Drivers and Barriers of the Transition To Regenerative Agriculture Within the EU’s Common Agricultural Policy Reform: Comparative Analysis with the US Farm Bill

Samantha Gish
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Drivers and Barriers of the Transition To Regenerative Agriculture
Within the EU’s Common Agricultural Policy Reform: Comparative
Analysis with the US Farm Bill

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SIT Spring 2022
Abstract:
In the wake of multiple crises, such as climate change and international conflict, there is increased urgency to ensure a stable food system. Additionally, changing priorities of citizens have fostered the desire for sustainable production of food. One innovative method of food production is regenerative agriculture and in this practice the main goals are to increase system resilience, improve soil and sequester carbon. This is done through practices such as no tilling, cover and intercropping, and incorporation of livestock into crop fields. Although great in theory, these practices go against traditional agricultural practices and therefore the policy currently in place must shift in order to foster an environment where farmers are supported to facilitate the transformation of their land. This paper analyzes the most current reform of the Common Agricultural Policy in the European Union in comparison to the most recent Farm Bill reform in the United States in order to analyze if those policies are being transformed in a way that will help progress regenerative agriculture. As well as a literature review surrounding the policies and farmer sentiments, information has been collected as to how policy impacts farmers’ actions. Additionally, a direct analysis of the policy changes has been performed in order to see how these reforms will impact the food system as a whole. Through this analysis and informational interviews with farmers and a member of the Regenerative Revolution, it is clear that policy has been a historic barrier to a sustainable agricultural landscape, yet the reforms are an essential starting point to create support for farmers looking to alter their traditional practices. Despite the progress made, it is evident that both the CAP and the Farm Bill require significant improvement is necessary in order to offer genuine support for those who need it.

Keywords:
Regenerative agriculture, soil conservation, agricultural policy, bioeconomy
Acknowledgements:
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## Table Of Contents:

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstract</td>
<td>1</td>
</tr>
<tr>
<td>Acknowledgements</td>
<td>2</td>
</tr>
<tr>
<td>Table of contents</td>
<td>3</td>
</tr>
<tr>
<td>Introduction</td>
<td>4</td>
</tr>
<tr>
<td>Context and Literature Review</td>
<td>5</td>
</tr>
<tr>
<td>Background on Common Agricultural Policy</td>
<td>6</td>
</tr>
<tr>
<td>Background on The Agricultural Improvement Act</td>
<td>9</td>
</tr>
<tr>
<td>Literature Review</td>
<td>13</td>
</tr>
<tr>
<td>Methods</td>
<td>16</td>
</tr>
<tr>
<td>Results and Discussion</td>
<td>17</td>
</tr>
<tr>
<td>Conclusion</td>
<td>21</td>
</tr>
<tr>
<td>References</td>
<td>22</td>
</tr>
</tbody>
</table>
1. **Introduction:**

The state of the world's agricultural practices currently rests at a precarious crossroad. There is still population growth and issues with food allocation, causing the need for continued production and better distribution of massive amounts of food. Since the 18th century, there has been a worry that the exponential growth of the human population would exhaust the supplies from linear production of food. In order to sustain this growing population and prevent mass starvation, changes to the agricultural system were implemented in the 20th century, such as the use of shorter grains, pesticides, and fertilizers to promote growth. This was successful in preventing starvation for about a billion people, yet also produced some negative impacts to the environment (Rai & Dash, 2022). The overuse of chemical enhancers had widespread impacts beyond the agricultural fields they have historically been used on, and high-intensity agricultural practices have led to a degradation of nutrient-rich soil. Because of this, the biodiversity of earth's ecosystems are declining at alarming rates, as are the services the environment provides, which we rely on, such as clean water and air. Desertification is a historic and increasing problem, and chemical enhancers have widespread effects on the surrounding ecosystems such as water contamination and eutrophication. These are massive issues which have resulted in our dependence on technologies created during the Green Revolution that now have the potential to prevent our ability to continue to produce agriculture at all. An obvious way of seeing this shift is through the diminishing gains shown by “declines in marginal productivity of agricultural inputs” which has been visible since the beginning of the 21st century (Sherwood & Uphoff, 85, 2000). In addition to agricultural outputs, a result of some of these practices are things like loss of agricultural land due to erosion, soil salinization, and urban expansion.

Modern policy is becoming more tailored to address some of the issues discussed above. One key political reform that has these specific issues in mind relates to the Common Agricultural Policy in the European Union. Two main conflicting issues currently faced by most of Europe's agricultural land are increasing intensification of agriculture in fertile land and abandonment of places where the soil has a low fertility rate In the places where intensification is increasing, soil will often be damaged causing less agricultural productivity which can impact the natural regenerative process of established herbage growth. In addition to this, land abandonment often results in overgrowth of shrubbery and natural fire fuels which can increase the hazard of large fires if left unmanaged (Azeda, Guiomar, Godinho, Medeiros, & Pinto-Correia, 2021). Due to these issues and the continued degradation of agricultural land it is clear to scientists, policy makers, and farmers alike that it will be necessary to find ways to produce more yield on less land. Yet this level of productivity greatly depends not only on the quality of land available but also, crucially, on its management, in order to avoid continued degradation.

Currently, farmers in countries such as the United States have begun a transition to a form of agricultural practice known as regenerative agriculture. This term currently does not have a specific and widely agreed upon definition and is often used loosely when describing sustainable farming practices. It is described as a farming process that will “have lower—or even net positive—environmental and/or social impacts” (Newton, Civita, Frankel-Goldwater, Bartel, Johns, 2020). Definitions of regenerative agriculture generally are based on processes, outcomes, or both. It often goes beyond traditional organic requirements because certain vital indicators of sustainability are often not met within the organic system (Mpanga, Tronstad, Guo, LeBauer, Idowu, 2021). The basis of regenerative practices is to ensure higher levels of environmental productivity and sustainable practices which go beyond traditional agricultural practices.
Another key difference between organic and regenerative practices is that organic farming encourages tilling, while regenerative methods emphasize no-till in order to reduce soil disturbances, to allow undergrowth to stabilize soil and further increase soil microbial activity (Mpanga, Tronstad, Guo, LeBauer, Idowu, 2021). This practice of no-till farming is essential to promoting soil health to enable higher resilience of the land. This resilience is also known as the buffering capacity which is highly dependent on the soil health.

The buffering capacity of the world’s agricultural system has become increasingly important because climate change has created increasingly variable weather patterns, therefore a higher capacity to deal with these rapid changes is essential for maintaining food security (Sherwood & Uphoff, 87, 2000). Highly resilient soil allows for more water retention, ability to survive drastic temperature changes, and higher carbon sequestration. Other indicators of a regenerative farm include increasing biodiversity, water use efficiencies, promotion of ecosystem services, and resilience to climate variability as discussed above (Mpanga, Tronstad, Guo, LeBauer, Idowu, 2021). Further, regenerative farming often includes native cover crops and mixed production in order to maintain variability of growth, increase farm resilience and its biodiversity. An additional term for agricultural practices which use such methods is agroecology. It has many similarities to regenerative practices, although the main goal of agroecology is to incorporate nature into food production systems. Examples of this include the addition of native vegetation to agriculture spaces and often bringing livestock to be incorporated into land management, to prevent overgrowth of cover crops and to revitalize the nutrients in the soil through their manure. This paper will use the terminology of regenerative agriculture and agroecology interchangeably.

Despite the benefits of this new method of agricultural production, it is a very new practice that is proving to be slow to widespread adoption. A reason for this is slow-moving policy surrounding agricultural expectation and subsidies. Although not perfect, the EU has been moving towards ensuring the longevity of the agricultural system by promoting more sustainable practices. This paper will focus on the goal of critically looking at the EU’s newest version of the common agricultural policy, which is set to be implemented in 2023, in comparison to the previous one, in order to analyze whether policy is moving towards promoting regenerative practices, or whether it is acting as a barrier to that transition. A comparison of the agricultural reform in the United States as a case study will be used in comparing the transition.

2. Context and Literature Review

Historically, policies surrounding agriculture have focused on increasing yield and profitability both in Europe and the United States. Although this has been essential for the growth necessary in our food system, it resulted in negative environmental impacts which modern policy seeks to undo. Currently the EU encourages agricultural practices that are compatible with the protection and improvement of the environment, the landscape and its features, natural resources, and the soil and genetic diversity (EC, 2013). This blanket statement however neglects to define further how such processes are carried out and the need for management associated with farming (Azeda, Guiomar, Godinho, Medeiros, & Pinto-Correia, 2021). Further than the lack of clarity, governmental bodies have created contradictory standards such as the European Association of Guaranteed Institutions which have imposed recommendations towards soil mobilization to reduce understory shrublands with the purpose of preventing fuel loads that are a driver of large fires. Despite this, they do suggest avoiding “deep ploughing” which can alter healthy soil composition, yet provide no definition of what it is.
Because of the lack of clarity surrounding environmental targets, there is little ability to assess the success and effectiveness of the targets and standards put in place by the AECM (Azeda, Guiomar, Godinho, Medeiros, & Pinto-Correia, 2021).

An additional issue with regulations for farmers looking to make a sustainable transition is the involvement of the government and international institutions creating frameworks that stifle these farmers’ opportunities. Reports in the United States suggest that these frameworks create resentment from the farmers because of threats to farmers’ sovereignty. This often discourages farmers from even beginning to make the transition (Mpanga, Tronstad, Guo, LeBauer, Idowu, 2021). The recognition that a change must be made is a decades long battle. Reports from the beginning of the century surrounding the state and improvement of soil health suggested a three prong solution to promoting progress in this area as being “correcting research bias and addressing knowledge needs, adopting more farmer-centered approaches, and greater institutional collaboration and policy intervention” all of which need to make more progress in the current agricultural sector; further it describes the essential aspect of creating projects to promote local empowerment in order to direct their own change and ensure accountability of the projects created (Sherwood & Uphoff, 91, 2000). Movement towards a successful regenerative landscape requires the considerations of the individual needs of farms and inputs from those who run them as stated above, because each landscape requires different ideal environments to be regenerative. Despite this, within the EU agriculture policy is standardized, therefore farms in Sweden are treated the same as those in southern Italy and Portugal. This creates issues because of the vastly different environmental conditions which require different methods of agricultural production.

2.1 Background on the Common Agricultural Policy

The Common Agricultural Policy is a framework which impacts every state within the EU. It determines how the agricultural sector develops, supports food security for millions of people, and maintains stability in a very volatile industry. Historically, it represents a massive portion of the EU’s total budget. The current annual EU budget is roughly 161 billion euros and current support for EU farmers takes up 57.9 billion of those allocated funds. This means that currently 35% of the EU’s total budget focuses on agricultural influence which is largely controlled by the CAP (EC, 2018). The Common Agricultural Policy was created in 1962 within the treaty of Rome. Its original goals were to increase productivity and stabilize markets, ensure the availability of food at reasonable prices, and to provide fair living standards to farmers (EC, 2021). This has historically been essential because, despite the importance of agriculture as a sector, the average income of farmers is about 40% lower than a non-agricultural income (EC, 2021). Additionally, agriculture is far more dependent on weather and climate than other industries which can create significant volatility in its production, because of this the CAP acts as an essential safeguard to ensure farmers make a reasonable living (EC, 2021).

Through time, the CAP moved away from a price support policy towards a market oriented method of encouraging agriculture through a single common market for products. This common market was the first step in the European movement towards economic integration, where policies began to harmize between the member states. This allowed for far easier and more efficient trade between the European States. Policies within the CAP remained somewhat consistent from its inception until 1992. During this time, farmers were able to benefit from high prices due to strong governmental support price mechanisms; these included guaranteed minimum prices, import tariffs, production quotas, and limits on imports from outside the EU (Borges et al, 2009). Despite the benefits to the farmers, this created a significant strain on the
EU’s budget. 1992 recognizes the first reform of the CAP which addressed aspects of the budget which were a problem and took into account international negotiations. In 1999 there was an additional CAP reform with the goal of reinforcing agricultural competitiveness and multi-functionality in order to balance the budget inequality that was attained by providing a surplus of pricing protections during its inception. This created a market based policy which remains to this day.

In addition to the change in how the market operates, the reform included, for the first time, aspects of sustainability; this change allowed CAP to evolve into a rural development policy, which remains a key aspect of the CAP today (Borges et al, 2009). The CAP is financed through two parts of the EU’s overall budget; the European Agricultural Guarantee Fund (EAGF) which provides direct support and funds market measures, and the European Agricultural Fund for Rural Development (EAFRD) which finances rural development (EC, 2021). The figure below represents the most recent budget allocation between rural development, market support measures, and farmers income support.

![Figure 1. EU Support of Farmers with 2019 budget (EC, 2019)](image)

An increasingly important aspect of the CAP is the greening measures it has taken. Because of its increase in importance, it has additionally seen an increase in the budget allocated for its goals. The figure below outlines the current allocated budget.
The CAP has four main contributors who determine the composition of the policy. The first is a series of consultations involving the public such as civil dialog groups, agricultural committees, and expert groups such as the agricultural market task force. The next contribution is a series of impact assessments to quantify the impacts of changes in the political frameworks. An additional essential contributor to the CAP is the Court of Auditors whose purpose is to supervise the expenditure in the agricultural sector. Lastly is the Eurobarometer which is a public opinion report on Europeans perspective in regards to the CAP and agriculture in general (EC, 2021).

These contributors are essential to creating improved frameworks as the climate and agricultural sector continue to adapt and change.

The most recent CAP reform has been in the works since 2018 and was confirmed by the EU in 2021. The purpose of this paper is to examine the policy surrounding the CAP and how the recent reform will transform agriculture in the EU for the future. Specifically, if it will be more or less conducive to a transition to regenerative agriculture processes.

The reform of the CAP focused primarily on moving towards the achievement of benchmarks set by the European Green Deal. These standards focus on development strategy in the EU that prioritize environmental, economic and social sustainability. A key aspect of the new CAP is to increase flexibility of the ways in which policy is adopted by member States. This objective is to better suit individual conditions and circumstances while also moving towards meeting the objectives set forth. The European Commission described how it is essential to have a level of flexibility in order to attain the “maximum value for climate and environment” (EC, 2021). This increased emphasis of adaptability of policy’s purpose is to increase abilities of states to facilitate strategic planning in a way that will optimize the movement towards achieving goals set out in the Green Deal. In addition to this, the reform supports optimization through better targeting of financial support to farmers in Europe. This financial support will be targeted towards small and medium farms, rather than larger farms which has been the historic pattern. In addition to smaller farms, financial support will be prioritized to young farmers and women in farming. The new CAP is to implement an overarching policy for 10% of the direct payments to go towards these types of farms and farmers through the income support tool (EC, 2021).
In addition to this development in the CAP reform, the new version describes a transition to focus on the improvement of long-term soil health. The policy seeks to implement practices such as crop rotation in order to achieve this new goal. Additionally, crop diversification is also considered to be an alternative to crop rotation in order to achieve this goal of soil stabilization. Although this is provided as an option for farmers, it is not a new component of the CAP reform and is not considered to have an equal benefit to the soil as crop rotation. Although not a new concept, the new CAP expands its contribution to stabilization of ecosystems within agricultural land further by dedicating at least 4% of their land to "non-productive features" in order to increase biodiversity (EC, 2021).

One of the most significant aspects of the reform is the support for eco-schemes which is a type of agriculture that goes beyond traditional cultivation and obligations. Examples given for such practices are “better nutrient management, agro-ecology, agroforestry, carbon farming or animal welfare” (EC, 2021). Below is a figure depicting the planned distribution of funding for eco-schemes in the 2023 reform:

![Figure 3. Spending on Eco-Schemes and Direct Payments from CAP Reform (EC, 2018)](image)

The support outlined in the new CAP is for spending about 25% of the direct payment budget on such eco-schemes in order to allow for action on a more widespread basis possible. Specific schemes outlined in Feeding Europe include organic farming, crop rotation, carbon farming, and agro-ecology. These types of agricultural practices support climate-sensitive and nature-friendly practices which are essential to reaching the goal of contributing to climate action. The new CAP is contributing about 40% of its entire budget to supporting practices which contribute to fighting climate change, therefore truly putting economic effort into the transition of agriculture to being sustainable in the future. In addition to these contributions, the Commission has proposed to invest 10 billion euros into Horizon Europe which focuses on sustainable farming, rural development, and the bioeconomy (EC, 2021).

2.2 Background on Agricultural Improvement Act of 2018

In order to gain a better understanding of the CAP it is essential to have a comparison to a country that was forced to create a more sustainable landscape for agriculture which led into the regenerative agriculture movement; the United States. Currently, 22% of all farmers in the US practice organic production and this is increasing at a rate of 40% (NSAC, 2020). This
comparative analysis will provide context for the transition in the CAP which is set to begin in 2023 in order to formulate an opinion on if it is indeed moving towards support of this type of agriculture, or if it will continue to act as a barrier. This comparison is important because the United States is arguably the farthest along in developing and supporting infrastructure to allow the widespread adoption of regenerative agriculture. Although there is no specific mention of “regenerative” practices in the reform or in previous policy, the outline of support for certain practices implies the transition to this methodology under the guise of improved and sustainable practices.

A series of legislation in the United States that is comparable to the CAP in Europe is the Agricultural Improvement Act. This legislation is also known as the Farm Bill and was enacted in 1933 as a part of the New Deal. This legislation was created in response to World War II, the Great Depression, and the Dust Bowl which resulted in massive agricultural disaster because of over-intensification and farming malpractice (Devarenne, Library of Congress). It had three main goals which remain relevant to this day, those being to keep food prices fair, to ensure food security, and to protect the United States natural resources. Similarly to the CAP, it is reformed about every 5 years, and its most recent reform was in 2018 and will be reworked for the future in 2023. It currently covers 12 main topics which are known as titles. Those titles are commodities, conservation, trade, nutrition, credit, rural development, research & extension, forestry, energy, horticulture, crop insurance, and miscellaneous. This report will mainly focus on titles, 2 (Conservation), 8 (Forestry), and 11 (Crop Insurance) because those are most related to the support and transition of regenerative agricultural practices.

The Farm Bill outlines a series of working land programs, the two largest being the Environmental Quality Incentives Program (EQIP) and the Conservation Stewardship Program (CSP) which account for more than half of the conservation sections funding. The most recent reform in the Farm Bill reduced the overall funding to specifically the CSP program which was then redistributed to EQIP and other conservation programs within the conservation title. The current budget is outlined in the figure below:

![FARM BILL PROJECTED FUNDING, IN BILLIONS 2019-2023](image)

Source: USDA Economic Research Service Based on Congressional Budget Office, Direct Spending Effects for the Agriculture Improvement Act of 2018 (2018 Farm Bill), December 11, 2018
The CSP’s purpose is to provide financial and technical assistance to farmers in order to improve the existing conservation practices and to adopt further conservation activities. The idea is to provide annual payments to producers in order to incentivize them to replace crops on environmentally fragile land with resource-conserving crops. An example of this is the newest version of the Farm Bill is in section 2202 which encourages planting of food-producing woody plants to provide riparian buffers that enhance soil health under the condition that the plants are native to the region (Bills of US). The EQIP program on the other hand provides assistance that includes financial and technical assistance to farmers in order to plan and install “structural, vegetative, and land management practices on eligible lands to alleviate natural resource problems” (CRS report).

The newest version of the Farm Bill continues to address conservation and sustainable agricultural practices on many fronts. Most significantly, it reauthorizes the programs discussed above, the Environmental Quality Incentives Program and the Conservation Stewardship Program. These two programs account for more than half of the conservation titles program funding, but in the newest reform, the CSP’s allocated funding was reduced. Although funding was reduced, enrollment is to be increased incrementally from 24 to 27 million acres by 2023. To reconcile this increased enrollment yet decrease in funding, the reform reduces payments to participants. Additionally, the reform limits future enrollment in this program and the savings from this reduction are to be redistributed to EQIP and other conservation programs. The EQIP was also amended to include a focus on water quality, soil health improvement, and habitat improvement. An additional program that is reauthorized in the reform is the Regional Conservation Partnership Program whose goal is to improve the management of farming systems in order to foster improved water quality and soil. This program’s funding increased from 100 million annually to 300 million dollars.

The conservation portion of the reform had significant changes, a few of which were discussed above. Most significantly, many conservation programs and efforts have put far more emphasis on the need for improvement of soil and incentivizing practices which create more resilient farming systems. Under the section which defines the environmental quality incentives program, three main components discuss soil health planning which specifically encourages increasing organic matter and the use of cover crops, soil remediation which limits contamination and encourages regeneration, and finally soil testing which encourages constant evaluation of proper soil functions. These efforts are recognized as essential to enhancing the economic and ecological function of agricultural land. Further, the purpose of these incentive programs is described as being a catalyst for changes in the production systems in order to create new methods of management (grazing, organics, nutrient, pest, irrigation and more) in order to mitigate impacts of climate change such as weather volatility and drought. A new component of the reform is the Soil Health Demonstration Trial which provides incentives to farmers to practice management methods with the purpose of increasing carbon sequestration within their soil through conservation practices. There are additionally new conservation innovation grants and payments which include agricultural technologies which “increase carbon levels in the soil; or… establish protocols for measuring carbon levels in the soil and testing carbon levels on land where conservation practices were applied to evaluate gains in soil health as a result of the practices implemented by the producers in the soil health demonstration trial” (US bills). A further addition to the Farm Bill which is not in the conservation section but which is relevant to
the inclusion of soil health discussed above is in section 7 which focuses on organic cultivation. A crucial addition to this section of legislation is the inclusion of soil health to conservation efforts described within that portion which has been historically left out of the organic requirements.

Beyond the significant increase of literature regarding the importance of soil conservation, the reform of the Farm Bill has expanded the conservation stewardship program substantially. This program includes establishing plans in order to achieve goals spoken about above specifically increasing soil health and organic matter. This section expands this idea by providing increased payments for cover cropping in order to incentivize soil stabilization and reduced tillage. Further this program outlines advanced grazing management which includes rotational grazing in order to improve soil health, increase drought resilience, improve wildlife habitats by controlling invasive species, wildfire mitigation, and finally improving water quality. Additionally this program outlines management-intensive rotational grazing which describes multi-pasture grazing systems to enable animals to move from plot to plot in order to maximize forage growth, create manure distribution and nutrient recycling which in turn increases carbon sequestration of the land. In addition to supporting these management methods, the reform has begun to provide increased payments and insurance for these “high-priority practices” (US Bills). Most significantly from this section in the reform is the inclusion of payments which address potential economic risk. This risk includes loss in revenues from reduction in yield when moving away from intensive practices as well as insurance for economic losses during transitional periods to “resource-conserving cropping system or resource conserving land use” (US Bills). In addition to this economic buffer for farmers looking to make a transition in their farming practices, the government additionally provides grants in section 8 for research of more sustainable production methods through forestry. This includes forest products and harvesting, alternative native crops, and impact of ecosystem services associated with agriculture.

Finally, an addition to the Agricultural Improvement Act is the inclusion of more clear policy surrounding cover cropping which is an essential component of sustainable agriculture. In section 11107, the policy outlines how cover cropping should be considered “good farming practice” (US Bills). Additionally, the practice of promoting cover crops in a field of traditional agricultural production may not affect the insurability of the crops being produced. Additionally, the reform provides an extension to the cover cropping policy which describes that the reduction of native sod that has been tilled in order to replace with an insurable crop will be subject to reduction of benefits; both ecologically and financially. Below is a compiled list of the key aspects of policy reform in both the Common Agricultural Policy and the Agricultural Improvement Act which directly relate to aspects of regenerative farming practices.

<table>
<thead>
<tr>
<th>Reform Comparison</th>
<th>2023 Common Agricultural Policy</th>
<th>2018 Agricultural Improvement Act</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key Reforms:</td>
<td>- Alignment of policy with goals set by the Green New Deal</td>
<td>- Redistribution of funding for conservation and sustainable programs</td>
</tr>
<tr>
<td></td>
<td>- Increase in flexibility between states as to how new policy is enacted</td>
<td>- Higher emphasis on soil health and land resilience</td>
</tr>
<tr>
<td></td>
<td>- Prioritizes soil health</td>
<td>- Increase in payments and insurance for high-priority</td>
</tr>
</tbody>
</table>
through crop diversification and crop rotations - Support for eco-schemes →40% of entire budget is now focused on supporting agricultural practices that fight climate change

practices such as improved grazing management and carbon sequestration - Improved payment plan for transitional farmers to incentivize the transition to sustainable practices - Higher promotion of cover cropping

2.3 Literature Review

In order to analyze the future implications of the CAP reform, it is essential to understand the ways in which agricultural policy impacts farmers' decision making which inherently affects the stability of the food system. This can be done through a literary review of reports discussing sentimental analysis of farmers' perceptions of the CAP as well as how it has impacted land development in Europe. Historically, the CAP has provided protection from price risks which come from fluctuations in demand, yet perception of risk and expectations don’t always reflect total trust in the protections provided. This may stem from the shift in farmer support as discussed above in 1992 which created a more market based pricing system to manage the budget problem created through too strong of support price mechanisms (Borges et al, 2009). Because of this transition away from total price support and towards direct payments, agricultural payments have become much more volatile which is in line with global market prices (Gohin & Zheng, 2020). Probably because of this, European crop farmers are considered to be risk-averse therefore preferring production of a “safe crop” rather than alternatives because of the expectation of the same expected return on investment (Gohin & Zheng, 2020). This limits the crops farmers are willing to produce and further the diversity of products in the food system. Additionally, when considering a regenerative process, this perspective may reduce willingness to move away from a monocropping process and towards integration of alternative vegetation in the growing process.

In order to mitigate the fears associated with higher income volatility due to the market oriented policy, the European Commission created a task force to recommend management of price risks. This group created a series of recommendations for the European Commission which were pivotal in the most recent CAP reform. The task force identified mistrust of governing bodies due to the transition to market oriented policy as the key issue associated with the agricultural sector. Their recommendation report described how farmers have become the main “shock absorber in the supply chains” when dealing with market issues inherent with agriculture such as “price volatility or prolonged periods of low prices” (EC, 2021). A key recommendation given by this task force was to make the risk management toolkit “more attractive and coherent with instruments set up by Member States' ' to enable direct contribution by the farmers affected by policy (EC, 2021). This will create more transparency within policy making which in turn creates higher levels of trust between political bodies and farmers. A key way of doing this they describe is by creating a platform including Member States and other stakeholders that provides transparency to best practices concerning risk management (EC, 2021). An additional recommendation was to create more support for future markets as a tool for risk management that includes awareness raising and training programs. Furthermore, the task force emphasizes the need for a transition into sustainable production of agriculture in order to fight against the rising risks of climate change. It describes how healthy food should be considered in its
composition as well as in its production and how “sustainability considerations should continue to play a prominent role” in the agricultural sector moving forward (EC, 2021). By creating the demand for production of agriculture in a certain way, regenerative and organic farming can create a sub-market within agriculture as a whole that provides a differentiating factor that can create a comparative advantage. This aligns with the recommendations of creating future markets that are robust and promote a healthier future.

In addition to information from literature regarding the CAP, it is crucial to also analyze sources discussing the equitable policy in the United States in order to complete a holistic comparative analysis. The most comparable policy in the United States is the Farm Bill which was created in response to the Great Depression and the Dust Bowl which caused economic disaster for many farmers. Since its inception, intensive agriculture was practiced on “50–70% of grasslands in the contiguous U.S.” which, at such a scale has the potential to “jeopardizes the ecosystem’s function and the services it provides” which became a reality resulting in the Dust Bowl (Sweikert, Gigliotti 2018). The Dust Bowl created a cloud of degraded soil that covered hundreds of miles in the States and reduced significant agricultural land to a deserts plane. After these two major events, the Farm Bill was created with two goals in mind: “Commodity…and Conservation” (Graddy-Lovelace, Diamond 2016). The goal was to restructure the economic environment so that “prices would cover the cost of production” while also being affordable for average citizens (Graddy-Lovelace, Diamond 2016). In addition to this, the new policy demonstrated how “ecology and economy are but two sides of the same coin” (Graddy-Lovelace, Diamond 2016).

The Farm Bill remained mostly unchanged for decades, then in the 1985 reform it included the first “specific conservation title devoted to natural resource protection, to address the environmental impact of agriculture” which was essential in shifting agricultural policy further towards a sustainable future (Sweikert, Gigliotti 2018). Following this reform, there was pushback against traditional supply management strategies that had been used since the policy's inception. The 1996 Farm Bill reform exposed “major errors in its architecture”, for example support prices were based on quantity while there was simultaneous acreage restriction, leading to farmers increasing intensification on the land they were permitted to produce on (Graddy-Lovelace, Diamond 2016). This reform was significant because it represented the complete removal of price supports and a shift to direct payments to farmers which were considered to be “non-trade-distorting” (Graddy-Lovelace, Diamond 2016). This fostered a debate regarding the benefit of subsidies in general which continues to today. In addition to direct payments, risk management programs that act like crop insurance were instituted which were appealing to farmers who continue to face “unprecedented economic and ecological vagaries” and are also considered to be less trade distorting (Graddy-Lovelace, Diamond 2016). Yet there are further issues with this response which “continue to encourage overproduction and monocropping” (Graddy-Lovelace, Diamond 2016).

There has been historic public resentment of subsidies in the United States for a series of reasons. From the more conservative right wing perspective subsidies prevent market liberalism and they perceive “farm welfare” as promoting “misallocation of resources, and wasting government funds supporting farmers who do not need help” (Graddy-Lovelace, Diamond 2016). On the left side of the political spectrum, people perceive subsidies as being a catalyst for enrichment of “the wealthiest absentee landholders and serve the needs of industrial meat producers for cheap feed” which furthers market consolidation (Graddy-Lovelace, Diamond 2016). Despite these perspectives, the historic use of subsidies has proved essential for
maintaining the food system and ensuring affordable products because of the vulnerability and volatility of agriculture as a sector. This is because “farmers are subject to the vagaries of the weather, pests, and shifts in demand, and yet have little bargaining power relative to input suppliers and food processors” therefore in order to incentivize people to remain in this industry it has proven essential to ensure some level of compensation (Graddy-Lovelace, Diamond 2016). Additionally, support for a price floor allows producers to prioritize the pursuit of “ecological sustainability, diversified production, social justice, and culturally appropriate nutritious food” (Graddy-Lovelace, Diamond 2016).

Public criticism of subsidies as a cause of negative aspects of the food industry prevent action against the real issues such as market consolidation and reduce action towards necessary support of less explored solutions to such issues. For example, support for small and medium sized farm operations are essential due to the “volatility of market swings (amidst the ecological volatility of climate change)” and in competition against highly consolidated competition (Graddy-Lovelace, Diamond 2016). By increasing support for these smaller producers, there will be a reduction in pressures to scale up which puts more strain on the ecological function of the land. Many American citizens view agriculture as a career through a distorted lens because of the consolidation of the market. In 2013 the average income was $118,373 USD which is higher than an average American income, yet only 14% of farm households actually come strictly from the farming activities; in reality it averaged for under $28,000 which was caused by demand from the ethanol bubble. Once the bubble popped, that average income decreased to under $16,000 USD which is not conducive to a sustainable living and has contributed to a generation of Americans being pushed out of farming (Graddy-Lovelace, Diamond 2016). Such issues that cause public resentment will be essential to account for in the most recent reform of the Farm Bill.

In addition to issues with market consolidation, studies have shown that many of the Farm Bill’s policies are actually working against conservation efforts by “decreasing risk and increasing profitability” of converting grassland and natural spaces into agricultural zones. Fewer farmers see significant incentives for converting land that could be used for productive purposes to space for conservation. Landowners see incentives as “not high enough” and that enrollment in conservation programs reduce their ability to choose what happens on their land (Sweikert, Gigliotti 2018). Conversely, it is seen that larger landowners are more likely to enroll in such programs because they can afford to take larger risks such as making lower profits from not utilizing the entire land for production. Additionally, enrollment increases when individuals have more education and knowledge on the environmental benefits of conservation such as improvement of water quality and the restoration of wildlife habitat, specifically for game (Sweikert, Gigliotti 2018). An additional way participation is increased is through more substantial financial incentives. Results for studies argue that landowners do not participate in the programs “for the financial compensation, but rather, the financial compensation makes it possible for landowners to conserve natural resources on agricultural land” (Sweikert, Gigliotti 2018).

Despite the negatives seen in the study above, the Food Insecurity Nutrition Incentive Grant Program has provided additional incentives for conservation efforts that may further incentivize farmers. This includes farmers experiencing an increase of sales due to higher visitation of farms because of conservation as a differentiating factor. Additionally, this program has increased grocery stores sales of produce from locally sourced and smaller producers which is essential to decreasing issues with consolidation of markets. Additionally, this program
addresses “food security and food sovereignty” which allows producers to maintain the choice for what happens on their land within certain parameters (Parks, Stern, Fricke, Clausen 2018). This program is particularly beneficial because instead of creating restrictions, it works through incentivization which provides more choice and is proven to be far more effective (Parks, Stern, Fricke, Clausen 2018). Although the Farm Bill provides opportunities for producers, it also has historically acted as a barrier towards the movement of a truly sustainable food system. An essential component of the reform of 2018 is to address contradictory policies and promote the movement towards regenerative practices.

3. Methods
This paper primarily relies on a qualitative analysis of information from the European Commission and the policy surrounding the Common Agricultural Policy framework. This includes changes outlined directly by the European Commission, information from the European Green Deal, and the Feeding Europe document describing the 60 years of the CAP. Additionally an analysis of the federal policy implemented by the United States will be done in order to have a comparison to the widespread power of the EU. This is an equitable comparison because of the landmass and variable climates that make overarching policy challenging in both the United States and in Europe. This comparison will largely be focusing on the documents from the US government that outlines the “Agriculture Improvement Act of 2018” which focuses on conservation and environmental improvements as well as literature discussing the Farm Bill which focuses further on agricultural policy outlined by the Agricultural Improvement Act. In addition to this, a comparative paper discussing the side by side comparison between the 2014 and 2018 Farm Bill will be used in order to equate the policy to the reform of the CAP. Additionally the side by side comparison summarized by the Congressional Research Service will be used.

The research additionally focuses on secondary sources, scholarly articles, and reports that focus on how agricultural policies impact land development, individual farmers, and the food system as a whole, both in Europe and in the United States. Focusing on these reports have provided a holistic understanding of how policy impacts the agriculture sector and all stakeholders associated with it. In order to further understand the impacts of a common policy across such a widespread landmass such as Europe, this report focuses on the overarching policy that has the ability to impact all states. By broadening the lens to of this analysis beyond a specific state, this paper can better understand the holistic impacts of the common policy as land use and the transition to a sustainable future. Although it is essential to limit the scope of this report, this is a significant limitation of this paper as it neglects many of the state specific interactions with the CAP all of which are different, as well as individual state policy enacted in the United States.

Additionally two informational interviews will be discussed based on questions compiled after the analysis of the literature review in order to understand the individual implications of policy on farmers. These interviews are to be conducted with farmers who specialize in regenerative farming and have expert knowledge on European agriculture policy as well as a member of the Regenerative Agriculture Revolution. The goals of these interviews are to gain a greater understanding of the individual impacts of agricultural policy on the transition to regenerative practices. The preliminary research conducted emphasized the need for inclusive policy making in order to serve those who will be most affected by the decisions made. This is why this portion of the paper is so essential to the main idea of creating a truly sustainable future.
4. Results and Discussion:

Although the Common Agricultural Policy and the Agricultural Improvement Act vary based on the historical context of their usage, their purpose and results have had similar and comparable results. Although neither explicitly uses the terminology “regenerative agriculture” both describe the processes involved in creating a regenerative landscape under the guise of sustainability. The CAP reform mostly focuses on moving towards goals set by the European Green Deal which focuses on moving Europe to a more sustainable future. A key aspect of the new CAP that has historically been a limitation is the movement towards more flexible policy for each state. This allows each state to implement green measures that are optimized based on their agricultural composition. In the past, the inability for member states to formulate their green plan prevented the ability to implement regenerative practices. Although this movement is beneficial for creating a more adaptable policy, it can actually be a challenge for individual farmers. Two key interviews were conducted for this project, one being with Linda Thorpe who currently works for Regenerative Revolution which is an organization working in collaboration with the European Commission with the goal of creating education for farms wanting to move towards regenerative practices. She is currently studying how sustainable the greening measures for the CAP are by comparing the 2014 and 2023 reforms. An additional interview was done with Pierre and Kate Havran who are regenerative farmers outside of Turin, Italy. The key outcomes from those interviews are discussed in the table below.

<table>
<thead>
<tr>
<th>Key Interview Insights</th>
<th>Kate and Pierre Havran</th>
<th>Linda Thorpe</th>
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<tbody>
<tr>
<td>Regenerative Agriculture and the CAP</td>
<td>- Historical conservation farming (high in pesticides and fertilizers) vs bio-organic farming (high land intensification) has created challenges for European farming</td>
<td>- CAP is production oriented in its foundation which often creates challenges to shift towards restorative practices</td>
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<td>- European farming has become overspecialized, a shift away from monoculture is essential for promotion of a more sustainable landscape</td>
<td>- In the new CAP, member states chose greening measures which increases flexibility for states but decreases flexibility for individual farmers</td>
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<td>- Current sustainable farmers do not feel supported; government will invest where they expect to see highest return which is intensive and conventional farming</td>
<td>- There is constant watering down of greening measures (within implementation of policy then within exceptions for states)</td>
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<td>- Transition to regenerative practices is challenging and</td>
<td>- Alignment with EU Green Deal is improving potential for sustainable shifts</td>
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<td></td>
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<td>- Current farmers rely on CAP subsidies for 50% of their income which creates challenging dependency</td>
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<td>- Farmers should be rewarded on</td>
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costly; it will be essential to have increased support to those looking to improve their methods potentially at the cost of yield
- Crisis in Ukraine is exposing faults in the current agriculture sector and may create issues in the near future

In addition to creating more adaptable policy, the CAP reform has put a large emphasis on further supporting small and medium sized operations. This is beneficial to the regenerative transition because farms that are currently making the transition to regenerative practices are more often on smaller scales. Such practices include integration of cover crops, no tilling, polyculture and integration of animals instead of mechanization. Therefore this governmental support is essential to mitigate risk associated with the transition such as smaller yields due to the landscape change. The Farm Bill in the United States also touches on the need to further support smaller scale operations, but with far less emphasis compared to the CAP. This is an issue to the United States ability to move to regenerative agriculture because a major issue with the agriculture sector in the United States is the consolidation of major companies creating disproportionate control over pricing and agricultural practices. Often further consolidation creates a race to the bottom for pricing, causing smaller organizations to resort to further intensification of their land which in turn causes further degradation.

Despite the CAP’s movement towards more support of smaller operations, currently small sustainable farms are currently not feeling actively supported. The Havran’s are an example of a farm that do not receive traditional subsidies from the CAP because they do things like practice intercropping which the EU perceives as less agriculturally productive, even though it increases resilience and total yield. Comparatively, conventional farms which are historically large producers receive about 50% of their income from subsidies provided by the CAP (EC, 2021). They described how much of the time the European Commission likes to invest in places where they are ensured to receive output, which is largely intensive conventional farming. Additionally, the transition to a regenerative farm is often costly and takes time. The Havran’s described how they have learned through years of trial and error and through learning by their mistakes. They recognize the privilege associated with this and would not be able to fully support themselves without additional income beyond agriculture, and often farmers do not have the same opportunities. Despite this, more institutional support for farmers such as them would provide the opportunity for a more diversified and secure food system in the future. The newest Farm Bill takes this idea into account and provides insurance and financial support to farms looking to make the transition. By still compensating farms even when there is a reduced yield, there is more incentive for farmers to do the more beneficial thing for the environment, even if it is more challenging because they will not be economically punished for it. The Havran’s argue that in the EU, a similar policy can be implemented, but it must start with the institutional recognition of regenerative practices and the promotion of polyculture. This begins with despecialization of agriculture and the movement away from intensive agriculture. Despite the lack of institutional support for farmers looking to transition in the CAP, the reform describes the
movement away from these traditional practices and towards more support of sustainable practices which is hopeful for farmers such as the Havrans.

In addition to support of smaller scale farmers, the new CAP and the Farm Bill put a large emphasis on improvement of soil health to ensure a future of productive agricultural land. In Europe, agriculture has gone through a series of methodological changes driven by farmers looking to mitigate harm that has been caused by technological aspects implemented by the Green Revolution. Because many areas in Europe such as Italy, Spain, Serbia, and Romania that are traditional agricultural land are in arid environments, it became clear that methods for sustainable agriculture were necessary to retain decent soil (John, 2018). The beginning of this was the research on reduced and eliminating tilling practices that started in the 1960s through the 1990s (Kertész & Madarász, 2015). This movement developed into what is now known as conservation agriculture. In the interview with Kate and Pierre Havran, they described how this practice of retaining soil health led to the French idea of 4 per 1000 which is an idea arguing that a 4% increase in the quantity of carbon sequestered by soil can greatly improve the greenhouse effects contributing to climate change. Although conservation agriculture was a catalyst for improved sustainability measures in agriculture, it had negative effects, for example, it was oriented towards improving levels of economically acceptable yields which often led to continued intensification of agricultural practices (Poulton, 2018). This meant that often conservation agriculture is conducive to high usage of fertilizers and pesticides. The Havran’s described how much of the land in the EU has become dependent on such chemical assistance which has widespread effects on surrounding environments.

Following the movement towards conservation agriculture came the bio-organic methodology of agricultural production. This practice rejects the usage of synthetic chemicals due to the negative environmental impacts they have on the surrounding land. Although this movement has had largely positive impacts on the food systems in the European Union, there have been large issues with organics overworking the soil and mechanization contributing to continued degradation of the soil. Pierre described how the ideas of conservation and bio agriculture have become irreconcilable because of the key issues surrounding chemical assistance and soil conservation. Despite this, both ideas have been catalysts for the movement towards the adoption of permaculture which is the basis of the newest CAP reform. Permaculture has also largely been considered the inspiration for regenerative agriculture. The newest CAP reform discusses improving soil health through crop rotation, crop diversification and dedication to a percentage of land being saved for non-productive use.

Although beneficial practices, the reform of the Farm Bill takes these practices farther by incentivizing usage of cover crops which promotes deep roots to stabilize soil. Within the reform, there are amendments to have the government facilitate payment for such cover crops and educate more farms on the benefit of using such a practice. For example, the amendments to the EQIP program include a higher focus on water quality, higher quality farming practices, soil health improvement, and wildlife habitat improvement. This amendment and refocus on improving the quality of practices to restore the soil and biodiversity in agricultural regions is a key reform towards the support of regenerative principles and practices. Through polyculture and integration of native cover crops, the soil is given an opportunity to become regenerative and far more productive and resilient. This reduces the need for fertilizers and synthetic chemicals because of the promotion of integrated plants. The Farm Bill explicitly discusses the need for increased organic matter in the soil because of the benefit it produces in sequestration of carbon from the atmosphere as well as creating more resilient soil, which is the main goal of
regenerative practices. Additionally, the policy describes the reduction in tilling. These soil conservation practices are the goal and direct result of regenerative agriculture.

A pivotal part of understanding the differences between the agricultural policy in Europe and in the United States is the context in which it was created. One of the main issues that prevents these reforms to the institutional structure of agriculture in the EU is that the Common Agricultural Policy was created with the purpose of increasing intensification of agriculture in order to prevent issues with food security. Conversely, the Farm Bill was created in the United States during both an economic and food crisis, but more importantly an environmental crisis that was created by intensive farming practices. Therefore the policy in the United States has had a head start on the understanding that economic and environmental stability of the food system are inextricably linked. Because the CAP is production oriented in its foundation, it has not historically promoted restoration or green agriculture. One result of this difference has been the watering down of policy in Europe to continue to achieve the product oriented goals of the CAP. Linda Thorpe discussed this in our interview and gave the example of creating a measure such as intercropping and biodiversity measures within a field. She explained how those in discussions may reduce requirements in order to make them more accessible to farms, therefore they may only require a level of intercropping. Then once those measures are implemented, many states make arguments and exceptions for example instead of intercropping they could argue for field rotations, which reduces the benefit of the original policy. Therefore, what was originally seen as a necessary reform becomes downgraded based on comfort levels of farmers. This does not allow for the transformation of agricultural practices which is necessary for a secure and productive future.

Additionally, we discussed how often there are limits to the humanized perspective on what is beneficial. An example she gave of this was the conservation of the Menorquina species of cow in Spain. This species has undergone a gradual loss in numbers to the point where it was nearly extinct in the entire Iberian region. There is currently a shepherd who maintains a herd of these cattle and has focused on restoring the species to a sustainable number for the future. In his practices he has historically provided shelter and straw for bedding which is normal for traditional cattle, yet because of this specific species evolutionary development, they often refuse to enter the shelter and rarely lay down because it goes against their survival instincts. Because of this, the shepherd stopped providing straw due to the fact that it was only getting moldy and remained unused by the cattle. The European Commission then refused to provide subsidies to this farmer because of certain conditions they perceived to be necessary for the wellbeing of the cattle. Despite the benefit the farmer was providing in conservation and in sustaining the wellbeing of this endangered species, the humanistic perspective of needing a soft place to sleep prevented him from getting any help from the government.

In the wake of multiple crises, it is essential for more governing bodies to recognize the issues with current agricultural production methods and further support innovative alternatives. For example, the crisis in Ukraine has produced some unforeseen effects having deeply troubling consequences on the ability to continue to produce sustainable food. For example, the war has created a spike in demand for fertilizers which has consequently led to a rise in the prices. In the interview, Pierre Havran described how the conflict is directly responsible for a jump in the prices of fertilizers which increased from 300 euro to about 1200 euro per ton. The Wall Street Journal corroborates this spike as they describe how fertilizer is about 3 to 4 times more expensive now than it was in 2020 (WSJ, Emont, 2022). Because of this issue with chemical
assistance, traditional conservation based agricultural practices are in danger of underproducing for the entirety of Europe.

In addition to issues with fertilizer access, oil and gas prices have also gone through a significant increase due to the conflict which limits farmers ability to use mechanization. Mechanization is often used in organic farming practices to make the intensive labor required when not using chemical assistance more manageable. For example the Symmington plantation in the Douro Valley has made significant strides in moving towards organic and sustainable production and has been able to manage labor required through new forms of mechanization. Although this technological advancement has been essential for their ability to expand their organic production, costs associated with oil and gas required makes it far more costly. Both these impacts provide serious threats to the near futures yield and the security of the food system.

In addition to these issues, the conflict has exacerbated the ever increasing inflation which has decreased purchasing power of many citizens in the EU. This prevents individuals from supporting organic and sustainable products because of the higher price tag often associated. Effects from this ongoing crisis are still developing and require more research to understand the extent of the potential future impact, but regenerative agriculture provides opportunities and potential solutions to many of these issues. Polyculture and inclusion of native cover crops allow the soil to become regenerative and far more productive and resilient which reduces the need for fertilizers and synthetic chemicals. Additionally, regenerative farming eliminates the need for mechanization because it is a no till practice and has an integration of crops. In addition to this, it is more self-sustaining than conventional farming, meaning that it is less labor intensive. Further, once there is a complete transition, the soil and crop health leads to higher resilience of the entirety of the farm. Additionally, since the farm isn’t reliant on a single product, if there is a crop failure, the farmers aren’t in economic peril. Despite this, regenerative agriculture is not a silver bullet solution to many of the issues described, especially to those caused by the war, largely due to the length required for transition.

5. Conclusion

There are a few key limitations of this report which are important to note as they prevent a complete and holistic analysis of both political reforms. The first limitation of this research is that all of the sources compiled are in the English language, whereas the extent of states which are impacted by the CAP transcend borders and languages. Furthermore it was essential to limit the scope of this report, which has been a significant limitation of this paper as it neglects many of the state-specific interactions with the CAP. Likewise, individual state policies enacted in the United States are vastly different.

Agricultural policy has a long way to go in order to facilitate a transition to regenerative processes which will promote a sustainable future. The Common Agricultural Policy has made essential reforms to integrate environmental considerations into food production beyond the previous scope, which solely focused on increasing production in order to support a growing European population. Despite this positive shift in purpose for agricultural policy, there are still barriers within policy that make transitioning to sustainable practices more challenging for farmers in Europe. A key shift that has yet to be seen in the EU is recognition of alternative forms of production outside of traditional methods such as organic farming. It will be key in the future for political bodies to recognize and promote regenerative practices which starts with despecialization of farms. This will allow farmers to move away from intensive practices and instead create a more diverse and robust food system. Further, the recognition of polyculture and
the merits of cover cropping must no longer be perceived as unproductive and a reason to not provide subsidies to farmers. The United States on the other hand has continued to move in the right direction of supporting sustainable agriculture. Despite this, similarly to the CAP there is still no recognition of regenerative agriculture in spite of many reforms that imply that type of farming. Recognition of this type of farming will be essential to create a platform for widespread adoption. Additionally, the Farm Bill must give small and medium farms higher priority in order to prevent further consolidation of the agriculture sector. An additional reform of the Farm Bill that would be beneficial for the European Commission to adopt is the financial support of farmers who seek to make a regenerative transition. This support comes in the form of insurance in case of yield decreases that stem from the challenges of transitioning to a new method of farming.

Despite the continuing barriers provided by policy in both the US and in the EU, the reforms have provided for necessary shifts in agricultural practices. Many of the reforms included practices which are conducive to a regenerative landscape, most notably the higher prioritization of soil health and the promotion of practices which prevent further degradation. Such practices include reduction of tilling, inclusion of cover cropping and reforms to grazing management. Most importantly, these reforms were done with the intention of reducing impacts of climate change and increasing the resilience of the world's food systems as environmental volatility increases. This is, at its heart, the basis for regenerative practices and therefore, these reforms are the starting point for a transition to a regenerative landscape.

6. References:


