Sustainable plant protein in the EU?

Beyond narrow sustainability narratives for food system reform
SUSTAINABLE PLANT PROTEIN IN THE EU? BEYOND NARROW SUSTAINABILITY NARRATIVES FOR FOOD SYSTEM REFORM

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Land and Resource Lookout

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Due to our constant engagement with this topic, we are excellently equipped to provide updates and analysis of contemporary resource issues. Through our academic, professional and personal networks in this field we are also well placed to access information and diverse perspectives on these matters.

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<td>ADA</td>
<td>Austrian Development Agency</td>
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<td>BINGOs</td>
<td>Big international NGOs</td>
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<td>CAP</td>
<td>Common Agricultural Policy</td>
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<td>CEE</td>
<td>Central and Eastern Europe</td>
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<td>Comagri</td>
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<td>German Corporation for International Cooperation GmbH</td>
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<td>GM</td>
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<td>IARC</td>
<td>International Agency for Research on Cancer</td>
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<td>MADR</td>
<td>Romanian Ministry for Agricultural Development</td>
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<td>RTRS</td>
<td>Round Table on Responsible Soy</td>
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<td>SDGs</td>
<td>(UN) Sustainable Development Goals</td>
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<td>TFEU</td>
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Executive Summary

Amid growing evidence of the far-reaching consequences of our global food system, reform of the current global agrifood supply-chain is increasingly being demanded from scholars, activists, famers, and society at large. Concerns extend beyond the environmentally harmful aspects of food production, but also issues related to food and nutritional security, human health, social justice, and the concentration of control over land and other relevant markets.

Partly in response to these demands, as well as in line with its geopolitical interests, the European Union (EU) has made steps towards a sustainable plant protein strategy. Plant protein supply in the EU is currently heavily reliant on imports of soybean from Latin America’s Southern Cone region. This leaves the European livestock sector, the ultimate destination of almost all of these imports, vulnerable to volatile international markets and shifting geopolitical dynamics such as increasing demand from China for Latin American soy.

EU efforts to address this so far include the European Soya Declaration of 2017, a draft report by the European Parliament’s Commission on Agriculture and Rural Development, an own-initiative piece by the Commission for Environment, Public Health and Food Safety, and a European Commission report due for the end of 2018. It is evidently an issue that is very much on the agenda. There seems to be a consensus around the need to increase ‘sustainable’ European soybean and other protein crop production within the EU. This appears to help lift the burden on valuable ecosystems in Latin America, whilst also providing greater protein independence for the EU.

However, the nature of this proposed production seems worryingly vague. In addition, visions of ‘efficiency’ and ‘sustainability’ remain inadequately narrow, as do understandings of food security. Ultimately, these seem to remain centred on yield per hectare valuations, albeit with a ‘sustainable’ veneer. This report calls for a more inclusive understanding of these concepts to form the basis of EU attempts towards food system reform, including explicit considerations of who controls food systems.

In the context of EU protein crop expansion, a control-blind approach to efficiency and sustainability is evident. There is a focus on headline hitting topics such as non-GM produce and reducing deforestation, as well as the fact that soy is a legume. These are not unimportant, and the fact that they receive political attention is in many ways a sign of progress. However, in isolation, they do not equate to environmentally and socially sustainable supply-chains. How this new soy supply is produced, distributed and consumed, as well as who controls the relevant markets and processes, holds the key for inclusively sustainable food systems.

The research conducted for this report reveals little challenge is being made to current structures of control, and in fact indicates the potential for further concentrations of control to emerge. Large traders and agribusinesses are placing themselves at the helm of European soybean expansion, locating production in Central and Eastern Europe (CEE) for export to markets in Germany, Austria and Switzerland. Financial investors and asset management firms are also sensing the speculative business opportunity, buying up or facilitating the accumulation of arable
land in CEE with a view to making profits from future price appreciation. Both of these processes entail radical reformulations of land ownership and control. The environmental, socio-economic and political consequences of such a reformulation have been attributed no attention whatsoever in policy thinking to date. It is vital that these issues are incorporated into understandings of efficiency and sustainability, so that a more holistic and ultimately more effective EU food and farming policies can be devised.

Two useful concepts in this regard are those of agroecology and food sovereignty. These offer a set of ecological, social and political principles for agricultural policy and practice that are overtly interconnected and mutually-reinforcing. They also explicitly challenge systems of corporate control, focusing on short food-chains and low external inputs.

Whilst these concepts and related practices offer a promising alternative, they cannot make a meaningful contribution without political support. European agricultural policy must nurture and facilitate a transition away from the concentrated industrial model that currently dominates. In order to do so, EU protein strategies, and wider food system reform in general, must therefore be based on broader, interconnected, and inclusive understandings of efficiency and sustainability.

1.0 Introduction

A growing body of evidence provided by civil society groups and researchers alike is highlighting the far-reaching consequences of our global food system [1]. Concerns focusing on issues from across the global agrifood supply-chain cover not only environmentally harmful aspects of food production, but also issues related to food and nutritional security [2], human health [3, 4], social justice [5, 6], and the concentration of control over land and other relevant markets [7, 8].

Much of the critique on the general direction of global agriculture centres on the increasing prominence of what is commonly termed the ‘industrial model’. This refers to an intensive logic of production that relies on high-input, heavily mechanised farming methods in order to increase ‘productivity’ or ‘efficiency’. Efficiency in this sense, often implicitly, is seen as equivalent to maximising yield; the maximisation of crop output for a given area of land. A key part of this quest for efficiency has been the use of genetically-modified (GM) seed, a practice that has also invoked significant consumer and civil society opposition. Aside from biological uncertainties, the development of chemical-resistant GM varieties has facilitated the use of increasingly potent herbicides. The widespread application of this model has been charged with degrading soil quality across the globe [9] and decimating biodiversity both on-farm and further afield [10]. In addition, observers have pointed to the patterns of control that have emerged around industrial agriculture. Farmland ownership and control over key markets such as agrochemicals and seed, as well as downstream sectors such as trading and processing, appear to be concentrating in fewer and fewer hands.

Such processes have been linked with the marginalisation of small-scale producers and peasant communities across the globe. Reports of violent evictions of rural communities in order to make way for
agricultural commodity plantations have become commonplace in the advocacy campaigns of human rights NGOs [11, 12]. However, there is also an increasing awareness of the more subtle and less visible pathways through which this marginalisation is occurring. Beyond direct violence, other forms of control, such as contract farming, market domination and political lobbying by corporate agribusiness representatives, are influencing the formal and informal rules of the game [13, 14, 15, 16].

Due to this growing awareness, there is now significant pressure placed on policy-makers and agribusiness actors to reform. Consumers are demanding access to ecologically and socially responsible food products, and NGOs and civil society groups are calling for agrifood corporations and investors to be held accountable for their actions, or further, for the deconstruction of the corporate-centred food system in favour of one based on small-scale producers and short supply-chains [17]. This has led to an increasing emphasis on sustainability within policy circles and the public relations departments of agribusinesses. Closely linked to this drive for sustainability is the very legitimate preoccupation with impending global crises to do with global warming, population growth and food and energy insecurity [18]. In increasingly erratic climates and with dwindling natural resources, the challenge is framed in the following terms: find a way to feed and provide food and energy for our bulging and ever more demanding global population, which is projected to reach 9.7 billion by 2050 [19].

In response to this, sustainability discourses have typically remained anchored around an output-oriented logic; the prominence of the concept of ‘sustainable intensification’ is reflective of this [5]. The focus has been on the latest innovative tweaking of current methods in order to reduce negative externalities whilst still maximising ‘efficiency’. In addition to this, efforts towards sustainability have often targeted various ‘headline-hitting’ issues in isolation, such as deforestation or the use of GM crops. Sustainable labelling schemes and Round Tables have emerged to certify agricultural produce and their derivatives based on targeted sustainability criteria to do with these particular topics.

This report will argue that the logic that has led to this approach is fundamentally flawed. The first problem that it fails to take into account is the interlinked nature of the multitude of sustainability issues concerning global food supply-chains. As argued by the food systems literature for quite some time, seemingly disconnected issues such as human malnutrition and soil degradation actually have much to do with the corporate-industrial architecture that permeates these supply-chains [20]. Failing to appreciate this bigger picture leads to a rather blinkered understanding of sustainability. Policy and action that incorporate a broader understanding of the power relations and actors involved in food supply-chains are necessary to get to the root of the problems identified, and then devise relevant solutions.

The second issue, which is closely related, is that there is a detachment between the idea of efficiency and the various sustainability concerns that have been identified. Building on more socially and environmentally inclusive understandings of the global food system and its defects, the concept of ‘efficiency’ needs to move away from the narrow focus on crop output. Firstly, it must incorporate the wider environmental and socio-economic ramifications to do with the nature of agricultural production in question. Secondly, it must also move beyond the narrow focus on production itself, and look
across the chain from the provision of inputs to processing and distribution. Efforts to increase the productivity of a certain crop through intensive agrochemical use and mechanisation are ultimately futile, when viewed with a broader lens, if water systems are being polluted, soils are drained of their fertility, rural communities are left dispossessed or unemployed, and produce and profit are distributed in an unequal and inefficient manner as a result. Attention must therefore be paid to the long-term impacts of upstream and downstream market dynamics as well as production itself, and these must be fed back into understandings of efficiency.

1.1 Making soy sustainable
The report will aim to demonstrate these points by looking at recent efforts to address sustainability issues regarding protein crop supply-chains, which in the EU revolves around soybean. Primarily used as the main ingredient in compound feed for the industrial livestock industry [21], soybean is one of the largest agro-industrial commodity crops traded worldwide, both in terms of volume and monetary value [22, 23]. It is therefore an extremely relevant and pertinent example. The largest export markets for soybean and processed soymeal are China and the European Union (EU), and the majority of the soy feeding these markets is cultivated in South America, primarily Brazil and Argentina [24].

Production levels have exploded over recent decades, with soybean’s high protein value and ability to be flexed between feed, fuel and food industries making it attractive to commodity traders [21, 25]. Prices have also been consistently high, especially when value is added through processing into soymeal. Governments in producer countries have framed this as a major revenue generator and thus development opportunity [26]. Agro-industrial input suppliers, commodity traders, industrial livestock producers, retailers and more recently financial speculators have all sought to profit from the soy boom.

However, the global soybean value-chain has been heavily scrutinised for its lack of sustainability. In rainforest regions, land-use change for soybean production has meant that produce carries a significant carbon footprint [27, 28, 29]. The development of GM chemical-resistant varieties has resulted in excessive use of agrochemicals, contaminating critical water sources and decimating biodiversity [30], as well as endangering human health and food security [31, 32]. NGOs, activists and human rights groups have highlighted how rural-dwellers and indigenous communities have seen their lands swept away and replaced with soybean plantations, often violently so and without free, prior and informed consent [11], or without the opportunity to voice meaningful dissent. Attempts to regulate different stages of the value-chain have so far been unsuccessful, and initiatives such as the Roundtable for Responsible Soy (RTRS) have proven largely superficial [33].

Amid growing awareness of these problems, and amid concerns over the EU’s dependence on imports for plant protein, the idea of EU domestic soybean production has gained credence in recent years. In July 2017, several EU member states signed the European Soya Declaration, which pledged to increase European soybean production, citing Central and Eastern Europe (CEE) as the most promising site for this expansion [34]. The text, to which 13 member states have given their signature, outlines a vision that touches on the United Nations’ Sustainable Development Goals (SDGs), particularly goals 2 (on food security) and 15 (on sustainable use of ecosystems) and addresses wider sustainability concerns with GM crops,
Amazon deforestation, and CO2 emissions associated with transport to Europe.

However, the nature of the implementation of such an expansion is something that has received little attention so far. Such considerations are vital for ensuring that efforts towards European protein independence reflect progressive food system reform. Many of the sustainability claims made in the European Soya Declaration seem to be based on the implicit assumption that a superior legal-institutional environment in Europe will foster more sustainable supply-chains. Yet there is significant evidence that this might be a naïve assumption to run with [35, 36]. Contrary to common perception, Europe is far from exempt from patterns of unequal farmland control, and still harbours significant peasant communities, especially in CEE [37]. This report will thus aim to investigate the landscape of European protein crop production and its proposed expansion; the actors that are involved, their narratives, practices and interactions, and the relevance of this for wider food system sustainability. It will focus largely on commodity soybean, as this seems to be where the emphasis is being put in policy processes.

1.2 The path ahead

In order to do so, it will first briefly introduce the background of the European Soya Declaration, taking the magnifying glass to the world of commodity soybean in order to inform later analysis. It will then move onto a section addressing and challenging the concepts of efficiency and sustainability that have become so prominent in food and farming circles. This will aim to improve and broaden understandings of sustainability within food supply-chains, drawing on insights from the food systems and food regime literature, as well as that on land control and legal pluralism. The following section will then take a look at the narratives present in plans for European soybean expansion, before a section investigating the actors involved. The implications of these influences for food system sustainability will then be discussed. The final section of the report will introduce the concepts of agroecology and food sovereignty, which offer potentially helpful foundations from which to build a broader understanding of sustainability in the food systems context.

The research is built around an extensive review of literature and publicly available information, as well as a small number of interviews with different actors of relevance. In addition, it draws on conversations had and presentations made at a conference in Bucharest on the UN Peasants Rights Declaration. This was of interest as it brought together politicians, emergent civil society organisations active on food systems issues, as well as farmers themselves, from across the CEE region. It concludes that whilst a move to replace some of the Latin American production with domestic soybean is a welcome challenge to the asymmetric distribution of global agricultural commodity-chains, this alone cannot ensure sustainable protein supplies for the EU. Far more fundamental change is needed to avoid some of the damaging effects seen in South America being transplanted into EU soils, particularly in CEE.
2.0 The World of Soy

On the surface of things, soybean is just a crop. Yet today, it has become one the most prized agricultural commodities in the world. Production levels have exploded over the past few decades; global area cultivated with soybean increased by 400% between 1961 and 2009, with total output levels increasing by 800% (see figures 1 and 2) [21].

It is for this reason that scholars have argued that soybean can no longer be considered in isolation from the global commodity architecture that has formed around its production, trade and consumption. The soy industry has become the ‘nexus for food, animal feed and hundreds of industrial products... [and in doing so has propelled] one of the most rapid landscape alterations (and enclosures) of the last 30 years’ [23, p. 251]. This section will aim to provide an outline of why and how this has occurred, some of the reported impacts on land, resources and people, and the new plans to expand soy production in Europe. This background will be vital for contextualising later analysis and discussion of sustainable soy initiatives.

2.1 The rise of commodity soybean

Initially brought to Latin America’s Southern Cone (the region in which soybean is now largely cultivated) by Japanese immigrants in Brazil, its initial role was that of a subsistence crop [38]. The global prominence of soybean as a commodity crop is a relatively recent phenomenon. This rise started in almost inadvertent fashion, with wartime shortages in the United States (US) contributed to expanding cultivation in the country in the 1940s, where it had previously been used mainly as a green fertiliser [21]. In this period it became more widely recognised that soybean was an ideal base for feed in intensive and concentrated livestock production; it is high in digestible protein and low in fibre [39]. It is also a legume, meaning its nitrogen-fixing properties made it an ideal rotation partner for maize, a nitrogen hungry crop widely cultivated across certain regions of the US [21].
In the post-war period, soybean became a key strategic export for the US, feeding demand for cheap and high-protein animal feed from the recovering economies of Europe and Japan [21]. Starting from around the 1960s, governments in Latin America started to encourage the production of soybean, especially those of Brazil and Argentina. The crop was hailed as having the potential to drive the development of national and regional economies and bring about the prosperity that citizens were demanding. Now, the entire Southern Cone region has taken up the production of soybean in a similar vein, with Argentina, Paraguay, Bolivia and Uruguay developing into major producers in recent years. This has led many commentators to engage with the term ‘United Republic of Soy’ (see figure 3), in reference to a Syngenta television advert that depicted the region as such [26]. Today, Brazil has eclipsed the US as the largest exporter of soybean and its derivatives; demand comes primarily from China and the EU.

The ultimate destination of this soy, both geographically and sectorally, is important to take stock of. In 2012, it was estimated that around 85% of harvested soybean was processed into soybean meal, of which 98% was destined for livestock feed production [40]. This has relevance for the claims around efficiency and food security that are often put forward as justification for such large-scale and intensive cultivation. Production of soybean in the Southern Cone has ultimately served industrial livestock operations in the EU, and in recent years China.

2.2 The ABCD traders and corporate agribusiness control

The geographical disparity between production and other parts of the chain has been facilitated in part by the emergence of powerful global commodity trading firms. Understanding the role played by these traders is important in order to ascertain the power relations that are present between actors in the global soybean commodity-chain. This in turn is relevant for understanding why certain policy and sustainability discourses have prevailed.

The global market for soybean has traditionally been dominated almost exclusively by four major traders. These are: Archer Daniels Midland (ADM), Bunge, Cargill, and Louis Dreyfus, known collectively as the ABCDs [41]. Recently, powerful players have started to emerge of Asian origin, such as Chinese giants Cofco (China National Cereals, Oils and Foodstuffs Corporation) or Singapore-based Wilmar [8, 42]. In fact, Cofco recently replaced the ABCDs as the largest buyer of Brazilian soybean and maize, accounting for 45% of Brazil’s grain exports [8]. These corporations do not only trade the soybean or soybean meal itself, but they are active all the way across the agrifood supply chain, ‘from the farm level all the way to food
manufacturing’ [40, p. 3]. They provide inputs such as seed and agrochemicals to growers, and then buy the output, storing and often processing it themselves, leading to a scenario in which soy production is ‘practically like an assembly plant’ [43, p. 19]. They also provide finance for prospective producers; in Brazil, ADM, Bunge and Cargill account for 60% of finance for soy production [40].

This level of engagement across the supply-chain then has implications for control over relevant resources and regulatory environments. Land and resources such as water can be controlled by traders, or at least some level of control can be exerted over them, either directly or indirectly. This can work through direct ownership or leasing of land for self-production or sub-contracting, setting up contracts with large-scale producers or plantations, or contract farming arrangements with smaller growers [40]. Even though in most of these cases there is not official legally recognised ownership of land and resources by commodity traders, the market domination enjoyed by these firms gives them significant leverage to essentially dictate use and management decisions. Depending on the relative power of the producer, contract farming arrangements can amount to de facto control by one of the large traders; soybean farmers are price takers and have little other choice than to accept the terms set out. The alternative is to be forced out of business or even sued for failing to meet contractual obligations.

The market dominance and financial weight enjoyed by agribusiness firms also allows them to exert significant pressure on the official regulatory environment within which they operate. One recent and high-profile example of this is Monsanto’s efforts to clear the name of the chemical glyphosate, the key ingredient in Roundup, their best-selling chemical herbicide. Having developed and patented GM seed varieties, including soybean, that can withstand Roundup application, Monsanto are able to market these as a package that brings low-effort weed control. However, in 2015, this bedrock of the Monsanto business model was challenged by findings that glyphosate could potentially cause cancer in humans. The International Agency for Research on Cancer (IARC), commissioned by the World Health Organisation (WHO), determined that glyphosate is carcinogenic to animals and probably to humans as well [44]. Monsanto responded with an aggressive smear campaign, aiming to simultaneously intimidate the independent scientists responsible for the study and discredit their and the IARC’s reputation and integrity [45]. This in turn impacted regulatory decisions such as the European Commission’s controversial decision to extend the license for glyphosate despite overwhelming opposition from the public and civil society [46].

Trade deals are also the target of corporate lobbying. The export-oriented model pushed by large development banks and financial institutions is the one favoured by agribusinesses, who have thrived off international trade and investment policies that have engineered the opening up of new markets [20]. The power of agribusiness entities such as the major commodity traders gives them significant leverage to influence trade policies in a way that they deem favourable to them [47]. In addition to direct lobbying, more subtle measures are also employed, such as political campaign donations and the funding of ‘research, teaching and public outreach programs’ that encourage particular pathways or framings of food system reform [20, p. 5].

This brief overview provides a picture of the presence and influence of corporate entities
in the soybean supply-chain. Of course, the situation is more complex than straightforward domination; all sorts of direct and indirect contestation and negotiation takes place to influence resource control. At a highly localised level, especially in remote areas, contestations over land involve an array of actors all pushing their own ambitions for control. Policy formulation is also a highly contested arena, with all sorts of competing agendas from different sources being mobilised through diverse modes of influence. This contestation is an element that is often lost in systems thinking, and is important not to lose sight of. Nonetheless, the fact remains that the power of corporate agribusiness enterprises and financial institutions gives them significant leverage in determining dominant discourses, policy directions and de facto resource control.

2.3 Soybean and sustainability in the Southern Cone

The growth of soybean as a global commodity has been underpinned by an intensive high-input agricultural model. This suits traders and corporate agribusiness enterprises in general as they are able to profit from provision of inputs and finance as well as access large quantities of output which they can process and sell on to the European or Chinese market. However, it also brings with it a cacophony of concerns relating to the consequences of industrial production and corporate-dominated supply-chains. This has led to debate over the sustainability of soybean supply-chains, and the extent to which they actually contribute to genuine prosperity and development.

2.3.1 The national development narrative

States in Latin America, in general, have welcomed the production of soybean on their territories. When looked at through a particular lens, the kind of agricultural intensification and expansion seen in the soybean sector is associated with bringing in substantial economic benefits for producer countries [48, 49]. In Brazil, for example, the agricultural sector has built a positive trade balance, driven in no small part by the strength of the soy industry [50]. Governments, or the relevant ministries, have demonstrated a desire to attract the international and domestic financial investment that the sector entices, be it from agribusinesses or financial institutions. The argument has been that it drives economic growth and national development. Favourable monetary and agricultural policies have provided fertile ground for such investors to thrive. Sizeable export and tax revenues have been generated as a result and, in the case of Brazil, the soybean expansion has been credited with stimulating investment in transport infrastructure, healthcare, education, and has increased international purchasing power due to the appreciation of the Brazilian currency [50]. However, it is important to recognise that the impressive financial statistics are not ends in themselves; the extent to which macroeconomic gains are redistributed in order to allow for an equitable capturing of the benefits is somewhat unclear.

2.3.2 Cause for concern

In addition, the development of the large expanses of soybean monocultures that make up the ‘Republic of Soy’ has come at significant social and environmental costs, which are often inextricably linked. Soy estates in the Cerrado region in Brazil, for example, now average between 1000 and 2000 hectares (ha), with larger farms exceeding a surface area of 10,000 ha [50]. Extensive research exists that documents the direct and indirect displacement of rural
populations that has stemmed from such developments.

Reports of rural populations being forcefully evicted from the lands on which they subsist or reside have become far from isolated cases [51, 52]. These evictions are shocking for the immediacy of the violence, and rightly have sparked outrage and concern from human rights NGOs and other observers. Beyond this, though, it is important to highlight the ‘related forms of dispossession less frequently considered…: changes in the social relations of production, food politics and labour’ [26, p. 9] brought about by the shift towards export-oriented and high-input agriculture. Small-scale farmers can find themselves priced out of their lands [53] or unable to sell their products due to dwindling local markets. Chemical drift from neighbouring industrial soy fields has also been shown to destroy local harvests, cause livestock mortality and endanger human health [31, 32]. Left with few alternatives, rural dwellers can find themselves becoming dependent on contract farming or plantation labour in order to bring in some form of income. Statistically, this is often represented as the creation of employment and then used to support the narrative that industrial soybean production drives national development. In reality, poor wages and working conditions provide little compensation for the loss of livelihood autonomy; contrary to dominant development economic logic, the replacement of subsistence farming with a monetary income can often worsen food and nutritional security, especially in the context of soybean expanses taking over local vegetable and staple crop production. One alternative is to migrate to urban areas, where similarly unfavourable employment prospects await.

Major environmental problems are also associated with the formation of soybean monocultures. Perhaps the most widely recognised detriment of soy production in the Southern Cone has been deforestation, with vital biomes such as the Amazon, Cerrado and Chaco coming under pressure from expanding cultivated areas [42]. In addition, the use of GM chemical-resistant varieties, such as Monsanto’s Roundup Ready soybean, has facilitated excessive agrochemical application, contributing to excessive biodiversity loss and water contamination [30]. The sheer intensiveness of soy production has left land seriously degraded and lacking fertility, despite the known nitrogen fixing properties of soy as a legume [33].

2.3.3 Taking responsibility

Growing awareness of these issues amongst civil society, policy-makers and consumers has led to attempts to improve the sustainability of the soybean supply-chain. Perhaps the most significant, or at least most funded initiative has been the Round Table on Responsible Soy (RTRS). This is a multi-stakeholder group consisting of soy industry players from across the chain as well as big international NGOs (BINGOs), local NGOs and other civil society actors.

The RTRS has created their own ‘Standard for Responsible Soy Production’, a set of criteria which if applied is purported to assure ‘soy production that is socially equitable, economically feasible and environmentally sound’ [54]. It also offers a certification standard against which the ‘responsible’ conduct of producers can be certified by private auditors; in 2012, almost a million tonnes of soy was RTRS certified [55].

However, the initiative remains highly controversial, with many seeing it as a ‘watered-down’ [56, p. 1] approach to sustainability that weakens requirements to reduce deforestation and allows GM soy use to continue unabated. The credibility of the
standards are also damaged by the lack of small-scale farming representatives and the unequal negotiating leverage of the larger corporate members [32, 33].

2.4 European Soya Declaration

In part due to these sustainability concerns, as well as geopolitical concerns to do with the EU’s high dependency on soybean imports, the idea of increasing soybean production within the EU and its neighbouring states has gained credence. Production within the EU would mean that this supply would be GM-free, as there are currently no GM soybean varieties approved by the European Commission. It would also avoid the problems of deforestation and biodiversity loss in important tropical biomes.

With these arguments at the forefront, the European Soya Declaration was drafted; this was then signed by 13 member states at the EU Agriculture and Fisheries Council in July 2017. The signatories were: Austria, Croatia, Finland, France, Germany, Hungary, Luxembourg, the Netherlands, Poland, Romania, Slovenia and Slovakia [57]. The declaration is essentially a call to start facilitating greater EU production; this involves the creation of favourable trade and agricultural policies, investing in research and infrastructure, and providing support for producers. Whilst there is potential for some production in Western Europe, the geographical area deemed to be the most suitable for this expansion to occur is CEE, as well as neighbouring countries with close EU ties, in particular Ukraine and Serbia [34].

In addition to addressing non-GM and deforestation-free protein supplies for the EU’s powerful livestock industry, it also highlights the potential for soybean integration to encourage crop rotation and more diversified production. Furthermore, the fact that soybean is a legume is presented as giving a sustainable edge to its production; its use as a break crop and its natural nitrogen-fixing properties in theory reduce the need for pesticide and fertiliser application [34]. This in turn reduces the environmental fallout from high agrochemical use and can reduce farmers’ financial outlay.

To emphasise the sustainability factor, the declaration then links the actions that it advocates to the SDGs, as well as the EU Sustainability Strategy. In particular, goals 2 and 15 (see Box 1 for goal summaries) of the SDGs are highlighted; more expansive and efficient cultivation of soybean in Europe and other legumes is seen as aiding food security and sustainable use of terrestrial ecosystems.

**Box 1. European soybeans and the SDGs**

*Goal 2*: “End hunger, achieve food security and improved nutrition and promote sustainable agriculture.”

*Goal 15*: “Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.”

Source: [58]

All in all, the declaration commits to ‘increased production of legume crops for food and feed as a contribution to the development of more sustainable and resilient agricultural systems in Europe’ [34, p. 4].
3.0 Efficiency and sustainability: the need to zoom out

The European Soya Declaration is part of a wider momentum that is growing around the topic of protein crops and legume production in the EU. Building upon it and previous European Parliament (EP) activity on the matter [59], the Commission on Agriculture and Rural Development (Comagri) of the EP is drafting a report on the creation of a European strategy for the promotion of protein crops [60]. In December 2017, the Commission for Environment, Public Health and Food Safety published an own-initiative opinion piece on the matter [61]. The European Commission is also active on the protein crop front and is reportedly preparing a report on the issue for the end of 2018. It is thus evident that this is a hot topic in policy circles, and warrants significant critical attention.

Whilst it is important to recognise that what happens at policy level only goes so far in determining what happens in practice, it is also equally pertinent to understand the potential consequences of policy being set. Particular policy directions or discourses can be used by interested parties to legitimise and enforce their own agendas; in European agriculture, the quest for efficiency of production has led to policies that have facilitated increasing concentration of farmland and agricultural markets in fewer, mainly corporate hands [37]. This has gone hand in hand with increasingly intensive and input-reliant farming methods, driven, amongst other things, by both EU policy and by the agendas of powerful input suppliers and retailers.

The aim of this report, therefore, is to demonstrate the dangers that continuing to follow such a trajectory, albeit in the name of sustainability, is likely to bring in the context of sustainable food systems. In order to set the foundation for this point to be made in the context of European protein crop production, this section will set out to introduce and challenge the meaning of the concepts of efficiency and sustainability that have dominated this debate until now. It will then also introduce the concept of land and resource control, which can be useful in reframing the way we think about food system sustainability.

3.1 Efficiency

Efficiency has been for quite some time the mantra of agricultural and rural development. As we become more aware of the stress that large-scale agriculture is putting on people and the planet, efficiency finds itself again front and centre of strategies to combat the onset of multiple global crises whilst still providing enough food for the current generation. The following quote from the World Bank’s World Development Report 2008: Agriculture for Development typifies the narrative that underpins the purported need for greater efficiency:

“The world’s demand for food is expected to double within the next 50 years, while the natural resources that sustain agriculture will become increasingly scarce, degraded, and vulnerable to the effects of climate change.” [62]

More recently, but to a similar tune:

“Seen against the backdrop of an increasing world population that is expected to reach nine billion by 2050, rising food demand is estimated to increase by at least 20% globally over the next 15 years with the largest increases
In response, efficiency has become a term trumpeted by the PR departments of agribusinesses, financial institutions investing in agriculture, and Ministries of Agriculture across the globe. What is required, so the logic goes, is a ‘productivity revolution’ [62, p. 1], which can be brought about through investing in more efficient agricultural methods:

“we need to be more productive and efficient in the way we grow food” [63, p. v]

According to this logic, yield potential must be increased and land that is ‘underused’ or ‘inefficiently’ used must be transformed in order to reach its maximum productive potential. Agricultural policy and practice that has followed this line of reasoning has indeed coincided with unprecedented food outputs for national and international commodity markets [64]. This output has been the main barometer for gauging the success of the approach.

However, a narrow focus on productivity and output veils the wider inefficiencies that are acutely intertwined with such an approach. The critique on corporate-industrial food systems provided in the food regime literature is useful in understanding this wider context. For example, McMichael [65, p. 691] talks about the ‘development agency rhetoric regarding the ‘yield gap’ that ‘caters to (inefficient, climate-threatenning) overconsumption by a global minority’.

This inefficiency is multi-faceted, encompassing many socio-economic and environmental aspects. For example, the World Bank and its proponents have made the argument that ‘large-scale land acquisitions’ for plantation-style agriculture can be a vehicle for both poverty reduction and productivity gains [66]. Yet, using the World Bank’s own statistics, Li [67] has shown that very little employment is actually created per hectare, something backed up by Holt-Giminez [68] (see Table 1). Of the major commodity crops, soybean is the least efficient in terms of providing labour opportunities; for 100 hectares of soybean cultivation, an average of 0.5 workers is required.

<table>
<thead>
<tr>
<th>Crop type</th>
<th>Jobs per 100ha (tropical regions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel crops</td>
<td>35</td>
</tr>
<tr>
<td>Oil Palm</td>
<td>10</td>
</tr>
<tr>
<td>Sugarcane</td>
<td>10</td>
</tr>
<tr>
<td>Eucalyptus</td>
<td>2</td>
</tr>
<tr>
<td>Soybean</td>
<td>0.5</td>
</tr>
</tbody>
</table>

Table 1. Jobs per 100ha of different crop types. Source: [68]

In addition, on-farm jobs in the soybean sector generally require specialised and technical knowledge in order to operate the highly mechanised production system [33]. These are therefore not exactly jobs available to the populations that may be displaced by such acquisitions. The question then is: what happens to those evicted directly or indirectly by the spread of industrial farming enterprises? Surely this has everything to do with rural poverty, malnutrition and rural-urban migration, as well as the socio-economic and political headaches that these processes are associated with. Efforts towards dealing with these headaches command significant proportions of state budgets, provided for by the taxpayer [2]. Indeed, as McMichael [69, p. 653] argues, ‘in terms of global stability and sustainability, the intensified process of ‘emptying the countryside’ is a principal contradiction’.
The employment aspect is just one example of what is missed by the narrow understanding of efficiency in agriculture that is typically used. There is a long list of concerns that similarly evade this constricted outlook. To lay out all of these would be beyond the scope of this section, but amongst the well-established ones are: greenhouse gas emissions, soil degradation, water pollution and scarcity, biodiversity loss, malnutrition and dietary homogenisation, human health threats, inefficient and unequal distribution of food, and concentrated market power [3, 7, 9, 70, 71]. What is important to take away is that, if we want to talk about efficiency, these are all aspects that need to be factored into the calculation. They can no longer be detached or framed as economic externalities that can be corrected for through price mechanisms. By viewing efficiency from a broader perspective, it becomes easier to dispel the contradictions present in much of the reasoning that supports high-input industrial-scale agriculture.

3.2 Sustainability
Sustainability, in a similar vein to the narrative on efficiency, has become a common catchphrase in the world of agribusiness. Yet once again it is often used in a narrow, ill-defined manner, in many cases more as a stamp of legitimacy rather than a genuine attempt at reform. It is useful to consider the most commonly accepted definition of sustainability in order to understand the foundation of the concept. This can be found in the World Commission on Environment and Development report entitled Our Common Future, which actually refers to ‘sustainable development’ as:

‘development that meets the needs of the present without compromising the ability of future generations to meet their own needs’ [72, p. 41]

This clearly has a rather broad scope, but the key thing emphasised in the report is that this is a multi-faceted issue. Furthermore, attempts to deal with these different aspects must be enacted ‘in harmony and enhance both current and future potential to meet human needs and aspirations’ [72, p. 43]. However, in practice, the term has often been used in a narrow manner, referring mainly to environmental issues [73]. Reference to sustainability in agriculture has then tended to further zoom in on individual environmental issues, such as deforestation or the use of GM varieties [74]. This narrow focus misses out the interconnected nature of the various issues, which cut across categorical boundaries such as social and environmental.

In order to grasp why this is problematic, the sustainable food systems framework developed by the International Panel of Experts on Sustainable Food Systems (IPES) is useful to consult. Whilst arguing that the concept of sustainability must be at the centre of food system reform, it makes the case that this must be founded on a more holistic conceptual base. Whilst environmental impacts attributed to food systems are important to monitor, ‘the sustainability of food systems should extend beyond environmental dimensions’ [20, p. 7]. Economic, social and political aspects should be incorporated in our understanding of sustainability, as ultimately these dimensions intertwine and reinforce each other in ways that make their detachment illogical.

To demonstrate this, the promotion of GM-based sustainable food security strategies is a useful example. Development banks and independent foundations such as the Bill and Melinda Gates Foundation have put significant financial and political weight behind biotechnology as a means to increase food production in the face of climate and
population pressures [75]. The argument being that more ‘efficient’ food production can avert pressure on rainforests and other vital ecosystems, thus rendering it sustainable in the sense that it spares land [18, 62, 66]. In addition, the use of chemical resistant GM varieties has been supported as it allows for no-tillage cultivation, a technique that is supposed to reduce soil disturbance and degradation, and even CO2 emissions [76].

However, broader socially and environmentally inclusive visions of sustainability would highlight the damage caused by increasingly potent agrochemicals in GM production and the corporate control over research and development (R&D), as well as marketing. To give an idea of the scale of this concentration, it is estimated that only 10 companies control 73% of the seed market, whilst just 5 control 84% of the agrochemicals market (see figure 4) [20].

![Figure 4. Concentration of control in the global seed and agrochemical markets](image)

This high concentration of control, including the creeping criminalisation of seed-saving practices, actually inhibits the ability of the vast majority of producers of current or future generations to meet their needs and those of their customers. Only a small minority of large corporations stand to capture the lion’s share of the benefits of developing GM seed varieties, which are mainly economic, whilst producers are likely to have to yield to strict specifications if they want to find buyers, including the use of agrochemicals pedalled by the same companies. This in turn has well-documented environmental consequences. Furthermore, this is all before the highly-contested uncertainties over the environmental impact of gene engineering are brought into the equation.

Thus it is evident that a narrow and segmented use of sustainability is insufficient in building an ideology and practice that moves towards healthier food systems. All of these aspects must be treated as part of the same overarching problem, rather than mobilised individually or in select groups. This is still a pervasive issue. As consumers have become more sensitive to sustainability issues, yet still remained largely physically and intellectually detached from the source of their food [8], labelling and certification schemes have risen to guide ‘sustainable’ choices [77]. Yet these, in general, have also had too narrow a scope, amounting to nothing more substantial than a marketing ploy in many cases [73, 74, 78, 79]. In order to exemplify this, and staying with the GM theme; non-GM labelling, whilst a positive step towards food systems that do not revolve around GM seeds and associated inputs, also narrowly focuses on a single issue. It does not necessarily address the prevalent problems of over-intensive industrial-style cultivation, unequal land and resource rights and *de facto* corporate control by commodity traders and retailers. Selling non-GM certified goods can then have the effect of appeasing consumer consciences without actually fostering any meaningful change. This example can be generalised for other dominant sustainability labels such as organic or those based on reducing deforestation [73].

This sort of critique is often met with calls for pragmatism and realism: let us first deal with one or two issues properly before moving on to the others, we cannot take them on all at
A more inclusive approach to sustainability would fundamentally challenge such a line of thinking; these problems do not exist independently of each other, so from a pragmatic point of view it is actually rather inefficient and impractical to tackle them as if they were. Thinking about sustainability in this broader sense can be a vital tool for critiquing current policy and PR efforts, and constructing new strategies and approaches towards food system reform. It thus underpins the argument made in this report.

### 3.3 Control: beyond official law

One of the key components of a more inclusive understanding of efficiency and sustainability in food systems is the cross-cutting issue of concentration of control. This may be over land, resources, markets or political decision-making arenas, which are in any case not disconnected. Rather tellingly, this is an issue that has been either misguidedly or strategically overlooked until now in sustainability thinking. It is therefore appropriate to introduce the concept of control in order to shed light on why this is so relevant for sustainable food systems. For this, it is helpful to consult the literature on land control, particularly the work of Peluso and Lund [80] and Hall [81]. Whilst the focus of this literature has been on land itself, the analytical tools developed are useful for looking at methods of exclusion and control even beyond the land arena.

Control can be defined as ‘practices that fix or consolidate forms of access, claiming, and exclusion for some time’ [80, p. 668]. Firstly, the temporary nature of control is crucial to grasp; the battle for control is ongoing and can be fought by any actor, regardless of perceived insignificance or lack of power. This doesn’t necessarily mean that control is constantly changing hands, but rather that methods of control are constantly being mobilised to maintain, challenge or gain power and influence.

Important to take note of also is the reference to practices, which is something different from state or international (such as EU) law. The way that things come to be regulated and controlled in practice almost always extends beyond the scope of central legal mechanisms. Situating the concept of control within understandings of legal-pluralism is important to acknowledge in comprehending the ineffectiveness of law in certain cases; for example, why issues such as land and resource grabbing pervade even in the supposedly strong institutional environment of the EU [36, 37]. This does not also mean that such issues are prevalent solely because law is ineffective, in many cases they can exist within the bounds of official legal frameworks. Taking off from this standpoint allows us to see how law can be strategically constructed, mobilised or evaded as part of the wider struggle for control over land, resources, markets, politics, or any other desirable battlefield.

Having established this footing, it is now useful to look at some of the ways control can be strategically mobilised. Hall [81] sets out four principal methods of exclusion: *regulation, market, force* and *legitimation*. Peluso and Lund [80] similarly refer to *legalisation, enclosure, violence* and *territorialisation* as ways in which control can be enacted. These methods of control are often enacted ‘in concert’ [80, p. 668], as well as in competition or in parallel but separately. Both authors emphasise that these are neither exhaustive nor exclusive from each other, but are separated to satisfy a heuristic purpose [81].

Perhaps the most relevant form of control to emphasise for the purposes of this report is that of *market* or *enclosure*. In land control
literature, the market has mainly been focused on due to its function in pricing out would-be land owners or controllers. Those less economically capable are likely to lose out when those with access to large pools of capital are interested in accessing land or other natural resources. In terms of sustainability and efficiency, when viewed in more inclusive terms, this price exclusion can lend itself to problems; the more powerful, profit-driven entities are better set to gain greater control. Whilst acknowledging the diversity of practices within the categorical group ‘agribusiness’, this situation is now widely recognised as undesirable for promoting sustainable food systems, largely due to the industrial farming model that it entails, as well as the innate exclusivity of this market capture.

Yet beyond simple price mechanisms, and again zooming out to look at the situation from a wider perspective, market power can be used as an instrument to engineer and reinforce control, as well as suppress alternative claims to it. This requires looking beyond land, on which the debate over grabbing and control has traditionally focused, and into related food-chain markets. These might include markets for agricultural inputs, machinery, labour, processing, feedstock, and retail, as well as research, which is increasingly becoming privatised and financialised. These are often very closely related.

For example, a group of agribusinesses known as the ‘Big Six’, consisting of Syngenta, Bayer, BASF, Monsanto, DuPont and Dow, together control 60% of the global seed market and 75% of the global pesticide market [7]. The amount of weight that this entails in terms of directly and indirectly influencing agricultural practices, research agendas, and policy discourses should not be underestimated. In a direct sense, the oligopolistic conditions that these firms enjoy mean that farmers are left with little choice in terms of who to buy seed from, and this can often come attached to purchases of certain herbicides or other agrochemicals. This also has implications in terms of farming mode adopted, as these inputs have been developed with industrial production models in mind. In turn, this industrial production model tends towards certain relationships with labour and the environment, which are now increasingly recognised as unsustainable. This market dominance can also mean that research, ever more privatised, tends towards developing crop varieties, other inputs, or machinery that are going to deliver an economic return of interest to these companies [20]. Whilst financial return is not unimportant, ‘food and agricultural research for the common good and the wellbeing of the planet’ [82, p. 22] will need to be based on broader, more inclusive valuations. The indirect control of research agendas through market dominance feeds back into further market capture, and thus a vicious cycle is formed, closing down space for contestation and giving these firms a stronger foundation from which to exert and maintain control over certain segments of food systems. Policy can be similarly influenced, with market control, in addition to donations to political parties, providing significant leverage for lobbying for desirable policies, which then help to foster more entrenched market control [8]. None of this happens in a vacuum, of course, and is all fiercely contested by other agribusiness entities, politicians and civil society all vying to have their own vision of desirable food systems placed at the forefront.

In the light of the above, it becomes evident that methods of control cannot be ignored in sustainable food systems thinking. This ‘Big Six’ dominance of seed and pesticide markets is just one example, and similar storylines can
be found across the food supply-chain. This battle for control often transcends legal frameworks, which is important to recognise so that the presence of relevant law is not hailed as a measure of sustainability in itself. Although not always directly, it is clear that the nature of this ongoing contestation, and those who have been able to propel their agendas to the front, have a significant influence over food system practices. It thus follows that understandings of the consequences of this control must be integrated into thinking and strategising over a more socially and environmentally inclusive efficiency and sustainability in food and farming.
4.0 Sustainable soybean in the EU: the dominant narratives

As has been established, it is well recognised that there are sustainability issues with current soybean supply-chains. Yet the way in which these issues are interpreted, and in which potential solutions are rationalised, have important implications. The European Soya Declaration, as well as other activity on the topic of an EU protein strategy, provides a good platform for assessing the sorts of narratives being mobilised around food system reform. The narratives being pushed to the forefront here are relevant because they set the tone for policy frameworks such as the EU Common Agricultural Policy (CAP).

Whilst recognising that policy does not necessarily dictate practice, frameworks such as the CAP nonetheless have a significant bearing on the nature of agricultural production and markets along the entire supply chain. It is thus highly important to scrutinise the prominent narratives in this context, in order to avoid following narrow understandings of efficiency and sustainability that have so far hampered progress. This section will therefore aim to apply this scrutiny.

4.1 Beyond narrow sustainability narratives?

The first aspect to look into is the way in which sustainability is engaged with. In the European Soya Declaration itself, the word is used liberally, with the opening line of the preamble typifying its use:

‘The undersigned support increased production of legume crops for food and feed as a contribution to the development of more sustainable and resilient agricultural systems in Europe.’ [34, p. 4]

As suggested in the previous section, the contemporary use of the word sustainability has become rather ambiguous. Its use in relation to agricultural development initiatives seems almost mandatory now, and yet there is often little attempt to define it. Despite proclaiming that its aims can contribute to the SDGs and the EU Sustainability Strategy, the declaration conforms to this trend of lacking definitional clarity. There is no space allocated for what is actually meant by sustainability in this context: what ‘sustainable and resilient agricultural systems’ practically entails. The Comagri draft report similarly uses the term without providing further explanation on how it interprets the concept, despite dedicating an entire section to the topic, entitled: ‘A broad and ambitious strategic plan for the sustainable development of protein crops in Europe’ [60, p. 9]. The evident lack of an obligation to articulate the concept is clearly problematic, and further facilitates loose applications of the term.

In the absence of actual definitions, analysing the way in which the term is mobilised can give an insight into the type of thinking behind it. Where it is used in the text of the European Soya Declaration, it seems mainly to be linked to the environmental benefits of legume production, for example:

‘sustainable production provides for environmental benefits such as improvement of soil fertility and reduced use of fertilizer as they extend the range of varieties in crop rotations.’ [34, p. 2]

These benefits are not to be contested here, and are important and beneficial points to make given the worldwide trend of declining

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soil quality. Nonetheless, it should also be emphasised that the fact that soybean is a legume does not equate to its production being sustainable; section 2 has demonstrated the damaging impacts on people and planet that intensive soybean production has brought to certain regions of South America. In fact, in spite of the leguminous properties of the crop, soil fertility has suffered and agrochemical use has been dangerously excessive in soy production zones [30, 32, 83]. With this in mind, it becomes evident that the building of sustainable food systems must draw upon a far wider perspective. As argued for in the previous section, sustainability needs to be looked at in a broader manner in order to ensure that these potential benefits are realised. If soybean supply-chain issues are to be addressed, and wider EU protein strategies are to be constructed around sustainable food system reform, efforts must look beyond a select and specific set of environmental benefits.

There is little attention afforded in the text to other important aspects of sustainability, such as the socio-economic implications of supporting soybean expansion in Europe. Where social issues are engaged with, they are detached from references to sustainability. Unfortunately, this dislocation fits in with a general approach to sustainability that has narrowly focused on more visible environmental issues. Such an approach, although not necessarily explicitly or deliberately, undervalues the interconnectedness of the different categorical realms that are typically considered: economic, environmental, social, and political. This separation creates an understanding in which different aspects can be valued against each other, and policy decisions come to be framed more as balancing trade-offs rather than looking at how sustainable food systems policy frameworks can be built in an interconnected and mutually beneficial manner.

The separation described above, in combination with the narrow preoccupation with environmental issues, has also meant that social issues are often passed over briefly and rather vaguely in agricultural development initiatives. The Comagri draft report makes no direct mention at all of the potential social implications of suggested expansions in protein crop production across the EU, whether they be positive or negative. The European Soya Declaration also seems to reflect this wider attitude of undervaluing the importance of social issues, only allocating brief mention to potential socio-economic benefits:

‘Protein crop production in Europe generally supports rural economies and creates jobs in farming, processing and usage of locally produced proteins for food and feed.’ [34, p. 6]

Exactly how and why this would be the case is not elaborated upon. This is symptomatic of a narrative in agricultural development circles that automatically associates economic growth and rural benefit capture with the expansion of more ‘efficient’ industrialised production. Despite the long-standing nature of this logic, there is little evidence to suggest that it holds any substantial truth, and yet it still pervades in communications from Ministries of Agriculture and the PR departments of agribusinesses. For example, the Romanian Ministry for Agriculture and Rural Development (MADR), one of the member states to have signed the declaration, gave the following brief response when asked about the potential benefits that widespread soybean cultivation could provide for rural development:

‘The increase in the soybean production could help reopen closed capacities, or
Such a response echoes the mantra that has been used to justify the expansion of industrial agricultural systems for quite some time. There is no acknowledgement of the reformulation of land and resource rights, as well as of social and labour relations that may come with such an expansion, nor the potential consequences that this might hold. There is now an ever-growing body of literature and civil society activism that points to the futility of isolated growth statistics, and the detriments that can be brought about for rural communities and society at large by the expansion of export-oriented commodity agriculture. These issues will be dealt with in more detail in the following section, but here their exclusion from considerations of social issues needs to be highlighted, as does their detachment from the concept of sustainability.

The scrutiny applied above suggests that there is still an issue in attempts towards food system reform in terms of narrow, as well as segmented, understandings of sustainability. The use of the term in order to justify particular development pathways or policy directives, in this case the expansion of soybean and other protein crop production within the EU, cannot be credible unless these issues are addressed.

4.2 Increasing non-GM supply

Another one of the principal issues engaged by the European Soya Declaration is that of genetic modification. The EU’s heavy reliance on soybean from the Americas means that it is also heavily reliant on a source of supply founded on GM soybean varieties. This is at odds with the EU’s strong stance on GM regulation, and the growing opposition of EU consumers to GM products and their derivatives. The declaration thus makes the point that as well as easing the geopolitical burden of relying on soybean imports to meet EU demand, increasing domestic soybean production can provide a desirable source of non-GM vegetable protein.

In order to increase non-GM product choice for consumers, the declaration commits signatories to:

‘support the further development of markets for sustainably cultivated non-GMO soybeans and soybean products as well as the establishment of transparent product labelling systems based on certified production standards such as Danube Soya and Europe Soya.’ [34, p. 7]

In fact, the GM issue seems to be the one that has most captured the imagination of signatories, albeit to satisfy a variety of agendas. These are important to look at because they can offer an insight into the way in which soybean expansion might play out: which regions or member states are gearing up to play which roles. In a press release, the Hungarian Minister of Agriculture, Sándor Fazekas, put emphasis on the declaration as an important milestone for non-GM agriculture in Europe:

‘Europe’s agriculture, and especially the animal husbandry sector, is heavily dependent on genetically modified soy imported from South America, which raises several questions requiring solutions for European government and citizens. The countries that have signed the Declaration have assured their support for the promotion of the cultivation of legumes for food industry and feed purposes.’ [84]

The Romanian Ministry of Agriculture also cited the securing of non-GM soybean

\[\text{personal communication, Romanian Ministry for Agriculture and Rural Development (2017)}\]
supplies as the major motivation for supporting the declaration:

‘The main reason for signing the European Soya Declaration is the need to identify solutions to increase the supply of plant proteins in the European Union, which is facing massive imports of genetically modified products.’

It should be noted that both of these countries, Romania in particular, also have high potential for soybean cultivation due to fertile soils, favourable climatic conditions, and access to the Danube for irrigation purposes. Within the EU, Romania is perhaps the country most suited to soybean production, and was a strong producer of GM soy before EU accession. Thus there is the potential for these countries to market themselves as the producers of this new non-GM soy supply and encourage sought-after foreign direct investment.

Countries in Western Europe, where the bulk of the consumer demand for non-GM food products is situated, also emphasise the importance of non-GM supply, but perhaps for different strategic reasons. For example, the Dutch State Secretary for Economic Affairs, Martijn van Dam, indicated:

‘I support the preference that the declaration states for the development of non-GM soy cultivation in Europe. That fits well with the development of demand in Europe, given the strong growth of the demand for organic products, GM free products, vegetable protein products and products produced in the region.’ [85, p. 11]  

As is evident, the involvement of the Netherlands seems to centre on securing market supply to cater for the growth of consumer markets. This is of specific interest to the Netherlands, given their prominent global position in the markets of many soybean derived products (see figure 5); they are the number one egg exporter in the world, third for dairy and for broiler meat, fifth for beef and sixth for pork [86].

Perhaps unsurprisingly then, they are the second largest importer of soybean and soybean meal in the world, and thus supplies of non-GM regionally produced soybean can help them to capture the price premiums offered by the aforementioned growing consumer markets.

The above insights reveal a number of things about some of the prominent logic behind plans to expand European soybean production. The first thing, as with the leguminous properties, is that the GM issue is singled out without being integrated within a wider consideration of sustainability. It is of course an important political and cultural issue worthy of discussion in its own right, and the general opinion in the EU is one of aversion to GM produce [87]. Despite this, the

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2 personal communication, Romanian Ministry for Agriculture and Rural Development (2017)  
3 own translation
fact that a commodity crop is non-GM does not automatically make it sustainable; again such valuations should be based upon a far more inclusive perspective. Demonstrative of this is the fact that the EU has prohibited all but one GM crop, a Monsanto-developed maize variety, and yet agricultural policy in the EU has continued to favour an intensive high-input model that has gone hand in hand with soil degradation, farmland concentration and repeated health scares. Narratives on food system reform thus need to be moved beyond these headline-hitting topics, which whilst important are not panaceas. This is important to establish so that harmful food supply-chain dynamics are not branded as sustainable or desirable on the sole basis that they are GM-free.

Following on from this, insights from some of the signatories indicate the presence of wider motivations mainly to do with increasing supply. The Dutch representative is concerned with increasing non-GM supplies in order to move derivative products into price premium markets, a position that other Western European countries with fast-growing markets in these areas, such as Germany and Austria, are likely to follow. Member states in the CEE region also recognise the potential for increases in supply to be based around their domestic soy production, which can bring in export revenues as well as encourage private investment. Such a shift in supply dynamics, however, will not occur in a void, and will inevitably trigger reformulations of land and resource control. These are issues that are vital for the sustainability of agricultural and food systems, and yet have been completely overlooked in policy documents, again representative of the narrow lens applied.

4.3 Food security
This narrative around the need to increase supply has a lot to do with the issue of food security. Indeed, the European Soya Declaration explicitly sets out to address SDG 2 on the topic:

‘The measures covered by this declaration contribute particularly to Goals 2 and 15. Goal 2 focuses on ending hunger, increasing food security, improving nutrition and promoting sustainable agriculture... This declaration is a commitment to the sustainable development of efficient, resilient and productive agricultural and food systems directly supporting Goal 2 and supporting Goal 15 through associated measures to protect agricultural resources and natural and semi-natural ecosystems.’ [34, p. 4]

However, there is little explanation as to why this might actually be the case, beyond the mere increase in supply. This is a commonly mobilised narrative in agribusiness and agricultural development initiatives. The argument with regards to soybean typically points to an ever increasing population, which requires more and more food to be produced, and in addition, growing middle classes are demanding more meat in their diets. Therefore, high-protein soybean is vital in producing enough food for the world’s growing masses, as it is the most favourable ingredient in livestock feed.

Such an argument, though, is heavily criticised for its simplicity, not least because it ignores issues to do with distribution. Although the exact statistics are contested, it is now acknowledged that enough food is produced globally to comfortably feed the population as well as meet the demands of projected future populations; some studies suggest enough is already produced in principle to feed 14 billion [88]. Despite this, 815 million people worldwide remain undernourished [89]. Evidently, significant amounts of food are wasted through excessive concentrations of supply or through overconsumption, and thus
current demand statistics are actually rather misleading. Such a situation suggests that the battle to achieve food security now has little to do with increasing supply as such, but more to do with how this supply is distributed and who controls that distribution and access to it. This is an inconvenient truth for corporate agribusiness enterprises and investors whose profits are boosted and maintained by scarcity; real or imagined.

When this is taken into account, questions start to be asked about the validity of connecting increased commodity soybean supplies with food security, especially considering it is actually mainly used to produce feed for the industrial livestock sector. As Hospes [83, p. 351] argues, ‘feed security is about food security for the rich, that is, their access to food and food preferences’, rather than addressing the root causes of food insecurity which have more to do with poverty and inequalities of access to and control over food systems [90].

These considerations are vital to take into account, as once again they point to the importance of looking beyond a narrow lens aimed at specific aspects of food systems. A focus on increasing supply alone is not going to address the much broader and complex issue of food security. This is vital to emphasise as the food security narrative is often used as a justification for the expansion of privatised industrial-scale agriculture, which has come to be associated with more efficient food production. However, addressing the topic of food security within more socially and environmentally inclusive considerations of efficiency and sustainability, as well as with an understanding of the dynamics of control in current food systems, dispels this logic. The way in which food is produced and distributed, rather than how much of a certain commodity can be produced per hectare, holds the key to the longevity and health of food systems.
5.0 In whose hands?

Many of the barriers towards a more socially and environmentally inclusive sustainability lie in the way in which agricultural production and food systems are controlled, and by whom. As the previous section has illustrated, the sustainability and food security narratives put forward in the recent momentum around European soybean expansion have ignored or overlooked this. They have focused on individual issues such as nitrogen fixation, non-GM production and increased supply as if they occur in a void. This disconnected approach is also detached from food systems realities. In the EU, 3.2% of farms now account for 52% of the arable land [91]. This does not even consider the amount of land controlled indirectly through contract farming or lease arrangements. There is also alarming concentration in key input markets such as seed and fertiliser, as well as in processing and retailer sectors. Such a situation creates significant concerns for sustainability and efficiency on many fronts, including public and environmental health, rural employment and poverty, rural-urban migration, and agrarian justice. Proposing a select few specific benefits from the expansion of a single commodity crop does little to affect the continuing concentration of control over European agriculture and food systems. This section aims to look at the actors positioning themselves to engage in and control European soybean chains, and discuss the implications for sustainable food systems.

Perhaps the most active proponents of increased European soybean cultivation are the Danube Soya Association. They describe themselves as a non-profit, public-interest organisation, working to improve the conditions for non-GM soybean supply-chains in the European Union, thus minimising import-dependency [92]. They support research into the breeding and cultivation of soybean, and are also intimately involved at political and industry levels, having co-written the European Soya Declaration and overseen the earlier Danube Soya Declaration. The association then also owns and operates separate brands, Danube Soya and Europe Soya. These brands operate product labelling schemes with a set of private standards, and companies can then trade their products with these labels attached. The label makes two main guarantees: that the soy is produced in the Danube or European region, and that it is non-GM.

In addition, the initiative enjoys the support of development institutions, namely: the German Corporation for International Cooperation GmbH (GIZ) and the Austrian Development Agency (ADA). GIZ and ADA co-funded a project in Bosnia-Herzegovina and Serbia aiming to ‘strengthen the competitiveness of agricultural and rural actors’ [93] through increasing soya production [94]. ADA also provided funds totalling €227,100 for feasibility studies carried out by the Danube Soya Association into ‘expanding production and export of certified non-GM soya’ in Moldova and Ukraine [95]. A Strategic Business Partnership between ADA and Danube Soya was also earmarked to receive €4.5 million in funding for activities in Serbia, Bosnia-Herzegovina, Moldova and Ukraine [96]. The logic seen in these projects is very much oriented around building production capacities in CEE for export to western European markets, a value-chain arrangement branded ‘protein partnerships’ [93].
The association, headquartered in Austria with regional offices in Romania and Serbia, consists of over 250 members from across the European soybean chain, as well as NGOs and civil society organisations. By taking a look at the composition of this membership, as well as other relevant actors, we can shed some light on the potential trajectory of future European soybean cultivation, and the patterns of control that may emerge.

5.1 The gateway to the downstream sector

Something that stands out in the membership is the presence of the major traders and other corporate agribusiness enterprises. This raises eyebrows given the tendency for such enterprises to favour high-input and large-scale production models in a manner that has shown little appetite for sustainability beyond their PR or corporate social responsibility (CSR) departments. This holds for those producing soybean themselves or through their subsidiaries, but also for input providers and dominant downstream traders and retailers, who also hold significant sway over the way in which produce is grown.

Cargill, for example, the largest supplier of soy to the European food and feed industry, are Danube Soya members and eager to ‘be part of the growth of this industry in the Danube region’ [97]. As with elsewhere in the world, the corporation operates a vast network of crushing mills, silos and port facilities across the continent, with substantial investments in recent years coming in Eastern Europe. In Romania, it is estimated that Cargill controls around 240,000ha of land, either through holdings or indirectly through contract farming [98]. In Ukraine, the company has invested in shares in domestic agribusinesses; in 2014, Cargill acquired a 5% share in UkrLandFarming, an agribusiness holding heavily involved across the agri-supply chain, which also possesses the largest land bank in the country at 670,000ha [99]. These two countries are seen as the most promising sites for non-GM soybean expansion to feed the continued growth of the European livestock sector.

Major commodity traders Bunge and Glencore are also active on the soybean scene. Bunge has recently acquired two crushing facilities in the key European ports of Amsterdam and Brest as part of their explicit strategy to expand their regional crushing footprint and presence in the European protein market [100, 101]. Glencore, traditionally better known for trading in natural resource commodities, has also started to become more influential in agricultural and animal feed markets; their Hungarian subsidiary, Glencore Grain Hungary Kft, is a member of the Danube Soya Association.

ADM are perhaps the most overtly active of the big commodity traders in terms of recent investments in the European soybean sector. In the last two years, they have invested heavily in soy processing plants in Germany. In 2015, the company announced investments in switch capacity at its plant in Straubing, allowing it to crush soybean alongside the rapeseed already processed there. This soybean is sourced from the Danube region and sold on to western European markets, with the potential for the Danube Soya label to be used. In the words of the general manager of ADM Straubing:

‘The ability to crush soybeans at our Straubing plant allows us to meet the growing market demand for non-GMO soy meal, particularly from customers in Germany, Austria and Switzerland’ [102]

Further investments were announced in late 2017 in response to growing demand for non-GM soybean meal from the livestock industry:
‘With the production of non-GMO high-protein soybean meal, ADM will be able to better meet the needs of its poultry feed customers, as well as the dairy and pig feed markets.’ [103]

Earlier in 2017, an ADM facility in Spyck, north-western Germany, also gained switch capacity, allowing non-GM soybean crushing at the site. The subsidiary operating the site, ADM Spyck GmbH, is a Danube Soya Association member, and sees the move as part of a longer-term strategy towards expanding crushing networks for European-origin non-GM soybean [104]. They say that their improved capacity is a way of helping local farmers to enjoy the benefits of non-GM soybean production by providing an outlet and incentive for their produce.

All of this activity strongly suggests that the traditionally dominant traders, who already control much of the transport, logistics, and processing infrastructure in the EU, are positioning themselves at the forefront of the movement to increase domestic soybean production. Given the orientation of these firms towards trading high volumes of agricultural commodities, their involvement indicates a continuation of the sort of supply-chain dynamics that have been developing up until now. This is characterised by high concentrations of control in input, processing, and retail sectors and a situation in which many, particularly smaller farmers, are forced to be price-takers and enjoy relatively little decision-making autonomy [36, 105]. It also means that high-input large-scale agriculture becomes the most viable model in order to gain contracts with buyers and thus keep afloat financially. This puts strain on smaller producers and pushes them towards either selling or leasing their land, entering into often exploitative contract farming arrangements, or expanding and intensifying their production should they have access to the required economic and social capital [36, 105]. To counter this argument, advocates of current food system structures will often point to the fact that farmers are free to negotiate contracts and are always free to make their own choices. This is true to an extent, but the issue with such a line of argument is that it ignores the policy and market environment that in reality is tying the hands of smaller-scale producers across the EU. Such a scenario paves the way for further concentration of farmland ownership and control. These pressures, as has already been emphasised, can have severe consequences for social and environmental sustainability.

It therefore becomes evident that a power-and control-blind approach to sustainability actually holds little significance, as it does not consider the factors that significantly influence negotiations within supply-chains. Failing to take account of networks of control when devising policy aimed at creating sustainable food systems will only result in policies that are detached from the reality they propose to alter. In the case of European soybean expansion, the sustainability narrative has focused on very particular environmental issues. Whilst some of this does help to shift away from the asymmetric supply-chain structure that sees production occur in Latin America for European markets, none of these serve to fundamentally challenge the concentration of control that is currently inhibiting the development of more socio-economically and environmentally sustainable food systems. It thus seems that following prevailing narratives, the expansion of soybean production in the EU will occur within the framework of current supply-chain dynamics, albeit with a different origin and a sustainable label attached.
5.2 Local EU farmers, but who?

The claim by ADM that they are helping ‘local farmers’ by providing an outlet for their produce raises interesting questions over what this category actually entails. Whilst technically this term is a reference to the proximity of the producer to the market in question, it also carries connotations of supporting smaller-scale or traditional farmers to sustain their livelihoods. This is likely to be an inaccurate picture of the type of producer supplying bulk commodity soybean. This is important to take heed of in order that the favourable association with the term ‘local’ does not mask the development of potentially damaging supply-chain dynamics. Looking at the producers who have signed up to be members of the Danube Soya Association, for example, reveals interest primarily from large agribusiness enterprises. Many of these are satellites of western European corporations that are operating in CEE, looking to exploit favourable agro-climatic and market conditions, such as highly fertile soils, a soybean hospitable climate, and cheap land.

Orgapic SRL and Agro Iulia SRL, for example, both Danube Soya members, are Romanian-registered companies operating under the Romanian-registered umbrella firm Agro Solum SRL [106]. This umbrella group is controlled by the Tonnies Group of Germany, who are one of Europe’s largest meat firms, and one of the largest pig slaughterers in the world, having produced 18 million animals in 2016 [8]. Together these firms preside over approximately 7000ha of land in the Iasi and Botasani regions of Romania, through various lease arrangements [107]. At one particular commune, Sipote, they cultivate around 800ha of organic and conventional soybean, employing just 2 staff members and 2 engineers, largely thanks to heavy mechanisation [108]. This soy is all produced for export, passed on to the KTK Gruppe for marketing in Germany [109]. This export-orientation and scant opportunity for employment hardly aligns with references to rural development and job creation that can be found in the European Soya Declaration and the PR departments of its proponents. There are additional controversies surrounding the firms, with both facing legal action relating to the claiming of subsidies. Orgapic SRL has been implicated in a scandal involving their high debts despite receiving large amounts of state funding. In 2014, for example, they reported losses of €300,000, despite receiving annual subsidies of over €600,000 [106]. In the same year, another German-owned enterprise, Almos Agrorom, filed insolvency claims against Orgapic SRL for debts totalling nearly €22,000⁴ [106]. Meanwhile, Agro Iulia SRL stand accused of falsely claiming subsidies for land they are not entitled to; a different company, Agrina Trust, claims to have lease agreements for the land in question [106]. Again, these sorts of practices do not engender great optimism for inclusive rural development in production regions.

Another, and more emphatic, example of corporate investment in European-origin soybean is that of former Danube Soya participants KTG Agrar. Formerly the largest agricultural group in Germany, they cultivated around 46,000ha of land in Eastern Germany, Lithuania and Romania [110], prior to their spectacular and infamous bankruptcy. The group was made insolvent in 2016, with debts totalling €394 million [111], widely-regarded to be the result of an intensely growth-focused strategy that involved pooling unsustainable levels of finance from bank loans and third-party investors. However, before these developments, KTG Agrar had

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⁴ Own conversion, calculated using exchange rate at the time of research. Original figure: 1 billion old lei, as reported in Bzi.ro (2014).
started to invest heavily in the European soybean sector. In 2014, the firm expanded their soybean cultivated area from 2000ha to 8000ha [112]. They also held a minority stake in the aforementioned Romanian-registered Agro Iulia SRL. This was part of a strategy to exploit what CEO Siegfried Hofreiter referred to as the ‘bio-boom’; high demand for non-GM soybean in Europe, coupled with low supply, and with prices expected to remain high, conditions appeared fertile for profit-making on what was already considered one of the most profitable field crops [112].

These conditions are still applicable today and will likely pervade for the foreseeable future given the enormity of the EU’s protein deficit. Thus it becomes further evident that powerful agribusinesses have been positioning themselves at the helm of European soybean expansion, and that they have every incentive to continue to do so. As the above examples have shown, the sorts of corporate enterprises engaging are not necessarily the efficient units they are often considered to be, including in financial terms, an area in which they are typically attributed with unrivalled superiority. Broader and more multifaceted understandings of efficiency and sustainability help to highlight inefficiencies that would not normally be captured by narrowly focused narratives. These include weak rural employment opportunities and little prospect of rural ‘development’, especially considering the networks of control and direction of commodity flow; there is a clear pattern of western European firms or their subsidiaries investing in production in CEE in order to cater for the industrial livestock sector in Western Europe. Such an asymmetric and extractive value-chain structure is actually one of the things that the European Soya Declaration is supposed to be trying to address. Returning to the earlier point about ‘local farmers’, the fact that the EU is a political and economic bloc makes it possible to refer to transactions within it as ‘local’, yet this masks the dynamics revealed above. The EU is by no means a homogenous entity, and there is a danger that ignoring the disparities of control that exist in ‘sustainable’ supply-chain creation will simply shift the frontier of production towards ‘underdeveloped’ agricultural lands located in particular in CEE. Whilst these are closer to home than the soy republics of Latin America, this does nothing to challenge the structural aspects of our food system that have led to widespread calls for change.

5.3 Speculation in CEE
The emergent pattern of commodity soybean flows from east to west, something presented as desirable by the phrase ‘protein partnerships’, also has relevance in the context of the increasing financialisation of agricultural land and other markets across the supply-chain. The same market opportunity moved upon by traders and agribusinesses also attracts investors who may have little concern for agricultural production itself beyond the appreciation of land or commodity prices. The increasing importance of agricultural land banks in the portfolios of financial investors inevitably entails a restructuring of land and resource rights in areas with projected appreciations in value. CEE is one of the areas being heralded as a haven for investors, with arable land much cheaper than in Western Europe, and according to current efficiency paradigms, much of it still ‘underused’ or ‘under-efficient’. This presents opportunities for large profit margins if land is acquired now and sold once prices have converged towards Western European levels, especially if it is converted into ‘productive’ farming units in the meantime. When this is coupled with narratives of growing populations, protein
scarcity and resultant food insecurity, and the price premiums tied to the ‘sustainability’ of growing soybean in CEE, agricultural land in the region starts to look like an extremely favourable investment. This can be seen in the activities of asset management firms starting to operate in the region.

Geo Farms, for example, is a group of firms registered in the city of Brasov, central Romania, and partly owned by Liechtenstein-based firm, Geo Consult AG [113]. In the last 2 years it has acquired over 20,000ha of ‘prime agricultural land’ in the CEE region, primarily in Romania [114]. Their explicit strategy is to invest in consolidating and ‘modernising’ agricultural land in CEE, and then sell this on to investors:

‘Agricultural land is a tangible, secure investment in limited supply and is expected to appreciate in value due to global population and demographic trends underpinning demand. It offers both income and capital appreciation while providing a hedge against inflation and other asset and financial market fluctuations... Agricultural land and production in CEE provides a compelling risk / return proposition.’ [115]

The reasons for this compelling proposition include cheaper land and labour, proximity to European markets, favourable legal and commercial environments for purchase of land, a favourable EU subsidy framework for cultivated land and purchase of irrigation and farm equipment, and the opportunity for early movers in the plant protein market to generate ‘enormous margins’ [115, 116]. Further to the point on protein crops, essentially meaning soybean, the projected global demand in meat, as well as consumer demand for non-GM products, is seen as a guarantor of prolonged profits [117, 118]; in their own words, ‘protein sources are the new gold bars’ [119].

Another example of this rhetoric can be seen from the Dutch-led Cibus Farmland Club. The ‘Dutch-Romanian coalition of agricultural engineers, consultants and suppliers’ [120] offer service packages in farmland procurement and management for interested investors. Seeing continued opportunity in the farmland investment boom that followed the global food price crisis of 2008/9, particularly in the area of plant protein, they encourage foreign investors to speculate on farmland in CEE:

‘shortage of protein sources will continue and generate enormous margins for producers who occupy this market early on’ [121]

Whilst seeing investments in CEE at large as exciting, they particularly put focus on Romania, claiming that the country ‘holds one of the best cards in the world’ [120]:

‘quality of the Romanian lands, the size of the market and the unique opportunities for development lead to an increasing degree of global interest in the Romanian agricultural sector’ [120]

Similarly to Geo Farms, they see opportunity in consolidating and modernising farmland that is currently not being cultivated ‘efficiently’ due to land being held in fragmented plots under small-scale operation. This is emblematic of the justifications used by the growing ranks of speculators in the region. This logic has crept its way into policy thinking, and is evident in the CAP that has looked to encourage farmland consolidation through hectare-based subsidy payments. In the European Soya Declaration, similar suggestions are made about the potential for increased efficiency and utilisation of land in CEE through investing in soybean production. This in turn is both cultivating and facilitating the interest in the region from an increasing number of asset management firms, major
traders and investment funds. Such speculative activity is likely to completely uproot and transform structures of control over land and resources, concentrating it further into fewer and increasingly corporate hands. Contrary to the narrative of efficiency that is used to justify such a transition, the inevitable concentration of control in the food system that follows threatens to embelish glaring inefficiencies to do with food distribution, public and environmental health, rural livelihoods and unemployment, and wider social stability. All of these are things to which states must allocate a significant amount of their budget in order to address, exposing the myth of cheap and efficient food-supply chains under the current industrial-based model. Ironically then, the EU taxpayer is paying to subsidise industrial agriculture under a CAP that encourages concentration and consolidation, whilst also footing the bill to clear up the inefficiencies of doing just that.

Although member states technically have jurisdiction over their domestic land policies, in reality there is little scope for governments to protect their food and farming sectors. Their supposed autonomy is very difficult to exercise without violating fundamental freedoms and principles set out by the Treaty of the Functioning of the European Union (TFEU), such as the free movement of capital. Whilst farmland does have a special status allowing for a degree of protectionism, this is very heavily conditioned so that in reality there are very few policy measures available to states that would pass the scrutiny of the Court of Justice of the European Union (CJEU), as outlined in a recent communication from the European Commission [122]. In the context of powerful investment interests, and the concentration of control in food and farming systems that is already putting pressure on rural livelihoods and landscapes, conditions are ripe for the continued financialisation of agriculture and the trade of farmland as a commodity like any other. A vicious cycle of concentration of control in the hands of financial investors is thus a real possibility, leaving our food systems precariously subject to the vagaries of commodity markets. This was a big part of the problem leading to the most recent global food crisis, so it seems sensible not to base sustainable solutions around a scenario in which this is exacerbated. Considerations of these sorts of dangerous dynamics are completely absent from the sustainability thinking surrounding the expansion of commodity soybean cultivation in Europe. Challenging these networks of control should be one of the central tenets of any sustainable food system strategy.

5.4 Patterns of control
This section has so far sought to highlight the patterns of control that are emerging with regards to European-origin protein crop supply-chains, and thus draw attention to the implications of this for sustainable food systems going forward.

The first emergent pattern is the increasing presence of corporate and financial investors at the helm of soybean supply-chains. Large multinational traders, European agribusinesses and their subsidiaries, and investment funds, are viewing European-origin soybean and other protein crops as a major market opportunity. They are both cultivating and being facilitated by a discourse of efficiency that places them as the actors that are best suited to provide food security and rural development in a world of scarcity. This pattern, despite the lack of transparency in certain dealings, seems to be occurring within the bounds of official EU legal frameworks. This is something that these actors will often point to in the face of
complaints of injustice: that they have complied with national and EU regulations, and thus should be exempt from the sorts of scrutiny placed on corporations more forcefully taking over land for plantations in the so-called developing world. Utilising understandings of market control rooted in the land control literature helps to identify the discrepancy between legality and social justice, and thus maintain scrutiny on unequal market dynamics. This again makes the case for understandings of control to be integrated into sustainability thinking.

Another common theme is the prevalence of export-oriented operations, often controlled by the above-mentioned actors. The markets being explicitly targeted are those in Western Europe where demand for non-GM derivative products is increasing, such as Germany, Austria, and Switzerland. Similarly, countries like the Netherlands who are leading exporters of these derivative products show strong demand from their livestock sector for GM-free feedstock, in order that their meat and dairy products can cater for this consumer demand and achieve the related price premiums. Soybean production, however, is more suited to the agro-climatic conditions of the CEE region, which also offers cheaper, more fertile and more abundant agricultural land. This creates a supply-chain asymmetry with little difference from the current situation that sources primarily from Latin America, other than its geographical proximity. However, it should be clear that a populist response is not being advocated here. There is of course nothing inherently wrong with exporting agricultural produce; agro-climatic variations make it necessary for nutritional diversity, and many, including small-scale peasant farmers, yearn for access to foreign markets. The issue arises with the nature of control over supply-chains and the resultant asymmetric distribution of the benefits. Corporate control and the tendency towards an industrial agricultural model is increasingly making rural livelihoods unviable, doing little for rural vitality beyond flagship infrastructure investments, and driving rural poverty, unemployment and environmental degradation.

Many of the issues discussed in this section have to do with wider historical and contemporary processes of agricultural transformation in the EU, guided by policy frameworks such as the CAP, particular visions of efficiency and development, and the wider tendency towards market concentration in food supply-chains. All of this feeds into the formulation of policy visions such as the European Soya Declaration and the wider EU protein plan, as well as effecting how these policies then play out in food system realities. Whilst the movement around EU soybean expansion has tried to frame itself as sustainable, the fact that it provides no challenge to this concentration of control in food systems, and even has the potential to exacerbate it, detracts from any claims to a meaningful sustainability.
6.0 Moving towards inclusively sustainable food systems

This report has thus far presented critique on narrow concepts of efficiency and sustainability in thinking around European soybean expansion. It is therefore now fitting to offer constructive suggestions towards more appropriate food system reform. The narrative around the superior efficiency of industrial-style agriculture has long secured its position as the only viable means of feeding the world. Indeed, as IPES Food [70, p. 8] point out, today’s food systems are a ‘radical success in abundance in many parts of the world’ with great strides being made in terms of crop productivity, food processing, net calorie availability and food safety. Nonetheless, the nature of this progress has now become majorly problematic:

The food systems we inherit in the 21st century represent some of the greatest achievements of human civilization. Paradoxically, they also represent some of the greatest threats to our continued health and prosperity. [70, p. 8]

Faced with increasing awareness of the wider inefficiencies of the corporate-industrial system, attempts to justify our continued reliance on it have centred on fine-tuning, and focused attention on corporate social responsibility (CSR) initiatives. Yet such practices do not engender the fundamental change that is necessary in order to achieve an inclusively sustainable food system. In response to this critique, many commentators will point to the fact that there is no viable alternative. Civil society movements that forge environmental concerns with those of agrarian justice are often portrayed as advocating a return to ‘backward’ medieval-style peasant production. This section aims to deconstruct this myth of no alternative. In order to do so, it will connect with the growing movement around the concepts of agroecology and food sovereignty that offer recourse for inclusively sustainable food systems.

6.1 Agroecology and food sovereignty

In order to inform later discussion, it is useful to first introduce these concepts here. Both have emerged, in their current formulations, out of a growing call from civil society and academia for systemic change across the food industry, and are central to the contemporary peasant rights movement. They are both interconnected and very much feed into each other, but are nonetheless independent and self-standing concepts. As with any broad and overarching terms, they are subject to constant definitional contestation and reformulation. This introduction will thus aim to capture the main elements, rather than provide a conclusive and rigid definition, which both of the concepts deliberately avoid in any case.

6.1.1 Agroecology

Agroecology refers to a set of ecological, social and political principles for agricultural practice and policy environments. Crucial to understand is that these principles are meant to cater for varying local circumstances, and thus what agroecology looks like in one context may be very different from another. It is not merely a set of replicable practices. Nonetheless, the underlying principles are universal. The most comprehensive outline of the principles are provided in the 2015 Nyeleni Declaration, developed and signed by a diverse coalition of organisations and international movements [123], as well as by
a recent CIDSE report [124]. The CIDSE document breaks down agroecology into four overarching categories: environmental, social and cultural, economic, and political.

Perhaps the most commonly referred to pillar of agroecology is the environmental one; the use of ecological systems within farming, minimising the need for external inputs. This involves 'building life in the soil, recycling nutrients, the dynamic management of biodiversity and energy conservation at all scales' [123, p. 2], which can involve practices such as intercropping, integration of tree, crop and animal systems, and on-farm compost and manure application. Yet many activists are at pains to emphasise that this, whilst crucial, is only one aspect of agroecology. They stress that the concept should be seen as a far wider-reaching way of life, rather than a particular set of replicable practices, as it has been strategically interpreted by certain food sector actors. A particular passage of the 2015 declaration sums this up rather forcefully:

‘...they have tried to redefine it as a narrow set of technologies, to offer some tools that appear to ease the sustainability crisis of industrial food production, while the existing structures of power remain unchallenged. This co-optation of agroecology to fine-tune the industrial food system, while paying lip service to the environmental discourse, has various names, including “climate smart agriculture”, “sustainable-” or “ecological intensification”, industrial monoculture production of “organic” food, etc. For us, these are not agroecology’ [123, p. 2]

In the social dimension, agroecology is based upon ‘existing knowledge, skills and traditions of farmers and food producers’ [124], allowing technologies to be developed that are in line with their context-specific needs. In addition, the principles explicitly encourage a narrowing of the gap between production and consumption. This can foster closer producer-consumer relations that build trust, solidarity, and knowledge of food origins, as well as provide for nutritious, diverse, local, and seasonally appropriate diets. Expensive and bureaucratic labelling initiatives such as organic or non-GM are no longer as relevant as consumers can self-certify what they eat. An example of this can be seen through direct marketing mechanisms such as the community-supported agriculture (CSA) model, a collective arrangement in which groups of consumers invest upfront in return for weekly food deliveries throughout the year. The sort of production models upon which many CSAs are based can also provide significantly more jobs per hectare than industrial farming enterprises [125]. Explicit here is the detachment from corporate-controlled food systems. Autonomy over seeds, land, and other key resources are seen as crucial facets of the agroecological vision.

Economically, this detachment also bears fruit. Shorter supply-chains help to build diverse regional food economies, circulating and distributing capital that is otherwise lost through commodity crop sales to large traders and foreign markets. For producers themselves, this autonomy helps in escaping the debt traps that many farmers face due to the high upfront investments required to compete in an industrially dominated system. Enshrining agroecological principles in agricultural policy would mean that seeds no longer have to be bought every year from a cartel of corporations that control prices and lobby for seed law that criminalises seed saving. Industrially-produced chemical inputs can be reduced or completely eradicated by embracing agroecological methods that make use of and invest in healthy on-farm nutrient cycles. Removing these costs would increase
the economic profitability of small-scale farming and reduce the necessity for public funding to be spent on agricultural subsidies. In addition, the emphasis on nurturing local agro-ecosystems, the generally higher labour requirements per hectare, and the promotion of diverse produce for a diverse diet, means that states would need to spend less on cleaning up the social and environmental mess left behind by highly concentrated industrial farming practices.

Politically, agroecology is a movement that spreads horizontally between producers and consumers, envisioning a situation in which agroecological producers are placed at the centre of food systems. This has the aim of redistributing power in the food-supply chain away from a select group of agro-industrial corporations. Supportive public policies are thus required in order to incentivise, support, and even decriminalise agroecological practices.

6.1.2 Food sovereignty
Food sovereignty has emerged in much the same context as agroecology, as a challenge to the ‘consolidation of power in food and agricultural systems’, and was launched by the international peasant movement La Via Campesina at the 1996 Rome Civil Society Organisation Forum [17, p. 2]. Again not claiming to hold rigid definitional bounds, it reacts to the perceived inadequacy of the term food security, or at least the way in which it had come to be commonly understood. As with agroecology, this involved an explicit consideration of and critique on power and control in food systems:

‘Who controls food producing resources such as land, water, seeds and genetics and for what purposes? Who gets to decide what is grown, how and where it is grown and for whom?... Food Sovereignty... provokes the necessary discourse about power, freedom, democracy, equality, justice, sustainability and culture. Food is taken out of the realm of being primarily a market commodity and re-embedded in the social, ecological, cultural and local contexts as a source of nutrition, livelihood, meaning and relationships.’ [126, p. 6]

Further than food security’s concern with meeting production and distributional needs, food sovereignty integrates a political dimension that attributes importance to the way in which it is produced and distributed:

‘Food sovereignty emphasizes ecologically appropriate production, distribution and consumption, social-economic justice and local food systems as ways to tackle hunger and poverty and guarantee sustainable food security for all peoples.’ [127, p. 1]

6.2 Inclusive sustainability
Both of the concepts introduced here, whilst born out of opposition and protest, also offer alternative ideologies as well as practical solutions to the pressures facing our food systems. Both can be extremely useful in informing wider-ranging and inclusive understandings of sustainability.

Perhaps one of the greatest strengths behind the two concepts is that they are overtly multifaceted, recognising and giving explicit importance to the interconnectedness between the environmental, socio-economic and political realms, and in particular highlighting the need to break down unequal and damaging patterns of control. These are the very elements that are missing from common interpretations of sustainability, such as that seen in the European Soya Declaration and wider EU protein plan to date, which have focused on very specific environmental benefits with complete neglect.
for the issue of control and the consequences of corporate dominance of food systems. This is not to denounce the positives of incorporating nitrogen fixing crops such as soybean into farming systems, nor the movement away from threatened rainforest zones in Latin America, nor the desire to champion GM-free supply-chains. The fact that there is a political moment in which these sorts of ideas hold credence is in many ways an exciting indicator of progress. However, this does not compensate for the untouched or even more entrenched concentrations of food system control that emerge from the promotion of a single commodity crop as a sustainable solution. Sustainability is not a cumulative box ticking exercise, nor should it be seen as an exercise in rigid cost-benefit analysis. In this sense a lot can be drawn upon from the concepts of agroecology and food sovereignty in trying to reform the way in which sustainability is talked about, and the resultant content of policy efforts towards sustainable food systems.

Beyond ideology, these concepts also offer practical alternatives. In fact, the concept of agroecology, propelled by the growing food sovereignty movement, has already started to gain traction in international circles. Institutions such as the FAO and an increasing number of academics and policy experts are recognising the potential and even necessity of transforming food systems in line with the principles of agroecology. Small-scale agroecological methods that utilise ecological systems and conserve biodiversity have the potential to enhance pest management, increase climatic resilience, maintain or strengthen relevant ecosystem services, all whilst reducing the need for external inputs and thus lifting financial burdens for producers [70]. It also has potentially positive impacts for livelihoods, employment and human health and nutrition [70], not least because it is suited for short supply-chains that can be controlled with far greater autonomy by producers themselves. Conceptualisations of efficiency that transcend the narrow focus on crop yield would recognise this as an extremely favourable alternative to large-scale industrial-style agriculture.

Of course, it is important to keep in mind that agricultural production does not and will not occur in a way that can be separated comprehensively into the binary categories of agroecology and industrial agriculture. As an IPES Food [70] report indicates, the majority of producers lie somewhere in between. Farming practices will always be diverse, but they can be significantly shepherded and influenced by policy frameworks and informal dynamics of control, as has been demonstrated over the last century by the increasing prevalence of high-input commodity focused agriculture. Thus, food and farming systems can also be levered towards a different dominant model, which should be one based on a more inclusive sustainability. Efforts towards European protein self-sufficiency and wider food system reform should thus be situated within this necessary alternative paradigm, with the concepts of agroecology and food sovereignty providing an ideal set of principles to do just that.
7.0 Conclusion

This report has engaged with the pressing issue of the state of global food systems. It is now widely acknowledged that reform in the food and farming sector is necessary to deal with convergent global crises to do with environmental degradation, food insecurity and poverty, and increasingly erratic climatic conditions. However, the nature of reform is pivotal in defining the extent to which these concerns can be effectively dealt with. Sustainability has emerged as the key concept that structures thinking around policy responses and practical action in the sector, and yet it has become such a frequently-used term that its meaning has become too ambiguous to be helpful. Too often, sustainability initiatives have focused on narrow and highly selective criterion without challenging the wider dynamics of control that have defined food system practices.

The European Soya Declaration and efforts towards an EU protein plan seem to have fallen into this trap. Focusing on one particular commodity, and specific issues such as nitrogen fixation, non-GM supply, as well as drawing on questionable understandings of food security and rural development, the initiative has thus far failed to address the issue of corporate control. Large traders, corporate agribusinesses and financial investors seem poised to take the helm of European-origin soybean chains, situating production primarily in CEE to cater for Western European markets. The benefits are thus set to be overwhelmingly enjoyed by a handful of powerful firms. This is problematic as it is a continuation of recent developments in the wider food system; European agricultural and food sectors such as inputs, farmland, processing and retail have been increasingly concentrated in fewer hands. This has gone hand in hand with the decreasing viability of rural livelihoods, rural unemployment and poverty, rural-urban migration, repeated food industry health scares, environmental degradation, and increased food price instability. The European taxpayer ultimately foots the bill for trying to combat these symptoms, whilst continuing to fund one of their primary causes through a CAP subsidy system that incentivises further concentration, exposing a thoroughly inefficient and unsustainable system. Failing to address these patterns of control can therefore not be connected to any meaningful movements towards sustainability.

More inclusive understandings of sustainability can help to overcome such oversights, and can be aided by the emergent concepts of agroecology and food sovereignty. These are based on principles that promote a far more multifaceted perspective on efficient food systems and food security, looking beyond simple crop yield as a measure of success. By explicitly challenging the control exercised by corporate interests over supply-chains, both concepts help to problematize concentration of control in a way that highlights it as a key barrier to inclusive sustainability. These concepts and associated practices, however, are unlikely to be able to make a meaningful contribution without a supportive policy framework. In order to transform these ideas into a viable method of feeding the world sustainably, European agricultural policy must nurture and facilitate a transition away from the concentrated industrial model that currently dominates. EU protein strategies, and wider food system reform in general, must
therefore be based on broader understandings of efficiency and sustainability, and move policy efforts towards a more interconnected and inclusive perspective.
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"European agricultural policy must nurture and facilitate a transition away from the concentrated industrial model that currently dominates.

In order to do so, EU protein strategies, and wider food system reform in general, must therefore be based on broader, interconnected, and inclusive understandings of efficiency and sustainability."