Feedstock Availability

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Green Gas Day 2025

Alder BioInsights

A specialist strategic business consultancy with over 20 years of bioeconomy experience

Business Planning

Collaborative Research

Feedstock Supply & Sustainability

LCA & Carbon Footprinting

Market Analysis & Strategy

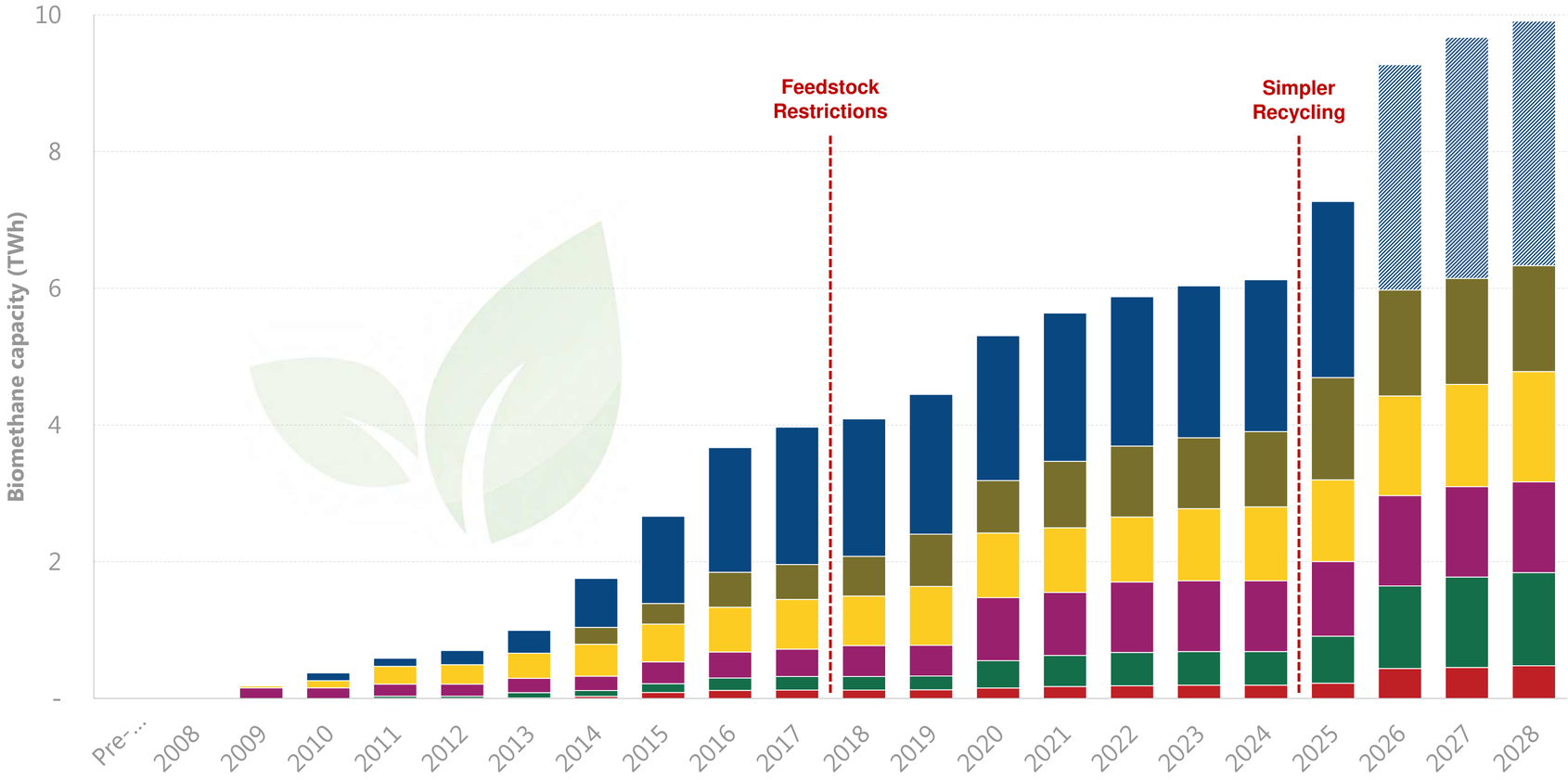
Policy & Strategy

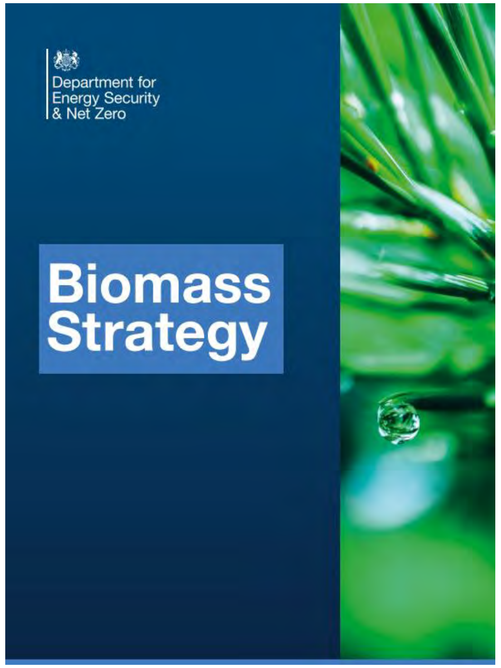
Regulations & Compliance

Investment Support

Feedstock Use

Feedstock, by type and energy contribution (TWh), in the UK





RHI – Now closed	GGSS	….to 2050
6 TWh	+ 3 to 4 TWh	30 to 40 TWh ??

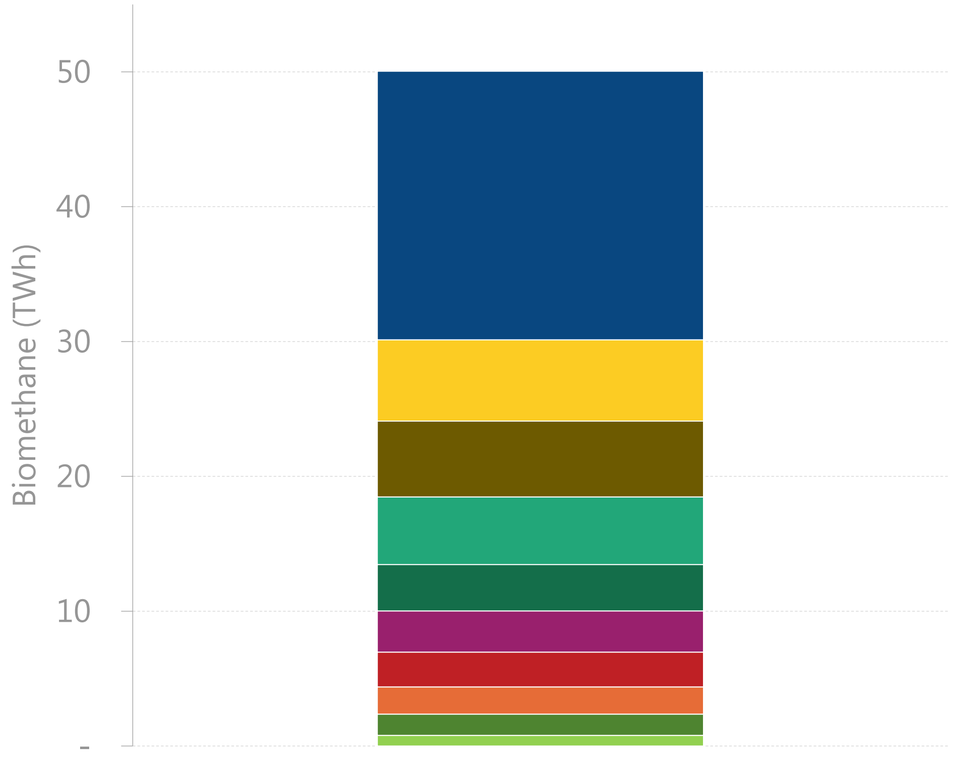
Biomethane Potential

Is feedstock availability hampering growth potential to 2050?

- Literature review
- Feedstock availability and use, by type:
  - Commercial, industrial, household food waste
  - Agricultural crops and residues
  - Livestock manure & slurry
  - CHP conversions
  - Sewage gas
  - Landfill gas
- Impacts and benefits
- Lifecycle analysis
- Policy recommendations

Biomethane Potential in 2030

Most immediate growth from wastes and residues with an evident increase from agricultural feedstocks



- Rotational Crops
- Agricultural Residues
- Livestock Waste
- Landfill Gas
- Sequential Crops
- Grassland
- Processing wastes and residues
- CHP Conversion
- Sewage Sludge
- Food Waste

Increase in sustainable farming practices

Use of uncropped land

Increased use of livestock manure from cattle, pigs and poultry

Slurry retained for on-farm systems

Sequential cropping emerges as a sustainable approach to combine food and energy production

Population increase

All sewage sludge treated by AD

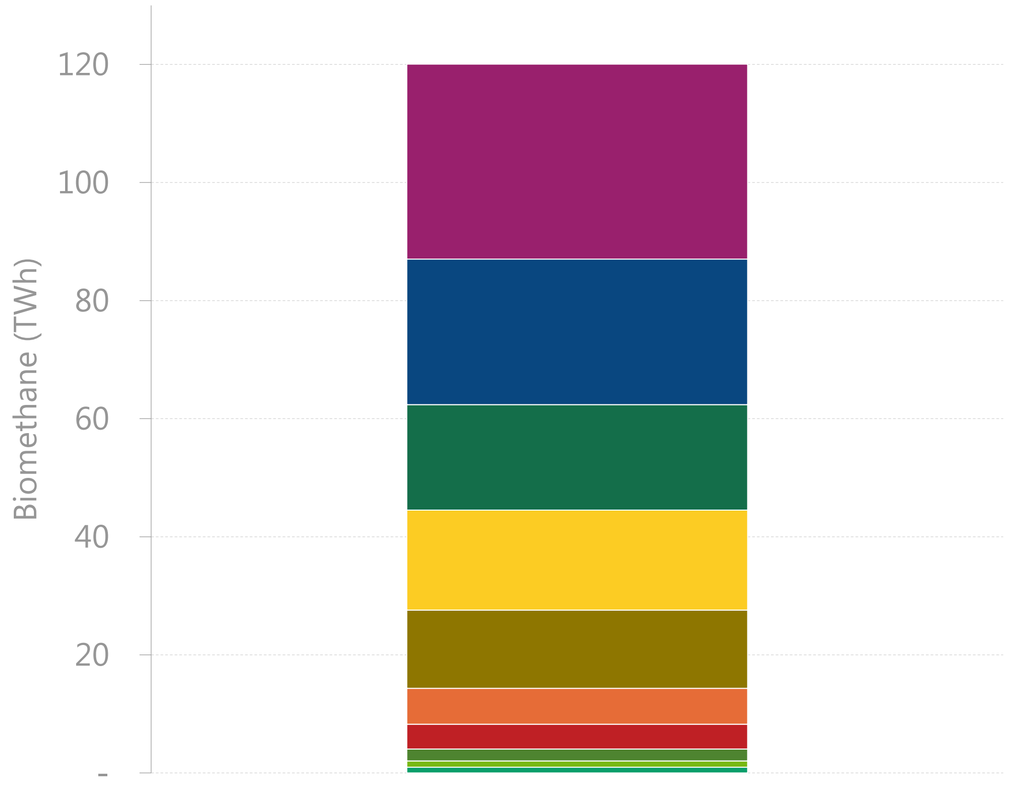
Courtauld Commitment 2030

Population increase

Introduction of Simpler Recycling

Biomethane Potential in 2050

Significant growth from agricultural feedstocks resulting from a transition to more sustainable farming practices



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Decrease in land competition

Increase in yields and land availability

Use of marginal land

Sustainable removal requirement for field residues reduced to 25%

Renewables Obligation for biomass power stations to end by 2032

Dietary changes

Decrease in livestock numbers

Higher collection and treatment rates

Conversion of existing CHP facilities to biomethane production

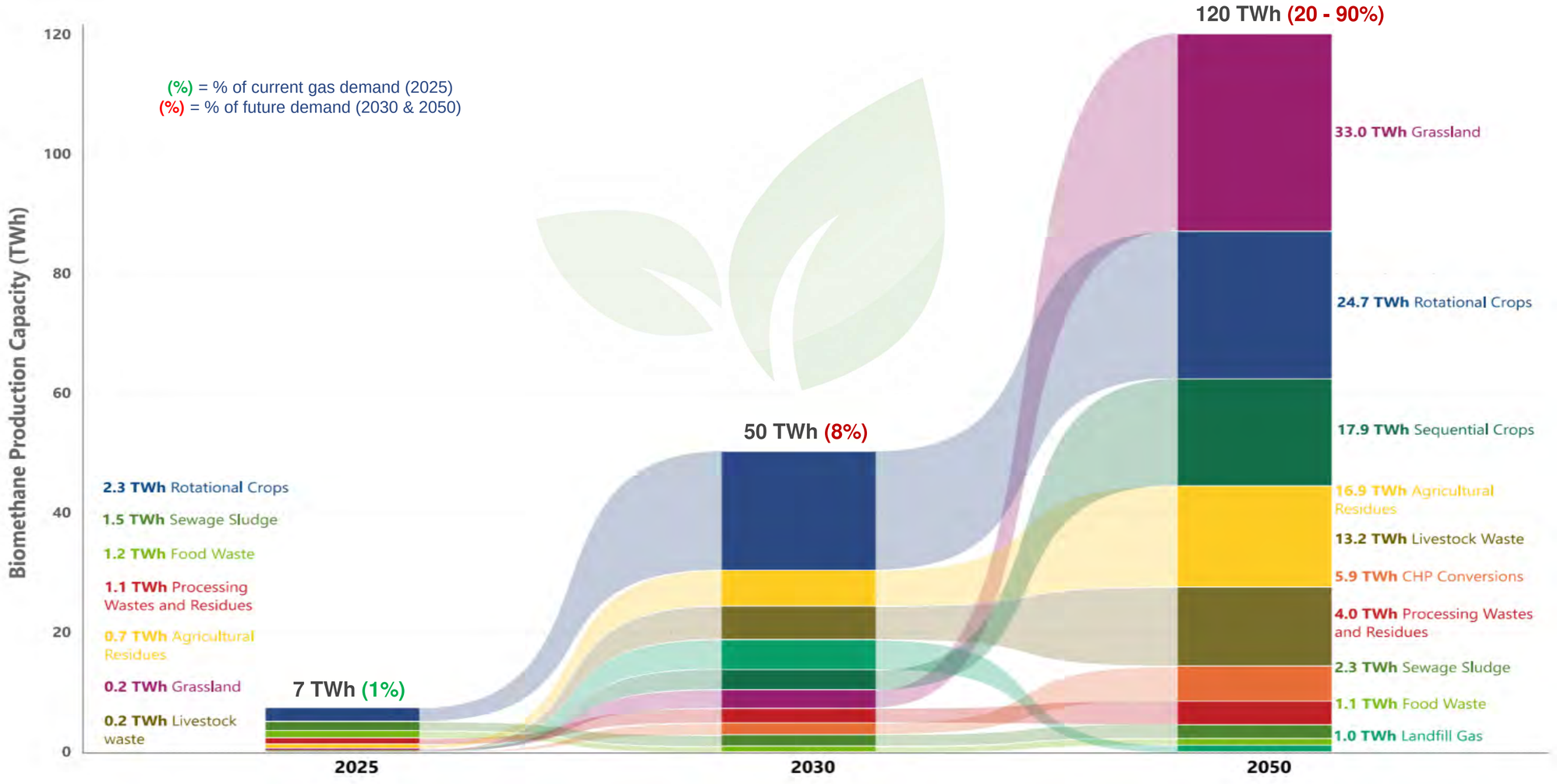
Population increase

Decrease in food waste production

Increase in food waste collection

Biomethane Potential

Biomethane production could increase tenfold by 2050 based on feedstock availability

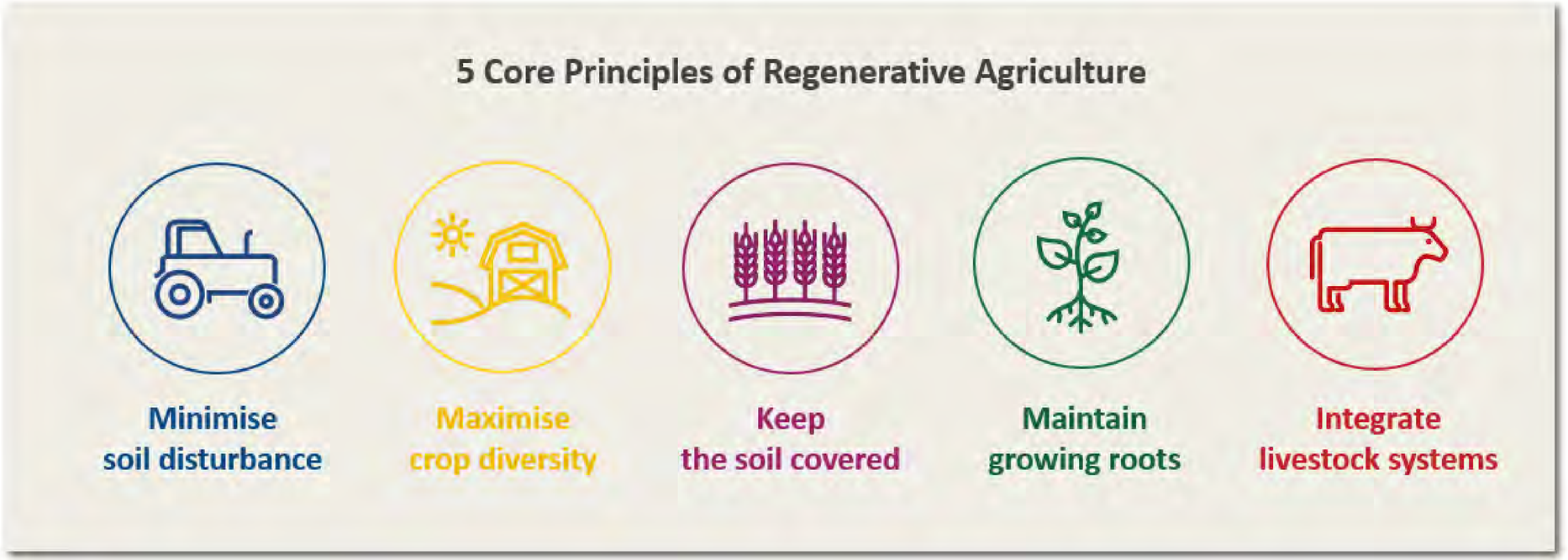


Impacts and Benefits

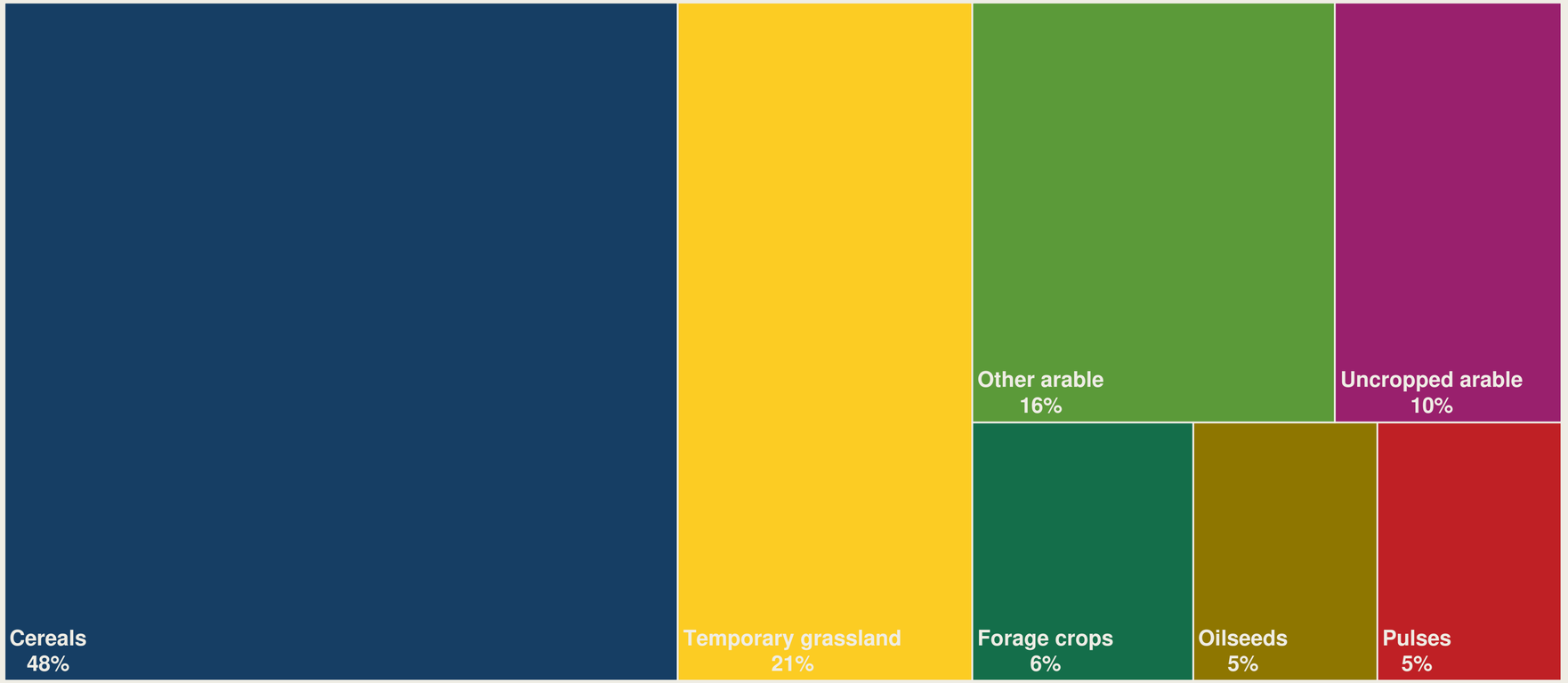
Need to think beyond energy and better recognise, value and reward the wider benefits

Agricultural Transition

Agriculture is responsible for 12% of the UK's GHG emissions. The transition is supporting a move from subsidies for land ownership towards improving the financial offer to farmers to improve productivity and to encourage more sustainable farming practices



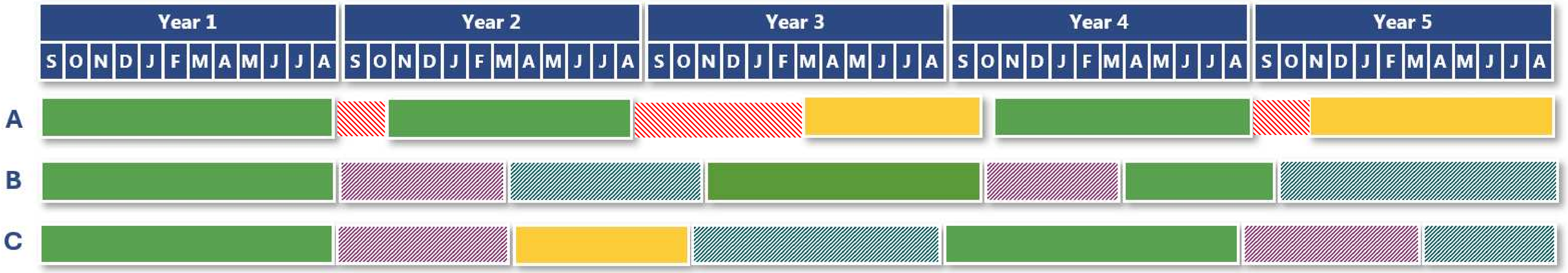
UK Arable Land Use (2024)



Source: Defra June Census (2024): Land Use data

Improving Productivity & Building Resilience

Rotational and sequential crops can be grown for biomethane production without impacting negatively on food production, presenting viable local market opportunities well aligned with sustainable farming policies



Key:

- Cereal crop, e.g. wheat or barley
- Break crop, e.g. potatoes or beans
- Rotational crop, e.g. maize or rye
- Sequential crop, e.g. vetch or clover

Adding 12 months to the production system

= 1 year in 5

= **20% productivity increase**

Conclusions

Need to think beyond energy

- To reach full potential, future policy should **integrate the agricultural, environmental, and economic benefits**.
- This would **distribute financial support** more evenly across sectors, strengthen the economic case for AD, and **position biomethane more competitively** alongside other renewables.
- Support schemes should **incentivise sustainable feedstock use** and recognise whole system benefits.

Can achieve improved energy and food security

- Biomethane production **should not compromise food production**; it can in fact enhance agricultural productivity.
- This presents a timely opportunity for the agricultural sector to develop local markets, diversify crop options, and **build business resilience** at a time of volatile prices and high input costs, while contributing to national sustainability goals and **improving both energy and food security**.

Need a cohesive policy framework

- Greater **cross-government coordination** is essential to realise these opportunities.
- Policy interests are dispersed across departments, covering energy, waste and slurry management, water quality, and air quality - **clear central leadership** is necessary.
- In isolation these benefits can be modest, but collectively **significant and unrivalled** by other low carbon technologies.

Need clear and ambitious targets

- Clear targets to 2030 and 2050 are essential to provide **investor confidence and drive sector growth**.
- Biomass Strategy ambition should be considered an interim 2030 target, whilst a much more **ambitious target** for 2050 should be considered, **up to tenfold current capacity**.
- A change of mindset is needed, and **feedstock should not be considered a barrier to growth**.

Feedstock availability should not be a barrier to growth

Thank you

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