

March 2020

Cultivating Common Good: A Call for Transformative Science to renew the Common Agricultural Policy (CAP)

Anna Deparnay-Grunenberg and Bianca Llerandi

Abstract This paper calls for transformative science to catalyze the needed change in the agricultural sector. It sheds light on the current dysfunctional system of resource allocation of the CAP and its poor economic, ecological and social outcomes. While the disparity between the desired outcomes and the reality is undisputed within research, former reforms have resulted in little change of the CAP. However, there is now a window of opportunity for real change with the transitional phase of the CAP, the shock event of the Coronavirus pandemic as a magnifying glass for underlying systemic problems and the proclamation of the European Green Deal, in particular the Farm-to-Fork-Strategy. The current system is impoverishing our biodiversity, soils, health and rural socio-economic tissue. To break this downward spiral, the authors suggest allocating resources according to the common good that a farm produces. To design change, this article assigns a major role to transformative science and lays out starting points and missions for further research.

Keywords Common Agricultural Policy (CAP), European Union (EU), Common Good in agriculture, socio-ecological transformation, regional food security, transformative science

**“Let’s transform the Common Agricultural Policy into a Just Transition Fund
for forestry and agriculture!”**

Anna Deparnay-Grunenberg

What is the CAP and what is its budget and aim?

In the aftermath of the Second World War an idea emerged in which the European Union could pool resources in order to ensure an adequate food supply, stabilize the prices and facilitate adequate pay for farmers (Chemnitz et al. 2020; Lampkin et al. 2020). The Common Agricultural Policy (CAP) of the European Union was initially designed in the late 1950s and was implemented in 1962. The aim of ensuring food supply in Europe was surpassed in 1984, which resulted in an overproduction of foods (European Commission 2020a). Nowadays, the awareness of the multifunctionality of agriculture translates into a widening of responsibilities; namely, the sustainable management of natural resources, the fight against climate change, the protection of biodiversity and the upkeep of landscapes, including forests (Lampkin et al. 2020). Around 40% of the total EU budget was dedicated to the CAP in the funding period of 2014 to 2020, which corresponded to about 60 billion euros, and thus, equaling 114 euros per EU citizen (Chemnitz et al. 2020). The CAP has two pillars: the first is funded entirely by the EU, and it mainly distributes annual direct payments. The main criterion for this pillar is based on the size of the farmland. The second pillar is co-funded by nations or regions. It was introduced with the “Agenda 2000 reform” in order to account for the multifunctionality of agriculture. It is supposed to boost rural development, organic farming and environmental actions.

What is wrong with the CAP?

Reform after reform, the CAP essentially has remained the same in its 58 years of existence (Alons 2017). During this time, the CAP has proven to be dysfunctional in many ways: Due to the area premiums, large producers received more aid from the CAP compared to small scale producers. This resulted in 80% of the aid going to merely 25% of EU farmers (Ermolieva et al. 2018). Between 2003 and 2013, one third of all farmers stopped agricultural practices, and as a result, their agricultural surfaces (and/or amount of livestock) transitioned to larger farms. Today, 3.1 % of all existing farms in the EU work over 50% of the total available European farmland (Chemnitz et al. 2020).

Whereas large-scale farms spread a loss in terms of employment, they also contribute to a reduction of the variety of cultivation systems and products (Chemnitz et al. 2020). More importantly, there is no evidence that large-scale farming achieves higher biodiversity rates or is better suited to reduce and adapt to the consequences of climate change. On the contrary, case studies have shown that in small farmland, there is not only more biodiversity (Belfrage et al. 2015), but also less use of pesticides (van der Meulen et al. 2014). The CAP structurally creates incentives for the most intensive and environmentally damaging forms of agriculture,

namely that of grain and intensive livestock farming (Chemnitz et al. 2020). The continued decrease in biodiversity in the agricultural land is quite alarming, and it has far reaching negative effects. For example, the variety of farmland birds in some of the EU member states have decreased around 30% since 1990, in some even over 40% (Chemnitz et al. 2020).

Additionally, due to missing pollination through honeybees, there has been crop reduction in fruits, for instance of 65 to 88% in pears (Chemnitz et al. 2020).

Moreover, there are often no or insufficient norms to ensure environmental protection. In addition, there is little monitoring, and thus, a control deficit. This is especially true when it comes to complying environmental laws (Feindt et al. 2019). The vast environmental consequences agricultural practices present, is pinpointed by the Paris Agreement, where agriculture is one of the biggest polluting sectors in the EU's economy (Lampkin et al. 2020). In November 2019, over 3,600 scientists across Europe and beyond signed a position paper to call for action, stating the CAP is “failing with respect to biodiversity, climate, soil, land degradation as well as socio-economic challenges” (Pe'er et al. 2020).

Why is nothing happening? And what happens if nothing happens?

None of the above is new. The literature points out the inertia of the structures, the path dependency, viewing the reforms of the CAP as reactive sequencing leading to a lock-in situation. Agricultural stakeholders fight for the maintenance of direct payments based on farmland size. A study of the German Nature Conservation Association, NABU (Nischwitz et al. 2019) has shown the extensive links of agribusiness to politics and agricultural advisory committees in the German and European Parliament “thanks to its close connections to members of the Christian Democratic party (CDU/CSU) and the European People's Party (EPP): over 85% of German Christian Democrat committee members are stakeholders in the farming and agricultural sector. For example, more than half of their committee members hold a position at one of the Farmers Association's various organizational levels.” The study gives examples of politicians who are found to show a “conflict of interest”, i.e. that they are active in both, the field of agricultural policy and also hold key positions within the agribusiness and lobby network. NABU (Nischwitz et al. 2019) underlines: “There are allegations that many ambitious efforts to reform or adjust agricultural and environmental policy or current farming practices are being systematically obstructed, if not significantly diluted, by stakeholders. In their final outcome, negotiations on political and legal frameworks or support programs often stand in contradiction to the initial approaches, suggestions and expert recommendations, in particular”. Imposing farmers to tackle climate change, biodiversity loss, plastic waste and air,

soil and water pollution is often portrayed as a heavy constraint to business, that is mainly based on producing large amounts of food for the population (Hofreither 2016). Hofreither concludes that holding on to the status quo will result in enormous societal costs, endangering the climate, biodiversity and threatening the health of the people. He raises the question whether it will ever be possible to compensate such damage with monetary measures (Hofreither 2016). It becomes clear that it is time for a more visionary and more ambitious reform of the CAP. It is time to invest these large sums of money more effectively. Eurodeputy Anna Deparnay-Grunenberg, therefore, calls to transform the CAP into a Just-Transition fund for forestry and agriculture. She is pushing to establish a system that rewards and encourages farmers that produce in line with the common good by protecting the biodiversity, air, soil and water quality, by managing resources sustainably for generations to come, by producing healthy food and by adequately valuing labor carried out in the food chain.

What does a common good-oriented CAP encompass?

The idea is simple. With a remodeled CAP, farmers are rewarded for producing common good. The common good criteria are set in a matrix in form of a common good balance sheet. Ideally the definition of the common good criteria emerges in a participative process. Moreover, the criteria should be reviewed regularly, as with future challenges the European community might choose to add more criteria. Also, when higher common good standards are reached it is likely that more criteria are added.

To illustrate such a common good balance sheet, we inserted the graph (Fig. 1 *Exemplification of a Common Good-oriented distribution of CAP resources*) below. In the Common Good Balance Sheet, the vertical column shows the points of contact that the farm has with other groups of people, structures and environments, thus the stakeholders. These points of contact can be the suppliers (e.g. seed and pesticide provision etc.), the owners and the equity and financial service providers, customers and business partners and last but not least the social environment. The horizontal column shows fundamental values that the community agreed on, such as human dignity, solidarity and social justice, environmental sustainability, transparency and co-determination. Each field in the matrix itself corresponds to an array of subcategories. We exemplified that by zooming into the category *Reduction of environmental impact*. Subcategories include contribution to good water quality, maintenance of biodiversity and soil fertility, reduction of pesticides etc. The score of the farm in percentage evaluates how well these targets are fulfilled. The EU would distribute money accordingly to the total score of the farm, which would be calculated as an average of all the scores in the respective field that a

farm achieved on its respective surface. In this system it is not per se good to be a large or a small farm. And of course, if a farmer achieves good scores throughout a larger surface it will also be rewarded by considering the size of the agricultural land. The biggest change is that the size of the farmland is not the main criteria and, thus, will not be the main motivation. By following this system, farms of all sizes will be able to survive.

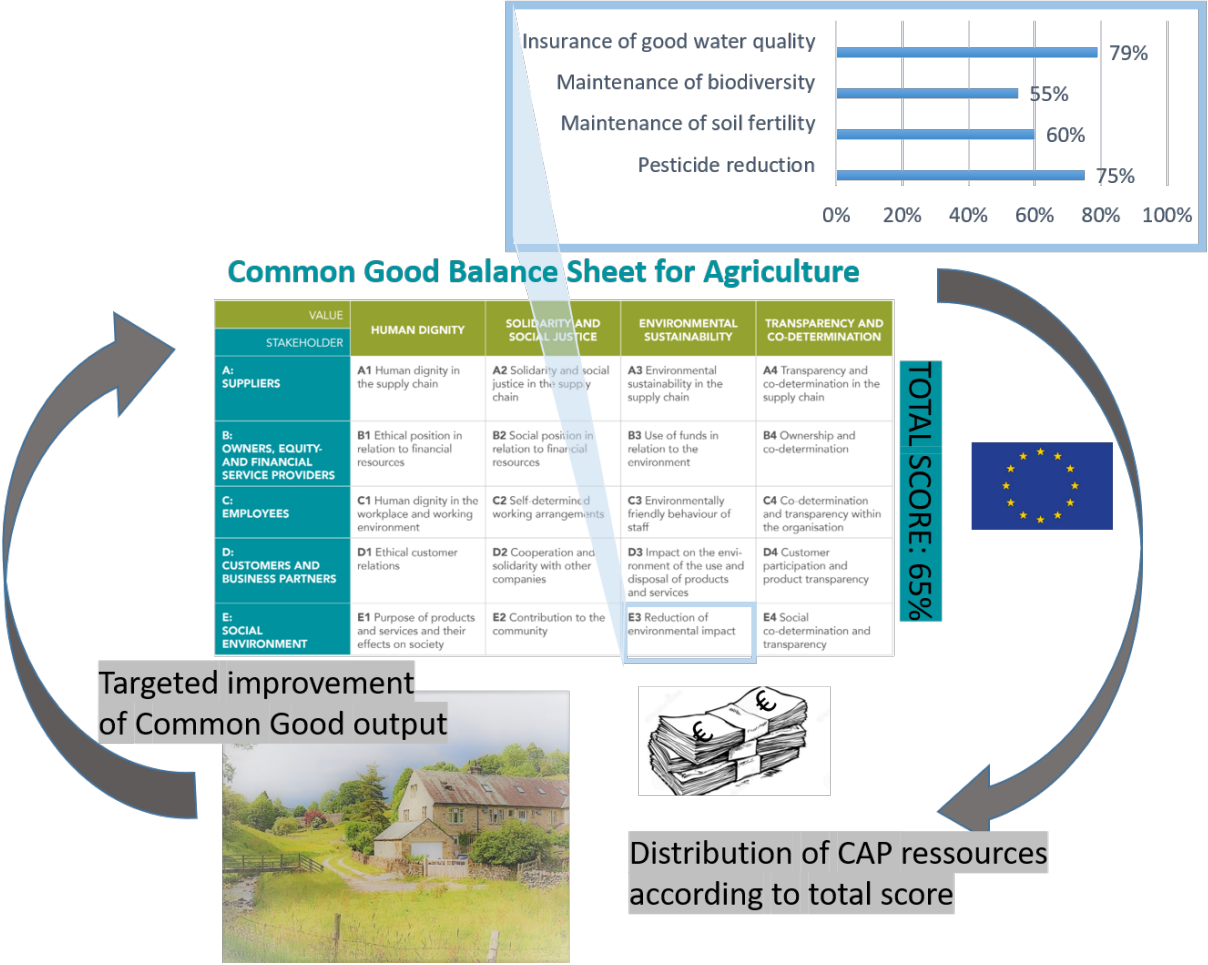


Fig.1: Exemplification of a Common Good-oriented distribution of CAP resources (own illustration based on Knapper et al. (2020))

With this direct link to the produced common good, large investments in the agriculture sector are justified and might even be expanded, as they include advancements in the fight against climate change, increased social cohesion, improved employment conditions and physical health due to better food quality.

The evaluation of the performance of the farm also helps the farmer to gain insights on where improvements can be made to achieve a better common good score and, thus, more money, as

the arrow on the right-hand side of the graph illustrates. This will not only encourage efforts but allow for a more targeted and precise improvement. In return, this will lead to a better total common good score (as the arrow on the left-hand side illustrates) and, therefore, more financial aid from the CAP. Then again, the farmer has more financial means to invest to further improve his production. This way it becomes clear how the common good grows steadily. As the farmer receives more money the produced product becomes cheaper and more accessible to a broader part of the population and, therefore, the demand for these products also rises. A positive dynamic is launched, contrary to the current situation where organically-farmed and fair-traded foods are expensive.

How can things get moving? A window of opportunity seems to be open

The CAP is now in a transition phase, while a reform is under way and the new CAP is supposed to be implemented in 2022. Because conservative forces defending the status quo in the European Parliament still hold the majority, it currently seems difficult to reorganize the CAP and to reallocate resources. However, there are certain indicators that signal a window of opportunity for change, which we will elaborate in the following:

1) The rising awareness for climate change and the need to act

In 2019, the youth movement Fridays For Future successfully raised awareness for climate change. In September 2019, six million people demonstrated for the recognition of the environmental emergency and the need for action (Taylor et al. 2019). Leader of the movement and teenage activist Greta Thunberg was heard in the political sphere at a top decision-making level (e.g. at the COP24, the World Economic forum in Davos, in the European Parliament in Strasbourg and Brussels and in the National Assembly in Paris). With this heightened awareness for the urgency to tackle climate change, the necessity to make a change in the agriculture sector becomes evident and there is more pressure for it. Germany's Nature Conservation Association, NABU, started a campaign "My 114 Euros for..." where citizens sent emails and postcards with their wishes what their share of the CAP should be used for (NABU 2020). Pressure from society also translates into widely questioning the large budget of the CAP. Since the CAP is financed with public money, the claim for dedicating it only to public and thus common good is likely to become stronger. Money is needed everywhere and as the pressure grows the budget of the CAP might shrink. Therefore, it should also be in the best interest of agribusinesses to make changes.

2) The Coronavirus pandemic as a shock event showcasing the short comings and inherent risks of our current agricultural system

Shock events that suddenly grab public attention and lead to public pressure that is put on policy makers, have - in the past - successfully and more powerfully shaken up and changed seemingly stoic structures. In the agenda-setting literature, such events are called focusing events (Baumgartner 1998; Birkland 1998). Following the event, the attention is focused on a specific problem or set of problems, which lead to a change of the dominant topic in the public, media and political arena. The latter eventually results in higher legislative activity within the domain. A prominent example is the Fukushima Daiichi nuclear meltdown that led to a turning point in German energy policy-making, and eventually, the decision to phase out nuclear energy (Hindmarsh and Priestly 2015). Another example would be the quick implementation of a quality assurance system for the agriculture sector after the BSE crisis (i.e., mad cow disease) (Feindt et al. 2019).

2.1) The increased risk for zoonosis in intensive livestock farming

The current Coronavirus pandemic, that causes Covid-19, is a global shock event. Concerned people around the globe are changing the ways they produce, consume, work and spend their free time. This raises awareness for systemic problems, and thus, it makes people more receptive to the following arguments. For example, zoonosis (i.e, transmission of a disease from the animal to the human) can spur the interest towards agricultural policy concerns. It is crucial to highlight zoonosis here because many people are aware that the coronavirus most likely originated from animals (Hui et al. 2020). It has been shown that viruses are more likely to jump from animal to human during intensive livestock farming (Feindt et al. 2019), which is currently a major form of farming funded by the EU. In other words, the present structure of agriculture is laid out in a way to facilitate conditions for the spread of diseases. More drastically, our current agricultural practices are increasing the likelihood of a pandemic outbreak. Concerning the circumstances of livestock farming, it shall also be mentioned that with the closed borders within Europe, public awareness for the transport of animals has risen. Newspapers have covered how animals got stuck in the heavy traffic without any food or water and of cows in pain because they could not be milked (Dietzke 2020). The situation has become drastic, in particular on the German-Polish border, where drivers spend up to 20 hours sitting in traffic jams (Götz 2020). While the CAP does not foster this, it also does not impede it, making it clear that common good and ethical concerns are not considered under the current system.

2.2) Non-resilient food supply chain and low regional food security

Moreover, it has been reported that people have purchased vast amounts of goods in panic, which have resulted in empty store shelves (Balzter et al. 2020; Gassmann et al. 2020). Having experienced the fear of a collapse of the food supply chain gives us the opportunity to raise people's interest in the general resilience of our agriculture. The coronavirus crisis has exposed how heavily Germany relies on cheap unskilled labor from abroad (e.g., in Germany mainly from Poland and Romania) for their agriculture production. The fact that these workers are not allowed to travel between countries has raised concerns amongst Germans who may start to question food security and the usually reliable supply chain. While there are no shortages to be expected when it comes to potatoes or grain, as machinery has mainly replaced human labor, it is a different story when it comes to harvesting and transporting tomatoes, fruits and cucumbers (Sußebach 2020). Annelie Buntentbach, board member of the Federation of the German Trade Union (DGB), pointed out that the poor salaries, working and housing conditions are at fault. It would be possible to attract labor, also within the country, if these issues were addressed (Zeit online 2020). The article by Sußebach (2020) also underscores that so far, we have not cared for our regional food security, because it didn't seem to matter. If we cannot purchase strawberries locally, they will be imported from Spain and Italy. Clearly, the current crisis also sheds light on the societal problems in the agriculture sector and questions the detachment of the people to their local producers.

2.3) Risks, due to monocultural tendencies

It is time to think of a system that is ecologically, socially and economically sustainable. As pointed out above, it is scientifically proven that the current system is not fit to adapt to the challenges of climate change, and thus not resilient enough. It shall also be noted that there is less diversity amongst crop variety in Europe (McClatchie et al. 2014). This could become problematic, if a new parasite was to emerge and attack the main type of wheat used on EU farmlands. It could result in an enormous crop loss and food shortage. A historical example is the "the Hungry Forties" in the mid-1840s in Europe, a period followed by multiple crop failures, especially that of the potato. *Phytophthora infestans*, a fungus, spread across the European continent. In Ireland, the famine took the heaviest death toll with approximately one million people. Ireland suffered so heavily since it had become overly dependent on a single variety of potato, known as the Irish Lumper (IrishCentral 2013). Nowadays there are still pests that result in major crop loss, however, contrary to the 1840s, it is mostly possible to fight the pest with pesticides. Such measures lead, however, to other undesirable affects such as

pollution, death of pollinators and draw backs of pesticide regulations, which in turn further aggravate the environmental harm (Desneux et al. 2010). Furthermore, if a pest has become resilient to the pesticides, it is - as it is in the case of a virus - a question of when a cure will be found, mass produced and made available.

3) The Farm-to-Fork-strategy of the European Green Deal is ineffective without a change of the CAP

It becomes clear that farming needs to become more resilient and that reforming the CAP could facilitate this. Interestingly, the European Green Deal, in particular the Farm to Fork strategy, claims that its aim is to “tackle climate change, protect the environment and preserve biodiversity” (European Commission 2020b) without mentioning a need for change in the allocative mechanisms of the CAP. This inconsistency is now likely to come under pressure. Awareness for the climate emergency, the contribution of agriculture to climate change and more systemic thinking has opened a window of opportunity.

Define and design change – use the crisis

This window of opportunity needs to be used before it closes. Windows of opportunity present unique chances in time. A clear framing (rhetoric or storytelling), change agents, group mobilization and alliances among groups are needed (Birkland 2017). The problem must be defined “as a discrepancy between the current reality and the desired goal” (Farley et al. 2007). Policy change emerges when consensus has been reached on the appliance of policy tools to solve a problem. Change happens when “the national mood” and leading politicians perceive it as urgent and therefore are willing to act (Farley et al. 2007). Consequently, the same events can translate into different outcomes in different countries, even regions and communities, depending on the framing of the problem and the connectedness with other societal issues (Birkland 2017). For instance, the same nuclear disaster in Fukushima did not lead to a turning point in France or Sweden because it was not defined and framed as a national problem that needed to be acted upon (Hindmarsh and Priestly 2015).

Schattschneider famously stated, “the definition of the alternatives is the supreme instrument of power” (Schattschneider 1960/1975). Birkland (2017) stresses that clearly defining alternative solutions is key to gain the attention of the public and decision makers.

Consequently, the top priority in the transition phase of the CAP is the definition of viable alternative solutions. In order to move society to change their minds and to shift majorities on

this very issue, the alternative solution needs to be ready to be implemented and allow for a comparison of prospect outcomes of the new system versus the old one.

A pledge for transformative science to catalyze change in the CAP and to save our livelihoods

To achieve this, we need transformative science. This concept assigns a different role to science “which goes beyond observing and analyzing societal transformations, but rather takes an active role in initiating and catalyzing change processes” (Schneidewind et al. 2016).

While the idea to apply criteria of the production of common good is appealing, it may be too vague, and thus, will not result in change. It shall also be noted that there are many similar approaches and certification systems that merely coexist (e.g. ISO 14.001:2015 Environmental Management Systems, Knowledge-Based Development from the Commons Theory etc.). Furthermore, there are scattered initiatives and processes to apply criteria of common good to companies but also to landscape management in the form of forestry and even agriculture: In the German state of Baden-Württemberg, the forest managing authority (Forst BW) is in the process of being evaluated according to Common Good Criteria (Winkel and Spellmann 2019). In Freiburg, an agricultural citizen share company has been founded. The principle of the latter is that citizens buy shares that are then invested in farms that produce “ecological, social and regional economic value”. The company has developed its own way of calculating the worth of a farm considering the output alongside with the whole impact of the farm. Christian Hiß, the founder, claims that this way there are no more externalities (i.e. costs, that result for example from the pollution of the water and soil). Similarities can also be found within the networks of community-supported agriculture (i.e. SoLaWi in Germany, AMAP in France).

It is necessary to ***bundle the existing approaches of defining and measuring common good and to make them applicable to the field of agriculture***. The lessons learned from existing projects should be made accessible. Weaknesses and strengths of the different coexisting models need to be analyzed and synthesized to allow the development of a sophisticated and widely applicable model in the new CAP. Moreover, there is a need to operationalize (i.e. make the criteria measurable) and ***for tools to evaluate the performance of the farm*** and thus be able to reward and sanction farms accordingly. A viable alternative must also be efficient in the sense that it cannot be too difficult, nor too time-consuming. We must keep in mind that the current system is very practical because it is easy to assess the size of the farmland with aerial photographs. Measuring the farmers impact on the common good will be a lot more challenging. This stresses the need for tools such as the Smart-Farm tool, which both reduces

the effort for the farmer and helps set common good criteria that are measurable. Such tools need to be used and improved so that they can be applied to a large scale. Studies and *real-world laboratories that model a new distributive system or reproduce it in smaller case studies* can give important insights. The *consequences for society as a whole have to be explored*. For instance, there are also legal questions that need to be considered. This is especially important since some indicators might depend on the judgement of the assessor more than on empirical data. Processes to minimize arbitrary judgments and to increase acceptability among culturally diverse regions are needed. *Identifying stakeholders and designing participation processes* to find solutions will help greatly. Analyzing stakeholders' interests needs to be done by considering new groups, that have so far been ignored. These groups include locals that are affected by the environmental harm and changes in socio-economic tissue of their region due to the farmer's activity. This could also address a shortcoming of the current CAP: Its ability to learn and its' opportunities for participation have been low. This results in low adaptability to change and strong orientation on established paradigms (Feindt et al. 2019). Furthermore, an innovative participation process would crack open the structures of power within the agribusiness, and thus, take away the accentuate influence of a selected few. This will raise transparency in decisions made and simultaneously allow for more innovation and adaptability.

It shall be stressed that such a transformation of the agriculture sector needs to be accompanied by *measures to help farmers transition*. This is clearly the main challenge, since in the course of the industrialization and subsequent modernization of agriculture, farmers were gradually forced to professionalize and rather become farmland managers (Hendrickson et al. 2005) in order to increase productivity. The way the distribution of aids was set up also contributed to them specializing and investing accordingly, for instance in machinery for intensive farming (Lefebvre et al. 2015). It is difficult to transition to a more sustainable form of agriculture. Therefore, it is key to elaborate a change-making process that will take these farmers into account.

Moreover, new skill sets in the administration will be needed, and *education programs must be designed*. There is a great need for more expertise and wholistic knowledge on agriculture. For the assessment of the farms and the monitoring process, new jobs would need to be created. Finally, there is a *need for estimations of the intended investment for the transition to a CAP*, that is based on the common good. While we are unable to name any sum here, it is obvious that a massive restructuring of the sector is inevitably connected to massive investment. Such investment is justified, given that currently we are paying immense sums for the demonstrable

destruction of our common good and our livelihoods. Consequently, transformative science is, therefore, urgently needed to shape and catalyze change in the European agriculture sector.

Bibliography

- Alons, G. (2017). Environmental policy integration in the EU's common agricultural policy: greening or greenwashing?. *Journal of European Public Policy*, 24(11), 1604–1622.
- Balzter, S., Bernau, P., Scherff, D. (2020). Die Angst vor der Knappheit. *Frankfurter Allgemeine Zeitung*. <https://www.faz.net/aktuell/wirtschaft/corona-hamsterkaeufer-die-angst-vor-der-knappheit-16690499.html>. Accessed 30 March 2020.
- Baumgartner, F. R. (1998). After Disaster: Agenda Setting, Public Policy, and Focusing Events. *Political Science Quarterly*, 113(3), 516+. Accessed 20 March 2020.
- Belfrage, K., Björklund, J., Salomonsson, L. (2015). Effects of Farm Size and On-Farm Landscape Heterogeneity on Biodiversity—Case Study of Twelve Farms in a Swedish Landscape. *Agroecology and Sustainable Food Systems*, 39(2), 170–188.
- Birkland, T. A. (2017). Agenda setting in public policy. In *Handbook of public policy analysis* (pp. 89-104). Routledge.
- Birkland, T. A. (1998). Focusing events, mobilization, and agenda setting. *Journal of public policy*, 18(1), 53-74.
- Chemnitz, C., Rehmer, C. (2020). Agrar-Atlas 2019 (3rd ed.). Heinrich Böll Stiftung, Bund für Umwelt und Naturschutz Deutschland, Le Monde Diplomatique. https://www.boell.de/sites/default/files/2020-02/agraratlas2019_III_web.pdf?dimension1=ds_agraratlas_2019. Accessed 26 March 2020.
- Ermolieva, T., Boere, E., Biewald, A., Havlik, P., Mosnier, A., Leclere, D., Valin, H., Frank, S., Obersteiner, M., Ermoliev, Y. (2018). Addressing climate change adaptation with a stochastic integrated assessment model: Analysis of common agricultural policy measures. *Financial Statistical Journal*, 1, 1-13.
- European Commission (2020a). Die Gemeinsame Agrarpolitik auf einen Blick. https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/cap-glance_de#evaluationofthecap. Accessed 30 March 2020.
- European Commission (2020b). Farm to Fork strategy for sustainable food. https://ec.europa.eu/food/farm2fork_en. Accessed 30 March 2020.
- Desneux, N., Wajnberg, E., Wyckhuys, K. A., Burgio, G., Arpaia, S., Narváez-Vasquez, C. A., ... & Pizzol, J. (2010). Biological invasion of European tomato crops by *Tuta absoluta*: ecology, geographic expansion and prospects for biological control. *Journal of pest science*, 83(3), 197-215.
- Dietzke, A. (2020). „Höllenfahrten“ in Zeiten von Corona. *Der Tagesspiegel*. <https://www.tagesspiegel.de/gesellschaft/gegen-tiertransporte-hoellenfahrten-in-zeiten-von-corona/25664432.html>. Accessed 30 March 2020.
- Farley, J., Baker, D., Batker, D., Koliba, C., Matteson, R., Mills, R., & Pittman, J. (2007). Opening the policy window for ecological economics: Katrina as a focusing event. *Ecological Economics*, 63(2-3), 344-354.

- Feindt, P. H., Krämer, C., Früh-Müller, A., Heißenhuber, A., Pahl-Wostl, C., Purnhagen, K. P., et al. (2019). *Ein neuer Gesellschaftsvertrag für eine nachhaltige Landwirtschaft*. Berlin, Heidelberg: Springer Berlin Heidelberg.
- Gassmann, M., Dierig, C. (2020). Bei Milch, Zucker und Mehl droht ein Pipeline-Effekt. Welt. <https://www.welt.de/wirtschaft/article206515573/Coronavirus-Lebensmittelindustrie-fuerchtet-den-Pipeline-Effekt.html>. Accessed 30 March 2020.
- Götz, S. (2020). Ausgeliefert. Zeit Online. <https://www.zeit.de/mobilitaet/2020-03/coronavirus-auswirkungen-logistikbranche-lieferengpaesse-grenzkontrolle-quarantaene>. Accessed 30 March 2020.
- Hendrickson, M. K., James, H. S. (2005). The ethics of constrained choice: How the industrialization of agriculture impacts farming and farmer behavior. *Journal of Agricultural and Environmental Ethics*, 18(3), 269-291.
- Hindmarsh, R., Priestley, R. (2016): *The Fukushima Effect: A New Geopolitical Terrain*. New York: Routledge.
- Hindmarsh, R., & Priestley, R. (2015). The Fukushima Effect: Traversing a New Geopolitical Terrain. In *The Fukushima Effect* (pp. 21-42). Routledge.
- Hofreither, M. F. (2016). Dimensionen agrarpolitischer Legitimität. Institut für nachhaltige Wirtschaftsentwicklung. https://wpr.boku.ac.at/wpr_dp/DP-60-2016.pdf. Accessed 27 March 2020.
- Hui, D. S., I Azhar, E., Madani, T. A., Ntoumi, F., Kock, R., Dar, O., ... & Zumla, A. (2020). The continuing 2019-nCoV epidemic threat of novel coronaviruses to global health—The latest 2019 novel coronavirus outbreak in Wuhan, China. *International Journal of Infectious Diseases*, 91, 264-266.
- IrishCentral (2013). Great Famine potato makes comeback after 170 years. IrishCentral. <https://www.irishcentral.com/news/great-famine-potato-makes-a-comeback-after-170-years-194635321-237569191>. Accessed 27 March 2020.
- Knapper, B., Olazabal, P., Jotter, M. (2020). Common Good Balance Sheet. *International Federation for the Economy for the Common Good e.V.* <https://www.ecogood.org/en/our-work/common-good-balance-sheet/>. Accessed 30 March 2020.
- Lampkin, N., Stolze, M., Meredith, S., de Porras, M., Haller, L., Mészáros, D. (2020). Using Eco-schemes in the new Cap: A guide for managing authorities. IFOAM EU, FIBL and IEEP. <https://www.ifoam-eu.org/sites/default/files/ifoam-eco-schemes-web.pdf>. Accessed 27 March 2020.
- Lefebvre, M., Gomez y Paloma, S., & Viaggi, D. (2015) EU farmers' intentions to invest in 2014-2020: complementarity between asset classes. *International Association of Agricultural Economists*, DOI: 10.22004/ag.econ.212037
- McClatchie, M., Bogaard, A., Colledge, S., Whitehouse, N. J., Schulting, R. J., Barratt, P., McLaughlin, T. R. (2014). Neolithic farming in north-western Europe: archaeobotanical evidence from Ireland. *Journal of Archaeological Science*, 51, 206–215.
- NABU (2020). „Meine 114 Euro für...“ NABU Naturschutzbund Deutschland e.V. <https://www.nabu.de/natur-und->

- landschaft/landnutzung/landwirtschaft/agrarpolitik/eu-agrarreform/25395.html. Accessed 30 March 2020.
- Nischwitz, G., et al. (2019). Verflechtungen und Interessen des Deutschen Bauernverbandes (DBV). NABU & Institut Arbeit und Wirtschaft. <https://www.nabu.de/imperia/md/content/nabude/landwirtschaft/agrarreform/190429-studie-agrarlobby-iaw.pdf>. Accessed 27 March 2020.
- Pe'er, G., Bonn, A., Bruelheide, H., Dieker, P., Eisenhauer, N., Feindt, P. H., Hagedorn, G., Hansjürgens, B., Herzog, I., Lomba, A., Marquard, E., Moreira, F., Nitsch, H., Oppermann, R., Perino, A., Röder, N., Schleyer, C., Schindler, S., Wolf, C., Zinngrebe, Y., Lakner, S. (2020) Action needed for the EU Common Agricultural Policy to address sustainability challenges. *People and Nature*, <https://besjournals.onlinelibrary.wiley.com/doi/full/10.1002/pan3.10080>
- Schattschneider, E.E. (1960/1975). *The Semisovereign People*. Hinsdale, IL: The Dryden Press.
- Schneidewind, U., Singer-Brodowski, M., Augenstein, K., Stelzer, F. (2016) Pledge for a Transformative Science - A Conceptual Framework. Wuppertal Paper, 191. *Wuppertal Institute for Climate, Environment and Energy*, DOI: 10.13140/RG.2.1.4084.1208
- Sußebach, H. (2020). Die Wette seines Lebens. Zeit online. <https://www.zeit.de/gesellschaft/zeitgeschehen/2020-03/landwirtschaft-coronavirus-coronakrise-felder-anbau-erntehelfer-saison-erdbeeren>. Accessed 21 March 2020.
- Taylor, M., Watts, J., Bartlett, J. (2019). Climate crisis: 6 million people join latest wave of global protests. *The Guardian*. <https://www.theguardian.com/environment/2019/sep/27/climate-crisis-6-million-people-joinlatest-wave-of-worldwide-protests>. Accessed 09 October 2019.
- van der Meulen, H. A. B., Dolman, M. A., Jager, J. H., Venema, G. S. (2014). The impact of farm size on sustainability of dutch dairy farms. *International Journal of Agricultural Management*, 3(2), 119-123.
- Winkel, G., Spellmann, H. (2019). *Naturschutz im Landeswald: Konzepte, Umsetzung und Perspektiven*. Bundesamt für Naturschutz. https://efi.int/sites/default/files/files/publication-bank/2019/Winkel_Spellmann_Naturschutz_im_Landeswald_BfN-Skripten_542.pdf. Accessed 30 March 2020.
- Zeit online (2020). Julia Klöckner will Arbeitslose und Flüchtlinge auf Felder schicken. Zeit online. <https://www.zeit.de/politik/deutschland/2020-03/erntehelfer-deutschland-coronavirus-landwirtschaft-julia-kloeckner-arbeitslose-gefluechtete>. Accessed 21 March 2020.