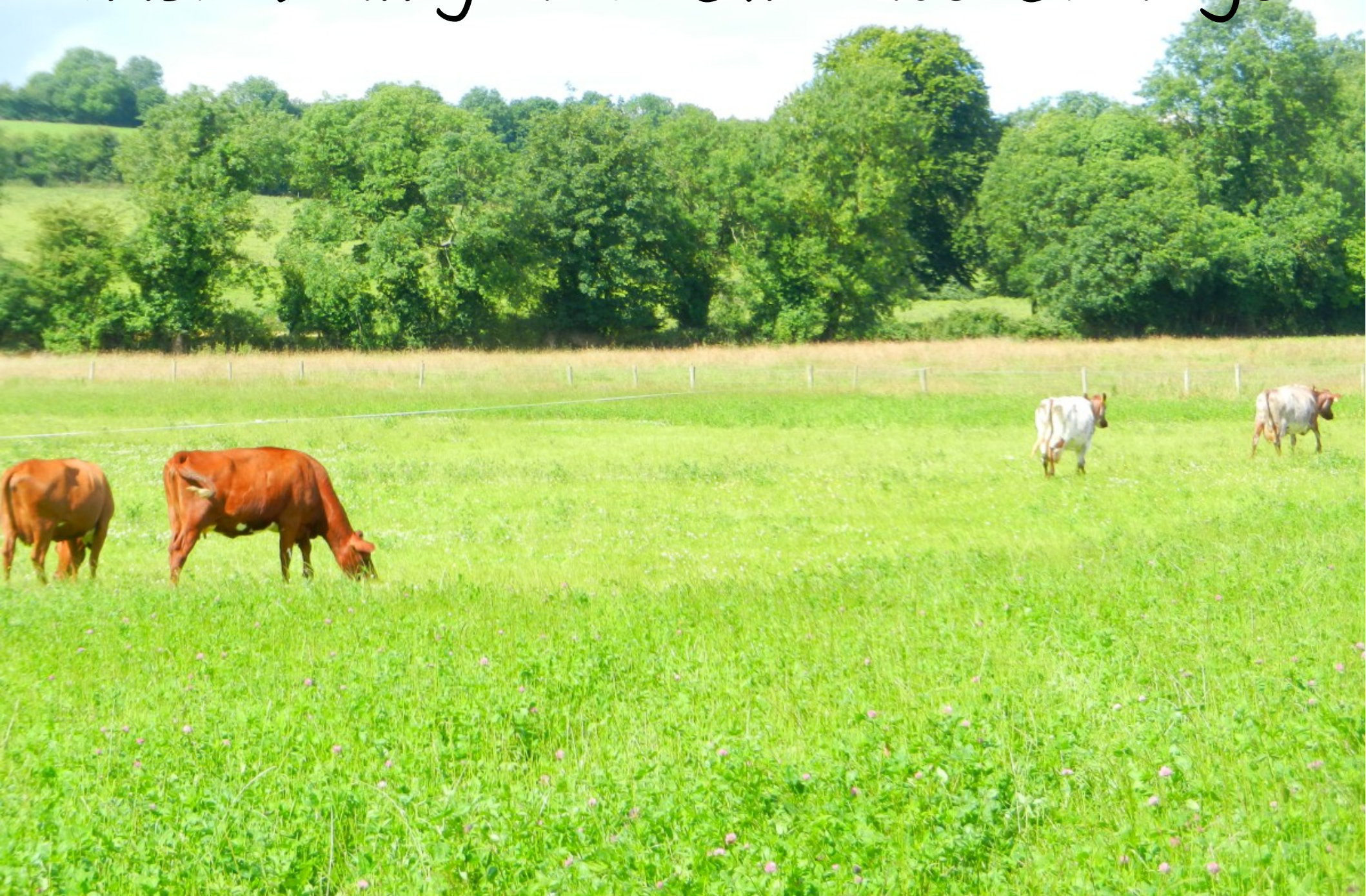


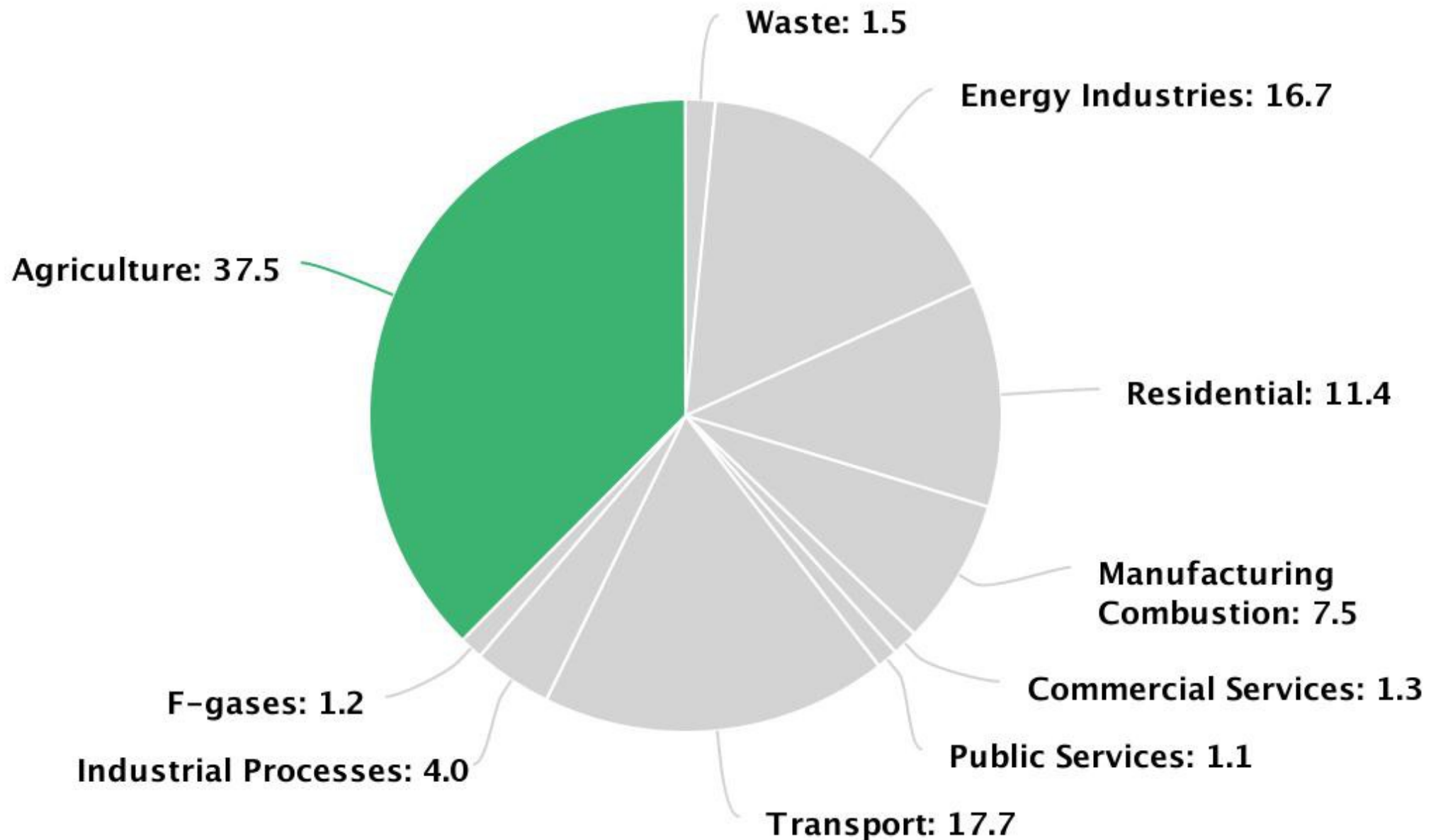
Irish Dairy and Climate Change





food – farming – climate – biodiversity – human health

Agriculture sector emissions share 2021



In 2021

↑ +3.0%

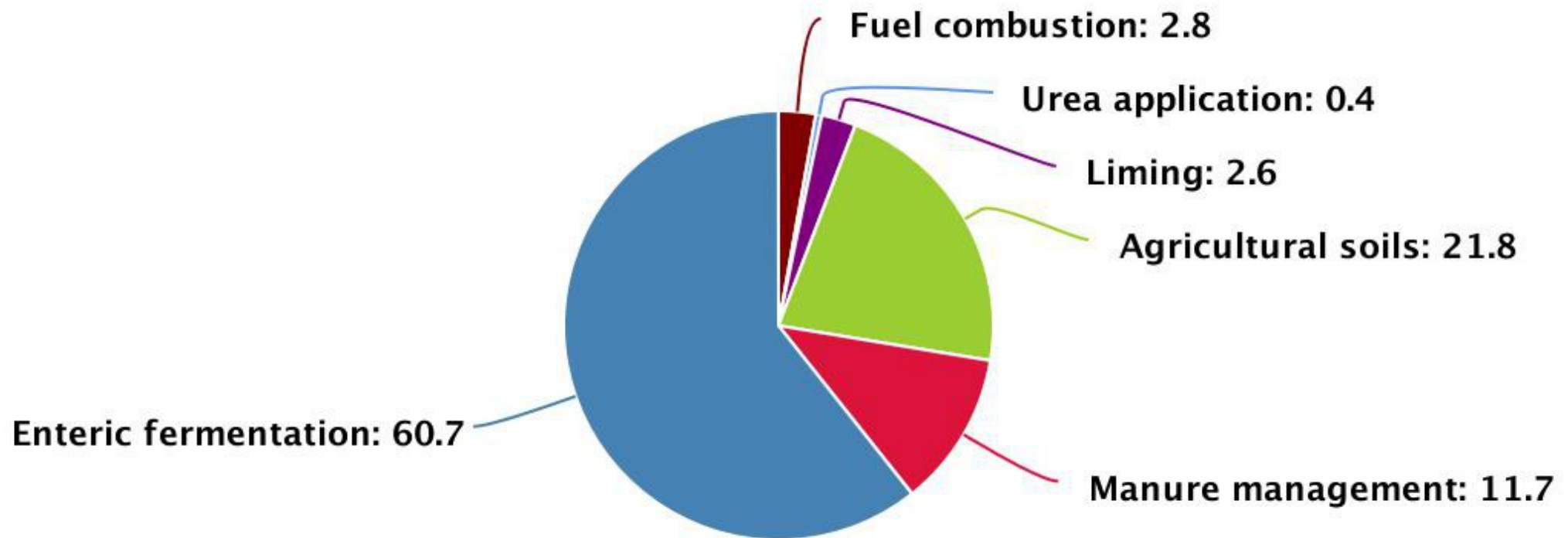
Agriculture



Emissions growth in Agriculture
mainly due to:

Fertiliser use	+5.2%
Dairy cow numbers	+2.8%
Milk production	+5.5%

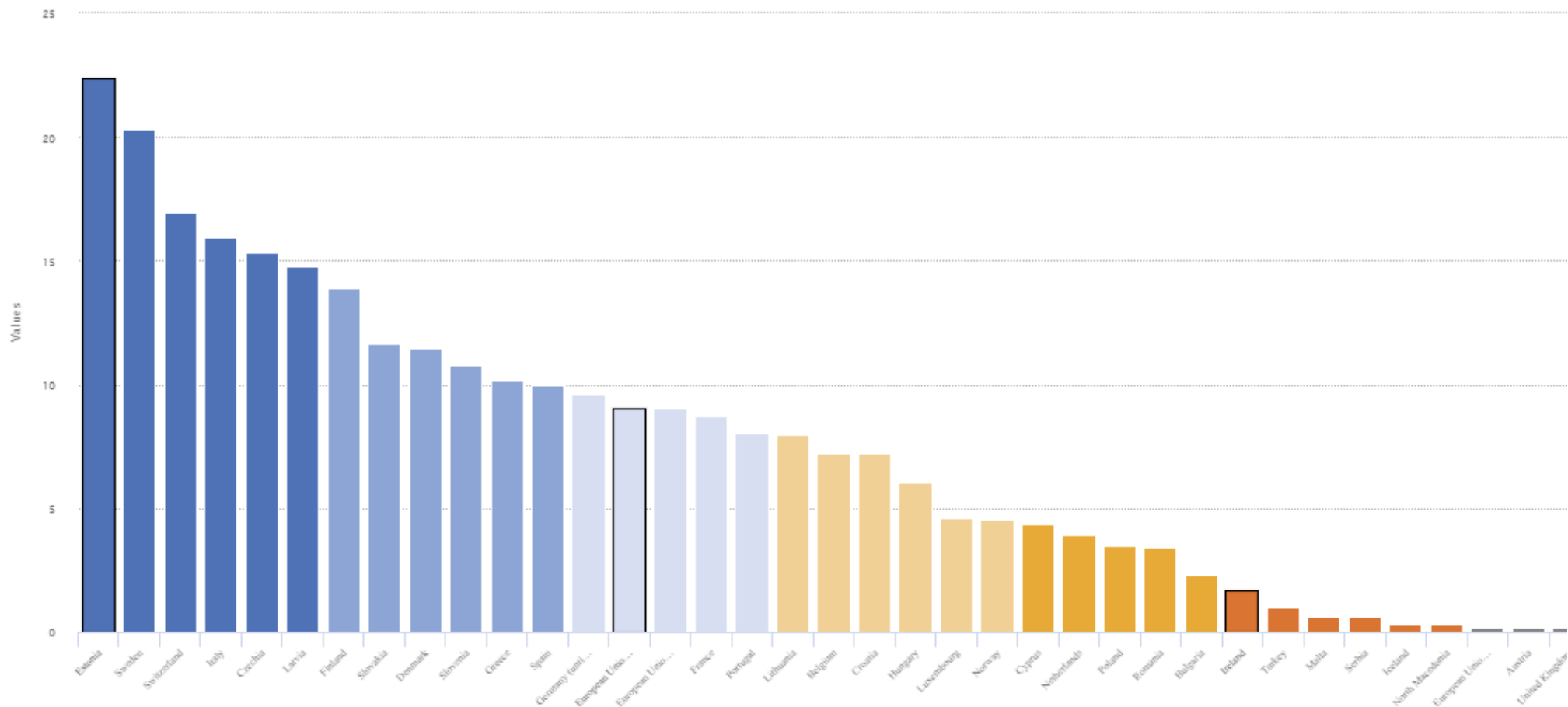
Agriculture GHG emissions share by source 2021



Organic Farming in Ireland

Area under organic farming

Geopolitical entity (reporting) / Time Time frequency:Annual Unit of measure:Percentage of total utilised agricultural area Crops:Utilised agricultural area excluding kitchen gardens Agricultural production methods:Total fully converted and under conversion to organic farming. Values for 2020. Bars in red represent not available data..



Area under organic farming

Source of data: Eurostat (online data code: SDG_02_40)

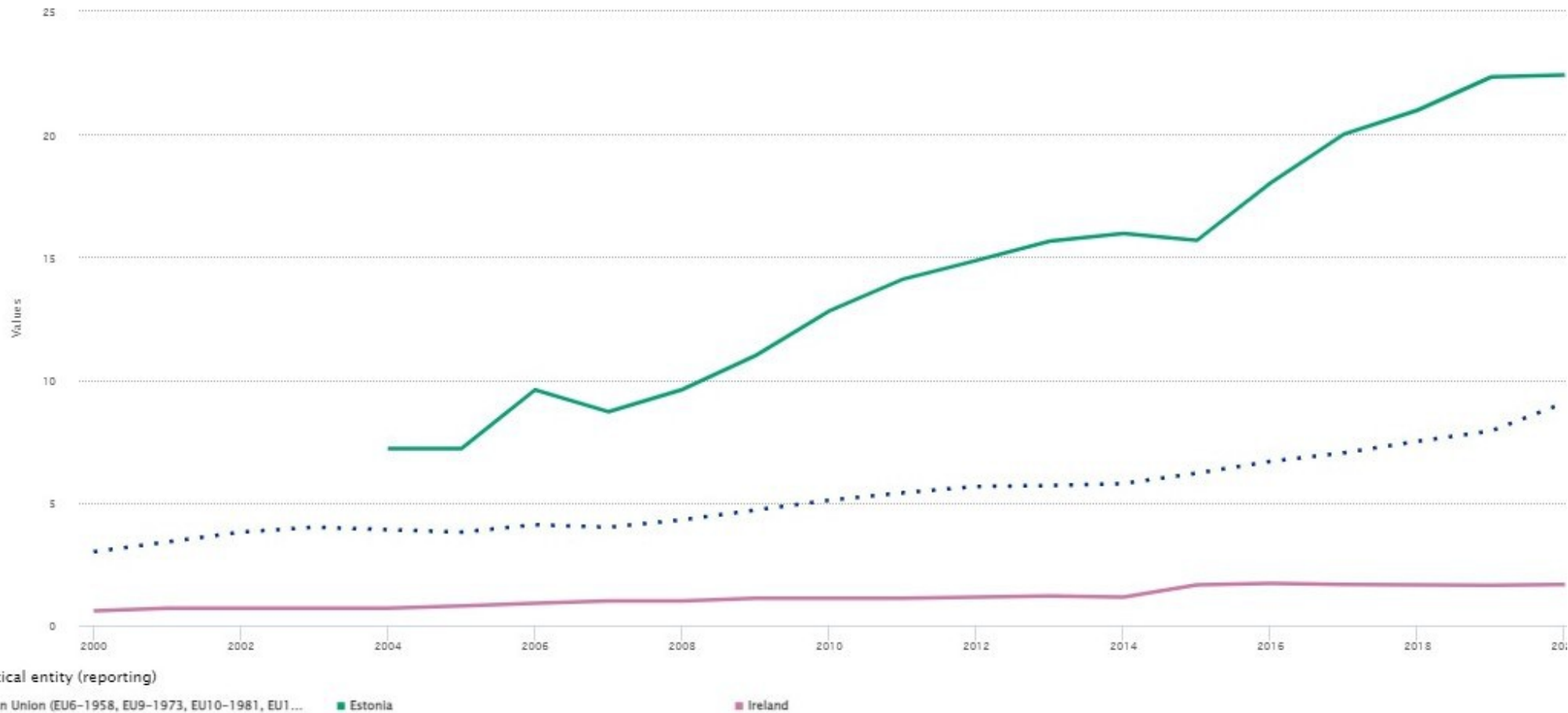
Last update 11/02/2022 22:00

This graph has been created automatically by ESTAT/EC software according to external user specifications for which ESTAT/EC is not responsible. Graphic included.

General disclaimer of the EC website: https://ec.europa.eu/info/legal-notice_en.html

Area under organic farming

Time / Geopolitical entity (reporting) Time frequency: Annual Unit of measure: Percentage of total utilised agricultural area Crops: Utilised agricultural area excluding kitchen gardens Agricultural production methods: Total fully converted and under conversion to organic farming



Area under organic farming

Source of data: Eurostat (online data code: SDG_02_40)

Last update 11/02/2022 22:00

This graph has been created automatically by ESTAT/EC software according to external user specifications for which ESTAT/EC is not responsible. Graphic included.

General disclaimer of the EC website: https://ec.europa.eu/info/legal-notice_en.html

Ireland's agriculture emissions are hurtling in the wrong direction

Not meeting our 2030 targets could see Irish beef and dairy being produced by a country regarded as Europe's dirtiest emitter

Ella McSweeney



A cow with methane-collection equipment on her back. Grass is a cheap way to feed cows, but as methanogens break down grass in the stomach they produce methane, a potent greenhouse gas Photograph: Rachel Doyle

Emissions up 19.3% in last ten years (2011-2021)

From 2015 to 2021, dairy cow numbers increased by 22.6% and milk production increased by 36.9%. This reflects the national plans to expand milk production under Food Wise 2025 and the removal of the milk quota in 2015.

Reduction now required - 25%

'A sell-out': Farm groups react to agriculture's new 25% emissions reduction target

Ireland targets 25% cut in agriculture emissions but farmers voice anger

Government sets binding objectives across sectors to slash overall carbon emissions by 51% by 2030

The Irish Farmers' Association (IFA) labelled the 25% target as "a potentially devastating blow for Irish farming and the rural economy".

Widespread anger among farming communities over 'unrealistic' emissions target

IRELAND

Proposal to pay farmers €5,000 to cull cows

The Department of Agriculture estimates the move would take 45,000t of carbon dioxide equivalent out of the atmosphere for every 10,000 cows culled.

Prior to the Industrial Revolution

Manure

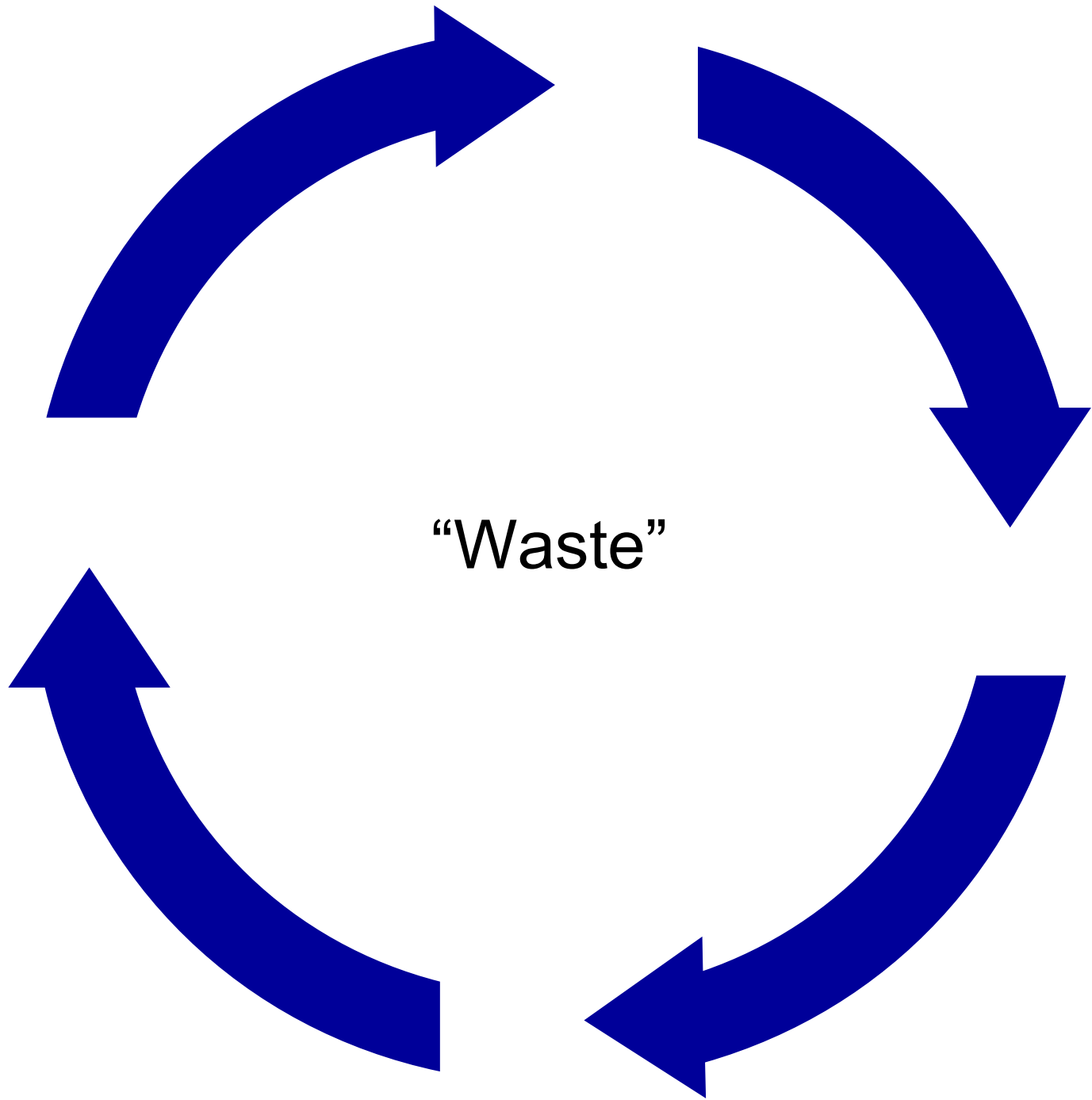
Compost

Crop Rotation

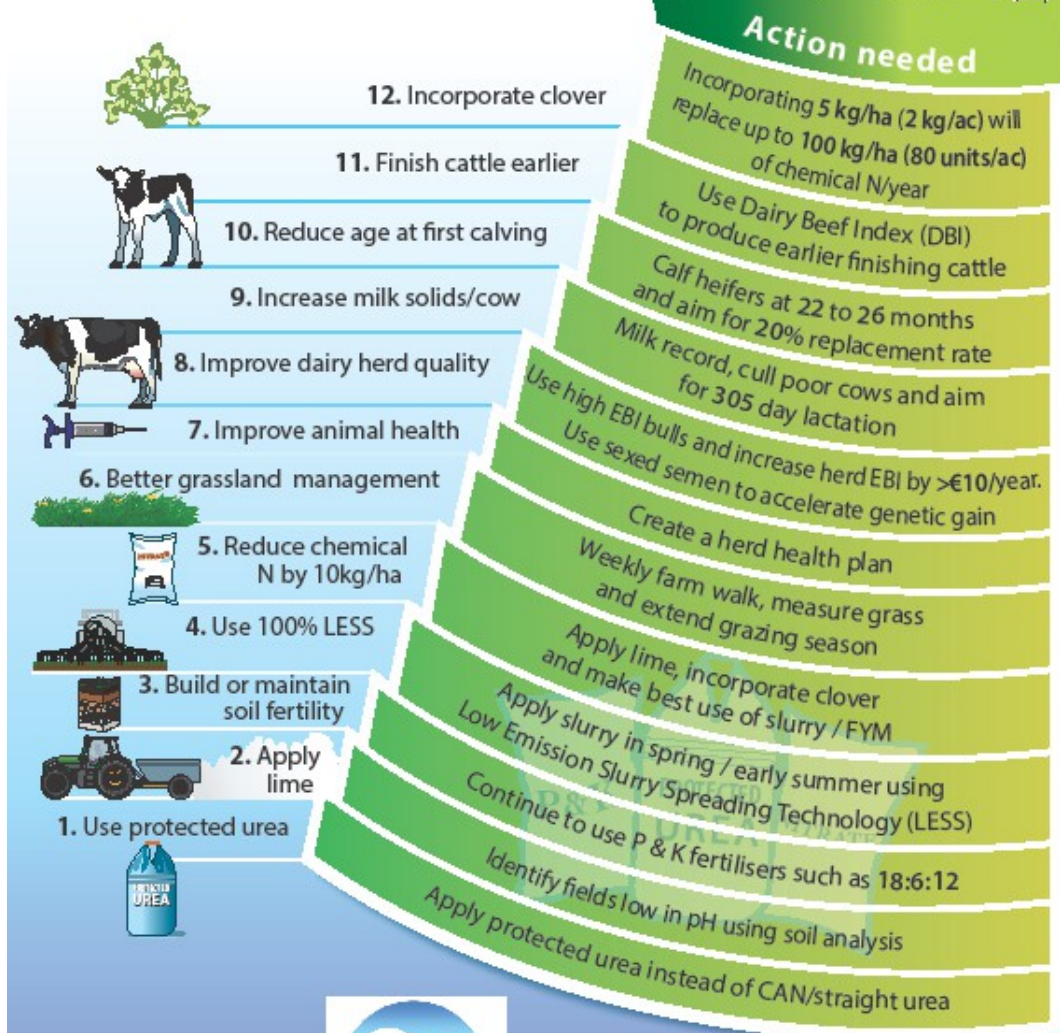
Cover Crops

Fallowing

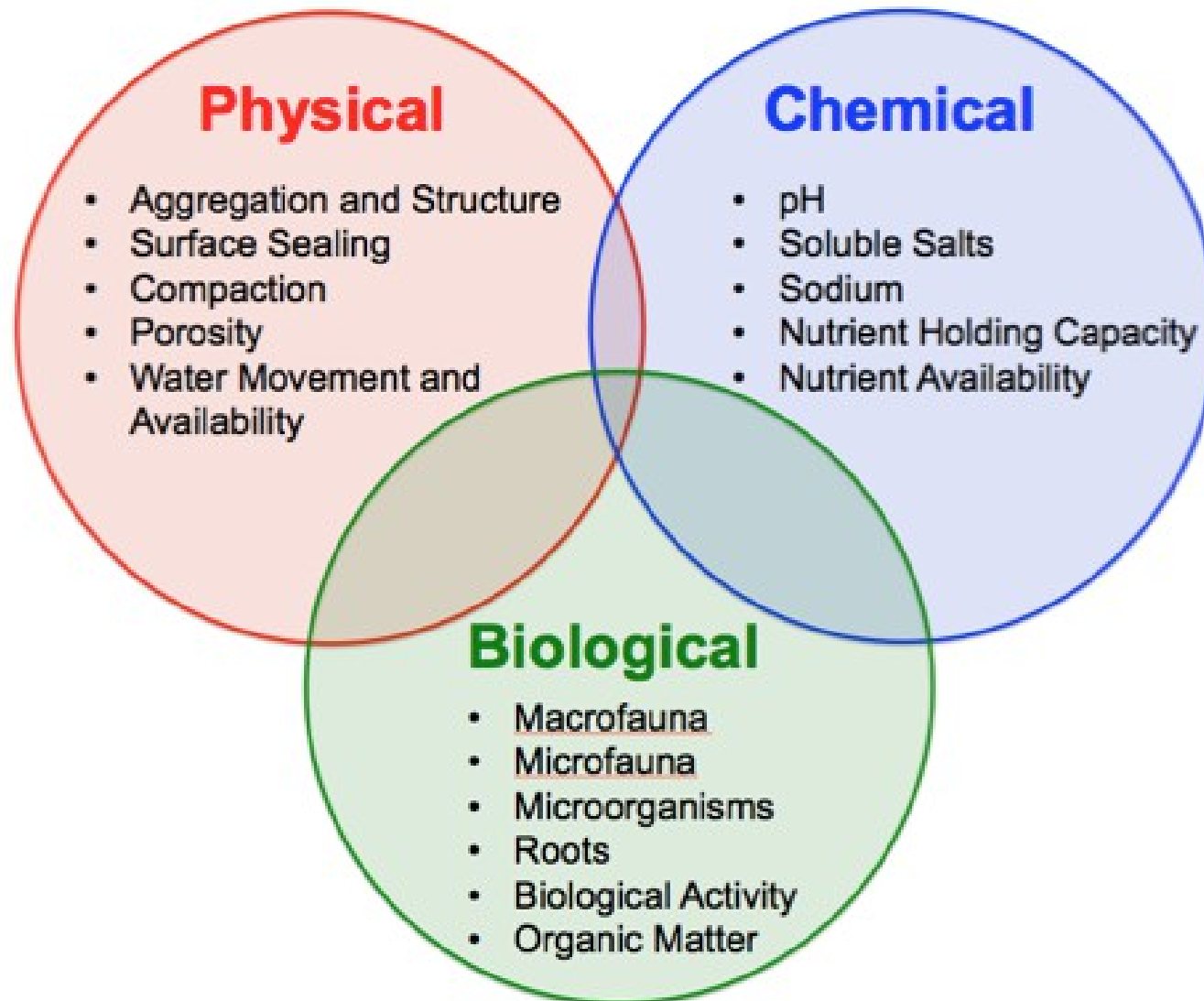
Farmers of Forty Centuries: Permanent Organic Farming in China, Korea, and Japan - F. H. King



Where are you on the 12 Steps to reduce Gaseous Emissions on YOUR FARM?



From the ground up – SOILS (especially soil BIOLOGY)



*Most efficient
solar panel on
Earth?*



Most efficient
user of solar
panel energy?



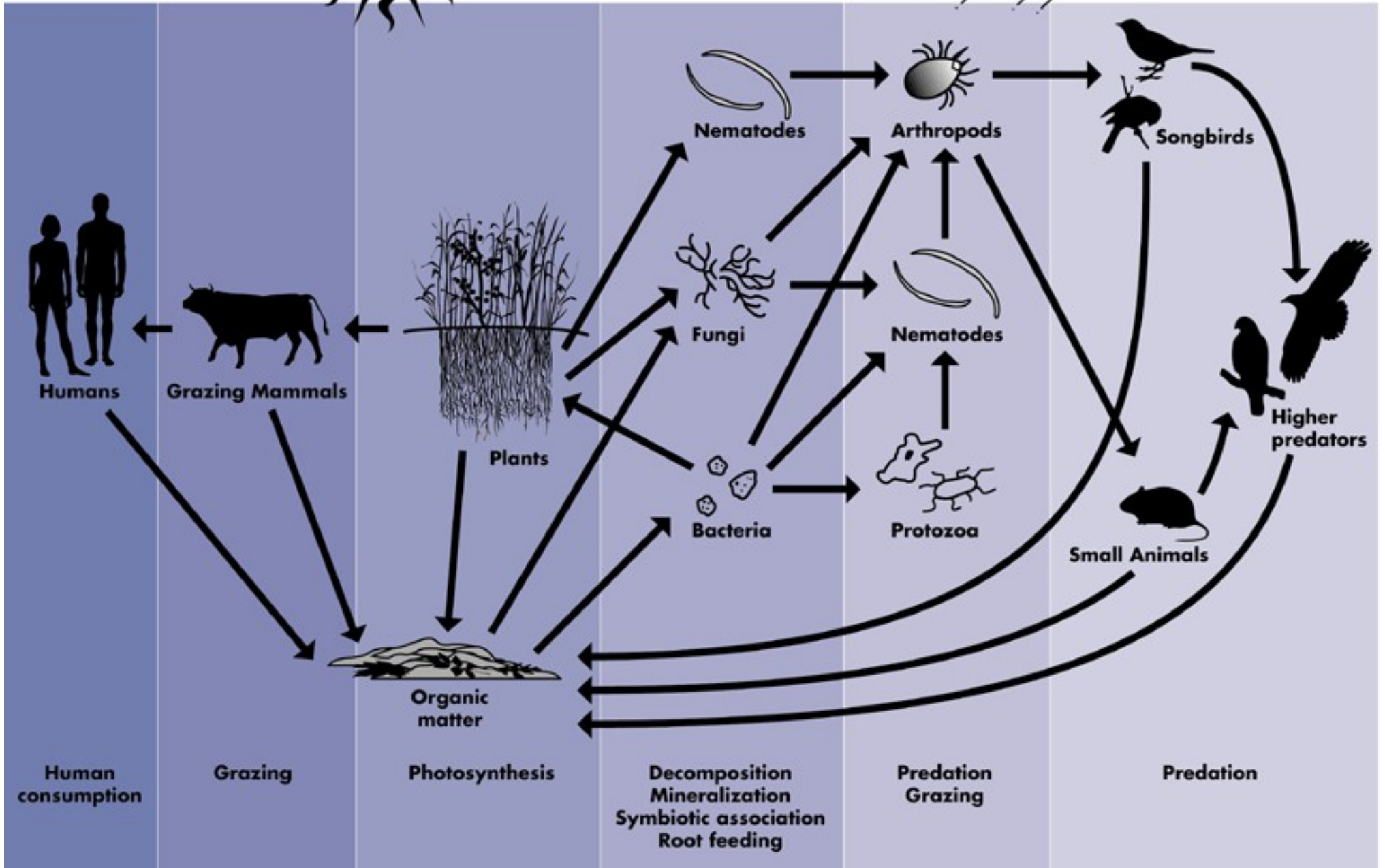
Sunlight



Rangeland Soil Food Web



Rain



Agronomist Optimum Element Levels (soluble nutrients)

Nutrient	Limit in PPM	Avg. PPM	Old Growth
Major Elements			(added)
Nitrogen	150-1000	250	0.1 (0.5)
Phosphorus	50-100	80	0.1
Potassium	100-400	300	0.2
Minor Elements			
Calcium	100-500	200	1.0
Magnesium	50-100	75	0.5
Sulfur	200-1000	400	0.4
Trace Elements			
Copper	0.1-0.5	0.7	0.5
Iron	2-10	5	0.1
Boron	0.5-5.0	1.0	0.1
Manganese	0.5-5	2.0	0.2
Molybdenum	0.01-.05	0.02	0.02
Zinc	0.5-1.0	0.5	0.04

The nutrients we need are present in our soils (as evidence by testing the soils of old growth forests), we just need the biology to function to make those nutrients bioavailable to plants on a daily basis. Current soil testing in agriculture focuses only on soluble nutrients simply because that is what is easiest to measure...



Growing body of soil science research is saying that if we can just increase our carbon content of the soils by 2% then we have the potential to mitigate 100% of climate change (remember SOM is 50% C)

The Carbon Nitrogen Connection

Cost-effective nitrogen management is the key to profitable and productive farming. It is also the key to building soil carbon. Stable forms of soil carbon (such as humus) cannot form in the presence of high levels of inorganic nitrogen, due to the inhibition of the microbes essential to sequestration.

Nitrogen: the double-edged sword

Christine Jones, PhD

Nitrogen is a component of protein and DNA and as such, is essential to all living things. Prior to the Industrial Revolution, around 97% of the nitrogen supporting life on earth was fixed biologically. Over the last century, intensification of farming, coupled with a lack of understanding of soil microbial communities, has resulted in reduced biological activity and an increased application of industrially produced forms of nitrogen to agricultural land.

The activities of both symbiotic and associative N-fixing bacteria are inhibited by high levels of inorganic N. Thus, we must wean our soils off inorganic N - but please do it S.L.O.W.L.Y. Microbial communities take time to adjust. Soil function cannot return overnight. The transition generally requires around three years.

20-30-30 Nitrogen inputs can be reduced 20% in the first year, another 30% in the second year and a further 30% in the third year. In fourth and subsequent years, the application of a very small amount of inorganic N (up to 5kgN/ha) will help to prime natural nitrogen-fixing processes.

SORT OUT YOUR SOIL

Green crop mixes are set to become a bigger part of crop rotations. They offer massive improvements to soil fertility.



MONOCULTURE vs MIXTURES

Monoculture competing for soil nutrients, moisture and sunlight
 Prone to disease and pests
 Uniform root depth and structure

Range of leaf shapes and sizes creating maximum photosynthesis
 Less susceptible to pests and diseases
 Varied rooting depth, different shapes improving soil structure
 Mixing early and late species extends the growing season
 Increasing diversity of pollen and nectar sources offers more choice for pollinators

...give 50% more yield





A place for animals in AGROECOLOGICAL systems

Multifunctional

Production of food, fuel and fibre

Enhancement of the environment

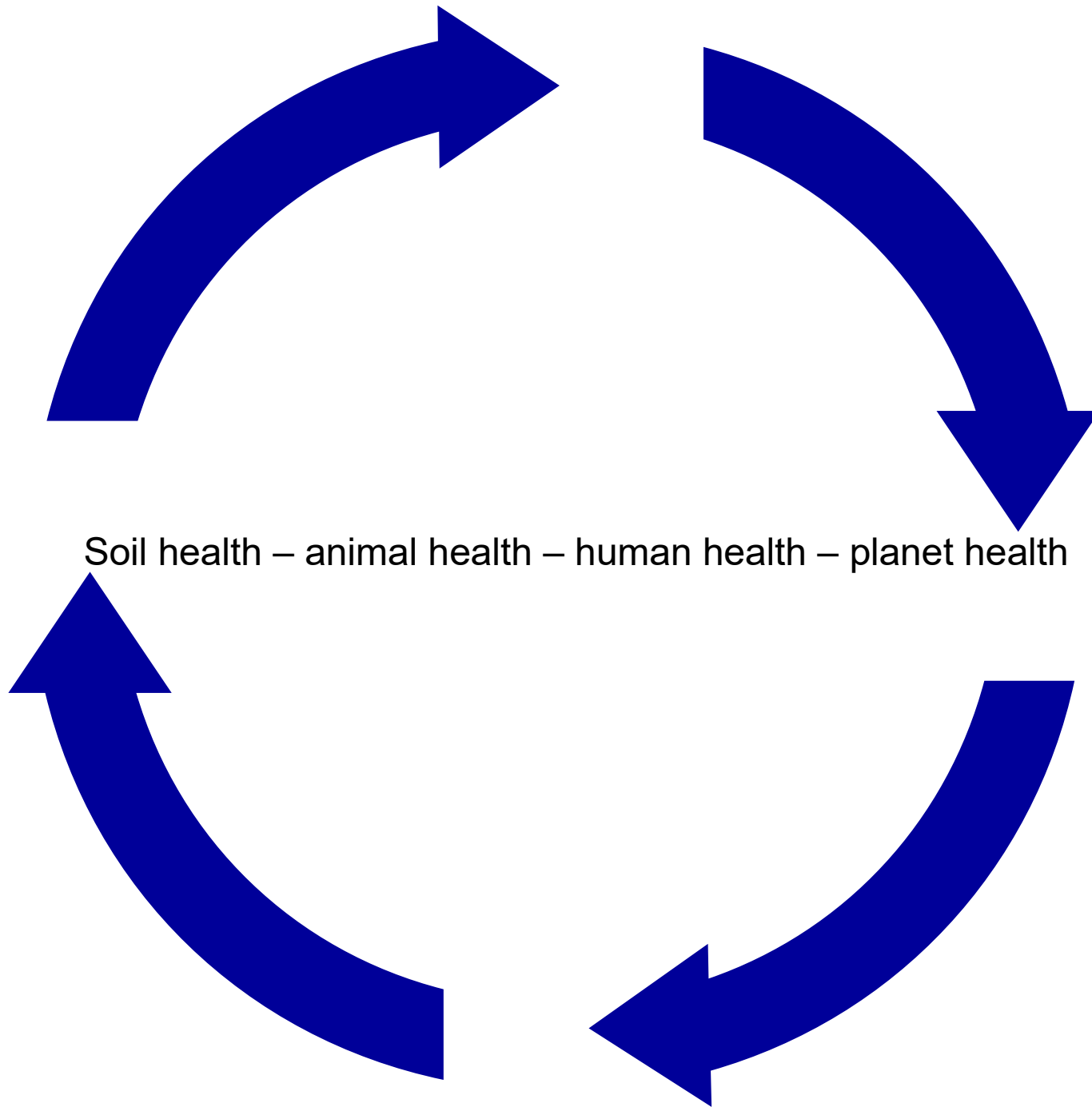
Quality of life

Humane animal welfare

Conservation/preservation of existing resources

Development of rural communities

Maintenance of agricultural heritage and food culture





Talamh Beo supports a **transition to agroecological farming systems**; we would like to see farming, fuel and fibre production move way from a focus on industry, agribusiness, growth and global markets towards a focus which instead secures future livelihoods for family farms, builds resilient and thriving communities and ecosystems and supports food sovereignty, care and well-being.

Food sovereignty - emphasizes ecologically appropriate production, distribution and consumption, social-economic justice and local food systems

Food security on the other hand, is often achieved by sourcing food produced under environmentally destructive and exploitative conditions, and supported by subsidies and policies that destroy local food producers but benefit agribusiness corporations.

Where to from here?

RESOURCES

Animals and Animal health

Paul Detloff – *Alternative Treatments for Ruminant Animals; Complete Guide to Raising Animals Organically*

Newman Turner – *Cure Your Own Cattle*

Temple Grandin – lots of books

Soils and Grazing

Sarah Flack - *The Art and Science of Grazing*

Savory Institute

Greg Judy – lots of books/youtube

Dr. Elaine Ingham – soilfoodweb.com

Dr. Christie Jones – lots of talks and papers online

Nicole Masters – lots of talks and papers online

F. H. King - *Farmers of Forty Centuries: Permanent Organic Farming in China, Korea, and Japan*

Species Roles and Integration

Joel Salatin – lots of books

White Oak Pastures – lots of videos and interviews online

Gabe Brown - *Dirt to Soil*

General

Mark Shepherd - *Restoration Agriculture*

Acres USA – magazine, podcast, newsletter, anything and everything

Malcolm Beck - *The Secret Life of Compost*

Ben Hartman - *The Lean Farm*

Richard Perkins – *Making Small Farms Work*; YouTube channel

Institute for Agriculture and Trade Policy: <https://www.iatp.org/agroecological-transitions>



A photograph of a lush green wheat field under a bright blue sky with scattered white clouds. The wheat stalks are tall and vibrant green, with some heads beginning to form. The sky is a deep blue, and the clouds are soft and white, adding texture to the background.

CRAWFORD'S FARM

Cloughjordan, Co. Tipperary