b). The share of the agricultural sector amounted to 1.44% withal (Statista, 2019a). Table 1 point out the European farm structure based on economic sales classes and its development between 2013 and 2016. The table shows that small and medium-sized companies dominate the European farm structure. They affected above average by the concentration process. In contrast, the number of profitable, larger companies rose in the same period.

The Lisbon Treaty reaffirmed and ratified the Common Agricultural Policy, introduced in 1957, as a fundamental element of European policy in 2009 (European Union 2017). European agriculture and its development are integrated into the tasks of the EU institutions. The committee on agriculture and rural development debates problems and their possible solutions. A commissioner for agriculture and rural development is a member of the European Commission and has political responsibility for this department (European Parliament, 2019).

The main objectives of the CAP are to continuously increase productivity in European agriculture, to ensure the long-term security of supply for consumers, to stabilize the

Table1. Development of number of farms by Economic Sales Class in the European Union 2013–2016 (Source of data: Eurostat (2018))

Economic sales classes of EU28 farms	Number of farms			
	2013		2016	
	amount	percent	amount	percent
€ 0 - € 7 999	7 493 160	69.1	7 073 080	67.6
€ 8 000 - € 99 999	2 667 390	24.6	2 661 400	25.4
€ 100 000 - € 249 999	417 630	3.9	429 240	4.1
€ 250 000 - € 499 999	166 890	1.5	187 450	1.8
€ 500 000 or over	95 950	0.9	116 640	1.1
Total	10 841 020	100.0	10 467 810	100.0

agricultural market and to provide farmers with a decent income (Garske & Hoffmann, 2016). The CAP is the most important European policy area for several decades and consequently receives most of the EU budget: about EUR 59.64 billion in 2019 (European Commission 2018a). The funding is provided exclusively by the EU budget and not by national funds. The share of agricultural expenditure in the European budget is the largest one in the overall budget with an increasing tendency (Busch, 2013). For individual countries or regions, financial support by CAP is a serious opportunity to solve problems in agricultural development, such as meeting environmental requirements or increasing the level of automation.

The main objectives of CAP are in detail (European Commission 2019a):

- ✓ General support for farmers;
- ✓ Continuous improvement of agricultural productivity, to ensure food supplies for consumers;
- ✓ Ensure an adequate income for farmers;
- ✓ Encouragement of the efforts against climate change, as well as the sustainable management of natural resources;
- ✓ Preservation and tending of rural areas in the EU;
- ✓ Securing and promoting jobs in the agricultural field and related sectors.

The agricultural subsidies, as a key instrument of the CAP, are divided into two pillars. Pillar 1 comprises the European Agriculture Guarantee Fund (EAGF) and essentially finances direct payments to farmers and also measures for the regulation of agricultural markets. The European Agricultural Fund for Rural Development (EAFRD) constitutes pillar 2 (European Parliament, 2019). In the following we take a closer look at the two pillars.

The European Agriculture Guarantee Fund (EAGF): Pillar 1

The EAGF mainly supports farmers by direct payments: more than EUR 43 billion or 73% of the total CAP budget in 2019 (BUND, 2019a, BUND, 2019b). To receive direct payments, farmers must fulfill defined conditions regarding food safety, animal welfare, plant health and environmental protection rules. However, there is no obligation for farmers to produce something special by receiving direct payments in this context. The basic premium, the redistribution award, the young farmer award and the greening award are the four main funding instruments of the direct payment system.

Regionally uniform support per hectare (ha) eligible for aid is provided by the basic premium, which is the largest position within the direct payment instruments. Currently, regionally differentiated premiums are paid between € 154 and € 191 per ha. These are presently being standardized at € 175 per ha (Top Agrar Online, 2015).

In the EU farms differ significantly in size. In 2013 66 percent of farms had less than 5 ha while seven percent had more than 50 ha of agricultural land; the average size was 16.1 ha (European Commission, 2018b). As a result of the current promotion practice, an imbalance has arisen. Only 20% of the beneficiaries currently receive about 80% of the direct payments. Out of a total of 6.7 million holdings only 131 000 holdings, i.e. about two percent, received more than 30% of total direct payments (Matthews, 2019).

The European Agricultural Fund for Rural Development (EAFRD): Pillar 2

The European Agricultural Fund for Rural Development (EAFRD) serves as the main instrument for implementing the objectives defined within the Member States. This second pillar funding aims at making the future is more attractive to people in rural areas. Funding is therefore geared to long-term and strategic objectives as follows (European Parliament, 2019).

- General strengthening of competitiveness in agriculture and forestry;
- Strengthening landscape and environmental protection;
- Increasing the quality of life in rural areas and promoting a diverse and sustainable agriculture.

Since the weaknesses, needs and problems of a region are best known to local authorities, they can define and implement the most efficient way of developing rural areas, considering the strengths, opportunities and potential of their region. This "bottom-up" approach, or local authority to decide, is characteristic for the LEADER program. As part of pillar 2, this program provides local development strategies and regional development projects (Zierer, 2015).

The CAP beyond 2020

The reform of the current CAP has been passed to become active for the period between 2021 and 2027. The focal points are a more equitable distribution of direct payments in the future, the reduction of bureaucracy, the strengthening of a targeted support of sustainable agriculture and the improvement of environmental and climate protection aspects. The existing CAP objectives will be adjusted accordingly.

For the new CAP funding period 2021–2027 all EU member states have to develop national strategy plans for the CAP pillars 1 and 2 of the CAP for the first time. In doing so, technical needs must be derived from a strengths-weaknesses-opportunities-threats analysis (SWOT) of the agricultural policy of each member state according to nine specific goals and specific support measures (e.g. intervention descriptions) must be developed for the needs that have been prioritized.

Around 28.5% of the EU budget will be provided for CAP in the new funding period which amounts to EUR 365 billion (European Commission, 2019c). Despite the cut, this budget is fourteen times higher than the budget for European security and defense and eleven times higher than the one for migration and border management (Heinemann & Weiss, 2018). Pillar 1 still accounts for more than three quarters of this budget. Reallocations of increased endorsement of environmental and climate protection goals are possible and can be determined by the respective member states. In addition, pillar 2 should increasingly promote modern agricultural technologies. Within pillar 1, direct payments will be limited in favor of smaller companies and the previous funding instruments 'cross compliance' and 'greening' will be merged. As a new funding instrument is based on voluntary participation, eco-schemes offer farmers additional opportunities to support environmental and climate protection measures financed with funds of pillar 1 (European Commission, 2019b).

The CAP starting 2021 appears to be more sustainable, fairer, more climate and environmentally conscious through the measures presented. However, ineffective direct payments continue to dominate the funding system with regard to all dimensions of sustainability. The budget cut of pillar 2 with 28% is significantly higher than the cut of pillar 1 with 11%. Furthermore, the well-intentioned approach of digressing and capping direct payments to strengthen small and medium-sized companies in their competition will have hardly any effects, since labour costs can be deducted from the premium. In most cases the result will be of next to no importance, so this limitation rule will not apply. In addition, the incentive will lead to split existing companies in order to achieve maximum funding (Peer et al., 2019). Direct payments will therefore continue to make up a large part of the subsidy budget in the future and create hardly any more incentives for farmers to use sustainable production methods to deliver public goods and services for the European society than it was the case before.

More flexibility for the respective member countries could lead to cherry picking and the associated distortion of competition between countries with a high affinity for the bolstering of public goods and those countries that are only concerned with windfall profits for their farmers. The planned reduction in bureaucracy can also result in funding requirements for strengthening sustainable agriculture being denounced as useless obstacles to bureaucracy and in giving lobbyists a better opportunity to push their interests in political decisions. Eco-schemes that correspond entirely with the logic of spending public money for public goods will not be able to strengthen sustainable agriculture significantly, because there is a lack of sufficient commitment and appropriately determined amounts. In addition, previous experience with greening does not suggest that sustainable production methods will be expanded through incentives based on the principle of voluntary commitment. Since the subsidies are not sufficiently geared towards their environmental and socio-economic performance, no additional value in public goods for the European society can be expected from the granting of direct payments in the coming funding period 2021–2027 (Heinemann & Weiss 2018).

Agriculture and its Subsidization in the USA

With 50 States the USA is the third biggest country in the world with an area of 9 826 675 square km so it is twice the size of the EU. In this country 323 Million people were living in 2016 and the US GDP is nearly $17.4 Billion (Statista, 2019d); the agriculture share of the GDP is 1.01% (Statista, 2019c).

The History of the Agricultural Market

Traditionally, agriculture has had a domineering place in the US economy and culture. Farmers were a symbol of independence, hard work and initiatives in the past. Due to the very good soil in the Midwest, farmers were able to achieve high yields. Thus, the first two decades of the 20th century

were described as the golden age of American agriculture. After the world wars, overproduction, great technical progress as well as the use of pesticides and other chemical fertilizers shaped the agriculture there and thus enabled higher yields per hectare to be achieved. After all, an ever-increasing struggle for higher productivity and efficiency developed between the farmers. At least at that time the agriculture was put under a certain economic pressure concerning productivity, effectiveness and efficiency. Nowadays, the American agriculture is dominated by huge companies which is the reason why the production increased and little farmers have become powerless. Production has more than doubled in the past 50 years, with the number of companies having fallen by more than two thirds (US Diplomatic Mission to Germany, 2016).

The Development of Agriculture in the USA

About 1.66% of the total workforce was employed in the American agriculture in 2016, which accounts for approximately 1.0% of the gross domestic product. The industry enfolds, for example, 18.79% of the workforce, who earn 18.9% of the GDP (Statista, 2019e).

As the most important exporter of agricultural goods in the world, the United States has been exporting 40-70% of wheat harvests since 1970. The agricultural sector is thus an important part of the American economy. Regarding world production, for example, the USA has the shares for wheat of 7.7%, for soybeans of 41%, for meat of 16%, for cotton of 20% and for corn of 38%.

As a result of American liberalism, the agricultural market also largely regulates itself through supply and demand. This means that production can quickly adapt to the market needs. Combined with the subsidy policy, which is markedly weaker in comparison to the EU, new production techniques and forms are being developed that allow rapid structural changes in the entire industry. Since the 1950s there has been a steady development to improve efficiency. This has resulted in a concentration and displacement process. Few large-scale farms with few workers produce large quantities of low-priced agricultural products through the use of artificial fertilizers and machines dominate the image of American agriculture. Finally, due to this process and due to of export fluctuations, the area used for agricultural purposes was reduced significantly from 450 million ha in 1950 to 380 million ha in 2003. In conjunction with the declining area, the number of farms has also been reduced over the years. The number of farms steadily increased to 6.8 million by 1935, because farmers were still able to found their own businesses. The number of farms went down to about 5.6 million farms in 1980 (Exbook, 2007). By 2015, this figure decreased continuously to 2.065 million (United States Department of Agriculture, 2016).The obviously proceeding declined of small and medium-sized enterprises has still continued over the last decade and has led to a striking and lasting increase of the average farm size (United States Department of Agriculture, 2019b).

In the US agriculture the farms are classified as follows (Exbook, 2007):

- ✓ Small farms: pensioner, hobby- and part-time farms (about 50 ha. and with lower incomes);
- ✓ Family farms: about 340 ha in size. Have not money for modernization so the number of family farms falls;
- ✓ Mega-/Super-/Corporate farms: big companies (1 164 ha.), large companies with a lot of borrowed capital and high income.

Table 2 shows the distribution of US farms and farm sizes according to sales classes. The sales classes are similar to the EU sales classes used in Table 1.

Table 2 reveals that in 2017 and as well in 2018 around 12% of agricultural companies in the United States are big farms, which also generate the majority of profits. In terms

Table 2: Development of number of farms, land in farms and average farm size by economic sales class – United States 2017–2018 (Source of data: USDA – United State Department of Agriculture (2018, 2019b), online on the internet)

Economic sales classes of US farms	Number of farms				Land in farms			
	2017		2018		2017		2018	
	amount	percent	amount	percent	average [ha]	percent	average [ha]	percent
$ 1 000 – $ 9 999	1 043 462	51.1	1 034 892	51.1	33	9.4	33	9.4
$ 10 000 – $ 99 999	620 768	30.4	618 906	30.5	122	20.7	122	20.8
$100 000 – $249 999	136 814	6.7	135 956	6.7	393	14.7	399	14.8
$250 000 – $499 999	89 848	4.4	89 285	4.4	586	14.4	587	14.3
$500 000 – $999 999	71 470	3.5	73 051	3.6	781	15.4	779	15.4
$1 000 000 or more	79 638	3.9	79 139	3.9	1 160	25.3	1172	25.3
Total 1	2 042 000	100.0	2 029 200	100.1	178	99.9	179	100.0

May not add to 100 percent due to rounding

of numbers, in 2017 around 241 thousand of the 2.04 million agricultural enterprises own more than half of the total agricultural acreage in the United States (United States Department of Agriculture, 2018). Furthermore, this 12% of agricultural enterprises had sales in 2018 of $ 250 000 or more and approximately 7.5% even $ 500 000 or more (United States Department of Agriculture, 2019b).

The increase in efficiency of agricultural enterprises is due to progressive mechanization (large, powerful machines, fully automatic stables) and is further achieved by economic cost optimization (e.g. outsourcing of sowing and harvesting to migrant workers). In addition, higher yields are also achieved through specialization, the use of gene technology, for more resistant plants and shorter cultivation times, and the continuous optimization of large-area, artificial irrigation systems. Productivity has risen sharply as a result of these measures, both per area and per worker. Thus, the corn yields per hectare have tripled since 1960 for example. Also, the number of persons who can be fed by a farm worker has increased from then 25 to today to over 130. However, this farming, which is heavily geared to increasing efficiency, has caused huge environmental problems, in particular sustained soil erosion. Many areas in the Midwest as a result of that mismanagement lie barren and are no longer protected by adapted vegetation. Heavy dust storms are created and take away fertile ground, so that entire landscapes become desolate (Exbook, 2007).

The Infrastructure of the Organizations

Similar to the administrative structures of the European countries, in the United States of America there is also a united Ministry of Agriculture – the United States Department of Agriculture (USDA). This ministry was established in 1862 and its primary task is to ensure the supply of food to the American population. In addition, the Ministry is responsible for the regulation of the agrarian market, forest and landscape conservation, agrarian science and research as well as the economic development of rural America. The U.S. Department of Agriculture is made up of 29 agencies and offices with nearly 100 000 employees who serve the American people in more than 4 500 locations across the country and abroad (United States Department of Agriculture, 2019c).

The Development of Granting Subsidies

The subsidization system in the US did not play a great role in the past. At the beginning of the 20th century the business with agricultural products was booming, so that all farmers in the US were well off. Nevertheless, separate subsidization programs have existed since the founding of the USDA. The Morrill Act of 1862 was one of the first subsidy programs for agriculture, which established the land-grant colleges. The Hatch Act of 1887, which funded agricultural research, and the Smith-Lever Act of 1914, which funded agricultural education, were other funding programs (Edwards, 2018).

In 1916 the Federal Farm Loan Act created cooperative "land banks" to provide loans to farmers. But the federal subsidies to agriculture were still small in the 1920s. So, the USDA was focused on producing statistics, funding research, and responding to problems such as pest infestations. Then calls for direct subsidies to farmers began to intensify and in 1929 the Agricultural Marketing Act created the Federal Farm Board, which tried to raise commodity prices by stockpiling production (Bovard, 2005). With the beginning of the Second World War there was an enormous price decline. The policy responded to this with subsidies and thus ensured prices to remain relatively stable. This involved high costs and was only partly successful. Nonetheless, this policy was continued after the Second World War. In 1970 the subsidy policy was finally abandoned in favor of the industrialization of agriculture. With the slogan "get big or get out" of the agriculture minister Henry A. Wallace, a process was initiated, which is still going on today. Instead of the family farms, the mega-farms, which were able to operate much more efficiently, were to take their place. The traditional farming life has been transformed into an entrepreneurial activity that still characterizes the US agriculture (United States Department of Agriculture, 2019c).

Even though until the 1980s, Congress occasionally considered farm reforms, usually when commodity prices were high, but then reverted to subsidy expansions when prices were lower. In the 1980s, the Reagan administration proposed major cuts to farm subsidies, but farm finances were in bad shape at the time, which prompted Congress to increase farm support, not to reduce it. In the 1990s, the Congress did enact pro-market reforms under the "Freedom to Farm" law of 1996. This law enabled farmers to enjoy more flexibility in their daily work, depending on market supply and demand. At the end of the 1990s, however, Congress revised this policy again by passing a series of additional agricultural subsidy bills (Ordan et al., 1999; Cato Institute, 2017). As a consequence, the subsidy expenditure, which was expected to increase from $47 billion of the 1996 law over a period of seven years, rose finally up to $121 billion (Cato Institute, 2017). Since 2000 further support programs have been approved by Congress, and partly by the government. As examples, the "countercyclical" program in 2002, the farm legislation in 2008 and the general structure change of the previous support programs in 2014 can be mentioned (Edwards, 2018). This did not stop the concentration process

in the 1970s towards mega-farms anyway (United States Department of Agriculture, 2019c).

Impact of Industrial Agriculture

As a result of the US subsidy policy, agricultural enterprises have continuously increased their productivity (United States Department of Agriculture, 2019a). Therefore, they can respond flexibly to the challenges of the global market. In this way the farmers were able to increase their sales. Technological developments in agriculture have had an economically positive impact on changes in agriculture. Due to innovations in breeding and keeping animals and plant genetics, chemicals, equipment farms have achieved continuous production growth while using fewer resources. Despite the decline of land and labor in agriculture, overall agricultural production more than doubled between 1948 and 2015. During this period, annual agricultural production increased by 1.48%, compared to an increase of 0.1 % for the consumption of resources respectively of total agricultural inputs in the same period (including land, labor, machinery and intermediate goods).

The main source of output growth is the increase in agricultural productivity as measured by the total factor productivity (TFP) - the difference between total input growth and total output growth. Between 1948 and 2015, TFP grew at an average annual rate of 1.38% (United States Department of Agriculture, 2019a).

Five corporations dominate the import and export of such agricultural commodities: Archer Daniels Midland, Bunge, Cargill, Louis Dreyfus Company and Cofco. Three of these companies are headquartered in the United States (Herre, 2017).

The huge market power enables these corporations to influence world agricultural markets and use their enormous bargaining power over producers in negotiating prices. Based on this market and bargaining power and considering their financial activities, they are capable of achieving high rates of return. However, they conduct their business activities disregarding the requirements of a sustainable agriculture (Herre, 2017).

In addition to the significant and constantly proceeding market exit of small and medium-sized enterprises there are also huge environmental challenges. Whereas since the 1970s the environmental movement has been gaining importance and political influence in the EU, and it has succeeded in enforcing massive environmental protection laws and regulations, the US has exclusively continued to pursue a more efficient and cost-effective production as key agricultural policy objective. This way of thinking led to the fact that many agricultural areas became unusable due to intensive, high-tech cultivation. Due to the unlimited use of pesticides and chemical fertilizers, an increasing number of soil erosion areas have suffered, which initially led to losses in yield and ultimately to infertile soil. It was only since the costs for the restoration of the fields were so great that the profits were significantly reduced, a change of perception was taking place in the farmers' attitude. However, the idea of environmental protection in the USA is not so widely spread as in the EU. Although many American farmers are active in organic farming today, such aspects of environmental protection are still given a subordinate priority, because the American agricultural market puts much more emphasis on profitability (United States Department of Agriculture, 2019a; United States Department of Agriculture, 2019c).

Profitability is also the driving force for the steadily increasing use of genetically modified plants (GMO) in USA's agriculture. Genetically modified plants are cultivated on more than 90% of the disposable land (United States Department of Agriculture, 2019d). This intensive cultivation of genetically modified plants causes massive ecological, social and economic problems such as contamination, resistance, loss of biodiversity, market concentration, patents, and pesticides. Based on a natural cultivation, a great variety of crops, each with its own specific characteristics, has emerged throughout history. This diversity is seriously threatened by the concentration on a few genetically engineered varieties and the associated shrinkage of the natural gene pool of agricultural crops. Local varieties which are optimally adapted to their respective location are displaced. For financial reasons, the cultivation of genetically modified crops focuses on species that promise high profits such as corn, soy, and cotton and oilseed rape. Transposed seeds, pollination and contamination by animals or contaminated machines lead to an uncontrolled spread and the associated expansion of genetically modified plants in so-called super weeds, which have a high resistance to several pesticides. As a result, large areas can no longer be managed with GMO-free seeds. In addition to that genetically modified plants are not recoverable from nature. Furthermore, genetically engineered plants favour the emergence of resistant pests, which in turn have toxic effects on insects and soil organisms and favour the formation of secondary pests. On the other hand, the cultivation of herbicide-tolerant plants assists a large-scale application of pesticides. This also decimates the natural diversity of plants and insects, resulting in an increase in weed remnants and the concomitant increase in pesticide use. The impact on human and animal health has widely been unknown by scientific researched in this context. The risks to humans are not visible yet. Inducted by the patenting of transgenic plants, farming tradition such as the sowing of crops is crim-

inalised, and a basis of general life is privatized in favour of the respective large farms. There are not only ecological effects caused by the use of genetically modified plants, but also noticeable economic consequences must be taken into account. As a result of high additional costs for the avoidance of contamination, the production of both conventionally and organically grown food becomes more expensive. In the long term, the displacement of these kinds of cultivation by agro-genetic engineering can hardly be avoided (Umwelt Institut München, 2019). Due to the exclusion of genetic engineering and organic farming, organic farming only plays a minor role in American agriculture, despite a steadily rising demand for organic products. Therefore, the increased demand needs to be covered by imports (Proplanta, 2016). As consequence of the associated increase in prices, predominantly young well-educated people with an increased awareness of healthy nutrition are its main consumers. These people are also willing and able to pay the much higher product prices (Deutschlandfunk, 2014).

Discussion of Consequences for the European Subsidy Policy

The development of the US agricultural market illustrates very well that without external rules and steering mechanisms enterprises are almost exclusively driven by economic parameters, disregarding social and ecological aspects. A dramatic and steady decline of companies and the associated loss of jobs lead to significant market changes, i.e. to the formation of oligopolies. Few very large industrialised farms, by the use of their market power, dictate the direction of the agricultural development, particularly in terms of product offerings, product diversity, production methods, product quality and ultimately the product price. The depletion of existing natural resources, and in particular the use of genetic engineering, goes hand in hand with the loss of natural diversity and unknown consequences for human and animal health and the irreversible effects on flora and fauna. In addition, American agriculture is in the trap of efficiency, because without a steady increase in efficiency the demands for agricultural production are apparently barely sustainable at present. However, this compulsion for continuous efficiency improvements reinforces the aforementioned development and prevents that alternative cultivation methods are given a fair chance. In spite of the fact that there is an increasing demand for bio products, a rejection of this development in production methods is not conceivable.

The current subsidization practice in Europe also mainly supports large farms and, as a result, noticeable negative developments concerning biodiversity, climate-, water- and soil protection, as well as animal welfare and health protection cannot be prevented. These developments impressively reveal the current threats to the European agriculture (Bund, 2019b). With the European CAP as is and as planned, the further displacement of small and medium-sized enterprises by large ones is pre-programmed. If this development progresses, the European agricultural policy is heading for conditions comparable with those of the agricultural sector of the USA.

Conclusion

If European agriculture does not want to pursue the same way as the American agriculture and to accept the consequences associated with it, the CAP must change or fundamentally reform and enfold agriculture in the future as a whole. The presented data highlights that the European agricultural market is structurally comparable to the agricultural market in the USA. Few large farms manage the majority of the available agricultural area and thus dominate the agricultural market as a whole. Small and medium-sized companies, on the other hand, are low-yielding and increasingly lose their economic connection in their development. Although significant development steps have already been taken in the concentration process in the US agricultural industry and small and medium-sized enterprises hardly play a role in the agricultural market, this concentration process is still continuing with the progressive displacement of these small and medium-sized enterprises. It can therefore be assumed that the crowding-out development in the European agricultural market has not yet been completed and that the EU CAP fosters with its subsidy payments a comparable and not desirable development to the US agricultural market. Therefore, the ongoing displacement of small- and medium-sized farms in the European agriculture must be stopped, as well as the loss of biodiversity and the pollution of water, air and soil. The CAP must be realigned to make its contribution to climate, environmental and animal protection and to promote regionalism instead of mainly supporting agricultural exports. In particular, a shift of focus towards a better funding of pillar 2 is needed to conduce environment-friendly agriculture, improve the competitiveness of small and medium-sized enterprises and strengthen regional value chains.

Changes in agriculture are closely related to climate, nature, food and rural areas and thus have a direct impact on EU citizens. Achieving a broad social consensus on how agriculture should be developed is very important in shaping the current change in agriculture. However, this aspect is not sufficiently taken into account by the CAP. More and more small and medium-sized enterprises will disappear from the market without appropriate reforms to strengthen sustainable

agriculture with consequences on product diversity, methods, quality and price stability.

The envisaged CAP reforms for the 2021-2027 funding period fall too short. Nevertheless, a reform of the funding strategy in pillar 1 is also needed that takes care of small and medium-sized enterprises. A mere area-based funding scheme has proven as being inappropriate.

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