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Climate-KIC
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Ireland Deep Demonstration: Workshop 2 Summary

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1. Introduction

This report provides a summary of the main outputs and insights developed from the second deep demonstration workshop. The report focusses on the risks identified in the Alternative reality exercise and the potential areas for intervention from the different futures exercises.

Overall, there were 32 different organisations represented from across the sector (full list Appendix 1) and over 60 individuals in attendance.

2. Strategic risks to the Irish Land-Agri-Food Sector

The participants were asked to think about what actions/inactions that could be taken that would destroy the sector and the value that it creates for the Irish economy. A complete overview of input is provided in Appendix 2. The responses were wide ranging, but the general sense was that maintaining the current trajectory and intensification of some activities would ultimately undermine the Irish brand and reputation at home and abroad. This raises another concern around the types of trade deals that might emerge that drive behaviours that do not necessarily align with the ambitions of the sector.

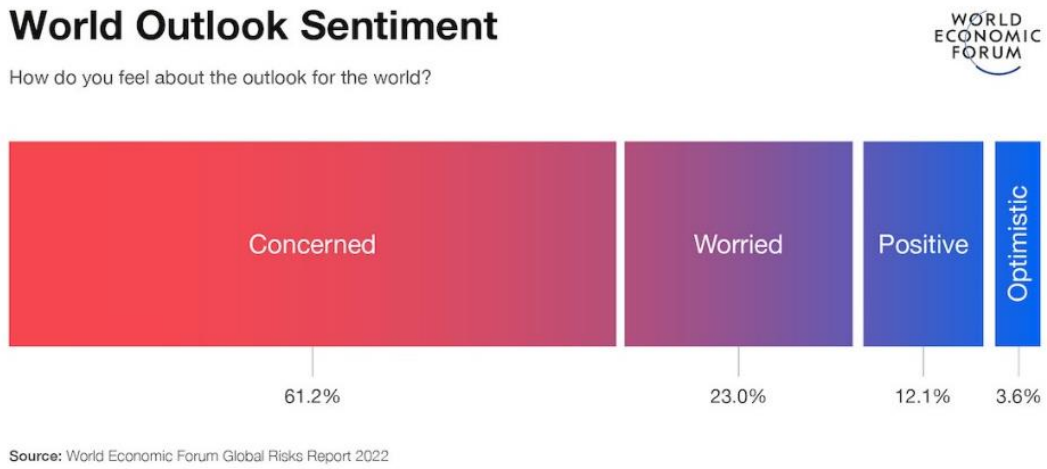
The Economist Impact developed in partnership with the Barilla Center for Food and Nutrition Foundation (BCFN) a Food Sustainability Index. *"The 2021 Index examines the food systems of 78 countries, using 95 individual metrics across three key pillars: food loss and waste, sustainable agriculture, and nutritional challenges. The Index now covers more than 92% of global GDP and 92% of the global population."*[1]

What we can deduce from the ranking is that while Ireland's overall performance is ranked as 'very high' it is not in the top 20% of countries analysed.

In several cases the participants referred to the mismatch between the Irish brand and the reality of the sector's performance against key sustainability metrics. This should be a huge concern for the sector as anecdotally many of the markets where our products are exported to are starting to request better visibility and verifiability of the actual performance against sustainability metrics as an order qualifier for future orders/trade. If the focus is dominated by the economics pillar with little regard to the environment and social pillars many participants see this as unsustainable going forward.

[1] https://impact.economist.com/projects/foodsustainability/fsi/about-the-food-sustainability-index/

One observation is that the Irish Land-Agri-Food sector is not recognising the huge shifts happening in the global space and the levels of concern and anxiety that exist. In the latest WEF Global Risks Report[2] less than 16% of the people feel positive or optimistic for the future of the world!



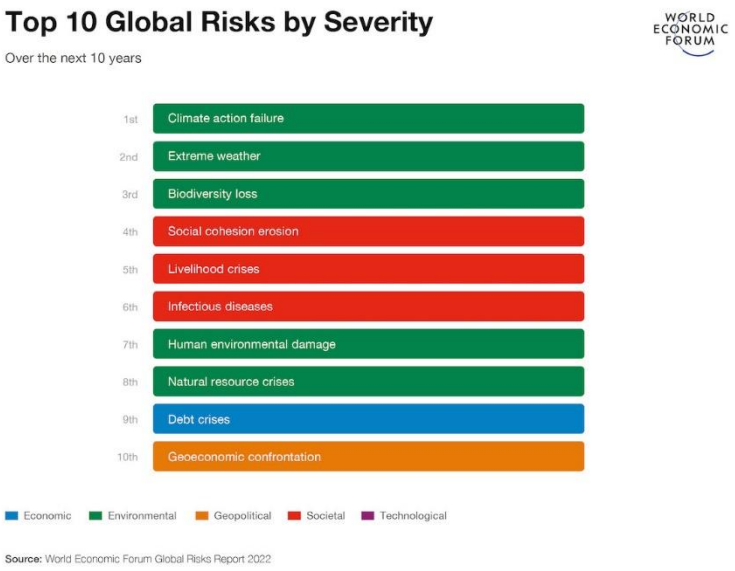
The participants raised concerns related to the risks posed by following a path of cost focus production, as this would undermine the value of the brand and lead to a difficult scenario of competing on cost instead of value. Without good governance and controls things could very quickly spiral out of control, so the importance of governance and policies are critical to ensuring the long-term success of the sector in the future.

Considering the internal dynamics across the value chain in Ireland, concerns around leaving certain aspects unchecked and market driven would result in further consolidation and asymmetry of power across the different stages. This unbalance could potentially leave the primary producers exposed to the whims of the large purchasing organisations. Without a holistic approach to challenges the sector is facing, ignoring the farmers, fishers and foresters, decreasing visibility across the value chain and undermining the role of the cooperatives it is deemed very unlikely that the goals can be achieved.

At a practical level, intensification of production in particular in dairy and beef and increasing the national herd numbers were considered to be unsustainable in the future. In parallel if the following activities are encouraged; monoculture, continued use of fossil fuel based inputs (fertilisers, pesticides…) then this will all lead to increasing emissions and loss of biodiversity and deteriorating water and soil quality. Ignoring the science and setting targets without providing the necessary support to enable the transition will also stall the progress needed.

[2] https://www.weforum.org/reports/global-risks-report-2022#report-nav

The social impacts and the need to engage with consumers also came out strongly. Concerns as to how to encourage more people to see farming as a viable career to ensure the long term viability of the sector were raised. The need to educate consumers about nutrition, the origin of their food and the true value and impact of the food that they eat is fundamental to driving the shift. Market demand ultimately, determines what is produced and sold and if consumers are shifting their eating habits, then that can have a profound impact on the sector. If a Carbon label is placed on food packaging and it provides consumers visibility of the impact of their foods, then that will over time also lead to different demands. If as a sector we have tunnel vision and do not diversify and adapt, then potentially we might find that the markets for our products have moved on.

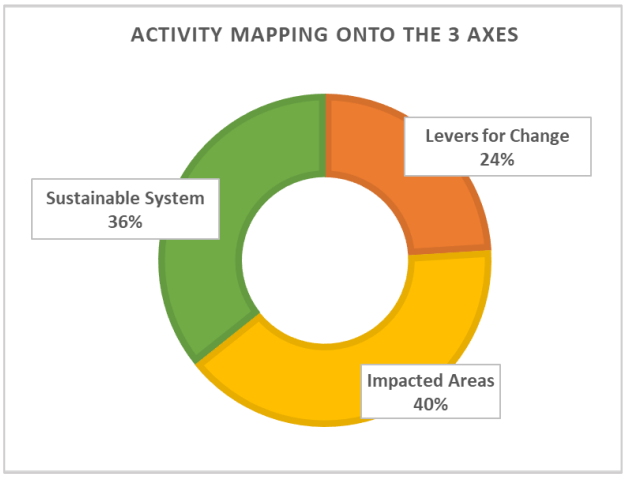


It would be of interest to review the risks identified by the participants from the workshop and have the participants identify which of the top ten global risks reported on in the WEF Global Risks Report they relate to.

To summarise there was a clear recognition in the room of the need to change but at the same time the perception was that of waiting for clear leadership and direction from the policy makers and industry groups. Generally, as a sector the tendency is to be overly cautious and risk adverse which given the speed of the changes that we are witnessing now, perhaps now is the time to accelerate and be prepared to take calculated risks and learn from our failures as we go.

3. Insights from 'Positions' Session

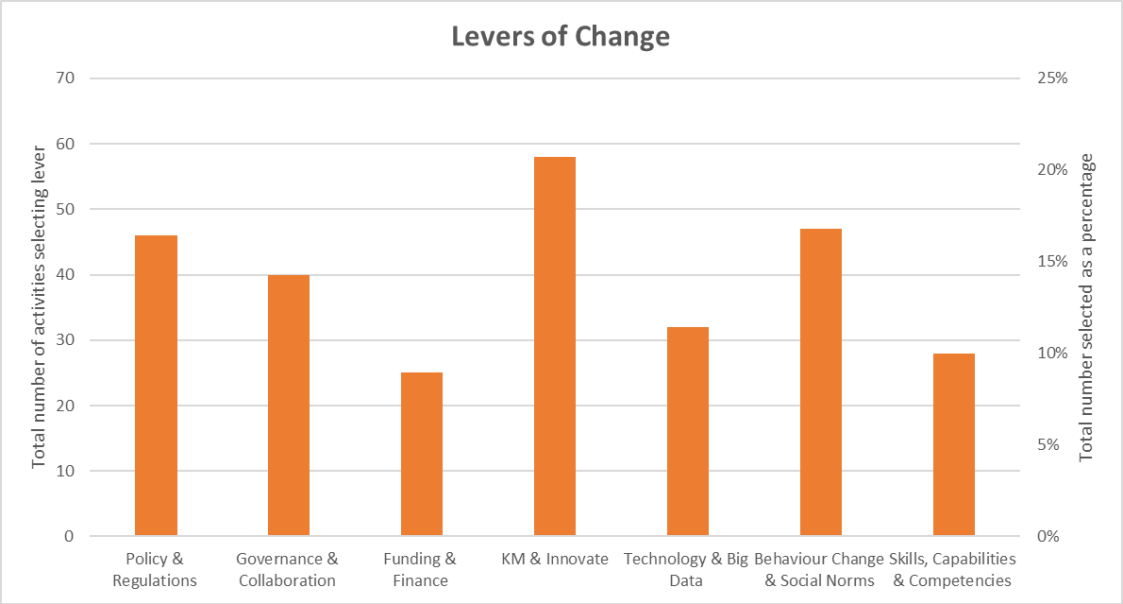
This session focused on areas within the three axes of the innovation space where participants thought innovation was needed. Participants were asked to place their ideas within the innovation space and to identify which elements of each of the three axes their innovation touched on (see Appendix 3). In most cases multiple criteria from each of the axes were identified.



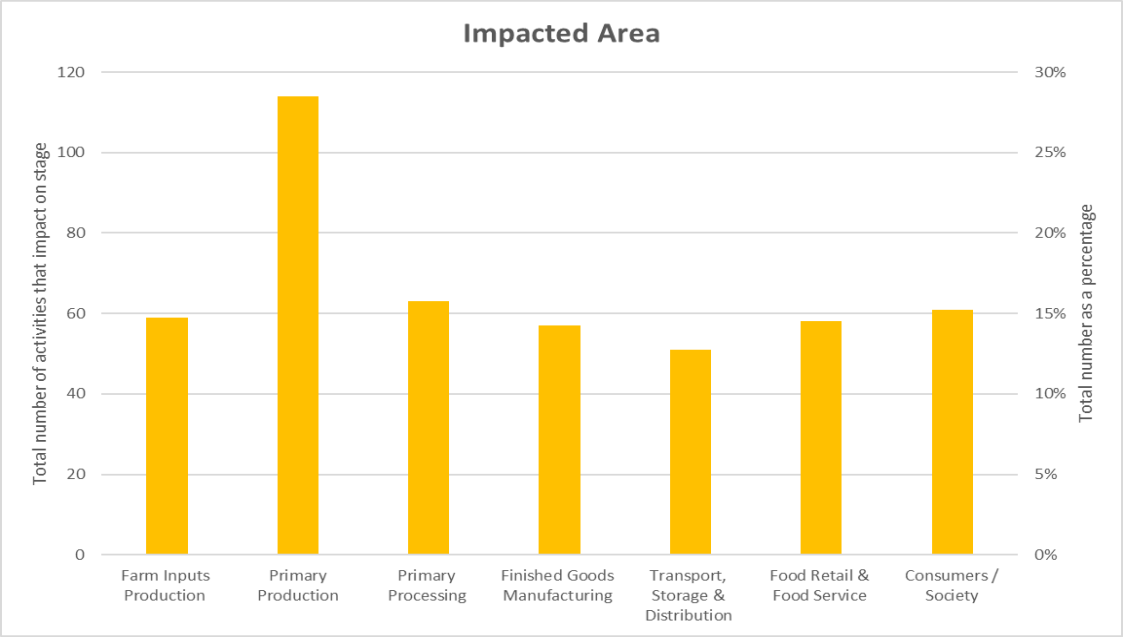
Participants were asked to phrase their 'positions' as statements and to start each one with '*Go where…*' A full list of the positions is included in Appendix 4. Some obvious duplicates have been removed. In other cases, there was some

nuance in the way the same position was presented so we have kept both for now. Without going into detail on all 157 positions, some insights from this session include:

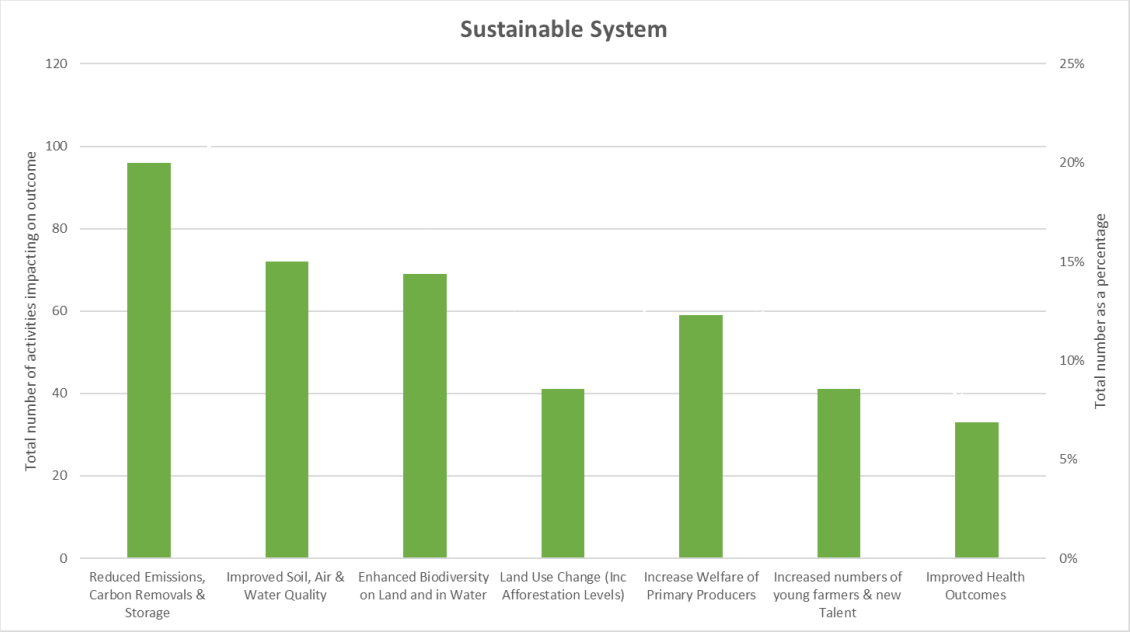
1. Spread: There was a huge diversity of innovations across all three axes.
    a. It was interesting to note that Funding and Finance and Skills, Capabilities and Competencies were the two levers of change least often touched on with Knowledge Management and Innovation being most often cited as a lever of change.



    b. The biggest focus was on the primary producer impact area with the majority of positions targeting this group. There was a pretty even spread across the remaining impact areas.



c. In terms of Sustainable System, the outcome most often connected to was on carbon emissions/sequestration. Only a small number of positions related to health outcomes, also of note was that the social and economic welfare of primary producers was identified as impacted less than 13% of the time. However, the vast majority of these related to the economic welfare of primary producers. There were very few positions that directly targeted the mental health/wellbeing of primary producers.



2. Types of innovation positions: Technical innovations dominated with many innovative solutions out there that can improve sustainability of current production systems. There were some positions that sought to look at alternative production systems (crops and/or more extensive systems), but most related to the current production systems (meat, dairy, tillage, horticulture). While much less than the technical positions, there were a significant number of positions that sought to address power dynamics (within value chains as well as in where decisions are made - local v. national) and who is involved in making them. There were also some that addressed challenges around how our institutions currently work and what might need to change. Some broad themes emerging included:
    a. Improved metrics to both inform impact and drive change
    b. The interplay between consumer preference, pricing, what retailers put on the shelves and what is marketed to consumers.
    c. Reducing methane emissions from livestock
    d. Carbon Farming and what might need to happen to make it possible
    e. Net zero manufacturing/processing
    f. Net zero transport
    g. Diversifying Incomes (for primary producers) and value add (for processors)
        - Renewable energy
        - Changing land use (less livestock, more horticulture, tillage, forestry)
        - Alternative/extensive production systems that generate sufficient economic returns – this included regenerative and organic agriculture.

h. Challenging current power dynamics and building more integrated value chains
i. Shortening value chains and replacing imported products with locally grown ones
j. Localising decision making, resourcing this and the importance of engaging those most affected.

3. What do we need to stop doing? It was interesting to note that none of the innovations looked at stopping anything. As explained earlier in the workshop, stopping/phasing out some things is a pre-requisite to systems change. It might be a good idea to reflect on what we should stop doing/what we need to phase out and to include this in the innovation portfolio as part of a just transition approach.

4. Summary

This workshop built on the insights from the first workshop, the participants were engaged in a series of exercises to make them think about the possible future scenarios, to step out of their echo chamber and consider the possibility of doing things differently. The alternate reality exercise surfaced the need to do things differently as the 'steady as you go' approach will ultimately not get us to the desired end state.

The futures exercise introduced them to approaches and technologies that are being used in other countries in different parts of the value chain. This energised everyone and allowed them to consider alternative solutions and ideas. This activity was a precursor to them beginning to identify where, as a sector, we would need to experiment and innovate if we are to achieve our ambition.

This workshop also sets the stage for the third workshop where we will go deeper into the specifics of a smaller number of possible areas / innovative activities. This will inform the development of the portfolio of interventions that the Consultative Group will review in 2023 to shortlist the projects that would be implemented.

5. Appendix 1 - List of Organisations Represented

Alltech	INHFA
Ardfriar Farm	Irish Centre for High-End Computing, University of Galway
Aurivo Co-Operative Society Ltd	KPMG
BIM	Magrowtec
College Group	Marine Institute
Cropteam Ltd	MTU
Department of the Environment, Climate and Communications	NESC
DAERA	Nutribio
Eur Digital Village	Páirc na Mara MIDC
Farmeye	Silicate
Forest Service - DAFM	Teagasc
GlasportBio	Terrain AI
ICOS	Trinity College Dublin
IFA	University College Dublin
IKC3-Ireland's Knowledge Centre for Carbon, Climate and Community Action	University of Galway
IMR	Western Development Commission

6. Appendix 2 - Alternative Reality exercise

Activities that would undermine the ambition for the sector

Policy & Governance

- Continue with business as usual, fail to transition – Do nothing
- Mismatch between Irish Brand and reality
- Fail to address our own issues
- Destruction of brand Ireland via pollution and unregulated imports from non-EU countries
- Just work harder -just scale up
- Focus only on economic performance
- Lacking guidance and support for the cost of implementing social and environmental activities
- Focus on low cost production
- Reduction in Green policies and NPR regulations
- Organic Ireland – reduce yield, higher cost, first world consumer
- Ban fertiliser
- Implementation of poor policies
- Greenwash and food fraud
- Abandon food standards
- Stop all monitoring – Anything goes attitude
- No planning for climate adaptation
- Under-preparation for managing wildfires and floods
- Failure to verify integrity of solutions and impacts
- No enforcement of rules and regulations
- Stop CAP +EU payments
- Removal of farm grants (EU CAP & national), increased bureaucracy and red tape
- Reduce/discontinue regional development grants
- Leave the EU
- Global or Flawed trade deals
- Not shaping global markets and regulation
- Globalisation: [cheaper and lower value] imports from 3rd countries
- Not achieving the right balance between trees, forestry and agriculture on land use
- Maximise environmental goods and services without balancing need for food
- Confiscation of land by state
- Not pay enough attention to just transition
- Poor access to broadband in rural areas reduces the uptake of technological solutions

Value Chain structure

- Allow the supply chain to concentrate more (leading to monopoly)
- Allow mass consolidation to a very small number of entities
- Leave the power with the global buyers
- Allow retailers to decide on food prices instead of producers
- Increase globalisation
- Ignore global factors – market and supply chain needs
- Focus on primary production and not the value add stages (need to move up the value chain)
- Don’t have a holistic approach to farming and land use
- Ignore Farmers, Fishers & Foresters
- Decrease transparency, increase land take, decrease coops, continue siloes in production
- Get rid of the family farm

Environmental impact

- Expansion of herd
- Dairy & Beef intensification
- Increase intensity (i.e. land use, production) – maximum exploitation of land
- Encourage monoculture
- Increase our emissions
- Imposing tough emissions targets without providing adequate support
- Continuing the extensive use of fossil fuel derived inputs (e.g., fertilisers)
- over-use of pesticides
- Allow ongoing collapse of biodiversity
- Failure to implement practices to improve the soil and water quality
- Move to large farms and monoculture
- Environmental carelessness
- Create reservoirs of anti-microbial resistance on land and in animals
- Increase animal and plant diseases resulting in less food production
- Introduction of pest in grasslands, destruction of primary crops
- Ignore the science, do not implement new approaches

Social impact

- Not provide viable alternatives/ enough economic value to farmers to switch
- Reduce education and capabilities across the sector, especially for young farmers
- No planning to support and encourage next generation into agriculture
- Low prices for consumers with unfair payments to primary producers – primary producers exit the market
- Lack of understanding of where our food is coming from
- Poor nutrition literacy
- Promote unsustainable nutrition practices
- Plant proteins outcompeting animal proteins/meat substitutes – vulnerable to consumer demands
- Unsafe food, food/feed diseases leading to human illness and deaths
- Failure to shift consumer behaviours/values
- Fail to provide what the Irish citizen want from agriculture and landscape of Ireland
- Lose tourism aspect, land diversity, our ecosystem unique to Ireland is our selling point
- Take people off the land
- Breakdown of the family farm structure
- Loss of the cooperative structure
- Over-dependence on food imports
- Ignore animal welfare

How to turn it around?

Policy & Governance

- Incentives to change for farmers through policy and exit schemes (but leads to risk of consolidation)
- Stronger government able to stand up against pressure groups
- Produce less but higher quality (higher value product)

- Incentivise mixed farming/diversification in farming
- Encourage on farm afforestation
- Irish Salmon is an example of a marketing/business model focussed on high value products
- Stop mixed messages
- Incentives that encourage businesses to innovate and adopt new technologies
- Introduce policies including metrics
- Focus on improving self-sufficiency across the sector
- Achieve balance between production and environment
- Replace subsidies with better prices from buyers
- Create 'friendly' competition between sub-sectors on sustainability targets
- Nationalise farming system!
- Better communication targeted for the different stakeholder groups
- Focus on systems solutions across the sub-sectors
- Re-think the economic model
- Stricter enforcement of climate targets
- Incorporate climate realities in future actions
- Support renewable energy production, AD plants, bioethanol production
- EU carbon label
- Enhance research-based knowledge of impacts of actions
- Focus on circular economy, more holistic integration
- Long-term government policy (longer than 7 years)
- Facilitate investment of public and private sector in carbon sequestration
- Sharing technologies globally
- Balance food, fuel, fibre and environment
- Adaptation: capture data on the impacts of climate change
- Adaptation: climate change risk assessments
- Implement emission reductions
- Verify Irish food sustainability – data to support origin green
- Data verification for sustainability across all 3 pillars
- Adapt national agriculture to global IPCC plans
- Circular bioeconomy
- Different/targeted sustainability targets for different regions, adjusted to context

Value Chain structure

- Farmers produce for specific supermarkets to be more efficient, decrease food waste
- Collaboration across the sector
- Create a sustainable farming system
- Waste less
- Explore options to deglobalize EU food system
- Reduce the power of the retailers (especially with respect to prices)
- Diversify both system supply chains and markets- more resilience to climate and markets
- Account for environmental cost in food production
- Stimulate short supply chains

Environmental impact

- Carbon accounting at farm level
- Genetics for animal efficiency
- Reduce herd numbers
- More diverse farming systems for sustainability

- Avoid monoculture
- Reduce fertiliser, reduce pesticides
- Use more biological pesticides
- Improve soil health
- Increase soil carbon
- Reduce input use but use innovation to improve productivity
- Multi-product strategies – replace cattle with carbon farming
- Replace intense farming with non-intense
- Farmers can operate only if they are carbon neutral – need to verify, it is possible – not only emissions, also biodiversity
- Transparent data for farmers but also consumers
- Value ecosystem services for sustainably produce food
- Pest risk analysis and planning for key crops and animals
- Investigate plant and animal system integration
- Maximise pastoral ecosystem in Ireland
- Work with land type as opposed to working against it, e.g., dairy on unsuitable land
- Land use alternatives for farmers driving towards 25% reduction
- Encourage small scale on farm forestry
- Incentivise mixed farming
- Support bioethanol production
- Promote land use diversification

Social impact

- Increase confidence of farmers, they are very willing
- Focus on seasonal food
- Challenge public perception on climate impacts
- Need a new employment model. Employment vs. High value jobs
- Better education for consumers to appreciate value of food
- Better links between farmers and consumers
- Encourage projects for growing food locally with kids and in urban areas
- Training and education across the value chain
- Create a just and fair system
- Ensure food security
- Sustainability should go hand in hand with better health for all
- Plot a future – everyone has to see a future for themselves to agree to a plan
- Lab-grown meat
- Reduce meat consumption
- Promote availability of local organic food
- Educate consumers to buy local
- provide incentives for local products to make prices competitive
- better linkages between farmers & Consumers (think of reducing the actual distance)
- Teaching kids to grow food
- Include the farmer in the conversation

7. Appendix 3 - Irish Innovation Space

Levers of Change	Impacted Areas	Sustainable System
Policy & Regulations	Farm Inputs Production	Reduced Emissions, Carbon Removals & Storage
Governance & Collaboration	Primary Production (includes all types of farms and Marine production)	Improved Air & Water Quality
Funding & Finance	Primary Processing	Enhanced Biodiversity on Land and in Water
Knowledge Management & Innovation	Finished Goods Manufacturing	Increased Afforestation Levels
Technology & Big Data	Transport, Storage & Distribution	Increase Welfare of Primary Producers (Social & Economic)
Behaviour Change & Social Norms	Food Retail & Food Service	Increased numbers of young farmers and new talent
Skills, Capabilities & Competencies	Consumers	Improved Health Outcomes

8. Appendix 4 – Innovation Ideas / Positions

1	Go where there are financial penalties for environmental externalities (Policy, whole VC, 01 02 03, M1)
2	Go where there are radical policies delivering for the environment and farmers (Policy, prim prod, 02 03, M1 M2)
3	Go where there is alternative environmentally friendly production systems to complement existing farm systems driven by policy incentives (Policy, prim prod, 1 23 4 5 6 7)
4	Go where the future of food production is not technology driven but back to local roots / Go where regenerative agriculture practices of the past are the new (old!) normal (, Whole VC, behaviour change)
5	Go where there are financial rewards (beyond CAP) for ecosystem services (funding, prim prod, 01 02 03 M1 M2)
6	Go where there are specialised green lending products for investment-linked to environmental enhancements (Funding, whole VC, 1 2 3 4 5 6 7)
7	Go where advisory services are independent of business/sector (governance, whole VC)
8	Go where research and advisory are interested in regenerative agriculture approaches (KM & Inno, farm inputs, prod, 03, M4)
9	Go where farming is enhancing biodiversity (M1 03, prim prod, Innovation)
10	Go where farming/land users have changed in anticipation of climate change (Innovation & Skills, prim prod)
11	Go where innovative technologies reduce land base, and farm emissions (Tech, prim prod, 01, M1)
12	Go where farm/land data is integrated, transparent and provides holistic decision tool (for farmers, industry,) (Tech, whole VC, 1 2 3, M 1,2,4)
13	Go where farmers are educated to benchmark environmental performance (and benefit from them) – Skills, prim prod, M2
14	Go where there are vibrant resilient rural communities built around sustainable farming/land use (behaviour change, skills, finished goods, consumers, M2, M3)
15	Go where and see places that have seen a failure to innovate, anticipate and adapt to climate change – can be everywhere
16	Go where retailer procurement prioritises environmental sustainability and farmer welfare (policy, retail, M2)
17	Go where minimum pricing on food products is implemented on supermarkets (for producers) (retail, prim prod, policy, M2)
18	Go where there is very low food waste (whole value chain)
19	Go where supermarkets work in equitable partnership with farmers (retail, behaviour change, partnerships, M2, M3)
20	Go where short supply chains are a bigger part of the food system than in Ireland (transport, behaviour change)
21	Go where long-term policies and strategic plans outlive the political process (policy, whole VC)
22	Go where consumers are influencing sustainable food systems with their buying behaviour
23	Go where consumers appreciate and value of highly environmentally produced food
24	Go where environment understanding for future generations is valued

25	Go where consumers can make easy sustainable food choices (M3, 07)
26	Go where children are educated early about food sustainability and farming
27	Go where consumers have a great understanding of where their food comes from (education on the true cost of food)
28	Reduce the load of chemical fertilisers and pesticides on Irish farms; how: policy change on sustainable farm, EU, knowledge & management, behavioural change; go where … e.g., Germany with a 70kgN/ha target by 2030
29	Carbon Breeds of livestock; go to farm-level experiments that have made advances in this area; need policy and regulation, knowledge management & innovation
30	Go where behavioural change / education has helped to reduce fertilizer use
31	Facilitate the building of energy communities with shared solar/wind/energy recovery solutions; family of social clusters of homes
32	Go to farm-level demonstrations where ecosystem plans have helped set local targets linked to finance / RBP, build compatible land use, LUCF profiles, monitoring systems
33	Go where models have supported biodiversity and carbon productivity
34	Go where there are economically viable farming/fishing business models attracting young farmers
35	Incentivize crop rotation to improve soil health
36	Develop new & innovative processing methods to reduce energy costs
37	Go where data / digital transformation has made a difference regarding CO2 reduction, farmers health etc. (across all parts of the value chain)
38	Green energy engines for transportation
39	Work with retail to better advertise locally produced food, local sustainability projects
40	Go where there are progressive primary education programmes to support more sustainable consumer behaviour
41	Create product labelling displaying carbon footprint for each product to raise consumer awareness
42	Go where price protection measures are in place for primary producers - Policy x Farm x O5 x M3
43	Go where producers and processors create & live a relationship of trust and transparency for more value distribution
44	Go where quick capital is available for incubators / accelerators encouraging development in climate / environment technologies. Facilitate this by sector specific funds developing pipeline - Funding x Farm x M1
45	Go where native forestry is prominent & works in line with primary production - Policy x Primary Producers x Funding x O4
46	Go where farm incomes are diversified through mixed enterprise - KM x Skill x Primary producers x O3, O5, O6
47	Go where experimentation and failure are valued and supported - KM x Policy x (New category proposal for Impact Area:) Government & Policy Actors x M4

48	Go where primary producers are valued for all their contributions to society, not just food production - Behaviour x Policy x KM x Primary producers x M2 x O5
49	Go where biodiversity protection is seen as a valuable output as opposed to an imposed requirement - Behaviour x Primary producers x M1 x O3
50	Go where cross-sectoral collaboration fosters sustainable circular bioeconomy & innovations & experiments - Funding x KM x Primary producers - Transport x M4 x O1, O6
51	Go where blockchain solutions allow food traceability - Tech x Primary processing x Health Outcomes
52	Go where circular bio-based new product development & systems are supported & encouraged and normalised (policy is de-mystified + funding flows to enterprises (non-export) - Policy x Funding x All impact areas x M1, M4 x O4
53	Go where sustainability both environmentally and economically can be sustained - KM x Policy x Governance x All impact areas x O2, O6, O7
54	Go where sustainability and circularity are de facto principles for placing goods on the market - KM x Standards x Policy x All impact areas x M1 x O1, O2
55	Go where community engagement directs societal change i.e. Where purchase habits are not profit, but impact driven - Policy x All impact areas x M3 x O3, O7
56	Go where regions are creating circular business plans to build local markets & create local jobs and vibrant community - Policy x Governance x All impact areas x Missing O: Community / Society
57	Go where sustainable circular bioeconomy principles are embedded in towns and county development plans to create local centres of activity - Policy x Governance x All impact areas x Missing O: Community / Society
58	Go where continuous access to safe and nutritious food is not a privilege - Policy x Governance x Behaviour x Consumers x M3 x O7
59	Go where sustainable agr-food products are affordable alternatives for citizens - Policy x Governance x Behaviour x Consumers x M3 x O7
60	Go where sustainable development is a priority and not economic gains - Skills x Retail - Consumers x M1 x O2, O3
61	Go where consumers influence food production, not retail - Skills x Retail - Consumers x M1 x O2, O3
62	More pathogen resistant – genetically modified crops [Policy/Farm Forests inputs]
63	More collection of rainwater [Policy/Farm Forests inputs]
64	Allow local innovation and copy [Policy/Primary processes]
65	Go where manufacturing operations are net zero [Policy/Finished goods manufacturing]
66	Go where primary producers are also primary energy producers [Governance, networking/Primary production]
67	Climate champions in every area to find actions [Governance, networking/Primary processing]
68	Map out and look for efficiencies in transportation and delivery of goods between food producers, manufacturers and retailers to consumer [Governance, networking/Transport, storage and distribution/ M1]
69	Go where technology and collaboration reduce food waste [Governance, networking/Food retail and food services/M1]

70	Go where funding is increased for SMEs – OK to fail [Funding and finance/ all areas]
71	EI innovation vouchers for climate tech? [Knowledge management and innovation/Primary production/6]
72	Novel foods from our existing base of production capability [Knowledge management and innovation/Finished goods manufacturing]
73	Develop biopesticides/ more RTD needed [Technology and big data/ Farm Forests inputs]
74	Go where we have a valuable bioeconomy in our Agri sector [Technology and big data/ Primary production]
75	Ramp up short course retraining [Skills/all]
76	Develop training on carbon farming practices [Skills/primary production/1]
77	CPD for farmers. Greater financial support for more skilled [Skills/ primary production]
78	Data integration Fork to Farm to reduce food waste. Lower cost through greater efficiency [Technology/Transport, storage and distribution]
79	Pallet drones warehouse from to shops [Technology/Transport, storage and distribution]
80	Crowd funding new technologies [Funding/Consumers]
81	A-G footprint scale with QR codes on products [Technology/Consumers]
82	Barrier to entry to farming for young people/ innovation block [Behaviour change/Consumers, citizens]
83	Go where there are climate neutral farms (Poultry, horticulture, forestry, beef, dairy etc.) and where they have been scaled.
84	Go where native woodland is being planted
85	Go where there is a Common Environmental Policy as well as CAP
86	Go where carbon sequestration is being rewarded by the market or incentivised.
87	Go where enhanced weathering trials are underway (Lithoscarbon.com, silicatecarbon.com) and learn how to implement this in Ireland.
88	Go where 3NOP has been proven in pasture systems.
89	Go where extensive pork/poultry production is being done. More ethical animal production systems could be a new system of food production.
90	Go where there are demonstration projects on nature restoration and rewetting.
91	Go where there is carbon accounting at farm level (e.g., Carbon harvester - UCD Nova)
92	Go where training for farmers on carbon farming, sustainability and the environment.
93	Go where there is a long term vision of what Ag. Will look like (family farm?).
94	Go where market gardening, community markets and local production (agroecological).
95	Go where there is a target of zero waste agri-food sector
96	Go where extensive production systems (e.g., organic farming) deliver economic returns.
97	Go where bio based industries are expanding and new value chains are being explored.
98	Go where farmers and ag. Workers are looking for a change - reduce input costs, eco-friendly, climate smart
99	Go where forestry is developed on farm (short term) and also where there is long term landscape [pe approaches to forestry that considers multifunctionality.
100	Go where agroforestry is being practiced successfully.
101	Go where food producers have an interest in the nutritional quality of their crops/livestock.
102	Go where there is local processing/pre-treatment facilities (e.g., abattoirs/coops) to disrupt current supply chains and power dynamics and to redistribute value across the VC.
103	Go where there are effective models for collaboration that quickly deliver projects.
104	Go where the time it takes from ideation to inclusion in national inventory is halved.

105	Go where systems change happens at a local level
106	Go where circular approaches are legislated for/reclassify 'waste'.
107	Go where personal/farmer data is paid for.
108	Go where there are successful models for community energy.
109	Go where there are investment opportunities in green and blue industries for financial sector.
110	Go where there is a holistic metric of sustainability (3 pillars) for primary producers
111	Go where the time from pilot to scale up is halved.
112	Go where power dynamics have been challenged successfully
113	Go where there is coordinated and holistic approaches to sustainability labelling of food products.
114	Go where innovation in the VC has built trust and resulted in equitable value distribution.
115	Go were retailers have a vision of the future for sustainable food systems: pricing/poverty, nutrition labelling, allocation of space in supermarkets; co-creation of targets with retailers.
116	Go where meat is not the default, plant based foods are predominant to see how that could be made the 'normal' part of our menu/weekly shop
117	Go where marketing has resulted in positive behaviour change in food consumption/public health.
118	Go where diets are re-imagined to reflect indigenous crops.
119	Go where there is a net zero dairy factory
120	Go where open source data and agri-food/marine analysis overlap (available to all stakeholders primary producers to policy makers)
121	Go where soil health has been improved
122	Go where there has been successful initiatives to reduce methane emissions in dairy/beef systems.
123	Go where food industry and farms have decarbonised their energy use.
124	Go where primary producers have diversified incomes to maximise sustainable returns from land.
125	Go where it is possible to use data to validate sustainability metrics
126	Go where the metrics live up to the branding
127	Go where we create new innovative food categories.
128	Go where local governance has driven change
129	Go where there is an integrated pipeline from challenge, research to investment and scale up.
130	Go where leadership drives change
131	Go where industry accepts technology
132	Go where champion/demo farms work with social marketing and training to drive behaviour change
133	Go where past graduates are trained in systems/multidisciplinary approaches.
134	Go where biobased pharmaceuticals are used in livestock production (Magic Mushroom Cluster in Offaly) and combine with rewetting peatlands.
135	Go where circular economy practices are the norm in seafood production (Icelandic Ocean Cluster)
136	Go where there is an all Ireland seaweed/algae smart specialization eco-system
137	Go where significant investment has been made in disruptive technologies
138	Go where there are regional bioprocessing centres have been established

139	Go where sustainable production is economically viable
140	Go where access to research infrastructure is unrestricted (not free)
141	Go where N&P are separated from urban waste to use in fertilizers.
142	Go where symbiotic plant relationships drive cropping rotations/decisions and deliver viable incomes.
143	Go where animal genetics are deliver on sustainability
144	Go where carbon models are farmer focused
145	Go where there is a connected/integrated land use policy locally/regionally/nationally.
146	Go where permaculture has been funded
147	Go where feed additives have reduced methane/ammonia emissions
148	Go where there are green loans to finance the transition
149	Go where research in bio plastics have been heavily funded
150	Go where food waste has been reduced at retail level.
151	Go where sustainably produced food is affordable.
152	Go where retailers prioritise local foods
153	Go where fossil fuel derived inputs have been eliminated
154	Go where there is accurate data on the emissions from peat soils.
155	Go where demonstrations of possible future production systems are funded
156	Go where crops and animals are integrated in sustainable Carbon and Nitrogen cycles
157	Go where there are supportive regulations on the use of wood in construction.