Coursework cover sheet – 2021/22

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An exploration of farm enterprise stacking: A definition, the benefits and challenges

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Abstract

Enterprise stacking is an innovative model to facilitate diverse, agroecological farming by integrating a range of food and farming enterprises on a single plot of land. In contrast to the trend of diversifying out of agriculture, enterprise stacking is diversification within farming to create farming-related enterprises that together, are more than the sum of their parts. As an emerging term with little research, this qualitative interview-based study with enterprise stacking practitioners in the UK has explored the farmer-led definition, the benefits and challenges of the model.

Integrated together, the enterprises create a farming system that enabled farmers to adopt agroecological practices, enhance the biodiversity of the site, improve farmer-wellbeing, and add economic value to their products, mitigating many of the negative impacts of a specialised food system.

There are, however, concerns over access to affordable housing, the financial viability of complex interacting enterprises and a model that deviates so significantly from the dominant paradigm of specialised agriculture. Despite this, participants showed that there is significant potential for this model to help overcome barriers of path-dependency and technical lock-ins of this paradigm and transition to diverse farming practices. By inviting food and farming entrepreneurs onto farms, the model provides a way for landowners to incorporate more diversity who don't have the time, knowledge or resources. Landowners benefit from the ecological and economic benefits of diversity, without the risk, time and responsibility while providing significant social synergies such as increased access to land for new-entrants, on-farm well-being, and knowledge sharing.

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To my friends and family members who have had to endure constant stories of this dissertation – the end is nigh.

To my dissertation group, whose enthusiasm, good humour and advice were beacons of light in what could have been a lonely experience.

Finally, I am grateful to all the participants who so generously gave their time to contribute to this study and provided such rich evidence, so much so, it could not all be included.

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Abbreviations

CAP: Common Agricultural Policy
CLA: Country Land and Business Association
CSA: Community Supported Agriculture
DEFRA: Department for Environment Food and Rural Affairs
ELMs: Environmental Land Management scheme
ES: Enterprise stacking
EU: European Union
GDP: Gross Domestic Product
FAO: Food and Agriculture Organisation (United Nations Agency)
FFCC: Food Farming and Countryside Commission
FTE: Full time equivalent
OECD: Organisation for Economic Co-operation and Development
TA: Thematic analysis
UK: United Kingdom
UN: United Nations

1. Introduction

1.1 Specialised farming

The development of specialised farming was one of the most significant developments of the 20th century, breaking the stranglehold of global famine (Lang and Heasman, 2015) and shaped modern economies, enabling a liberation of workforce from agriculture, that drove GDP growth and urbanisation (Hickel, 2020). In short, it has changed how we farm, what we eat, where we live and what we do for work.

However, specialised farming, known as the productionist paradigm (Lang and Heasman, 2015) is having multiple unintended consequences and a large body of evidence emphasises it is unsuited to cope with the environmental, health, economic and social challenges that define this generation.

Environmentally, the use of chemical fertilisers and pesticides that enable the efficiency monoculture crops contributes to the climate and biodiversity crises, yet simultaneously this production system is more susceptible to extreme changes in temperature (Carparas et al, 2021, Menegat et al, 2021, Sanchez et al, 2022). Paradoxically, the efficiency of specialised farming is not reducing land expansion but makes it a more attractive proposition (Benton and Harwatt, 2022) with farming the leading cause of deforestation and biodiversity loss (Ceballos et al, 2020, Benton et al, 2022).

Similarly, this efficiency is at the root of the environmental and ethical issues in meat production. Increased productivity in cereals made it economically viable to feed grains to animals (Lang and Heasman, 2015), decoupling livestock production from ecological boundaries, driving deforestation (Vermunt et al, 2021) and systematically raised in poor conditions (von Keyserlingk and Hötzel, 2015).

This process of specialisation and the division of labour in agriculture, a hallmark of industrialisation (Marx et al, 2011), has enabled the creation of middle spaces (Clapp, 2016) in which intermediaries, like traders and retailers, capture more of the value in farming output (Jack and Hammans, 2022). This trend of value generation in these middle spaces has consolidated power here (Clapp, 2016), and has undermined farming incomes, reinforces intensifying practices and locks farmers into this model due to debt and financial burdens from high investment costs (Frison and Jacobs, 2016).

Not only does this model have an ecological cost, but also a human one too. Specialised agriculture has reduced the need for human labour due to mechanisation, but this entails long hours alone working on machinery, driving a mental health crisis in farming (Fraser et al, 2005, Wheeler et al, 2022). The tight margins of supplying commodity or supermarket supply chains create financial stress, and it also has left farmers disconnected from their communities, with feelings of social isolation (Wheeler et al, 2022).

The future of who produces our food in the UK is also in doubt with an ageing workforce, counting a median age of 60 (DEFRA, 2016) and there are significant financial barriers to accessing land for new entrants, who could otherwise revitalise the sector and accelerate the transition to sustainable practices (Conway et al, 2017).

Indeed, if specialism is at the root of many of the problems within food systems, is diversity the solution? Agroecology, a diverse farming practice based on ecological and social concepts is widely proposed as a pathway to socially and environmentally sustainable food systems (United Nations, 2010, Kremen et al, 2012, Frison and Jacob, 2016) but this transition is far from a reality. The dominance of the specialist system has meant farmers have built infrastructure, knowledge, skills and social circles within this model and this prevents them from diversifying their farming system (Frison and Jacobs, 2016).

1.2 Enterprise stacking, an antidote to specialism?

However, a model, known as enterprise stacking (ES) is emerging to encourage more diversity by integrating multiple food and farming enterprises on a single plot of land. This diversity and integration of enterprises proposes to bring benefits such as sharing by-products to help reduce chemical inputs, adding value to agricultural products and provide co-benefits such as knowledge sharing, emotional support and increased employment (Hodgkins, 2022).

Additionally, the model could increase access to land as landowners are inviting rural entrepreneurs to stack businesses on their land. One theory is that these enterprises and entrepreneurs can help to break farming systems out of specialised agriculture by providing the skills, resources and time that a farmer does not possess, while the farmer benefits from the enhanced diversity.

While it is an emerging concept practiced by a small group of pioneering farmers, discussed at farming conferences (ORFC, 2023) and subject to debate at farmer-to-farmer workshops (FarmED, 2022) and in the media (Oldham, 2021, Thompson, 2022), there is little to no academic literature on enterprise stacking. This study aims to explore the concept; defining what it is, the benefits, the challenges and barriers, and the implications for food policy.

1.3 Importance for food policy

Galvanised by Brexit, farming subsidies in the UK are shifting from area-based payments to financial support for the provision of public goods, termed Environmental Land Management schemes (ELMs) for environmental protection, public enjoyment of countryside, and reduced greenhouse gas emissions (Cusworth and Dodsworth, 2021). However, with 61% of UK farm business income provided by the current subsidies (DEFRA, 2018) there is significant concern around the financial sustainability of farms as the new subsidies are unlikely fill this financial gap (Cusworth and Dodsworth, 2021). As support wanes, farmers start to retire and environmental crises intensify, there is a need for a different approach to farming systems from the specialism paradigm propped up by subsidies. This study aims to answer whether enterprise stacking is a solution that policy could support to help farming economics, revitalise the farming population and increase the diversity and environmental resilience of the food we grow.

2.0 Literature review

2.1 Search terms

Using academic databases Scopus, Ebscohost, Science Direct and Web of Science, the author performed an initial literature search using the following terms and studies were included and excluded based on the relevance to diverse farming enterprises.

Database	Search term	Results	Relevant	Chose
Web of Science	Enterprise AND stacking"	382	2	1
Science Direct	Farm AND Enterprise AND stacking" Subject: Agricultural Sciences	487	7	5
Ebscohost	Enterprise AND stacking	9	2	2
Scopus	Enterprise AND stacking	122	0	0
Science Direct	Farm AND entrepreneurial AND stacking	532	8	7
Scopus	Farm AND entrepreneurial AND stacking	1	1	1
Ebscohost	Farm AND entrepreneurial AND stacking	1	1	1
Web of Science	Farm AND entrepreneurial AND stacking	3	2	1

Key terms were identified from these 18 papers; mixed farming, farm innovation, agroecology, access to land for new entrants, circular economy and diversification. A snowballing technique was used to find further relevant studies that are analysed below.

2.2 Definitions

Enterprise stacking is a model of farming where diverse land-based businesses or agricultural activities operate on the same plot of land to intensify production (Salatin, 2001, Inwood and Sharp, 2012, Valliant et al, 2017). This concept of mixed farming and activity is not a new concept and was typical of family farms before the 1960s (Ryschawy et al, 2013) but contrasts to the dominant model of specialised farming (Moraine et al, 2014, Sanchez et al, 2022).

In the literature, the term is conceptualised from Joel Salatin's (2001) closed-loop pasture-based system that enables multiple livestock enterprises to co-exist on the same plot of land. In a specialised farming system, only beef cattle would graze a field. But in Salatin's (2001) approach, the same amount of cattle would be followed by mobile grazing poultry, pork and lamb, theoretically increasing the output of the plot. This definition of stacking enterprises has been widened to complementary activities such as processing and retailing that add value to agricultural products and can include agri-tourism and education (Barbieri and Mahoney, 2009, Inwood and Sharp, 2012).

Proponents argue that stacking enterprises increases the output of the farm, and the idea of producing 'more from less' land is a recurrent theme in the literature (Inwood et al, 2012, Valliant et al,

2017, Hodgkins, 2022,) and case studies suggest this model can support more employment than specialised agriculture (Inwood et al, 2012, FFCC, 2021, Hodgkins, 2022).

This model is linked to principles of agricultural diversity and circular economy; and a key tenet of agroecological farming, widely claimed as a solution to the current damaging environmental, social, and economic effects of the food system (Lovell et al 2010, FAO, 2022, Mason et al, 2022). Sources describe that the farming enterprises complement each other, use common resources, and add value to their outputs and by-products (Barbieri and Mahoney, 2009, Inwood and Sharpe al, 2012, Valliant et al, 2017). Farmers argued that the circular economy and use of by-products can mitigate the ecological impact, claiming it helped reduce chemical fertiliser, pesticide use and animal feed (Valliant et al 2017, Hodgkins, 2022)

However, the academic literature diverse farming enterprises and ES is fragmented. One strand focuses on the economic and social opportunities; how it can provide employment opportunities for family members (Bowler et al, 1996, McElwy 2008, Barbieri and Mahoney, 2009, Lovell et al, 2010, Inwood and Sharp, 2012, CLA, 2014 , Song et al, 2020). Another focused on the positive feedback loops of diverse crops for healthy diets (Béné et al, 2019, Benton and Harwatt, 2022).

Meanwhile, another strand of research looks at the environmental benefits of the diversification of cropping and production systems (Ryschawy et al, 2013, Doddabasawa and Umesh, 2017, de Roest et al, 2018, Mason et al, 2020, Sanchez et al, 2022, Zhao et al, 2022). Among the relevant academic literature found, only Valliant et al (2017) looks at the interconnection between the environmental and financial resilience and the author found no results that looked at synergies across all areas of the food system; environment, society, economy, politics and health.

Additionally, this review found a conflict in the structure of ES; academic literature stated enterprises stay within a singular business framework (Barbieri and Mahoney, 2009, Inwood and Sharp, 2012, Valliant et al, 2017, Song et al, 2020), but in the grey literature and media articles, landowners accommodate entrepreneurs to set up independent enterprises onto their farm (FFCC, 2021, Kingsclere-Estate 2022, Wakelyn's, 2022, Thompson, 2022).

2.3 Similar terms

The term diversification arose persistently in the literature. However, there are many definitions and framings of agricultural diversification.

At the basic level, diversification is the increase in agricultural output diversity (Valliant et al, 2017). In this way, Kremen et al (2012) give an ecological framing of the concept; diverse crops and landscapes that enhance the ecological performance of the farm (Valliant et al, 2017). But academics report a tendency to refer to diversification in terms of non-agricultural activities and income (Bowler, 1999, Hansson et al, 2013, Valliant et al, 2017, Hodgkins, 2022). Indeed, product diversification has not been considered as diversification by the majority of the literature (Bowler, 1999, Hansson et al, 2013, Hodgkins, 2022, Valliant, 2017) and policy (Cabinet Office, 2002) and instead focus on non-production activities, such as recreation, property lets and tourism because evidence suggests it is more profitable (Bowler, 1999). The fact product diversification is not considered as diversification, is reflective of the trend to specialise and diversify out of agriculture rather than diversifying within farming, despite the ecological and social benefits.

This difference in meanings has led to the development of a typology of diversification by Valliant et al, (2017) illustrated in figure 1. Enterprise stacking, referred to as alternative food and agriculture

enterprises as in Inwood and Sharp (2012), diversifies in both agricultural goods and on-farm services but does not include non-agricultural employment or investments unrelated to the farm.

<table>
<tr><td colspan="2">On-farm activities</td><td>Off-farm activities</td></tr>
<tr><td>Agricultural goods</td><td>Services
(Barbieri and Mahoney, 2009)</td><td rowspan="3">Non-agricultural employment / investments unrelated to farming</td></tr>
<tr><td>Product / crop / agricultural output diversification
Product differentiation (e.g. USDA certified organic feed corn, non-GMO feed corn) (Salvioni et al., 2013)
Adding value / value-added processing
New marketing methods</td><td>Recreation, tourism, hospitality
Lease, rental, easements
Contract services / “hirework”*
Historic preservation
Consultancy, educational programming</td></tr>
<tr><td colspan="2">Alternative food and agriculture enterprises (Inwood and Sharp, 2012)</td></tr>
<tr><td colspan="3">Pluriactivity</td></tr>
<tr><td colspan="3">*Work performed on or off the holding using farm resources (McNally, 2001). For example, harvesting / hauling / baling using the farm’s machinery; care of others’ horses using farm facilities and labor</td></tr>
</table>

Figure 1. Typology of farm diversification. (Valliant et al, 2017.)

One hypothesis generated is that there is an important distinction between enterprise stacking and diversification. In enterprise stacking, activities are related to agriculture and are an important component of the circular economy of the farm (Hodgkins, 2022, FarmED, 2022, Wakelyn’s 2022, Thompson, 2022). For example, farmers can diversify in a way that has no link to agriculture, such as converting farm buildings into office space. This is a valid strategy to increase farm revenue, but because it is not linked to the farming system this would not be considered enterprise stacking according to this typology. This will be an area for further research in the interviews.

2.4 Agroecology and sustainability assumptions

Sustainability in food systems is a contested space with diverging visions of how actors should respond to the negative impacts of the food system such as greenhouse gas emissions, biodiversity loss, an increasing population, and social and health inequalities (Béné et al, 2019). Scholars highlight that assumptions and ideologies underpin these positions and are based on a narrow interpretation of what the problem is, framed in relation to the interests of the actors. This influences what actors propose as solutions (Béné et al, 2019, Benton and Harwatt, 2022). While there are many visions of food system sustainability, the literature on ES referenced the ‘land-sparing’ versus ‘land-sharing’ debate (Green et al, 2005, Cassman and Grassini, 2020).

In a land-sharing scenario, farmers shift towards more extensive and biodiversity building practices such as agroecology; that broadly encompasses terms such as organic, regenerative and biodynamic farming found in the literature (Francis et al, 2003, Lovell et al, 2010, Inwood and Sharp, 2012). Agroecology is described as "*an integrated approach that simultaneously applies ecological and social concepts and principles to the design and management of food and agricultural systems*" (FAO, 2022, p.1).

Reduced yield of such practices is a frequent critique and suggests this approach could not 'feed the world'. However, to adjust for the lower yields, this paradigm assumes that diets be more diverse and include less meat consumption which would free up land (Benton and Harwatt et al, 2022).

The position underpinning ES in the literature is a land sharing stance, frequently citing specialised farming was at the core of the negative externalities of the food system and how proposing that diverse agroecological farming systems could tackle many of the negative externalities of food production (Macias, 2008, Lovell et al, 2010, Inwood and Sharp, 2012, Levidow et al, 2014, Frison and Jacobs, 2016).

Conversely, land sparing claims to achieve food system sustainability by improving the efficiency and yields of food production to be able to spare land for conservation (Green et al, 2005). While research shows environmental and food production can be maximised through separation, opponents highlight that there is little research showing that intensification of land leads to land sparing for biodiversity. They also emphasise that this is a continuation of the specialised model put forward by powerful agri-food actors with a neoliberal ideology and financial interests at heart (Benton and Harwatt et al, 2022)

While these two positions are often pitted against each other, Kremen (2015) said that an 'either or' framing of land sparing versus sharing is a false dichotomy and both practices could complement each other if trade-offs are managed well.

2.5 Potential Benefits

Due to the small amount of direct literature on the term farm enterprise stacking, potential benefits and disadvantages are analysed through the features of the model described in the literature such as; diversified farming systems, agroecology, circular farming and multi-functionality. Further empirical research is needed to verify whether these theoretical claims are accurate.

2.5.i Financial benefits

Although specialisation has led to higher yields and productivity, it is highly dependent on global commodity markets, central marketing agencies and government subsidy support (Lang and Heasman, 2015, de Roest et al, 2017). But as government support for agriculture is declining in the UK (DEFRA, 2022), climate change undermines monoculture crop resilience (Carparas et al, 2021), and corporate power concentrating in agri-food supply chains (Clapp, 2016), the literature suggests that this is a fragile model for UK farmers.

Increasing diversity of crops, farm enterprises and marketing channels offers economic resilience by spreading risk and building environmental resilience to disease and extreme weather (de Roest et al, 2017, Sanchez et al, 2022). While ecology is not the only factor, in theory sustainable commercial success in farming ultimately relies on sound environmental stewardship (Valliant et al, 2017). Another core part of ES was adding value to agricultural products, by processing, growing high-value crops and direct

marketing. This can enable farmers to capture more of the value of agricultural products and shift from being price takers, at the mercy of these powerful agribusiness companies, to price makers (Levidow et al 2014, Valliant et al, 2017).

Despite this theory, the academic literature shows conflicting evidence in farm profitability; some report that diversified cropping leads to higher incomes (Himmelstein et al, 2017) while others show that diversified farming systems are just as profitable as specialised ones (Castle et al, 2021, Sanchez, 2022), and some found that they returned less profit than average (Roesch-McNally et al, 2018). Considering the diversity of farms, these mixed results is not surprising, and advice should always be context specific.

Inviting entrepreneurs to set up independent businesses on a land base can bring mutual advantages for both parties (CLA, 2014); it's a platform for entrepreneurs to operate from, can provide the landlord a profitable rent, and the output of the independent businesses can be marketed through a shared brand, but the landlord does not have to take the financial risk. Through this model, entrepreneurs and landlords can collaborate, combining new skills, energy and resources, to create something bigger than what they could have done separately (CLA, 2014).

According to agronomic research, stacking enterprises has the potential to increase agricultural productivity and environmental resilience; the theory of overyielding whereby multiple crops and livestock in the same field, known as intercropping, can produce more yield than the equivalent monoculture while enhancing biodiversity and fertility and reducing farm inputs (Li at al, 2013, Glaze-Corcoran et al, 2020). However, studies also state that results can vary significantly between crop mixtures, soil types and fertiliser application (Li et al, 2013). This link between financial benefits and environmental resilience is a clear synergy and will be discussed more in the following section.

2.5.ii Environmental benefits

The environmental benefits of diversified mixed farming systems, that ES proposes to facilitate, are extensive. Evidence has found crop rotations found in mixed farms improve soil nutrients (Sanchez et al 2022), water quality (Lovell et al 2022), reduce crop disease, sequesters carbon and facilitate a reduction in chemical inputs (Lovell et al, 2010, Li et al, 2013, Hodgkins, 2022) that drive biodiversity loss (Ceballos et al, 2020, Benton et al, 2021).

There was a consensus that specialised farming practices were at the core of a food system that was driving a biodiversity crisis (Ceballos et al, 2020, Benton et al, 2021) that is undermining the future ability to produce food; simultaneously contributing to climate change while less resilient to extreme weather and dwindling biodiversity (Menegat et al, 2021, Sanchez et al, 2022). Whereas academic argue diverse agroecological farming systems mitigate and better adapt to such environmental crises because diverse rotations build soil health, provide space for predators that kill crop-eating pests, and farmers have a portfolio of products rather than relying on one crop that could be wiped out by extreme weather (de Roest et al, 2017, Sanchez et al, 2022). Enterprise stacking is positioning itself as a model to facilitate that transition to diverse mixed farming.

By layering farming and land-based enterprises, a plot of land can be multifunctional (Lovell et al, 2010, Song et al, 2020), rather than purely for food production in a specialised system. In a multifunctional format in which education, tourism, hospitality or recreation enterprises may operate, landowners and farmers are incentivised to enhance biodiversity and look after the edges of the field that were previously seen as unproductive spaces (Barbieri and Mahoney, 2009).

The literature frequently referenced designing ES as a tool to design an integrated circular farming economy that regulates the ecology of the farm while responding to the social and economic needs of the community (Salatin, 2001, Lovel et al 2010). This circular approach means that the ecological impacts of farming activities are balanced and mitigated within the system (Lovell et al, 2010, FAO, 2022) instead of externalised. For example, in Vermont, a farmer used livestock to return fertility to the fields rather than applying polluting and emission-intensive nitrogen fertiliser (Menegat et al, 2021) to the field or feeding grain to his animals, produced elsewhere to his livestock (Lovell et al, 2010).

However, the extent to which environmental benefits are achieved depends on how the enterprises are stacked and integrated together. Academics warned that agricultural output can be diversified through re-specialising; not integrating the production with the existing base and therefore bringing few of the environmental and circular economy benefits (Valliant et al, 2017). How enterprises are stacked and integrated is an area of research for this study.

2.5.ii Social

Farmer testimonies from grey and academic literature propose that ES and diversifying agricultural products create significantly more rural employment than the specialism model, and this is a leading motivation of those implementing it (Inwood and Sharp, 2012, Hansson et al 2013, Valliant et al, 2017, Hodgkins, 2022). Hodgkins (2022) states that before stacking enterprises, his farm employed one person where there are now six making a living. Likewise, in Inwood and Sharp (2012), a farm struggled to make a living for one family but since they started stacking enterprises, the farm can support four families. However, more empirical evidence is needed to back up these few case studies available.

The creation of new enterprises has been identified as a strategy to increase the opportunities for future generations of families (Barbieri and Mahoney, 2009, Inwood et al, 2012) and provide access to land for new entrants into agriculture, who face high capital costs for land and lack of training opportunities (CLA, 2014, Taherzadeh, 2019). This is a key challenge facing the industry currently, with an ageing population (DEFRA, 2016) and in need of innovative approaches to the environmental, economic and social challenges facing agriculture (Taherzadeh, 2019). There are concerns that an ageing farmer population, once they retire, could drive further specialisation (Ingram and Kirwan, 2011).

Inviting entrepreneurs and integrating enterprises requires a high level of cooperation, presenting challenges and difficult power dynamics (de Roest, 2019). But it can also provide significant benefits; Nicol and Taherzadeh (p.1, 2020) identify that collaboration and “people-centred approaches” is an underestimated element that allows sustainable and just food networks to thrive. This intense collaboration, observed in community-supported agriculture (CSA), facilitates knowledge sharing, emotional support and social capital (Nicol and Taherzadeh, 2020).

In addition, literature on farm entrepreneurship reports that innovations and problem-solving occur iteratively through social networks rather than in isolation (Fieldsend et al, 2022). Isolation is a typical of specialised farming systems where farmers operate on machinery for long hours (Wheeler et al, 2022). This isolation not only stifles innovation but also affects well-being with farmers reporting higher levels of depression (Farm Safety Foundation, 2022, Wheeler et al, 2022). The literature suggests that enterprise stacking could provide enhanced conditions for farm innovation and better farmer well-being through increased contact (Schoolman et al, 2019, Wheeler et al, 2022).

2.6 Potential challenges of enterprise stacking

This section considers the key barriers to diversified farming models like ES. Since the 1940s, food policy and industry have centred on specialised farming models to maximise food production and efficiencies in production (Lang and Heasman, 2015). This has led to path dependency for farmers; a resistance to change because of cost implications, education, training and cultural norms. Knowledge, infrastructure investments, social networks and training are all geared towards specialised agriculture and makes it challenging to consider an alternative (Frison and Jacobs, 2016). There are, therefore, many barriers to farmers adopting an alternative model.

2.6.i People challenges

People-related problems; relationships, housing and cultural issues are a significant hurdle to diverse farming systems. A study showed that there is a panoply of human challenges associated with landowners collaborating with new-entrant farmers (Ingram and Kirwan, 2011). Differing expectations of income and benefits, farming methods, communication style and temperament were all identified as tensions (Ingram and Kirwan, 2011).

Even when landowners wanted to give opportunities to new entrants, they had considerable anxiety around the prospect of the venture going wrong and the complexity of setting up the agreements and the legal implications (Inrgam and Kirwan, 2011). As this model deviates from traditional farming norms, what neighbouring farmers thought of them and their standing within farming communities (Burton, 2004) was also a concern of landowners (Ingram and Kirwarn, 2011).

This concept of being perceived as a 'good farmer' in the community is a reoccurring theme in research on the barriers to sustainable farming practices. Being a 'good farmer' has traditionally drawn on the principles of specialised farming (Burton, 2004, Burton et al, 2008, Sutherland 2013, Press et al, 2014) or the productionist paradigm (Lang and Heasman, 2015). Any deviation from this model, from on-site processing and marketing to organic certification, can be met with community judgement, putting off potential innovation that might occur from experimenting with a different model. Hosting many different businesses and entrepreneurs might well be 'messier' due to the increase in activity and a change in aesthetic like this is thought to be an underestimated but significant hurdle in farm change theory. In addition, the family and legacy dimension of family farming exacerbates these changes, which Burton (p.207 2004) equates to "*destroying or painting over an old family portrait*." However, Conway et al (2017) say these values are shifting for the new generation of farmers.

The lack of affordable rural housing for aspiring farm entrepreneurs and employees is described as a chokepoint in attracting a quality workforce to run diverse farming enterprises (Ingram and Kirwan, 2011, Valliant et al, 2017).

2.6.ii Training, education and knowledge

Specialist farming models have informed agricultural education, training and knowledge networks since the 1940s (Curry et al, 2012, Land and Heasman 2015). This constitutes another form of lock-in (Frison and Jacobs, 2016) because the current farmers are characterised by deep technical knowledge of a certain area of farming but lack wider skills and knowledge, like animal husbandry, horticulture or even marketing to implement more diverse farming systems (McElwee, 2009, Schoolman et al, 2019).

This extends to research, and Vermunt (2022) describes the lack of research into diverse models compared to specialised ones; 44 papers were found in comparison to 1098. The lack of research into the term enterprise stacking is indicative of a research gap in diversified farming models and the lock-ins that farmers face.

2.7 Public policy environment for enterprise stacking

Post-war farming policy in the UK has centred on increasing food production (Lang and Heasman, 2015) and was successful in increasing food yields significantly (Frison and Jacobs, 2016) through specialised farming. Policy has set the direction of travel, but commercial interests have also promoted this model (Clapp, 2016).

Successive farming policies, starting with the 1947 Agriculture Act promoted a strong UK agriculture sector with guaranteed price support and minimum import prices focused on maintaining food security and self-sufficiency (Bowers, 1985). When the UK joined the EU's Common Agricultural Policy (CAP) in 1973, increased public financial support promoted regional specialism to improve productivity, contributing to a 70% decrease in mixed farms in the EU (Revoyron et al, 2021). Alongside government-funded and private research, technological innovations and intellectual property legislation, this has fed into this growing pattern of bigger farms and the financial imperative for economies of scale (Frison and Jacobs, 2016).

The Curry Report, commissioned in 2002 by the Cabinet Office, signalled the prioritisation of diversification and multifunctionality in the EU and UK farming policy, demonstrated through payments for environmental services (Cabinet Office, 2002, Curry et al, 2012, Hansson, 2013, Whitfield and Marshall, 2017). In 2003 subsidies were decoupled from production and shifted to area-based payments, (Curry et al, 2012) in a trend of market liberalisation and farmers were encouraged to diversify their incomes stream out of farming using their on-farm assets (Bowler, 1996, Hansson et al, 2013, Valliant et al, 2017). Despite this policy focus on diversification, there has been little support for agricultural diversification (Valliant et al, 2017) and research shows that policy reform has reinforced the trends of increasing farm size and specialisation (Lobley and Butler, 2010).

This trend of multifunctionality has continued and post-Brexit Britain is shifting from area-based subsidies to the mantra of the Curry Report in 2002, "public money for public goods" (Curry et al, 2002). Under the Environmental Land Management scheme (ELMs), farmers will be paid for ecosystem services like tree planting, pond restoration and sequestering carbon (DEFRA, 2022). Despite the National Food Strategy (Dimbleby and Cooper, 2021), commissioned by DEFRA, recommending an increase in diverse livestock and crop rotations to build soil carbon and reduce chemical inputs there has been no direct support or policies to increase the integration of crops and livestock on farms in ELMs (DEFRA, 2022)

2.8 Research gap

One clear finding from the literature review is the lack of research on the term 'enterprise stacking' and to be best of the author's knowledge, this research is the first study on enterprise stacking (ES). From the little academic and grey literature, and farmer testimonies, this review has identified potential key features of the model but, there is a need to clearly define what enterprise stacking is and isn't, based on the expert knowledge of those who are practising it.

There is extensive research on the features of the model; diverse farming systems, circular farming, and agroecology and has allowed for hypothetical analysis of the benefits and challenges, but it is necessary to investigate these hypotheses with empirical research. But given the lack of direct research on this term, this study aims to return empirical evidence on the challenges and benefits of ES, assessing its potential and whether it is a desirable model that could help tackle food policy issues such as an ageing farmer population, struggling farming economics and environmental crises.

In the academic literature on diverse farming, research was fragmented into three strands; the links between financial and social benefits, environmental advantages of diversity, and how diverse farming can benefit health. However, there is a research gap on how they all relate, and this research will ask how the benefits of diverse farming systems interconnect and if ES achieve synergies across the farming system.

3.0 Methodology

3.1 Research Questions

The following research questions were generated as a result of the evidence gap identified by the literature review:

Despite emerging as a popular term in UK farming, there is no academic literature on the term, no clear definition of what is enterprise stacking and what it isn't. Therefore, this study asks:

- What is the farmer-led definition of enterprise stacking?

While there is significant evidence on the features of the model and similar terms, and a hypothetical analysis of the benefits and barriers has been conducted, there is no literature on the benefits and challenges of this model. Therefore this research aims to find out:

- What are the benefits and barriers of enterprise stacking?

Due to the research gap in how diverse farming systems can provide benefits across health, economy, society and environment to understand how different areas interrelate, this study will ask:

- To what extent does enterprise stacking (ES) provide synergies across a farming system?

Given that farmers and landowners are already using this model and the best source of the practical implications and lived experiences of ES, this study aims to answer the research questions through qualitative interviews with these practitioners. Due to the lack of research on the term, in-depth interviews with expert practitioners were chosen to generate a farmer-led definition and find out the benefits and challenges from their experiences of this model. Therefore, elite semi-structured interviews were elected as the research method.

Due to the diversity of UK farming and the differing contexts of participants, in-depth interviews generated detailed evidence required to contextualise these differences. Despite the growing interest in this model, the number of farmers using this approach in the UK is limited and the researcher managed to recruit 10 participants. Similar studies indicated that data saturation would be achieved with 10-15 participants (Lovell et al, 2010).

3.2 Ethics approval and reflexivity

Ethics approval was granted by City, University of London. Interviews were conducted in the farmers' offices or online, depending on availability and geography. The researcher followed the sites' health and safety guidelines while on their property, mitigating any risk. Participants were anonymised to protect their identity, as well as any aspects of their contributions that might reveal their identity or anything that might be commercially sensitive, like innovative research or projects.

The process of qualitative research is not a neutral experience and the impact on the interviewees can be considerable and in unexpected ways (Butterfield et al, 2009). It can have therapeutic benefits,

allowing the participants to tell their stories while the researcher listens closely (Butterfield et al, 2019). However, it is important to turn the lens back on themselves and acknowledge how the researcher's background and framing of the issue and questions, could affect the interviewee and how the data might be selected, edited and interpreted (Braun and Clarke 2006, Castleberry and Nolan, 2018, Dodgson, 2019).

In this case, the researcher and participants are of agricultural backgrounds with similar lived experiences, mitigating risks of misinterpretation. Given that participants are elite, there was a concern that this could lead to an asymmetric power dynamic, with the researcher feeling uncomfortable to probe when the interviewee is being unclear or evasive. However, the author's role as a journalist and interview experience reduced this.

Despite the significant research documenting the damages of specialised agriculture as shown in the literature review, the author acknowledged that their interest in agroecology could have impacted the participants chosen, the framing and interpretation of the research.

3.3 Interview Guide

An interview guide was designed with key themes to answer the research questions. During the first few minutes, the researcher built up a rapport with the participants. After a summary of the study and its aims, the researcher asked about what enterprise stacking meant to the participants; thus, generating a farmer-led definition, and where they had first heard of the concept and why they thought it was different to other farming models. Questions then explored the different legal structures of participants' enterprise stacking and how enterprises overlapped.

Participants were asked to discuss the benefits of enterprise stacking; financial, social and environmental, before expanding on the tangible changes they had observed on their farm. Because of the research gap identified, additional questions were asked on the link between the environmental, financial, health and social benefits and whether it was due to the model itself.

Given the dominance of the specialist model and how it can lock in farmers, as found in the literature review, the researcher asked about the challenges of implementing ES and its financial viability. Once determining whether farmers thought enterprise stacking was a model to promote, this led to the food policy implications and how public policy could support it. The full guide is available in the appendices.

3.4 Candidate recruitment and interview process

Candidates were selected on the basis that they, the landowner or manager, had implemented enterprise stacking on their farm or had attempted to. The latter was decided as important, as this would help to understand the challenges and barriers. Due to the author's position as a journalist, six interviewees were already personal contacts that the author knew and contributed willingly. The remaining four were identified via farm websites (three) or in previous participant interviews (one) and were sent a request to interview via email or Linked In.

Participants were sent an information sheet outlining the purpose of the interview and if the interview was online, a consent form, to be returned before the interview. If in-person, the consent form was signed before the interview.

Five interviews were carried out in person in the farmers' office. This was deemed preferable to elicit detailed interviews. However, due to geographic and time constraints of the researcher and participants, five were done online. Interviews lasted 55 to 85 minutes and were recorded to be transcribed later. Field notes were taken to add further observations.

Questions, as per the format of semi-structured interviews, followed a loose order as set out in the guide, but participants were able to explore their thoughts and experiences with the full attention of the researcher. To enable natural conversation, the researcher ticked off areas in the interview guide that had been covered in the discussions, directing further questions to areas unanswered and avoiding going over the same issues. The researcher asked open-ended questions to ensure that they weren't leading them to respond in a certain way.

3.5 Thematic Analysis

Thematic analysis (TA) was chosen as the research method to aid a rigorous and transparent process of theme generation from the data. It is a process of identifying, analysing and reporting patterns in the text that reduces the data into manageable themes (Castleberry and Nolen, 2018). Because the researcher has an active role in the selecting, editing and framing of the data, the methods must be carried out consistently and any biases documented transparently to ensure the repeatability of results and confidence in the research (Braun and Clarke, 2006). The researcher followed Castleberry and Nolen's (2018) five step approach to TA; compiling, disassembly, reassembly, interpretation and concluding.

Data compiling: Detailed field notes were transcribed into a word processor capturing what a recording might not; underlying emotions, gestures, key themes and observations of the surroundings. Recordings were transcribed into a word processor manually, pausing and playing the recording while the researcher typed into the word processor. The copy was cleaned by the researcher to account for spoken speech, and repetitions and filling words were omitted from the transcript. Once transcribed in an organised and consistent format, the researcher anonymised the documents and re-read them, beginning to pick out key ideas, concepts and categories.

Data disassembling: The anonymised documents were uploaded into the coding software NVivo, a programme to aid the process of TA (Braun and Clark, 2006, Castleberry and Nolen, 2018). An initial coding strategy was formed based on the observations and notes during the transcription and reading process. Quotes from interviews were initially coded deductively into main categories derived from the research questions; definitions, benefits, challenges and policy implications. A second round of coding inductively generated recurring ideas and patterns and multiple sub-categories were created for each category. A third round consolidated certain sub-categories and deleted others that did not have enough data across the interviews to support it. A mixture of latent and semantic analysis was used to categorise direct answers and underlying concepts and drivers (Braun and Clarke, 2006).

Data reassembling: By linking and contextualising codes and categories with each other, themes were generated in relation to the research questions (Castleberry and Nolen, 2018). As the themes of certain categories, benefits and challenges, were frequently interconnected, the same quotes from interviews were coded into multiple subcategories.

Interpreting: By grouping excerpts from participants into codes and categories, an idea of how different experiences, beliefs and histories related to each other became apparent, leading to the generation of themes for analysis. The author used spatial mapping to identify links and patterns within the codes and categories to generate themes and illustrate interconnections within the analysis. Consequently, the author was able to identify a food systems framework that applied to the themes to aid with the interpretation and illustration of the analysis (Parsons, Hawkes and Wells, 2019).

Concluding: Once interpreting and critically analysing the data resulting from the interviews, the author answered the research questions of the study while discussing how the results relate to the existing literature, and what this research adds to the field.

3.6 Limitations

The sample size of 10 farmers and landowners was limited due to the time constraints of the researcher, as well as the number of farmers using this model. However, it would have been beneficial to conduct interviews with entrepreneurs and document their challenges and benefits, as the success of this model relies on entrepreneurs as much as landowners. This is an area for further research.

As practitioners are currently the experts in this model, qualitative methods were chosen to gain an understanding of the term. But this would have been complemented with quantitative research, collecting data on to what extent the social, financial and environmental benefits discussed, were achieved. This is also an area for future research.

There were significant differences between the contexts of farms analysed; in location, type, and size. For a more precise analysis of the benefits and challenges, more segmentation of the farm context would have been preferable. Despite these limitations, the study provides a valuable foundation of knowledge to an unexplored term with new areas of research on which to build.

4.0 Results

The results of interviews with 10 farmers following an enterprise stacking model will answer the following research questions in this order; what is enterprise stacking; the key principles, structure and differences from other existing terms. Next the benefits and barriers to ES will be analysed under the headings of the food system framework developed by Parsons, Hawkes and Wells (2019); politics, economy, health, environment and society. Participants will be referred to as P1 – 10 and are described below.

Participant	Size	Location	Number of Enterprises	Landowner/tenant
1	150 acres	South West	7	Owner
2	300 acres	Southern England	7	Owner
3	1320	Eastern England	3	Owner
4	40 acres	East Anglia	9	Owner
5	500 acres	Southern England	16	Tenant
6	32 acres	South West	6	Tenant
7	2500 acres	Southern England	7	Owner
8	180 acres	South West	8	Tenant
9	40 acres	South West	8	Tenant
10	200 acres	West Midlands	3	Owner

4.1 Summary of main findings

- Enterprise stacking is the integration of diverse enterprises on a single plot of land.
- In contrast to diversification, stacked enterprises link back to the farm and create economic, health, environmental and social synergies that is more than the sum of their parts.
- Farmers stack enterprises this in three different ways; integrating multiple enterprises under one business umbrella, inviting entrepreneurs to set up independent enterprises on their land, and partnering with entrepreneurs.
- By collaborating with entrepreneurs, the model can address an ageing farmer population and offer a sustainable transition pathway to farmers who want to incorporate more diversity but don't have the time, skills or mindset to do so otherwise.
- Barriers result from the model deviating from the dominant specialism paradigm; farmer uncertainty around an unproven model and governance issues, an unsupportive policy environment, and general economic precarity of farming in the UK.
- Lack of affordable rural housing is limiting the model, putting off potential workers and entrepreneurs.

4.2 What is enterprise stacking?

The core principle of ES across all 10 interviewees was one of integration, the integration of different crops, animals, food and farming enterprises and non-farming enterprises on the same plot of land. The extent of participants' ES varied from, at its most basic level, integrating diverse crops and livestock (primary production) to one farmer who had 16 different enterprises on their plot of land, combining diverse food production with processing, direct marketing, and education, hospitality and well-being enterprises. There was however conflict on the definition, with one differentiating between enterprise stacking, where entrepreneurs run food and farming businesses on a farmer's site, and activity stacking where the farmer has diverse enterprises but manages them in one business entity, although this was not stipulated otherwise by participants. The different versions of ES and how it relates to diversification is illustrated in figure 1.

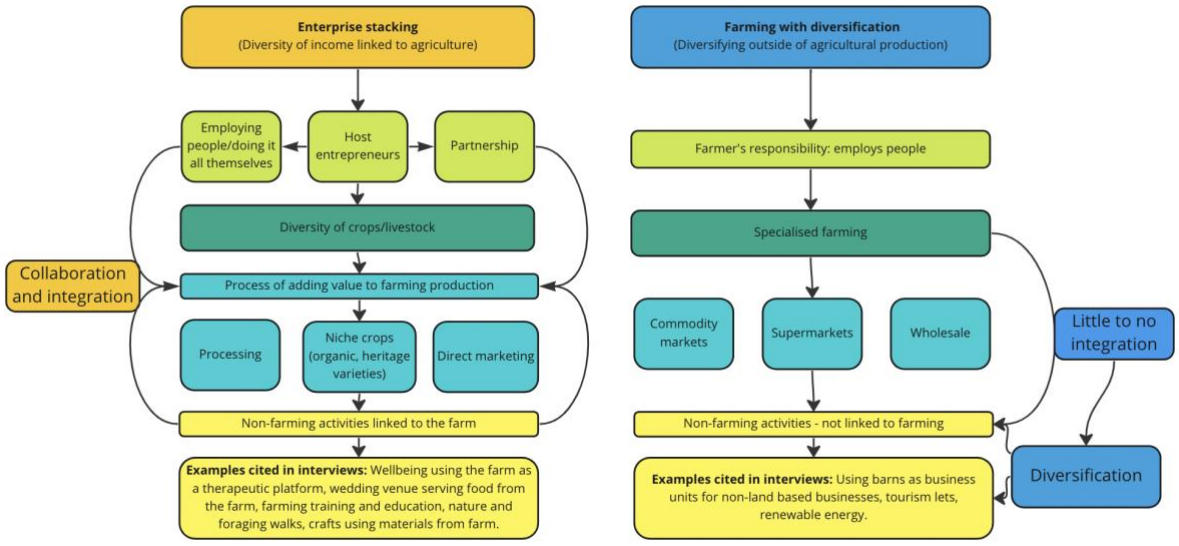

Figure 1: Difference between enterprise stacking and farming with diversification. Author's own.

Many defined the model in opposition to the widely held definition of diversification (Bowler, 1999, Hansson et al, 2013, Valliant, 2017), where farmers diversify out of farming activities, like holiday or office lets. As illustrated in figure 1, these have little to no interaction with the farming activities, other than being on the site and producing revenue for the business. Participant (P5) framed ES as "*diversifying your farm in a better way*", by increasing the diversity of agricultural products, adding value to them by processing them, selling them directly to consumers and capturing more of the end value, and offering services such as education and tourism that interact with the farm, described by participant (P9) as "*the icing on the cake*". An overarching theme was that diversifying within agriculture and linking enterprises together creates synergies and a system that is more than the sum of their parts. Many participants thought that diversification without integration would lose the potential for synergies and co-benefits. Participant (P2) highlighted, *"I could have a graphic designer in there [as office lets],*

but you don't maximise the opportunity to bring people on site and use the bounties of nature in creating opportunities for people."

This point highlights a common theme found in the data; all participants were engaged in environmentally sensitive agriculture, referring to widely known practices such as regenerative, organic and biodynamic farming, and agroecology. While participants thought it would be theoretically possible to stack enterprises in a conventional system, many thought the model inherently created an integrated system where co-benefits would facilitate environmentally sensitive agriculture. If enterprises were stacked without integration, participants deemed this diversification and not enterprise stacking (ES).

4.3 Different structures of enterprise stacking

The structure of ES split into three main camps; those who ran the different farming enterprises as one business entity by themselves or employed staff (N=4), landowners who invited entrepreneurs to set up independent businesses and paid rent (N=3), and those who went into partnership with the entrepreneurs (N=3).

For instance, one farmer had seven separate land-based enterprises on their land, from vegetable growing to natural dye making, all independent and paying rent. Whereas one had six food, processing, marketing, and well-being enterprises on one plot all incorporated into the same business. Meanwhile, three were in partnership with entrepreneurs, with contracts stating how the revenue of the enterprises was split. Respective landowners suggested each version of the model had different benefits and downfalls. This will be discussed respectively in the politics sections of benefits and barriers. Given these differences, interviewees felt it was an agile model, and many reported that the development of the site evolved around the entrepreneurs and the surrounding community, rather than a specific vision.

4.4 Benefits and Barriers

4.4.i Analytic framework

The barriers and benefits were identified using an inductive coding approach and found that the themes corresponded with the sections of the food system diagram in Parsons, Hawkes and Wells (2019). Using the diagram in figure 2 as a framework, figure 3 explains how ES takes a food systems approach and how the model creates synergies in politics, economics, health, environment and society and how the different sections interconnect, creating its own coherent food system. While synergies are illustrated, this section will also look at the barriers and challenges of ES.

Figure 3: The food system and its interconnections (Parsons, Hawkes and Wells, 2019).

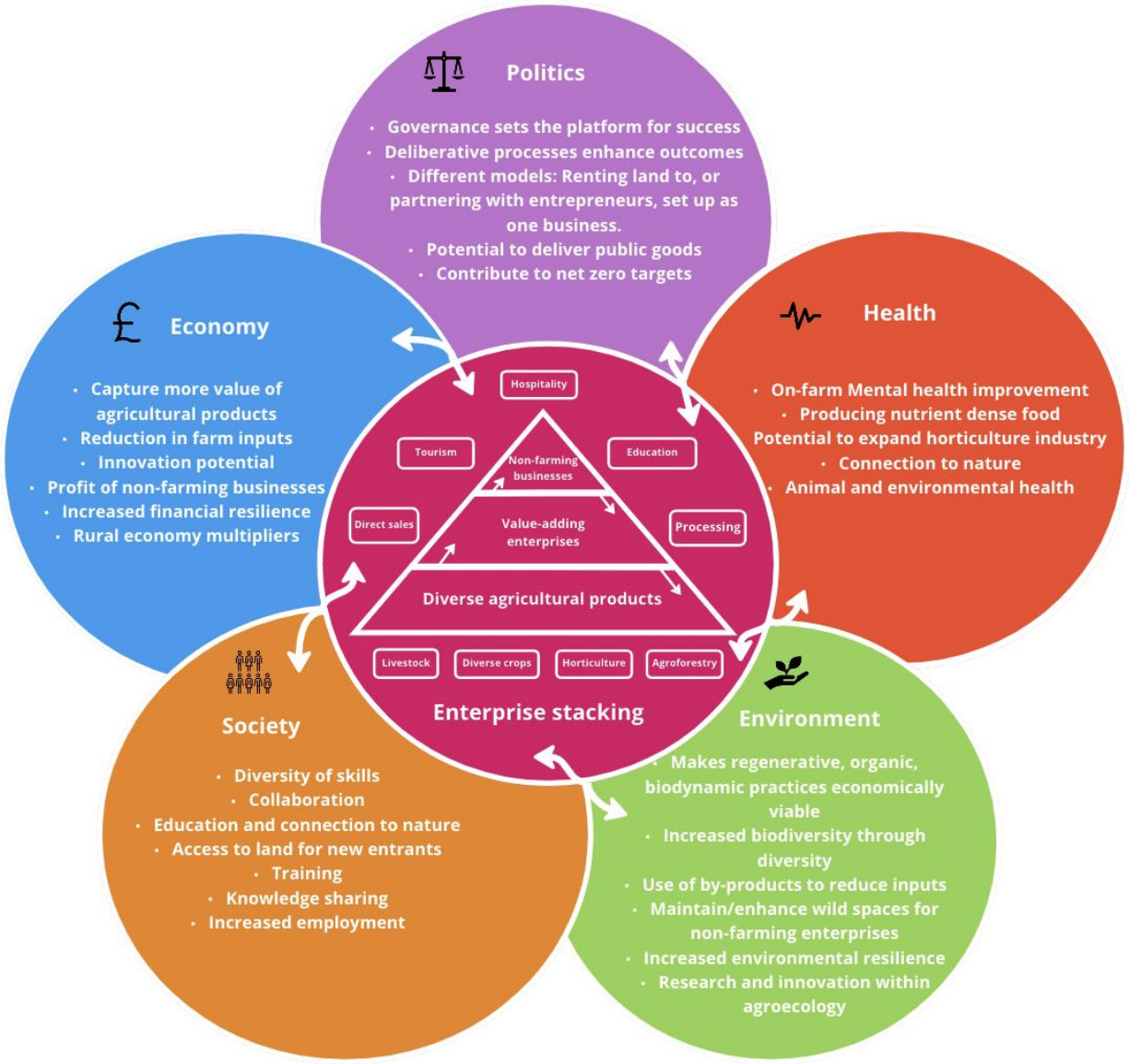

Figure 4: How enterprise stacking creates synergies in the food system. Based on Parsons, Hawkes, and Wells (2019).

4.4.ii Economy

This was cited both as one of the biggest barriers but also one of the biggest benefits. Participants referenced broader economic issues of consumers not willing to pay more for produce, the dominance of consolidated agri-food marketing structures, the lack of investment and research in agroecological farming and practices, a lack of processing infrastructure and government policies that incentivise specialist production. This filtered down to more specific problems around not being able to pay staff high wages and the subsequent lack of affordable housing. A consistent theme was the material or economic sacrifice of the farmers and entrepreneurs with many living in caravans. All participants saw this as a major barrier to attracting entrepreneurs and the wider scaling out of the model. One landowner cited

non-financial measures of rent such as receiving veg boxes from market gardeners or craft products, highlighting that many were not relying on the model as their main source of income.

There was a consensus that as a new model and alternative to the specialist system, that the model is perceived as unproven and the financial benefits were still theoretical, stopping more risk-averse farmers from making the shift.

In addition, multiple interviewees mentioned a lack of financial tools to calculate the benefits of interactions of enterprises, such as ecosystem services and by-products that underpin the circular system but might not have an explicit financial value. This, participants reported, not only impedes the financial success of ES farms, but also the investment and ability to obtain loans to grow the business.

Despite the significant economic barriers in shifting to and establishing the ES model, participants reported many economic synergies of interconnecting enterprises, especially in the incorporation of businesses that add value to their primary production of food, such as processing, niche crops and direct marketing. Many expressed that capturing more of the end value of goods was necessary to make their environmentally friendly production viable. Some said that selling through short supply chains increased their economic independence away from supermarkets and commodity chains, but one (P3) disagreed saying "*there is no resilience in ultra-light local supply chains*," and that you need more scale of production to be resilient due to lack of local infrastructure and staff in their area.

The majority reported significant increases in employment and revenue on their land since implementing this approach. One farmer (P1) cited how previously their plot of 150 acres provided for one half full-time equivalent (FTE) job, and now generates 15 FTEs. This was a common theme with participant (P5) stating: "*We have 16 enterprises on 500 acres and 25 FTE staff. My neighbour's got one or two*." By stacking different types of production on the same plot of land, farmers were intensifying production while developing the rural economy by providing more jobs and spaces for community. One participant cited that on 13 hectares of land, their enterprises turned over one million pounds a year, providing 18 livelihoods. Despite increasing the output from the land and increasing employment, how salaries and profit levels compare to specialised farms is in doubt. Many opposed this view, citing DEFRA's average farm income as evidence of how most farms don't make money from food production.

Despite the conflict of financial benefits and barriers, there was a consensus that financial profit was not the primary aim of these enterprises with farmers wanting to achieve social, environmental and health values motivating goals. Many also thought these struggles are a necessary part of innovating and implementing a new food system in the face of the specialised structure and were motivated by the innovation potential of this model to bring financial gain with participant (P1) stating: "*If this [one] project comes off, that's going to pay for it all. The value of knowledge is pretty hard to put a price on but that would pay for the whole project."*

Participant (P7) identified rising agricultural inflation and lack of opportunities to expand their land-base as a reason to shift from their specialised large scale arable operation and increase their productivity potential through ES.

> *"Agriculture inflation was about double [of normal inflation in 2019] at about 7%. That means to just stand still, you need to double your profits every 10 years because of compound interest. Looking at broadacre farming and just doing a monocrop, there's no way to get that much growth. If we start to increase how many activities we do on the same piece of ground, there is an opportunity there to improve our productivity."*

However, they added that it might be in the trial phase for their whole lifetime. This theme of uncertainty in the face of changing policy leads to the next section of politics and governance.

4.4.iii Politics

Many participants referenced current farming subsidies as propping up specialised systems. Participant (P1) said that "*until you start rewarding farmers for biodiversity, for soil carbon, for quality and penalising farms for carbon emissions, the economics are always going to push you towards specialisation."* This said, some thought the proposed shift to ELMs is a step in the right direction but the lack of clarity around future UK subsidies for some is stifling innovation and investment as they are unsure how much funding they will receive. Many identified the current eligibility of five hectares to qualify for subsidies as an unfair barrier for those ES and breaking plots of land into smaller parcels for entrepreneurs. However, others found a way round this through share farming agreements, a flexible type of joint venture contract that allows access to land without breaking it into smaller parcels.

All participants referenced housing and planning policies as a significant issue with small-scale farmers and entrepreneurs making a *"humble living"*, and a lack of affordable housing nearby leads to many living in caravans. This was deemed unsustainable by most participants and thought to be a bottleneck for more entrepreneurs participating. Strict housing and planning policy prevented farmers from building appropriate accommodation and one added that they had built some illegally to accommodate entrepreneurs. Several participants touted the One Planet Development policy from Wales that approves special planning permission for low impact buildings and livelihoods.

Uncertainty and fear around governance and how to legally structure ES were significant barriers for the participants and the potential of the model, but good governance was also seen as a key enabler of the model to provide numerous social, environmental and economic synergies.

As it's a new model with little precedence, participants reported considerable anxiety among farmers on how to write flexible contracts for entrepreneurs, outside of the traditional farm tenancy, that wouldn't end up with "*an incumbrance of a tenant who you might have to get rid of*" (P4). Many suggested this was because there was a lack of information and experience on the model, putting off risk-averse farmers.

Some quoted the process of writing contracts involving many stakeholders as "complex" and "expensive". The case of one farmer illustrates this; they collaborated with three other farmers, growing cereals with fruit, elderflower agroforestry and a pony therapeutic activity. They had to adjust the contract for each party factoring in that the fruit trees would appreciate after 5 years rather than depreciate. Participant (P6) explained: *"they wanted standard clauses to put in a break clause of five years in 10-to-20-year tenancy, and I said Why would I do that? Because that's just when I'm starting to get my money back."* This negotiation requires more collaboration and the services of an expensive land agent. Multiple cited the success of one well-known participant due to their background as a lawyer to negotiate contacts with confidence. Farmers frequently commented that while this complexity can deter other farmers, this complexity is a foundational part of a circular farming system with participant (P6) saying; *"We know that regenerative farming needs to be complex. People sometimes say to me, 'oh, my God, you're growing fruit, flowers and vegetables and small-scale grain. If that's what the farm needs, to make it a closed loop, then yeah, you're either stacking enterprises, or you employ the people to do it."*

It was frequently noted that good governance provided the platform for entrepreneurs to flourish and provide synergies in other sections of the food system. Good contracts set out enhanced ways of collaborating and the use of shared resources for entrepreneurs, providing them with the means to make their farming business a success, but as discussed in the 'structure' section, this was achieved in three different methods. High collaboration was particularly reported among the farmers (P7 and P8) in partnership with entrepreneurs who both emphasised the importance of having "*skin in the game"* to "*share the problems as well as the solutions",* compared to tenancies where the landowner receives a rent but has no stake in the business. This spirit of collaboration was observed in the businesses which employed people citing that the employees were aware of the different enterprises and there was a shared understanding that would help with the more "*nebulous*" activities that weren't directly their responsibility. One participant who employed people (P6) argued that those stacking independent enterprises struggled to get the same level of cooperation commenting: "*The difficult thing is when you've got those different enterprises, is how do you get them to work together when it's not for their own direct benefit?"*

Conversely, those stacking independent businesses frequently cited the high levels of cooperation and integration with other enterprises. Many commented that this was due to the principles and values they had established, and some had even incorporated these into their legal agreements. Across the board, these environmental and social values were a precondition of joining the farm and informed the working relationship and built trust: (P2) *"Understanding the core vision and buying into that and being really explicit that this is a collaborative partnership rather than a tenant-landlord relationship."*

One (P4) thought that the collaborative model and sustainable production went hand in hand: "*They have to coexist and interact collaboratively. And therefore, they have to be the kind of businesses and the kind of people who interact collaboratively with the world. So, somebody who just comes through saying, 'I'm going to make bread in an environmentally unsustainable way'. That doesn't really fit the mood."*

This points to a prominent theme within society and culture, of mindset. Participants repeatedly cited farmer mentality as the biggest obstacle to this model and while the contracts and governance are complicated, participants across the board viewed the frequently mentioned but poorly defined concept of mentality as the barrier to ES.

4.4.iv Society

As one participant (P8) quoted, "*it's [ES] got to be in your heart,"* and another (P7) commented that the main barriers were "*all people and mindset."* This 'mindset' barrier was a recurrent theme across all the participants and referenced a shift from a "*conventional mindset*" (P2 and P10) based on values around the dominant model of specialist farming such as the cultural importance of yield and big machinery in traditional farming communities (Burton, 2004, Burton et al, 2008) tied to commodity production. Participant (P4) illustrated this point: "*What do farmers talk about they go down the pub, they talk about their wheat yield? And they would lie about their wheat yield. They don't come along and say, well, actually, we've got 10 people living on the farm this year. And for us, one of our greatest successes is we have four pairs of turtle doves, we've never had four pairs before. That, to me is as important as yield, it's a wider range of values, the metrics are much wider."*

Despite the considerable technical and structural barriers to ES, it was felt that these were easily surmountable compared to shifting attitudes of farmers. This 'mindset' was based on a recognition of the

dysfunction of the specialised farming paradigm and trying to forge an alternative vision or systems change based on environmental, social and economic sustainability. Participant (P4) summed up the feeling of many: "*A much bigger understanding of the land. I see these 23 hectares as contributing to biodiversity and not just not harming it, contributing to tackling climate change, contributing to employment, contributing to housing, contributing to well-being education and public understanding.*"

The social and environmental values were strong motivators for ES across the board, as well as an entrepreneurial spirit. Many referenced a mindset of "abundance, that encapsulated an approach where participants were excited by endless opportunities of integrating businesses and collaborating with lots of different people, rather than a fear of its potential complexity. Numerous cited their ambition of reaching twenty different enterprises. Despite this sentiment, all bar one expressed the difficulty of handling so much complexity with participant (P2) quoting: "*It's like the worst jigsaw puzzle in the world*." For some, this was a source of burnout and cautioned against trying to stack too much too quickly. Others added that this was a clear advantage of stacking independent enterprises because entrepreneurs had the specialist skills and overall responsibility rather than the central farmer managing everything.

Finding the entrepreneurs with the right skills, mindset and values to suit the system was labelled consistently as a challenge. Two referenced staff they had inherited with the farm and the struggles to get buy-in for the vision that diverged from the former owner. Others perceived a lack of rigour from entrepreneurs to make the business viable, (P8) citing; "*Are they willing to put the time, effort and hard work? And you know what, it's not that glamorous? There are lots of purpose driven people to draw from, but finding good ones is not easy".* Geographical location was an issue for one farmer, who said in their region, there was a distinct lack of interest in food and farming enterprises, unlike in the Southwest of the UK, where many people move for the outdoors and hobby farming lifestyle.

Despite occasional difficulties with staff, providing more employment and opportunities for new entrant farmers was observed as a source of pride for most participants, and they cited multiple benefits for the rural economy and community. Participant (P9) described the transformation: "*Now we've got all these enterprises, we've got water, we've got power, we've got buildings, it's really quite busy. You know, we've got structures down in the grove, where the school is, there's a whole little woodland set up there with canvas cover. If you came now, you can see there's a tonne of activity going on. And five years, six years ago, it was just a field*."

Non-farming activities, like education, well-being and tourism, were regularly cited as the most profitable enterprises on the farm, but the wider motivation and benefit of these services was to bring more people onto the site to reconnect the public with food, farming and nature, as participant (P8) said: "*You've got connection with people, through education, through serving food, through events, through food festivals, whatever it is. It's when you make a true connection, you get an impact and add value."*

Increased social interactions and collaboration had multiple synergies according to the participants. Many believed that people were the lynchpin to the success of the model as it was rare one person had the skills and time to make a diverse food and farming system thrive. As participant (P6) put it: *"If you want to create that closed loop system, it requires a huge range of skills. And no one person would have that range of skills"* and another (P1) said: *"If I was trying to do it by myself it would be disastrous."* Benefits ranged from technical skills such as livestock to market gardening, processing or marketing, and bringing on new entrants who have worked in other sectors has introduced a fresh diversity of skills and perspectives into the farming sector. Participant (P8) described one of the entrepreneurs on the site: "*He was a music academic, with a PhD in music. That gives him a different rhythm and a different mindset and that ability to analyse and do detail."*

Higher levels of collaboration were considered an advantage across the board and farmers described how they support the entrepreneurs in their ventures with advice and knowledge. But this was not a one-way street as participants reported how they were learning, in farming and beyond, from the entrepreneurs and the process. Numerous participants recounted their pleasure at the vibrancy of the farms, and the mental health benefits compared to specialised farming, which leads us to the next section; health.

4.4.v Health

Well-being on farms was put into context by one participant who referenced the high rates of farmer suicides in the UK due to working alone and a feeling of separation from society, as explained by Wheeler et al (2022). The majority of interviewees felt that this model offered multiple synergies for well-being, not least among farmers but also the community and society. Farmers reported the collaborative approach was important to good mental health in an industry that was described as *"brutal"* by (P6) and this model attracted younger new entrants to farming concerned that *"[they would] be in isolation on his own, in some field somewhere, that he wouldn't have someone he could chat to and ask their advice on this" (P1).*

Participants (P5, 6 and 9) had therapeutic enterprises stacked on the farm, promoting well-being to the public through connecting to food and farming and this in turn supported the well-being of workers according to participant (P5): "*It's benefited the farm, for instance, we have about 20 to 30 people having lunch together and we started it because we needed to have lunch for the three [care recipients] chaps. It bought a whole social cohesion that wouldn't have been there otherwise."*

Many reported that the reduction of risk through a diverse crops and enterprises provided mental health synergies because they didn't worry about price drops in one commodity and they had a range of activities to do, not just driving a tractor up and down a field. However, at times some said that the complexity took a toll of their well-being, and participant (P8) said: *"On a bad day, there's a cow dying in one field, you've got something lambing in another, you've got wind blowing the polytunnel roof off, you've got no bookings coming in for your weddings. On a bad day, the negatives can stack up."*

There was a minority who were motivated by growing nutrient-dense food for the public and thought that ES was a framework that could make this viable. As mentioned previously, many saw the wider societal health benefits through connecting the public to food, farming and nature; trying to indirectly tackle issues like obesity, ill health, and poor mental health through access to fresh fruit and veg, nature walks and community days that build a sense of belonging. Environmental and animal health was an integral part of the model and will be discussed next.

4.4.vi Environment

The environment section was an important component for all the participants. The vast majority were engaged in organic or biodynamic certified crop or livestock production that is designed based on principles to promote environmental protection. Others referred to agroecological and regenerative farming, philosophies that broadly aim to farm in harmony with nature. Participants frequently referred to environmental farming practices such as agroforestry, a technique that incorporates trees in crop production, promoting biodiversity in fields and space for predatory insects that kills pests, and 'mob grazing' whereby livestock pass through pasture quickly to promote biodiversity, carbon sequestration

and return fertility to the soil, that in turn reduce chemical fertiliser and pesticides. The diversity and integration of diverse crops or livestock were present across the board and were the basis for the circular economy of the farm.

Farmers felt that the enterprise stacking model was a framework to maximise the ecological synergies and rebalancing production away from the damaging effects of specialised farming, such as high chemical input use and imported feed for livestock. The integration of diverse farming enterprises turned waste into products with value, such as organic manure or blood and guts from livestock, a valuable fertiliser for organic crop and horticulture production without access to synthetic fertiliser. However, multiple participants reported difficulties in achieving this circular system and admitted compromises are made, such as buying in feed for animals and not achieving the integration they would like between enterprises. One (P3) warned that striving for this "*perfect system*" will only serve to scare conventional farmers and put them off incremental steps such as integrating livestock into arable farming that would decrease chemical and pesticide use. They suggested that widespread uptake of basic mixed farming would be more impactful than a small movement of farmers trying to stack 20 enterprises on their farms.

Conversely, a theme throughout the interviews was that ES was a model that makes ecological and high-welfare farming economically viable by producing diverse products, processing and selling them through short supply chains and stacking non-agricultural businesses. Participant (P5) illustrated this: *"We're only milking 10 cows and we're doing it in a way which is environmentally and welfare friendly. There are no concentrates, they're only being milked once a day and the calves are with them for six months. But you couldn't possibly have made that viable in the old days with the farmers getting 30p now and maybe 50p for organic. But we're selling ours for £2.25 direct to the customer."*

Participants with non-agricultural businesses such as well-being centres and wedding venues cited that it gave them an economic imperative to maintain or increase biodiversity for aesthetic and therapeutic use; (P6) "*Having people on farms is great because it uses all those margin or spaces, you're not going to make any money out of as a farmer. But for the people, it's amazing. And it heals people, and, you know, we generate far more money from those areas than growing food."* The majority reported high levels of biodiversity due to the diversity of small farming enterprises with participant (P1) explaining: *"The richest environments are the ones with the most boundaries in between them. The worst is a monocrop. We've got plenty of boundaries, as in between a polytunnel, or between a perennial crop and a grassland, the hedge, the hedge and the woods. The agroforestry is throwing in another layer."*

In a larger debate, many thought this how agroecological farming could be more efficient and meet the rising demand for food by stacking multiple enterprises on the same plot. Multiple referenced the agronomic term, overyielding, whereby intercropping or having multiple crops in one field can yield more than if it were monocropped, and opposed the narrative that specialised farming is the only way to 'feed the world'.

Several touted ES stacking as a way to not only mitigate climate change through environmentally sensitive practices but to better adapt to it by hedging risk through diverse production. This contrasts with monoculture production susceptible to extreme weather or disease, or intensive livestock production vulnerable to price fluctuations of monoculture crop production.

The author made a table, based on the FAO's 10 elements of agroecology (2021) widely accepted as a pathway for socially and environmentally sustainable food systems, illustrating the extent to which participants' responses corresponded to each element. The results are limited to what the farmers have

said rather than quantitative evidence, but it highlights the importance of integration of diverse production systems in the model, with diversity and synergies present in all responses. In general, the scores are high, illustrating the potential of the model to be a mechanism to transition to sustainable food systems, as proposed frequently by participants.

Elements of agroecology	**Confirmed by participant**
Diversity (crops, livestock, enterprises and people)	10/10
Co-creation and knowledge sharing (participatory methods)	7/10
Synergies (integrating function across the farming system)	10/10
Efficiency (innovative farming methods)	6/10
Recycling (using waste products)	7/10
Resilience (people, communities and ecosystems)	7/10
Social values (livelihoods and well-being)	9/10
Culture and food traditions (healthy diverse diets)	5/10
Responsible governance (Power structures and laws)	8/10
Circular and solidarity economy (reconnects producers and consumers)	9/10

Many highlighted that ES provided a platform for new entrants to innovate, much like a start-up accelerator, providing infrastructure, support and knowledge for entrepreneurs to find solutions to environmental challenges such as climate change and biodiversity. From researching chicken genes to perennial crops, no-dig horticulture to diverse populations of cereals and even creating innovation hubs on site, the model provided the access and platform for entrepreneurs and farmers to experiment on a scale with acceptable risk if the project failed. Some said that these opportunities were not available otherwise but were necessary to disrupt the current paradigm of farming and to break the lock-ins of specialised farming. Participant (P1) said: "*It's always the freaks on the fringes that develop the new disruptive stuff, and you never get that disruption from within the centre because they're focused on iterative improvements, specialisation and that leads you down one path. Sometimes you have to go back and find a different path and innovate from where farming was last in harmony with nature.*" This sums up an attitude of many that this model was not simply a return to mixed farming from the past but is an innovative model that creates a system that is a viable alternative to specialised farming.

5.0 Discussion

The results of this study have led to a farmer definition of ES and demonstrate how farmers are adapting the model to fit their diverse contexts. Due to the scarcity of academic literature on the model, many of the benefits and barriers were analysed in the literature review in reference to diverse farming systems, a core feature of the model. These results have provided a base of direct, empirical evidence on the ES model and add nuance to the existing debate through 10 in-depth interviews with farmers implementing ES and demonstrate the potential of different versions of the model.

5.1 Definition

Enterprise stacking is the integration of diverse crops, livestock, food and farming enterprises, and non-farming enterprises on the same plot of land, all linking together to create a circular system. This is made possible in three ways: renting land to food and farming entrepreneurs, going into partnership with them or running the different enterprises under one business umbrella.

Using the food systems approach (Parsons, Hawkes and Wells, 2019) the results showed that the model creates benefits in all five sections of the food system; politics, health, environment, society and economy. These benefits interact and create synergies resulting in a system that is more than the sum of its parts.

Drawing on the theory of food policy coherence (Parsons and Hawkes, 2019), this research positions ES as a model to create a farm's own coherent food system that maximises positive interactions and feedback loops between different areas and mitigates negative aspects of production. Despite multiple challenges of implementing a new system that pushes against the prevailing specialist farming paradigm, determined participants regularly achieved environmental, social, health and economic goals.

5.2 Different structures of enterprise stacking

All farms adapted their approach and structure according to their distinct contexts and each structure conferred different benefits, disadvantages and potentials. While businesses that incorporated enterprises under one umbrella seemed to achieve higher levels of integration with closer management, this relied on the vision of an energetic and entrepreneurial individual. The potential of this version appears more limited and risks falling at the same hurdles mentioned in the results and literature review, that many farmers don't have the time or breadth of technical knowledge to implement this complex interweaving system after a lifetime of specialist agriculture. This said, this version has potential among younger farmers whose attitudes are shifting in recognition of the damaging effects of specialised agriculture (Conway et al, 2017).

While renting land to entrepreneurs may achieve less integration with less central management, it is a simple, less risky way for time-poor farmers to incorporate more diversity on their farm while providing social synergies such as access to land, the platform for entrepreneurialism and innovation, and revitalising rural economies through higher business ownership. However, partnerships combined the best of these two versions, providing space for entrepreneurs to innovate but with closer integration due to shared ownership and responsibility.

The models that collaborate with entrepreneurs have the potential to appeal to a wider range of farmers and provide a way to make the first step on the agroecology ladder. Considering the consolidated

nature of UK land and high tenancy rates (Shrubsole, 2019), ES could be an opportunity to reimagine the model of renting land to farmers, instead using it as a framework to increase the productivity of the land and build a sense of community. The findings of these two versions add nuance to the existing literature where ES is seen as a family-run venture (Babieri and Mahoney, 2008, Inwood and Sharp, 2012, Valliant et al, 2017).

5.3 Benefits

Participants frequently described ES as a means to enhance the agronomic and ecological aspects of their site and production, enabling them to integrate diversity into their rotation to help reduce their chemical inputs, recycling by-products, and incentivising biodiversity improvements of the site through non-agricultural enterprises and increasing environmental resilience to climate change through the diversity of agricultural products and reductions in monocultures.

Stacking numerous farming enterprises was used to make their environmentally sensitive production economically viable by reclaiming the means of production and distribution from powerful agri-food corporations that capture value in the middle spaces of supply chains (Clapp, 2016). This, as participants and a systematic study on the multiplier effect of local food agreed (Benedek et al, 2020), can act as a multiplier effect in the local economy, redistributing finances away from long supply chains and transnational actors into the livelihoods of people and communities.

Farmers and landowners were all involved in some form of value-adding activity ranging from processing wheat into flour or direct marketing veg to consumers. Participants also frequently cited the economic benefits of non-farming activities to further process and enhance the agricultural production through hospitality as well as monetising the biodiversity of the site through tourism and leisure that offer broader social benefits such as community building, mental health benefits and education on food and farming. These synergies of ES are a key feature of the model and motivator of adoption, adding to the existing literature that discusses benefits of diverse farming systems in silos, but not connected (Lovell and Mahoney, 2010, Ryschawy et al, 2013, Doddabasawa and Umesh, 2017, de Roest et al, 2018, Mason et al, 2020, Sanchez et al, 2022).

5.4 Challenges

While academics writing on diverse farming systems back up the strong economic benefits of the model (Inwood and Sharp, 2012, Valliant et al, 2017), the results also found that economics were also a blocker. This manifested mainly through entrepreneurs not being able to afford housing in the area and living in caravans. This is a significant limiting factor in the sustainability and potential of the model as it cannot be expected for people to make high material sacrifices.

Participants frequently reported issues of sailing against the prevailing economic paradigm of farming such as externalised costs of food production; in pollution, biodiversity loss and greenhouse gas emissions, and subsidies that don't reward good agricultural practice, agreeing with path dependency theory in the literature (Frison and Jacobs, 2016). Accounting for these changes, there was an assumption that their production would be more competitive and widespread. Indeed, many justified their economic performance by comparing the low levels of average UK farmer income without generous land-based subsidies, highlighting that financial sustainability is an issue for the whole UK farming sector.

A finding of the research was that complexity; in managing people, the environmental interactions and integration, the business administration, and governance, was a significant barrier to ES uptake. The literature touched on the people and governance challenges of collaborative farming (Ingram and Kirwarn, 2011) but none within in the specific context of ES. A lack of research, guidance and examples on enterprise stacking is a blocker with few farmers wanting to take a risk on an unproven model. Equally a lack of financial tools to negotiate the complex interactions and trade-offs made it challenging for participants to calculate their financial viability and show the potential of the model to investors, banks, and other farmers, restricting investment and participation into the model.

Participants also referenced the notion of 'mindset change' as a core tenet of being able to transition away from a 'conventional' mindset based on specialised farming systems (Sanchez et al, 2022). This mindset shift was broadly based on the recognition of the damaging effects of specialised agriculture and gave them the confidence and desire to pursue complex and circular farming systems, echoing the sociological research on farming culture (Burton 2004, Burton et al, 2008) that states the dominant farming culture and values aligns with specialist agriculture and is an underestimated obstacle to shifting farming practices. This suggests that the two models that bring entrepreneurs on the site could have higher participation as many farmers might want to incorporate diversity, but lack the skills, time, propensity to risk, or mindset, to pursue the enterprise themselves.

5. 5 Potential negative impacts

However, there is a danger that the financial success and wider uptake of this model count on a broader cultural and structural transition to the agroecological paradigm (Lang and Heasman, 2015). However, this broad shift to agroecological food systems remains highly contested (Béné et al, 2019, Benton and Harwatt, 2022) and is not supported by the current UK government that prefers a market-based approach to reform and resisted recommendations in the National Food Strategy (Dimbleby and Cooper, 2021) to shift consumer diets for environmental and health goals (DEFRA, 2022).

Many participants were closely invested in this vision of a perfect agroecological closed-loop system. Academics have cautioned against this 'unreflexive' pursuit of the agrarian utopia (Dupuis and Goodman, 2005, Guthman, 2009), warning that the ideology of local food can lead to replications of social injustices and destructive environmental practices found in conventional production, because it ignores political-economy structures like private property economics and financialisation (Dupuis and Goodman, 2005, Clapp, 2016). While participants argued environmentally conscious and socially just food production was at the centre of their projects, poor living conditions of entrepreneurs and workers were observed as a consistent concern.

Guthman (2009) argued that this strict adherence to a utopian vision can stifle innovation and effectiveness because solutions are limited within this set framework. While many participants were motivated to produce food for their community with a local food rhetoric, the majority did not consider this an 'either or' situation and were open to a diversity of solutions, embraced technological innovations and consistently showed a high commitment to deliberative processes, mitigating this risk of dogma.

One participant echoed Harvey's (2009) theory of utopian of process over a traditional standard utopia, arguing transformative change comes with small steps towards sustainable and ethical food for all, rather designing than a near-perfect system for the few. They recommended a gradual integration of livestock and crops with supply chain reform to ensure farmers a better return. This could be more

impactful if taken up over the whole nation, reducing chemical input use and taking a small step towards agroecological practices rather than pursuing an ambitious reimagination of food systems.

Drawing on the parallels of food policy coherence theory (Parson and Hawkes, 2021), critiques highlight that the process of mapping complex interactions to gain perfect policy coherence as daunting and can lead to paralysis by analysis (OECD, 21) and *'good enough coherence'* is more achievable and policymakers should prioritise the most important synergies and trade-offs (Nilsson et al, 2016, OECD, 2021). The same learnings should be applied to ES, and participants showed an agile approach to synergies, understanding there are compromises and trade-offs.

In answer to these concerns, the advantage of ES may lie in its flexibility; ranging from facilitating a basic mixed farming approach for a cereal farmer who wants to integrate livestock or add a market garden, right up to the more entrepreneurially minded farmers and landowners who want to host and manage 20 different food and farming enterprises on the land.

5.6 Limitations

To gain rich empirical evidence on a little-explored subject, the sample size was limited to 10 participants to account for in-depth interviews and the fact few people are following this model. Despite the limited pool of practitioners, this study would have been enhanced through interviews with entrepreneurs to confirm and add to the benefits and challenges discussed by participants. The qualitative nature of the methods chosen meant that participants shared their subjective views and may have been biased to give a positive account of the model's benefits and potential. Further interviews with entrepreneurs, as well as a mixed methods approach to collect quantitative data on the benefits, would have strengthened the results of the study.

6.0 Conclusions

There is no shortage of literature on the problems that farmers face today due to the specialised farming paradigm; an intensifying climate crisis (Caparas et al, 2021), biodiversity loss (Ceballos et al, 2020), a mental health crisis (Wheeler et al, 2022), precarious farming economics (Jack and Hammans, 2022) and doubts over the next generation of farmers (DEFRA, 2016). Agroecology and diverse farming practices are a widely accepted pathway to sustainable food systems (United Nations, 2010), but this transition is far from underway and is a significant shift in practice, infrastructure and mindset for those locked into specialist agriculture.

This initial study has demonstrated that enterprise stacking is a model that encourages farm diversity and the transition to agroecology by establishing multiple food and farming enterprises on one site. In contrast to the policy landscape that has encouraged diversification out of farming, enterprise stacking promotes diversification within agriculture. By linking these enterprises, from sharing by-products to adding value to agricultural products, participants created a farming system that was more than the sum of its parts, creating synergies throughout health, economy, society, health and politics.

By collaborating with entrepreneurs, enterprise stacking demonstrates the potential to overcome the technical lock-ins where farmers have deep knowledge and investment in one area of farming, yet lack the skills, confidence or time to diversify into other areas of the food system, like husbandry, horticulture, processing, direct sales and non-farming activities.

There are, however, concerns about the model. Participants frequently reported higher employment and output, but affordable housing for this increase in entrepreneurs was consistently a barrier to uptake and entrepreneurs living in caravans was frequently reported. The general financial sustainability of the model remains in question, as participants were often at the starting point of development and the proposed financial benefits had yet to be proven or contingent on broader cultural and policy shifts such as internalising the true cost of food production or paying more for food.

The examples of pioneering participants with thriving circular farming systems may seem idealistic to scale out, and while this utopian alternative of local food movements is certainly subject to academic critique (Dupuis and Goodman, 2006, Guthman, 2009, Harvey, 2009), enterprise stacking is accessible to all farmers and can encourage gradual improvements in diversity, from incorporating livestock into a rotation or using the corner of a field for a market garden. In short, it can facilitate the first step onto the agroecology ladder.

This study aimed to provide an initial foundation of knowledge on the little-studied model and proposes it as a valuable tool to aid farmers in the transition to socially, economically, and environmentally sustainable farming systems. Considering these conclusions, there is a clear need for further research to understand the motivations and barriers in more detail, hear the experiences of entrepreneurs, as well as backing up the claims of participants through quantitative data collection.

7.0 Policy Implications

These conclusions have some tangible implications for policies aiming to address the food system in the UK. Farming policy is undergoing a major change in line with the Agricultural act of 2020 and subsequent Environmental Land Management scheme, shifting from area-based payments to financial support under the 'public money for public goods' principle. However, the results show that such policies wishing to deliver specific public goods, namely environment improvement, reducing greenhouse gases, promoting ancillary activities like processing and public enjoyment of the countryside (Parliament, 2020), should take a systems approach and consider the underlying drivers of resulting impacts rather than the symptoms.

This research has found that the specialised paradigm underpins the negative externalities of the UK food and farming system and diverse food systems such as ES can deliver many of the public goods in the Agricultural Act (Parliament, 2020). Policies seeking to deliver public goods would be more effective if they promoted diversity within farming systems than policies targeting symptoms of the specialised paradigm. To promote diverse farming policies, policies should confront power in agri-food supply chains and address the current financial precarity of farming, propped up by land area payments that are soon disappearing. This would make a more supportive environment for farmers to innovate, invest and adopt new practices (Cusworth and Dodsworth, 2021). Farmers in the results indicated that they would also welcome a stable policy environment to enable them to manage their business with clarity.

Policies aiming to encourage diverse practices should consider how farming education, training, advisory, and extension services contribute to technical lock-ins (Frison and Jacobs, 2016) by promoting specialised farming systems, increasingly funded by agri-food businesses with vested interests. Whereas models like ES, that could facilitate diverse food systems and access to land for a new generation of farmers are not widely known and results have shown that farmers have significant anxieties around adopting new practices. Results have shown knowledge on ES would be most effectively disseminated through participatory methods because farmers learn best from other farmers rather than a top-down approach (Levidow et al, 2014). Therefore, policies looking to accelerate this process might consider allocating funds to farmer-to-farmer workshops, conferences, farm walks, demonstration farms and producing a handbook with detailed case studies.

The results have shown that unaffordable rural housing is a significant barrier to new, younger talent entering the industry and adopting new and innovative practices. Therefore, policies aiming to encourage the transition to diverse food systems and address the ageing farming population might consider addressing this bottleneck of supply.

Bibliography

Barbieri, C. and Mahoney, E. (2009) 'Why is diversification an attractive farm adjustment strategy? Insights from Texas farmers and ranchers', *Journal of Rural Studies*, 25(1), pp. 58–66. Available at: https://doi.org/10.1016/j.jrurstud.2008.06.001.

Béné, C. Oosterveer, P. Lamotte, L Brouwer, I. D. de Haan, S. Prager, S. D. Talsma, E. F. and Khoury. C.K. (2019) 'When food systems meet sustainability – Current narratives and implications for actions', *World Development*, 113, pp. 116–130. Available at: https://doi.org/10.1016/j.worlddev.2018.08.011.

Benedek, Z., Fertő, I. and Szente, V. (2020) 'The Multiplier Effects of Food Relocalization: A Systematic Review', *Sustainability*, 12(9), p. 3524. Available at: https://doi.org/10.3390/su12093524.

Benton, T. and Harwatt, H. (2022) *Sustainable agriculture and food systems*. Royal Institute of International Affairs. Available at: https://doi.org/10.55317/9781784135263.

Benton, T.G. Bieg, C. Harwatt, H. Wellesley, L. and Pudasaini, R. (2021) 'Food system impacts on biodiversity loss Three levers for food system transformation in support of nature'. Available at: https://doi.org/10.13140/RG.2.2.34045.28640.

Bowler, I. *et al.* (1996) 'The development of alternative farm enterprises: A study of family labour farms in the northern Pennines of England', *Journal of Rural Studies*, 12(3), pp. 285–295. Available at: https://doi.org/10.1016/0743-0167(96)00015-0.

Bowler, I. (1999) 'Modelling Farm Diversification in Regions Using Expert and Decision Support Systems', *Journal of Rural Studies*, 15(3), pp. 297–305. Available at: https://doi.org/10.1016/S0743-0167(98)00064-3.

Braun, V. and Clarke, V. (2006) 'Using thematic analysis in psychology', *Qualitative Research in Psychology*, 3(2), pp. 77–101. Available at: https://doi.org/10.1191/1478088706qp063oa.

Bowers, J. K. (1985). British Agricultural Policy since the Second World War. *The Agricultural History Review*, *33*(1), 66–76. Available at: https://www.jstor.org/stable/40275421

Burton, R.J.F. (2004) 'Seeing Through the "Good Farmer's" Eyes: Towards Developing an Understanding of the Social Symbolic Value of "Productivist" Behaviour', *Sociologia Ruralis*, 44(2), pp. 195–215. Available at: https://doi.org/10.1111/j.1467-9523.2004.00270.x.

Burton, Rob.J.F., Kuczera, C. and Schwarz, G. (2008) 'Exploring Farmers' Cultural Resistance to Voluntary Agri-environmental Schemes', *Sociologia Ruralis*, 48(1), pp. 16–37. Available at: https://doi.org/10.1111/j.1467-9523.2008.00452.x.

Butterfield, L., Borgen, W. and Amundson, N. (2009) 'The Impact of a Qualitative Research Interview on Workers' Views of Their Situation', *Canadian Journal of Counselling*, 43(1). Available at: https://files.eric.ed.gov/fulltext/EJ838683.pdf

Cabinet Office (2002) *Farming and food: a sustainable future: report of the Policy Commission on the Future of Farming and Food*. London: UK Government. Available at: https://dera.ioe.ac.uk/10178/.

Caparas, M. Zobel, Z. Castanho, A. D. A. and Schwalm, C. R. (2021) 'Increasing risks of crop failure and water scarcity in global breadbaskets by 2030', *Environmental Research Letters*, 16(10), p. 104013. Available at: https://doi.org/10.1088/1748-9326/ac22c1.

Cassman, K.G. and Grassini, P. (2020) 'A global perspective on sustainable intensification research', *Nature Sustainability*, 3(4), pp. 262–268. Available at: https://doi.org/10.1038/s41893-020-0507-8.

Castle, S.E. Miller, D. C. Ordonez, P. J. Baylis, K. Hughes, K. (2021) 'The impacts of agroforestry interventions on agricultural productivity, ecosystem services, and human well-being in low- and middle-income countries: A systematic review', *Campbell Systematic Reviews*, 17(2). Available at: https://doi.org/10.1002/cl2.1167.

Castleberry, A. and Nolen, A. (2018) 'Thematic analysis of qualitative research data: Is it as easy as it sounds?', *Currents in Pharmacy Teaching and Learning*, 10(6), pp. 807–815. Available at: https://doi.org/10.1016/j.cptl.2018.03.019.

Ceballos, G., Ehrlich, P.R. and Raven, P.H. (2020) 'Vertebrates on the brink as indicators of biological annihilation and the sixth mass extinction', *Proceedings of the National Academy of Sciences*, 117(24), pp. 13596–13602. Available at: https://doi.org/10.1073/pnas.1922686117.

CLA (2014) *An option for enterprising farmers: CLA's Assessment of share farming*. Available at: https://www.cla.org.uk/documents/395/CLA_Share_Farming_guide_2014_002.pdf.

Clapp, J. (2021) 'The problem with growing corporate concentration and power in the global food system', *Nature Food*, 2(6), pp. 404–408. Available at: https://doi.org/10.1038/s43016-021-00297-7.

Conway, S.F. McDonagh, J. Farrell, M. Kinsella, A. (2017) 'Uncovering obstacles: The exercise of symbolic power in the complex arena of intergenerational family farm transfer', *Journal of Rural Studies*, 54, pp. 60–75. Available at: https://doi.org/10.1016/j.jrurstud.2017.06.007.

Curry, N. Ingram, J. Kirwan. J. and Maye, D. (2012) 'Knowledge Networks for Sustainable Agriculture in England', *Outlook on Agriculture*, 41(4), pp. 243–248. Available at: https://doi.org/10.5367/oa.2012.0106.

Cusworth, G. and Dodsworth, J. (2021) 'Using the "good farmer" concept to explore agricultural attitudes to the provision of public goods. A case study of participants in an English agri-environment scheme', *Agriculture and Human Values*, 38(4), pp. 929–941. Available at: https://doi.org/10.1007/s10460-021-10215-z.

DEFRA (2016) *Agricultural labour in England and the UK*. London: UK Government. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/771494/FSS2013-labour-statsnotice-17jan19.pdf.

DEFRA (2018) *The Future Farming and Environment Evidence Compendium, Statistical compendium*. London: UK Government. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/683972/future-farming-environment-evidence.pdf

DEFRA (2023) *Environmental land management schemes: details of actions and payments*. Available at: https://DEFRAfarming.blog.gov.uk/2023/01/26/environmental-land-management-schemes-details-of-actions-and-payments/.

Dimbleby, H. and Cooper, T. (2021) *The National Food Strategy - Indepedent Review*. UK Government. Available at: https://www.nationalfoodstrategy.org/the-report/.

Doddabasawa, B.M.C. and Umesh, M.R. (2017) 'On-farm crop diversity for sustainability and resilience in farming - A review', *Agricultural Reviews*, 38(03). Available at: https://doi.org/10.18805/ag.v38i03.8978.

Dodgson, J.E. (2019) 'Reflexivity in Qualitative Research', *Journal of Human Lactation*, 35(2), pp. 220–222. Available at: https://doi.org/10.1177/0890334419830990.

DuPuis, E.M. and Goodman, D. (2005) 'Should we go "home" to eat?: toward a reflexive politics of localism', *Journal of Rural Studies*, 21(3), pp. 359–371. Available at: https://doi.org/10.1016/j.jrurstud.2005.05.011.

FAO (2022) *The 10 elements of agroecology*. United Nations. Available at: https://www.fao.org/3/i9037en/i9037en.pdf.

FarmED (2022) 'Joint ventures and enterprise stacking'. Available at: https://www.farm-ed.co.uk/event-details/joint-ventures-and-enterprise-stacking.

Farming Safety Foundation (2021) 'Tackling the biggest hidden problem in farming today'. Available at: https://www.yellowwellies.org/mental-health-the-next-pandemic-tackling-the-biggest-hidden-problem-facing-farmers-today/#:~:text=88%25%20of%20young%20farmers%20now,in%20the%20past%20two%20years.

FFCC (2022) 'Stacking enterprises on one farm', *Field Guide for the Future FFCC*. Available at: https://ffcc.co.uk/field-guide-for-the-future/stacking-enterprises-on-one-farm.

Fieldsend, A.F. Varga, A. Biró, A. Von Münchhausen, S. and Häring, A. (2022) 'Multi-actor co-innovation partnerships in agriculture, forestry and related sectors in Europe: Contrasting approaches to implementation', *Agricultural Systems*, 202, p. 103472. Available at: https://doi.org/10.1016/j.agsy.2022.103472.

Fraser, C.E. Smith, K. B, Judd, F. Humphreys, S. J. Fragar, L. J. and Henderson, A. (2005) 'Farming and Mental Health Problems and Mental Illness', *International Journal of Social Psychiatry*, 51(4), pp. 340–349. Available at: https://doi.org/10.1177/0020764005060844.

Frison, E. and Jacobs, N. (2016) 'From uniformity to diversity: a paradigm shift from industrial agriculture to diversifed agroecological systems', *International Panel of Experts on Sustainable Food systems*. Available at: https://www.ipes-food.org/_img/upload/files/UniformityToDiversity_FULL.pdf

Glaze-Corcoran, S. Hashemi, M. Sadeghpour, A. Jahanzad, E. Keshavarz Afshar, R. Liu, X. and Herbert, S. J. (2020) 'Understanding intercropping to improve agricultural resiliency and environmental sustainability', in *Advances in Agronomy*. Elsevier, pp. 199–256. Available at: https://doi.org/10.1016/bs.agron.2020.02.004.

Green, R.E. Cornell, S. J Scharlemann, J. P. W. and Balmford, A. (2005) 'Farming and the Fate of Wild Nature', *Science*, 307(5709), pp. 550–555. Available at: https://doi.org/10.1126/science.1106049.

Guthman, J. (2009) 'Agrarian Dreams: The Paradox of Organic Farming in California. By Julie Guthman', *Economic Geography*, 82(3), pp. 345–346. Available at: https://doi.org/10.1111/j.1944-8287.2006.tb00317.x.

Hansson, H. Ferguson, R. Olofsson, C. and Rantamäki-Lahtinen, L. (2013) 'Farmers' motives for diversifying their farm business – The influence of family', *Journal of Rural Studies*, 32, pp. 240–250. Available at: https://doi.org/10.1016/j.jrurstud.2013.07.002.

Harvey, D. (2006) *Spaces of hope*. Transferred to digital print. Edinburgh: Edinburgh University Press.

Hickel, J. (2020) *Less is more: how degrowth will save the world*. London: William Heinemann.

Himmelstein, J. Ares, A. Gallagher, D. and Myers, J. (2017) 'A meta-analysis of intercropping in Africa: impacts on crop yield, farmer income, and integrated pest management effects', *International Journal of Agricultural Sustainability*, 15(1), pp. 1–10. Available at: https://doi.org/10.1080/14735903.2016.1242332.

Hodgkins, R. (2022) 'Enterprise stacking - more from less', *NZ Farm Life Media*. Available at: https://nzfarmlife.co.nz/enterprise-stacking-more-from-less/.

Ingram, J. and Kirwan, J. (2011) 'Matching new entrants and retiring farmers through farm joint ventures: Insights from the Fresh Start Initiative in Cornwall, UK', *Land Use Policy*, 28(4), pp. 917–927. Available at: https://doi.org/10.1016/j.landusepol.2011.04.001.

Inwood, S.M. and Sharp, J.S. (2012) 'Farm persistence and adaptation at the rural–urban interface: Succession and farm adjustment', *Journal of Rural Studies*, 28(1), pp. 107–117. Available at: https://doi.org/10.1016/j.jrurstud.2011.07.005.

Jack, L. and Hammans, H. (2022) *Unpicking food prices: Where does your food pound go, and why do farmers get so little?* Sustain. Available at: https://www.sustainweb.org/news/nov22-unpicking-food-prices-new/.

von Keyserlingk, M.A.G. and Hötzel, M.J. (2015) 'The Ticking Clock: Addressing Farm Animal Welfare in Emerging Countries', *Journal of Agricultural and Environmental Ethics*, 28(1), pp. 179–195. Available at: https://doi.org/10.1007/s10806-014-9518-7.

Kingsclere Estate (2023) 'Growing potential'. Available at: https://www.kingsclere-estates.co.uk/.

Kremen, C. (2015) 'Reframing the land-sparing/land-sharing debate for biodiversity conservation: Reframing the land-sparing/land-sharing debate', *Annals of the New York Academy of Sciences*, 1355(1), pp. 52–76. Available at: https://doi.org/10.1111/nyas.12845.

Kremen, C., Iles, A. and Bacon, C. (2012) 'Diversified Farming Systems: An Agroecological, Systems-based Alternative to Modern Industrial Agriculture', *Ecology and Society*, 17(4), p. art44. Available at: https://doi.org/10.5751/ES-05103-170444.

Lang, T. and Heasman, M. (2015) *Food Wars*. 2nd edn. Routledge. Available at: https://doi.org/10.4324/9781315754116.

Levidow, L., Pimbert, M. and Vanloqueren, G. (2014) 'Agroecological Research: Conforming—or Transforming the Dominant Agro-Food Regime?', *Agroecology and Sustainable Food Systems*, 38(10), pp. 1127–1155. Available at: https://doi.org/10.1080/21683565.2014.951459.

Li, L., Zhang, L. and Zhang, F. (2013) 'Crop Mixtures and the Mechanisms of Overyielding', in *Encyclopedia of Biodiversity*. Elsevier, pp. 382–395. Available at: https://doi.org/10.1016/B978-0-12-384719-5.00363-4.

Lobley, M. and Butler, A. (2010) 'The impact of CAP reform on farmers' plans for the future: Some evidence from South West England', *Food Policy*, 35(4), pp. 341–348. Available at: https://doi.org/10.1016/j.foodpol.2010.04.001.

Lovell, S.T. DeSantis, S. Nathan, C. A. Olson, M. B. Ernesto Méndez, V. Kominami, H. C. Erickson, D. L. Morris, K. S. and Morris, W. B. (2010) 'Integrating agroecology and landscape multifunctionality in Vermont: An evolving framework to evaluate the design of agroecosystems', *Agricultural Systems*, 103(5), pp. 327–341. Available at: https://doi.org/10.1016/j.agsy.2010.03.003.

Macias, T. (2008) 'Working Toward a Just, Equitable, and Local Food System: The Social Impact of Community-Based Agriculture *', *Social Science Quarterly*, 89(5), pp. 1086–1101. Available at: https://doi.org/10.1111/j.1540-6237.2008.00566.x.

Marx, K., Moore, S. and Aveling, E.B. (2011) *Capital: a critique of political economy*. Mineola, N.Y: Dover Publications.

Mason, R.E. White, A. Bucini, G. Anderzén, J. Méndez, V. E. and Merrill, S. C. (2021) 'The evolving landscape of agroecological research', *Agroecology and Sustainable Food Systems*, 45(4), pp. 551–591. Available at: https://doi.org/10.1080/21683565.2020.1845275.

McElwee, G. (2008) 'A taxonomy of entrepreneurial farmers', *International Journal of Entrepreneurship and Small Business*, 6(3), p. 465. Available at: https://doi.org/10.1504/IJESB.2008.019139.

Menegat, S., Ledo, A. and Tirado, R. (2021) *Greenhouse gas emissions from global production and use of nitrogen synthetic fertilisers in agriculture*. preprint. In Review. Available at: https://doi.org/10.21203/rs.3.rs-1007419/v1.

Moraine, M. Duru, M. Nicholas, P. Leterme, P. and Therond, O. (2014) 'Farming system design for innovative crop-livestock integration in Europe', *Animal*, 8(8), pp. 1204–1217. Available at: https://doi.org/10.1017/S1751731114001189.

Nicol, P. and Taherzadeh, A. (2020) 'Working Co-operatively for Sustainable and Just Food System Transformation', *Sustainability*, 12(7), p. 2816. Available at: https://doi.org/10.3390/su12072816.

Nilsson, M., Griggs, D. and Visbeck, M. (2016) 'Policy: Map the interactions between Sustainable Development Goals', *Nature*, 534(7607), pp. 320–322. Available at: https://doi.org/10.1038/534320a.

OECD (2021) *Making Better Policies for Food Systems*. OECD. Available at: https://doi.org/10.1787/ddfba4de-en.

Oldham, O. (2021) 'Farm of the future', *Wicked Leeks*. Available at: https://wickedleeks.riverford.co.uk/features/farm-of-the-future/.

ORFC (2022) 'ORFC in-person programme 2023'. Available at: https://orfc.org.uk/orfc-2023-in-person-programme/.

Parsons, K. (2019) *Integrated Food Policy - What is it and how can it help connect food systems*. London: The Centre for Food Policy. Available at: https://www.city.ac.uk/__data/assets/pdf_file/0003/570441/7643_Brief-3_Integrated_food_policy_What_is_it_and_how_can_it_help_connect_food_systems_WEB_SP.pdf

Parsons, K. and Hawkes, C. (2019) *What is policy coherence?* London: Centre for Food Policy. Available at: https://symposium.bayes.city.ac.uk/__data/assets/pdf_file/0018/504621/7643_Brief-5_Policy_coherence_in_food_systems_2021_SP_AW.pdf.

Parsons, K., Hawkes, C. and Wells, R. (2019) *Brief 2: Understanding the food system: Why it matters for food policy*. 2. London: Centre for Food Policy. Available at: https://openaccess.city.ac.uk/id/eprint/22795/

Press, M. Arnould, E. J. Murray, J. B. and Strand, K. (2014) 'Ideological Challenges to Changing Strategic Orientation in Commodity Agriculture', *Journal of Marketing*, 78(6), pp. 103–119. Available at: https://doi.org/10.1509/jm.13.0280.

Revoyron, E. Le Bail, M. Meynard, J. M. Gunnarsson, A. Seghetti, M. and Colombo, L. (2022) 'Diversity and drivers of crop diversification pathways of European farms', *Agricultural Systems*, 201, p. 103439. Available at: https://doi.org/10.1016/j.agsy.2022.103439.

Roesch-McNally, G.E., Arbuckle, J.G. and Tyndall, J.C. (2018) 'Barriers to implementing climate resilient agricultural strategies: The case of crop diversification in the U.S. Corn Belt', *Global Environmental Change*, 48, pp. 206–215. Available at: https://doi.org/10.1016/j.gloenvcha.2017.12.002.

de Roest, K., Ferrari, P. and Knickel, K. (2018) 'Specialisation and economies of scale or diversification and economies of scope? Assessing different agricultural development pathways', *Journal of Rural Studies*, 59, pp. 222–231. Available at: https://doi.org/10.1016/j.jrurstud.2017.04.013.

Ryschawy, J. Choisis, N. Choisis, J. P. and Gibon, A. (2013) 'Paths to last in mixed crop–livestock farming: lessons from an assessment of farm trajectories of change', *Animal*, 7(4), pp. 673–681. Available at: https://doi.org/10.1017/S1751731112002091.

Salatin, J. (2001) *Family friendly farming: a multi-generational home-based business testament*. 1st ed. Swoope, Va: Polyface.

Sánchez, A.C., Kamau, H.N., Grazioli, F. and Jones, S. K (2022) 'Financial profitability of diversified farming systems: A global meta-analysis', *Ecological Economics*, 201, p. 107595. Available at: https://doi.org/10.1016/j.ecolecon.2022.107595.

Sánchez, A.C., Jones, S.K., Purvis, A. Estrada-Carmona, N and De Palma, A. (2022) 'Landscape complexity and functional groups moderate the effect of diversified farming on biodiversity: A global meta-analysis', *Agriculture, Ecosystems & Environment*, 332, p. 107933. Available at: https://doi.org/10.1016/j.agee.2022.107933.

Schoolman, E.D. Wright Morton, L. Arbuckle Gordon, J. and Han, G. (2021) 'Marketing to the foodshed: Why do farmers participate in local food systems?', *Journal of Rural Studies*, 84, pp. 240–253. Available at: https://doi.org/10.1016/j.jrurstud.2020.08.055.

Shrubsole, G. (2019) *Who owns England? how we lost our green & pleasant land & how to take it back*. London: William Collins.

Song, B., Robinson, G.M. and Bardsley, D.K. (2022) 'Multifunctionality and path dependence: Farmer decision-making in the peri-urban fringe', *Journal of Rural Studies*, 96, pp. 64–77. Available at: https://doi.org/10.1016/j.jrurstud.2022.10.012.

Sutherland, L.-A. (2013) 'Can organic farmers be "good farmers"? Adding the "taste of necessity" to the conventionalization debate', *Agriculture and Human Values*, 30(3), pp. 429–441. Available at: https://doi.org/10.1007/s10460-013-9424-z.

Taherzadeh, A. (2019) 'Learning Pathways into Sustainable Agriculture: The Motivations and Approaches of Young Entrant Farmers.' Available at: https://doi.org/10.13140/RG.2.2.19419.92966.

Thompson, J. (2022) 'Stack it up: One farm, five farmers', *Wicked Leeks*. Available at: https://wickedleeks.riverford.co.uk/features/stack-it-up-one-farm-five-farmers/.

United Nations (2010) 'Boost agroecological farming to feed world and save climate, UN expert says'. Available at: https://news.un.org/en/story/2010/06/342632.

Valliant, J.C.D. Farmer, J. R. Dickinson, S. L. Bruce, A. B. and Robinson, J.M. (2017) 'Family as a catalyst in farms' diversifying agricultural products: A mixed methods analysis of diversified and non-diversified farms in Indiana, Michigan and Ohio', *Journal of Rural Studies*, 55, pp. 303–315. Available at: https://doi.org/10.1016/j.jrurstud.2017.08.017.

Vermunt, D.A. Wojtynia, N. Hekkert, M. P. Van Dijk, J. Verburg, R. Verweij, P.A Wassen, M. and Runhaar, H. (2022) 'Five mechanisms blocking the transition towards "nature-inclusive" agriculture: A systemic analysis of Dutch dairy farming', *Agricultural Systems*, 195, p. 103280. Available at: https://doi.org/10.1016/j.agsy.2021.103280.

Wakelyn's (2023) 'Wakelyn's: Suffolk organic agroforestry, food, horticulture hub'. Available at: https://wakelyns.co.uk/.

Wheeler, R. Lobley. M. McCann. and J. Phillimore, A. (2022) '"It's a lonely old world": Developing a multidimensional understanding of loneliness in farming', *Sociologia Ruralis*, p. soru.12399. Available at: https://doi.org/10.1111/soru.12399.

Whitfield, S. and Marshall, A. (2017) 'Defining and delivering "sustainable" agriculture in the UK after Brexit: interdisciplinary lessons from experiences of agricultural reform', *International Journal of Agricultural Sustainability*, 15(5), pp. 501–513. Available at: https://doi.org/10.1080/14735903.2017.1337837.

Zhao, J. Bindi, M. Eitzinger, J. Ferrise, R. Gaile, Z. Gobin, A. Holzkämper, A. Kersebaum, K. C. Kozyra, J. Kriaučiūnienė, Z. Loit, E. Nejedlik, P. Nejedlik, C. Nejedlik, U. Palosuo, T. Peltonen-Sainio, P. Potopová, V. Ruiz-Ramos, M. Reidsma, P. Rijk, B. Trnka, M. van Ittersum, M. K. and Olesen, J. E. (2022) 'Priority for climate adaptation measures in European crop production systems', *European Journal of Agronomy*, 138, p. 126516. Available at: https://doi.org/10.1016/j.eja.2022.126516.

Appendix 1: Interview Guide

What is enterprise stacking?

- What does ES mean to you?
- Could you describe how the enterprises link together?
- What are your principles of ES?
    - How many entrepreneurs, what do they do and how did you choose them?
    - What are the conditions of their staying?
- Is there an agreed definition?
- How is it different from diversification or pluriactivity?
- Is organic farming not enough anymore?
- Where did you first hear about it?

Why enterprise stacking?

- Why did you choose this approach? How did it happen, vision or evolution?
- What are the benefits of ES?
    - Env
    - Social
    - Finance
    - New entrants
    - Is it a new system?
- What has changed on the farm since you've followed this approach?
- What is the potential of ES? What would rural communities look like if it was being employed on a wider scale?

Challenges

- What are the challenging aspects of ES?
- Why aren't there more people doing this?
- Do the finances stack up? (More than if solo)
- Governance and relationships:
    - What lease/tenure do the entrepreneurs have?
    - What is the relationship like?
    - What's the power dynamic like?
- Housing

Sustainable Farming

- What sort of farming does this approach favour? Is this intrinsic in the model or just your approach?

Policy

- Is ES something that policy should promote on a more widespread scale?
- How could policy support ES? Advice
- What would have helped you (and the entrepreneurs) in this process?
- What has actively hindered you?

Appendix 2: Ethics approval

Ethics ETH2223-0769: Jack Thompson (Low risk)

Date Created	04 Nov 2022
Date Submitted	11 Nov 2022
Date of last resubmission	14 Dec 2022
Date forwarded to committee	08 Dec 2022
Academic Staff	Jack Thompson
Category	Postgraduate Taught Student
Supervisor	Dr Rebecca Wells
Project	An exploration of farm enterprise stacking: The benefits and challenges
School	School of Health & Psychological Sciences
Department	Health Services Research & Management
Current status	Approved after amendments made

Ethics application

Risks

R1) Does the project have funding?
No

R2) Does the project involve human participants?
Yes

R3) Will the researcher be located outside of the UK during the conduct of the research?
No

R4) Will any part of the project be carried out under the auspices of an external organisation, involve collaboration between institutions, or involve data collection at an external organisation?
No

R5) Does your project involve access to, or use of, terrorist or extremist material that could be classified as security sensitive?
No

R6) Does the project involve the use of live animals?
No

R7) Does the project involve the use of animal tissue?
No

R8) Does the project involve accessing obscene materials?

No

R9) Does the project involve access to confidential business data (e.g. commercially sensitive data, trade secrets, minutes of internal meetings)?
Yes

R10) Does the project involve access to personal data (e.g. personnel or student records) not in the public domain?
Yes

R11) Does the project involve deviation from standard or routine clinical practice, outside of current guidelines?
No

R12) Will the project involve the potential for adverse impact on employment, social or financial standing?
No

R13) Will the project involve the potential for psychological distress, anxiety, humiliation or pain greater than that of normal life for the participant?
No

R15) Will the project involve research into illegal or criminal activity where there is a risk that the researcher will be placed in physical danger or in legal jeopardy?
No

R16) Will the project specifically recruit individuals who may be involved in illegal or criminal activity?
No

R17) Will the project involve engaging individuals who may be involved in terrorism, radicalisation, extremism or violent activity and other activity that falls within the Counter-Terrorism and Security Act (2015)?
No

Applicant & research team

T1) Principal Applicant

Name
Jack Thompson

T2) Co-Applicant(s) at City

T3) External Co-Applicant(s)

T4) Supervisor(s)
Dr Rebecca Wells

T5) Do any of the investigators have direct personal involvement in the organisations sponsoring or funding the research that may give rise to a possible conflict of interest?
No

T6) Will any of the investigators receive any personal benefits or incentives, including payment above normal salary, from undertaking the research or from the results of the research above those normally associated with scholarly activity?
No

T7) List anyone else involved in the project.

Project details

P1) Project title
An exploration of farm enterprise stacking: The benefits and challenges

P1.1) Short project title
An exploration of farm enterprise stacking

P2) Provide a lay summary of the background and aims of the research, including the research questions (max 400 words).
Enterprise stacking is an emerging term in farming where landowners and managers invite entrepreneurs to set up farm businesses on their land. By layering enterprises on a farm, it is argued each of the enterprises can benefit and complement one another, from knowledge sharing to shared use of infrastructure, increased access to land for new entrants to recycling of waste products and even a route to market. Far from the trajectory of modern farming that has become more mechanised and intensive with fewer people on the land, enterprise stacking is a return to a more complex mixed farming approach that is ecologically efficient and brings people back onto farms.

It is a term that is being used by farmers and gaining traction in the media, yet there is little to no academic research on this new approach. In view of this, the author aims to conduct an exploration of farmers implementing this approach to find out what are the benefits, the drawbacks and the challenges. This research would provide a foundation of knowledge on the subject on which to build further research.

The author aims to find out; if enterprise stacking facilitates an environmentally friendly approach to farming using an agroecological framework, is it financially viable, does it provide new entrants with access to land, does it facilitate a collaborative approach to farming, what are the human and governance challenges?

P4) Provide a summary and brief explanation of the research design, method, and data analysis.
Given the lack of literature on the subject, the author intends to perform a literature review of the potential benefits and challenges of enterprise stacking based on similar terms. It will also review the

different types of governance that could be used by landowners and entrepreneurs in enterprise stacking.

The author will then conduct semi-structured interviews with 8 to 15 experts who are following an enterprise stacking approach. The author will set out question areas in relation to the research questions. This will allow the author to ask participants questions on the same themes but the wording can change and allow for expansion depending on the participant. All participants' contributions will be anonymised.

Each interview will be audio-recorded and transcribed. Once transcribed, the interviews will be coded to generate themes of benefits and challenges.

P4.1) If relevant, please upload your research protocol.

P5) What do you consider are the ethical issues associated with conducting this research and how do you propose to address them?

The collection of data for this research project will involve the participation of humans. Asking interviewees questions about their lived experiences and challenges could bring up emotions and frustrations. Participants will be chosen from the researcher's personal network which could raise issues of conflict of interest. In one case, a potential expert participant is the chairman of the company that author was recently made redundant by. However, having parted on good terms otherwise, the author is confident that they can conduct interviews objectively. The study involves his personal farm rather than the author's previous employment. In another case, the author has already interviewed an expert for a journalistic piece as part of their work. Despite having already interviewed them, the author will re-interview them in a academic format and in line with the other interviews in the study.

Part of the motivation behind researching this topic is due to the author's interest in following this approach on his own farm in the future. That could affect the author in their research in wanting to return positive findings and underestimating the drawbacks. The author also knows it is not in their long term interest to do this. It is beneficial, however to be aware of this possible conflict so the author can remain impartial in their research.

The author's involvement in food and farming, their background as a farmer's son and role as a food journalist with a network in the sector, is likely to have an influence on the research. Indeed, the initial idea for this research came through the author's network. This will be challenging to mitigate entirely but it is necessary to be aware of and the author will include a section on reflexivity in the methodology to reflect on this influence.

P6) Project start date

The start date will be the date of approval.

P7) Anticipated project end date

07 Jul 2023

P8) Where will the research take place?

In the United Kingdom, at the participants' farm or via an online video platform to conduct interviews.

P10) Is this application or any part of this research project being submitted to another ethics committee, or has it previously been submitted to an ethics committee?
No

Human participants: information and participation

The options for the following question are one or more of:
'Under 18'; 'Adults at risk'; 'Individuals aged 16 and over potentially without the capacity to consent'; 'None of the above'.

H1) Will persons from any of the following groups be participating in the project?
None of the above

H2) How many participants will be recruited?
15

H3) Explain how the sample size has been determined.
It is limited in size by the number of expert interviewees that are relevant for the research subject. It is large enough to return detailed information and research on the subject and answer the research questions, reaching data saturation. But small enough to be able to analyse each interview thoroughly.

H4) What is the age group of the participants?

Lower	Upper
21	70

H5) Please specify inclusion and exclusion criteria.
The study includes participants who are farming using a enterprise stacking approach and excludes those who are not. These will be elite interviews and therefore it is very unlikely that the participants will be under 21. It is not desirable or ethical to interview citizens who may be deemed vulnerable due to their old age or youth.

H6) What are the potential risks and burdens for research participants and how will you minimise them?
Interviews will be carried out on participants' farms and will be subject to their health and safety procedure. Participants may be concerned that their commercial success or potential lack of, may be disclosed to the wider public and competitors. To mitigate this concern that, all contributions will be anonymised.

H7) Will you specifically recruit pregnant women, women in labour, or women who have had a recent stillbirth or miscarriage (within the last 12 months)?
No

H8) Will you directly recruit any staff and/or students at City?
None of the above

H8.1) If you intend to contact staff/students directly for recruitment purpose, please upload a letter of approval from the respective School(s)/Department(s).

H9) How are participants to be identified, approached and recruited, and by whom?
The author will use a purposive snowballing sampling method to select experts using their own knowledge and networks.

H10) Please upload your participant information sheets and consent form, or if they are online (e.g. on Qualtrics) paste the link below.
H11) If appropriate, please upload a copy of the advertisement, including recruitment emails, flyers or letter.
H12) Describe the procedure that will be used when seeking and obtaining consent, including when consent will be obtained.
The researcher will make initial contact to gauge if the expert is interested in participating.

The participants will receive the participant information sheet two days after they have been approached.

A flexible approach to conducting the study will be taken, organising an interview with participants when is convenient. However, all interviewees will be approached and given information by mid December 2022 and interviews to be conducted in the month of December 2022 and January 2023.

Consent forms will be signed before conducting the interview in person or via email if conducted on a video platform.

H13) Are there any pressures that may make it difficult for participants to refuse to take part in the project?
No

H14) Is any part of the research being conducted with participants outside the UK?
No

Human participants: method

The options for the following question are one or more of:
'Invasive procedures (for example medical or surgical)'; 'Intrusive procedures (for example psychological or social)'; 'Potentially harmful procedures of any kind'; 'Drugs, placebos, or other substances administered to participants'; 'None of the above'.

M1) Will any of the following methods be involved in the project:
None of the above

M2) Does the project involve any deceptive research practices?
No

M3) Is there a possibility for over-research of participants?
No

M4) Please upload copies of any questionnaires, topic guides for interviews or focus groups, or equivalent research materials.

M5) Will participants be provided with the findings or outcomes of the project?

Yes

M5.1) Explain how this information will be provided.

If the participant has ticked the box saying they want to see the findings, the researcher will send the a summary document of the findings once the project is completed.

M6) If the research is intended to benefit the participants, third parties or the local community, please give details.

The research may contribute towards an expansion of knowledge on the subject area of which the participant has a stake in.

M7) Are you offering any incentives for participating?

No

M8) Does the research involve clinical trial or clinical intervention testing that does not require Health Research Authority or MHRA approval?

No

M9) Will the project involve the collection of human tissue or other biological samples that does not fall under the Human Tissue Act (2004) that does not require Health Research Authority Research Ethics Service approval?

No

M10) Will the project involve potentially sensitive topics, such as participants' sexual behaviour, their legal or political behaviour, their experience of violence?

No

M11) Will the project involve activities that may lead to 'labelling' either by the researcher (e.g. categorisation) or by the participant (e.g. 'I'm stupid', 'I'm not normal')?

No

Data

D1) Indicate which of the following you will be using to collect your data.

Interviews

D2) How will the the privacy of the participants be protected?

Complete anonymity of the participants

D3) Will the research involve use of direct quotes?

Yes

D5) Where/how do you intend to store your data?

Storage on encrypted device (e.g. laptop, hard drive, USB

D7) Will the data be accessed by people other than the named researcher, supervisors or examiners?
No

D8) Is the data intended or required (e.g. by funding body) to be published for reuse or to be shared as part of longitudinal research or a different/wider research project now or in the future?
Yes

D10) How long are you intending to keep the research data generated by the study?
Until graduation.

Health & safety

HS1) Are there any health and safety risks to the researchers over and above that of their normal working life?
No

HS3) Are there hazards associated with undertaking this project where a formal risk assessment would be required?
No

Appendix 3: Participant information sheet and consent form

Participant Information Sheet

REC reference number, date and version of information sheet:

ETH2223-0769, 11/11/2022, version 2.

Title of study:

An exploration of farm enterprise stacking

Name of principal investigator/researcher:

Jack Thompson

Invitation paragraph

We would like to invite you to take part in a research study. Before you decide whether you would like to take part it is important that you understand why the research is being done and what it would involve for you. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information. You will be given a copy of this information sheet to keep.

What is the purpose of the study?

The aim of the study is to establish a definition of enterprise stacking and identify the benefits and challenges of this approach. As it is an emerging term and there is no academic literature on it, this research aims to provide foundational research on the subject.

Why have I been invited to take part?

You have been chosen for this study as a landowner or manager using an enterprise stacking approach. 12 different farmers, landowners and managers have been chosen for this study.

Do I have to take part?

Participation in the project is voluntary, and you can choose not to participate in part or all of the project. You can withdraw at any stage of the project without being penalised or disadvantaged in any way. It is up to you to decide whether or not to take part. If you do decide to take part you will be asked to sign a consent form. If you decide to take part you are still free to withdraw at any time and without giving a reason.

All of the participant's data will be anonymised. Once the data has been published, participants will no longer be able to withdraw their data.

What will happen if I take part?

Participation in this study would require one interview in-person at the participant's farm. This will take between one and two hours. It will be a semi-**s**tructured interview, which means all participants will be asked the same questions but in a flexible order. In this interview, the researcher will ask questions about the participant's farm and their approach to land management. The research study will conclude on the 7th July 2023.

What are the possible disadvantages and risks of taking part?

The results of this study may not be positive and could impact the perception of such an approach. I will be a guest on your farm and will be subject to the health and safety procedure of your site.

What are the possible benefits of taking part?

The contribution of knowledge towards enterprise stacking and providing an academic rigour onto a little explored subject of which you are a pioneer.

Conflicts of interests

The collection of data for this research project will involve the participation of humans. Asking interviewees questions about their lived experiences and challenges could bring up emotions and frustrations. Participants will be chosen from the researcher's personal network which could raise issues of conflict of interest. In one case, a potential expert participant is the chairman of the company that author was recently made redundant by. However, having parted on good terms otherwise, the author is confident that they can conduct interviews objectively. The study involves his personal farm rather than the author's previous employment. In another case, the author has already interviewed an expert for a journalistic piece as part of their work. Despite having already interviewed them, the author will re-interview them in a academic format and in line with the other interviews in the study.

Part of the motivation behind researching this topic is due to the author's interest in following this approach on his own farm in the future. That could affect the author in their research in wanting to return positive findings and underestimating the drawbacks. The author also knows it is not in their long term interest to do this. It is beneficial, however to be aware of this possible conflict so the author can remain impartial in their research.

The author's involvement in food and farming, their background as a farmer's son and role as a food journalist with a network in the sector, is likely to have an influence on the research. Indeed, the initial idea for this research came through the author's network. This will be challenging to mitigate entirely but it is necessary to be aware of and the author will include a section on reflexivity in the methodology to reflect on this influence.

What should I do if I want to take part?

Please reply by email to **jack.thompson@city.ac.uk** to sign a consent form and organise an interview.

Data privacy statement

City, University of London is the sponsor and the data controller of this study based in the United Kingdom. This means that we are responsible for looking after your information and using it properly. The legal basis under which your data will be processed is City's public task.

Your right to access, change or move your information are limited, as we need to manage your information in a specific way in order for the research to be reliable and accurate. To safeguard your rights, we will use the minimum personal-identifiable information possible (for further information please see https://ico.org.uk/for-organisations/guide-to-data-protection/guide-to-the-general-data-protection-regulation-gdpr/lawful-basis-for-processing/public-task/).

City will use your name and contact details to contact you about the research study as necessary. If you wish to receive the results of the study, your contact details will also be kept for this purpose. The only people at City will have access to your identifiable information will be Jack Thompson. City will keep identifiable information about you from this study for two years after the study has finished.

You can find out more about how City handles data by visiting https://www.city.ac.uk/about/governance/legal. If you are concerned about how we have processed your personal data, you can contact the Information Commissioner's Office (IOC) https://ico.org.uk/.

Will my taking part in the study be kept confidential?

The researcher will be the only person to have access to data before anonymizing the data (if the participant desires so). Before publishing the project, supervisor Dr Rebecca Wells will review the research.

- All of the participants' data will be anonymised in the study.
- Audio and transcript data will be stored on an encrypted laptop and will be deleted at the time of publishing.
- The data will be publishing in line with Open Scholarship principles.

What will happen to the results?

The results will be published by City, University of London. Further publishing in academic journals may arise from the research. In this case, anonymity will be maintained. Once the research project has concluded and been published. The consent form asks the participant if they would like to receive a summary of results. If marked yes, their personal details will be kept until their point and they will receive a copy by email.

What will happen when the research study stops?

When the research is published, the research data will be destroyed.

Who has reviewed the study?

This study has been approved by City, University of London Health Sciences Research Ethics Committee.

What if there is a problem?

If you have any problems, concerns or questions about this study, you should ask to speak to a member of the research team. If you remain unhappy and wish to complain formally, you can do this through City's complaints procedure. To complain about the study, you need to phone 020 7040 3040. You can then ask to speak to the Secretary to Senate Research Ethics Committee and inform them that the name of the project is 'An exploration of farm enterprise stacking'.

You can also write to the Secretary at:

John Montgomery
Research Integrity Manager
City, University of London, Northampton Square
London, EC1V 0HB
Email: j.montgomery@city.ac.uk

Insurance

City University London holds insurance policies which apply to this study, subject to the terms and conditions of the policy. If you feel you have been harmed or injured by taking part in this study you may be eligible to claim compensation. This does not affect your legal rights to seek compensation. If you are harmed due to someone's negligence, then you may have grounds for legal action.

Further information and contact details

Please contact either:

jack.thompson@city.ac.uk

rebecca.wells.1@city.ac.uk

Contact details of someone who will answer any inquiries about the research (include details of supervisor/s if the researcher is a student). Only City email addresses and phone numbers should be used.

Thank you for taking the time to read this information sheet.

Informed consent sheet

Name of principal investigator/researcher: Jack Thompson

REC reference number: ETH2223-0769

Title of study: An exploration of enterprise stacking on farms

Enterprise stacking is a term that is being used by farmers and gaining traction in the media, yet there is little to no academic research on this new term. In view of this, the author aims to conduct an exploration of farmers implementing this approach to find out what are the benefits, the drawbacks and the challenges. This research would provide a foundation of knowledge on the subject on which to build further research.

		Please tick or initial box
1	I confirm that I have read and understood the participant information dated [12/12/2022, version 2] for the above study. I have had the opportunity to consider the information and ask questions which have been answered satisfactorily.	
2.	I understand that my participation is voluntary and that I am free to withdraw without giving a reason without being penalised or disadvantaged.	
3.	I understand that I will be able to withdraw my data up to 'the time of publication	
4.	I agree to the interview being audio recorded.	
5.	I agree to the use of direct quotes.	
6.	I agree that my participation and data in this study will be anonymised.	
7.	I agree to City recording and processing this information about me. I understand that this information will be used only for the purpose(s) explained in the participant information and my consent is conditional on City complying with its duties and obligations under the General Data Protection Regulation (GDPR).	
8.	I would like to be informed of the results of this study once it has been completed and understand that my contact details will be retained for this purpose.	
9.	I agree to take part in the above study.	

_____	_____	_____
Name of Participant	Signature	Date
_____	_____	_____
Name of Researcher	Signature	Date

When completed, 1 copy for participant; 1 copy for researcher file.

Appendix 4: Excerpt of transcription

Enterprise stacking to me means, I almost like to compare it to what it's not. It's not diversification. Everyone might confuse enterprise stacking with diversification and they have two very different meanings to me. Diversification is when you diversify your revenue streams and those revenue streams could be anything from farming to cafes to business units of the farm to selling your soul to a film location company to appearing on countryfile and getting paid loads of money for it. Not saying that diversification isn't a good thing, of course it's a great thing because everyone needs to spread the cost and with farming margins so unattractive, it's hardly surprising they look for income streams beyond farming. Whereas enterprise stacking for me, is about having the farm or the land as a platform to develop this food and farming community on top of your land. People like Wakelyn's have down that really well and it feels to me that the enterprises you bring onto the farm can make use of the platform of the farm rather than it, eg if it was film locations or diversifying into business units, you could argue that it was taking advantage of the land, but this is about using the land from a food and farming perspective. Build a food system from the ground up: That's a good way of describing it and going back to why a small mixed farm would want to do enterprise stacking, it's easy. The farmers will say it's easy for a landlord to do enterprise stacking because they've got loads of land and they can give land to other people. Whereas what we've got to do is build an argument for small mixed farms or small farms to do this. And it is around systems change for me. Everyone is talking about reducing (shortening) the food supply chains and farmers get hurt by the fact they're right at the bottom of the food supply chain. But if you build enterprises that make the supply chain circular and you control more of the supply chain, you have more chance of making money and putting enterprises on top of the farm then means you can build out your system, your food supply system to benefit the people who are right at the front of that supply chain. So if I'm doing a food forest at The farm for example and I also have a processing kitchen or another enterprise stacked on top of that making use of that output of the farm, the product – the fruit. I'm going to capture more of that than if I sold my fruit into the supply chain. Large food companies have been doing it forever, that's why we eat so much highly processed food is because they're adding value to the raw product. Maybe you could agree or disagree with what they're doing. But ultimately that's what they're doing, they're taking a product, doing something to it which basically enhances the value of it in the open market.

Your farmer, I have no idea about the price of fruit in the big supply chain, but let's say it's 10p. But say you're working with another enterprise that you're potentially getting rent from, in this operational model, suddenly on the farm you're capturing 30-40% of the value, you've got the ability to capture much more of that income of the raw product. If I was at a panel at ORFC which Im going to be, I would say a lot of people have talked about local versus large scale. I think there's a role for lots of different models. If we can provide a change in system that allows the farmer capture more value by selling locally or selling to specific communities by doing more on farm processing - that's a good thing. It's not going to solve all of the world's problems.

How many? 5 enterprises (6 including the The farmers'). The farmer -market gardener. Flower grower – Melanie. Café and the brewery. Then we've got a carpenter. 6 with the The farmers's broadacres.

Principles: Organic or regen practices is the core one. Understanding the value/core vision and buying into that vision and being really explicit that this is a collaborative working partnership rather than a

tenant landlord relationship. I really want that to be part of our manifesto but then legally you put it onto a piece of paper, and suddenly everything changes. It's a set of a values that you all buy into, the way it works is trust rather than a piece of paper. On paper it looks like I'm the landlord and The farmer is the tenant. But when we're working together it's a very different relationship. It's very strong, open and transparent. Longer term, the way we work, one hopes, is to regularise the new ways of working into the landlord tenant. So at the moment with The farmer, we've got a normal standard FBTE and for me that has the potential to change the relationship back into a landlord tenant relationship where the tenant doesn't have any power. This is about a power imbalance in the current system. The way we've addressed (the power dynamic) is about building trust in the relationship. We've invested quite a lot in the site that will benefit the tenants much more than us, the landlords. That's the sort of thing, showing that we are happy to invest in the site, without saying yes we've invested, that's a landlord improvement so you'll be paying it back over quite some time.

FBT: 10 year tenancies, it varies between each enterprise. The farmer has 10 years, the The farmers's only have 5 years, partly because the The farmers's only (not for public) were part of the original landlord and Finlay didn't like their approach in conventional farming and the The farmerss have to prove to us and Sally that they are 150% behind this organic conversion they're currently going under or are they paying lip service to it.

Well we have to do a good sales job and I think this is the challenge with enterprise stacking is it creates more complexity on the farm, farms are already bloody complex as it is. So by bringing in more complexity, there's loads of arguments in favour of more complexity, we want more biodiversity because diversity is good, but then it presents layers of complexity that tenant or owned farms don't have.

Making sure the The farmers's work with the other stakeholders on the farm in a really productive way. That's the difficulty in our case, because we came to The farm because we created a new vision for it. Then you've got to get buyin from the other people into that story and that takes time, energy.

Selection process: Bit of both; we did do a callout for entrepreneurs to apply. We did a few open days, a whole variety of people came. We advertised the activity across various networks. We got roughly 100 applicants. The callout was very broad and we got a very broad response and in hindsight I would have made it more focussed. Notwithstanding we were then able to have conversations with people, we put them through a mini process. We reviewed their application, we interviewed them and then we had a further panel to decide to say yes or not. It wasn't necessarily as formal as that in the end because we built up some of the relationships before we put the call out, then you have to build a relationship with these people anyhow. You couldn't simplify it that easily. I thought you could, I couldn't.