

British Society of Animal Science Annual
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Livestock in our economy and ecosystem: an agricultural economics perspective

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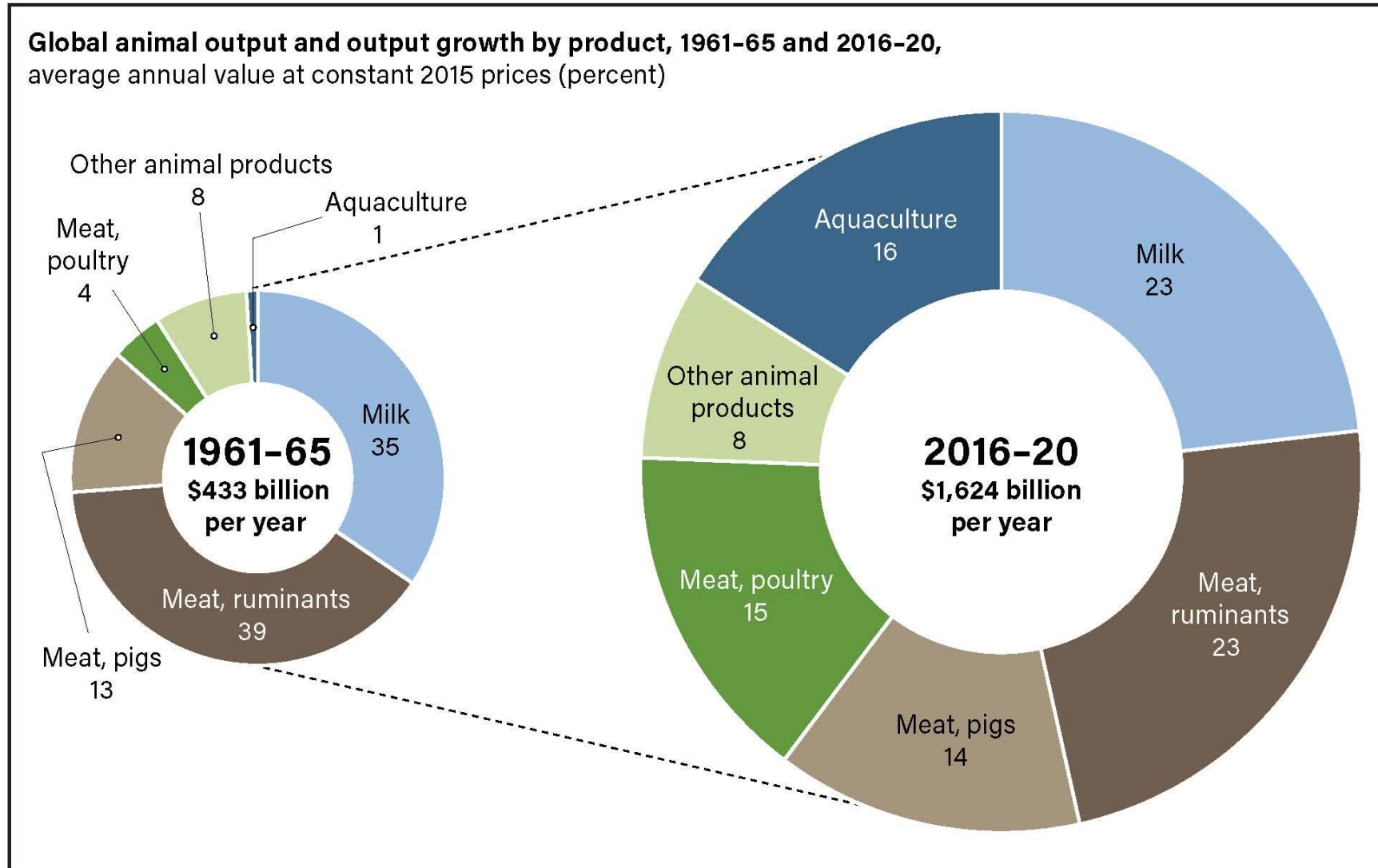
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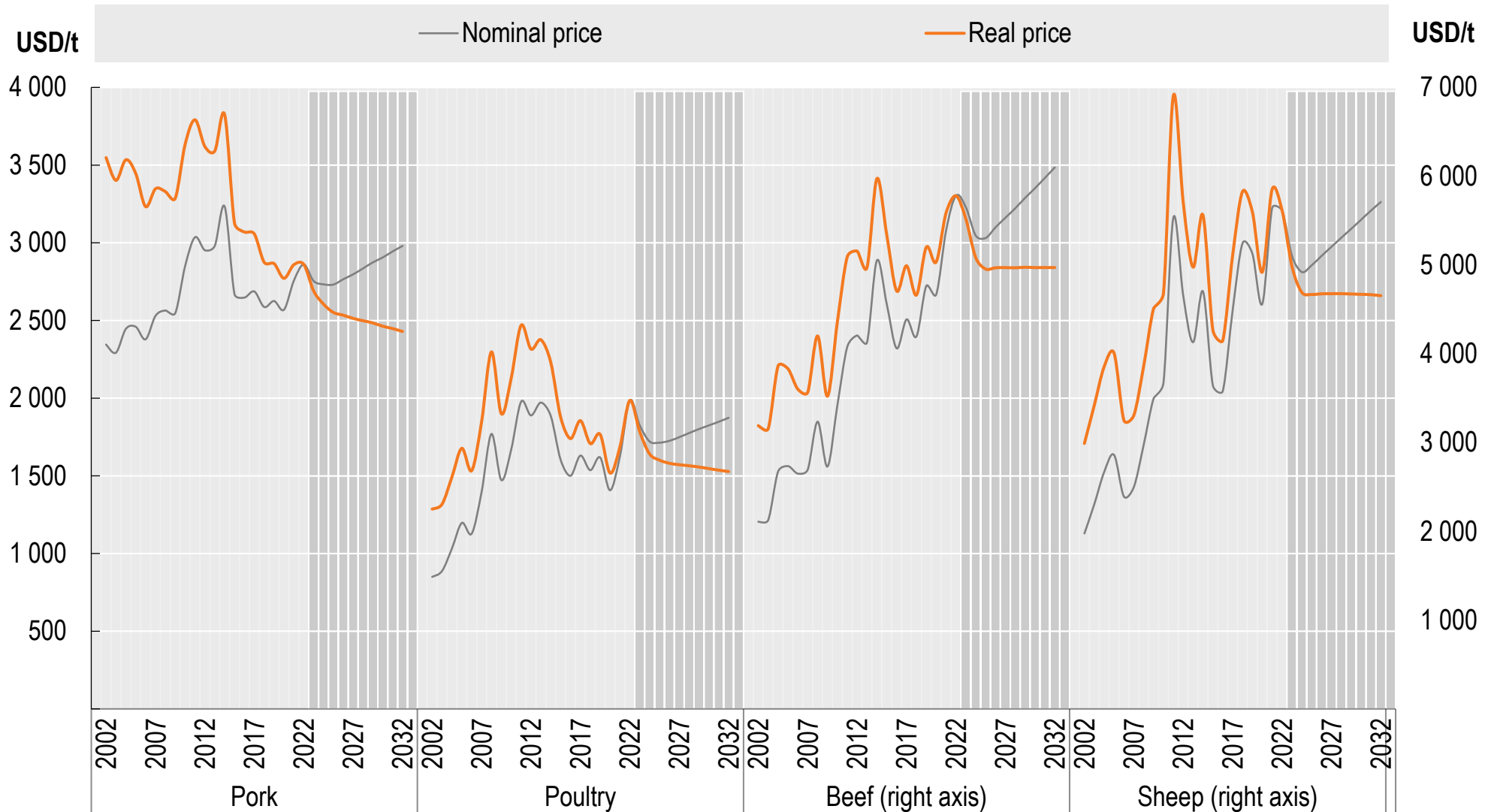


How do we decide what gets produced?

Diversification in global animal and aquaculture production, 1961-65 and 2016-20



World prices (OECD-FAO, 2023)



Contribution to the economy – UK GVA

GVA agri-food sector, 2021 (£billion)

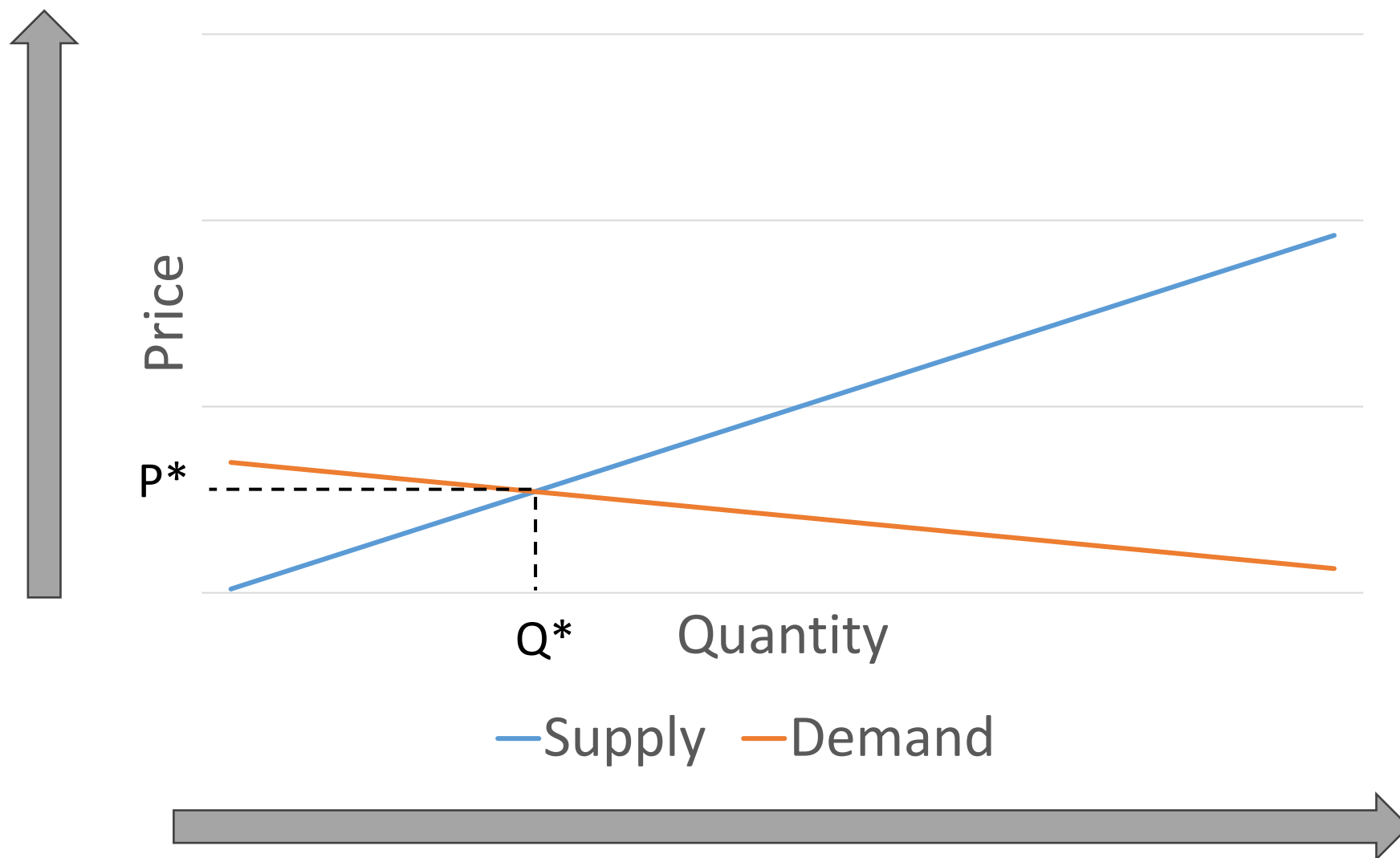
	Gross Value Added	% of total
Agriculture	12.1	9%
Food Manufacturing	30.4	24%
Food Wholesaling	12.7	10%
Food Retailing	36.9	29%
Food Non-Residential Catering	35.2	28%

Gross Value Added

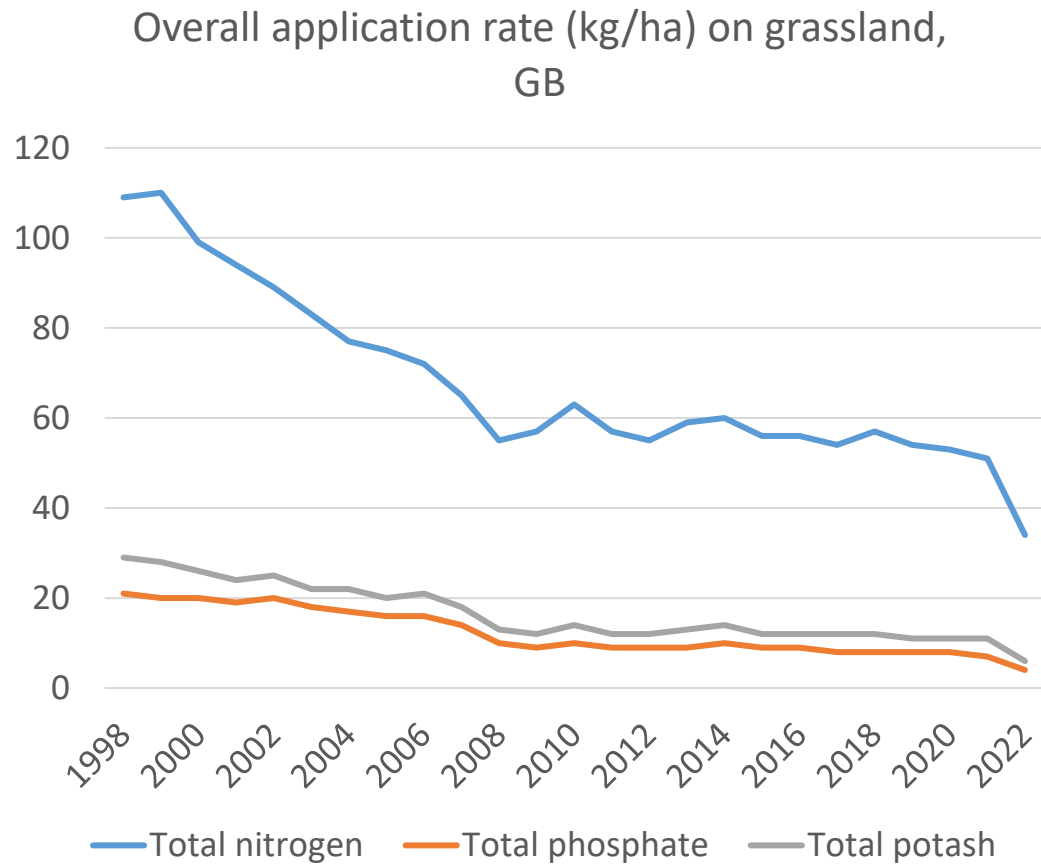
- Labour + capital input to production
- Agriculture and wholesale
 - Commodity based
- Manufacturing, retail, catering
 - More differentiation
 - Higher added value

Source: Defra, AUK – Chapter 14, July 2023

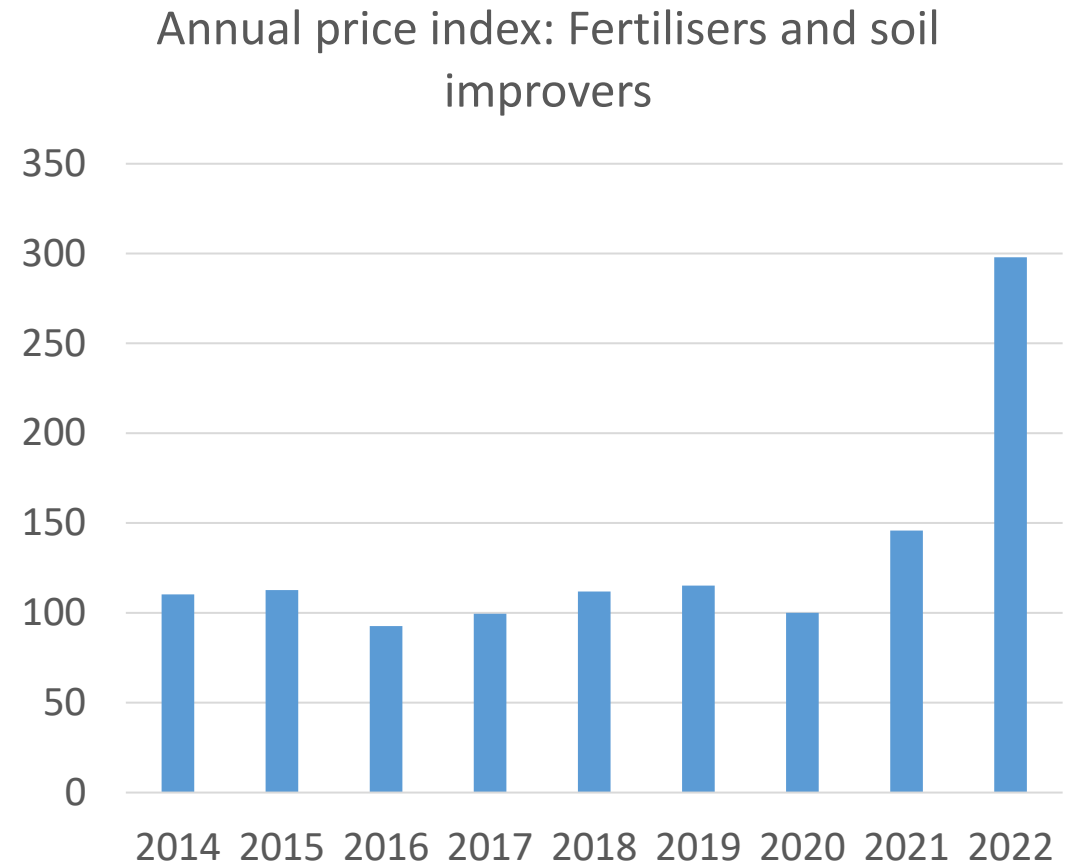
Markets – the ‘invisible hand’



Prices change behaviour



Source: Defra, BSFP 2022, July 2023



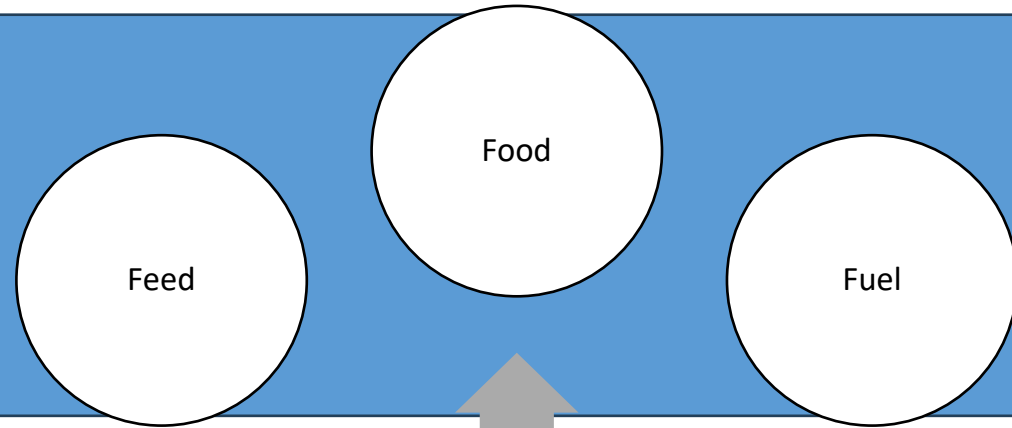
Source: Defra, AUK – Chapter 9, July 2023

Private goods

Rivalrous and excludable

Two people can't eat the same hamburger

I can sell you the hamburger

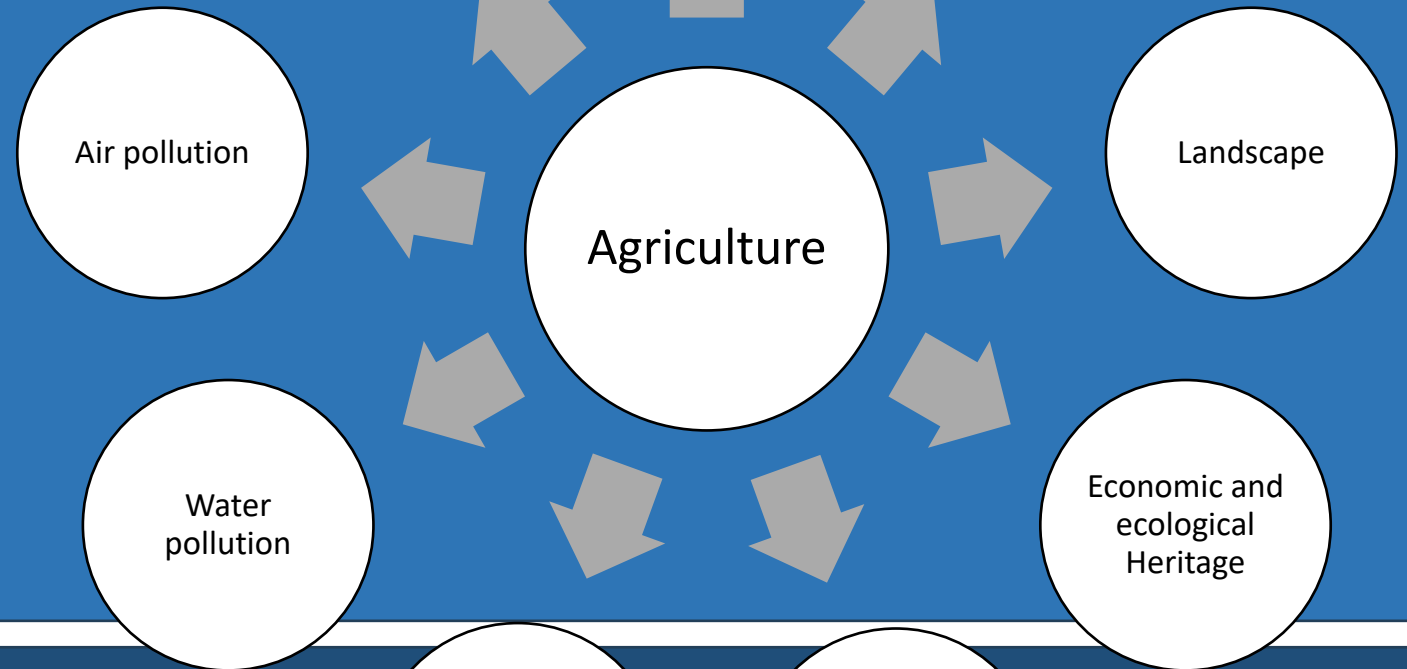


Externalities

Not reflected in the market price

Impacts felt by many (non-rivalrous)

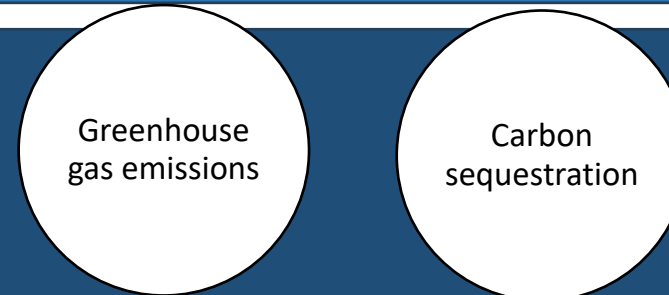
Location 'excludes' some from impacts



Public goods

Non-rivalrous and non-excludable

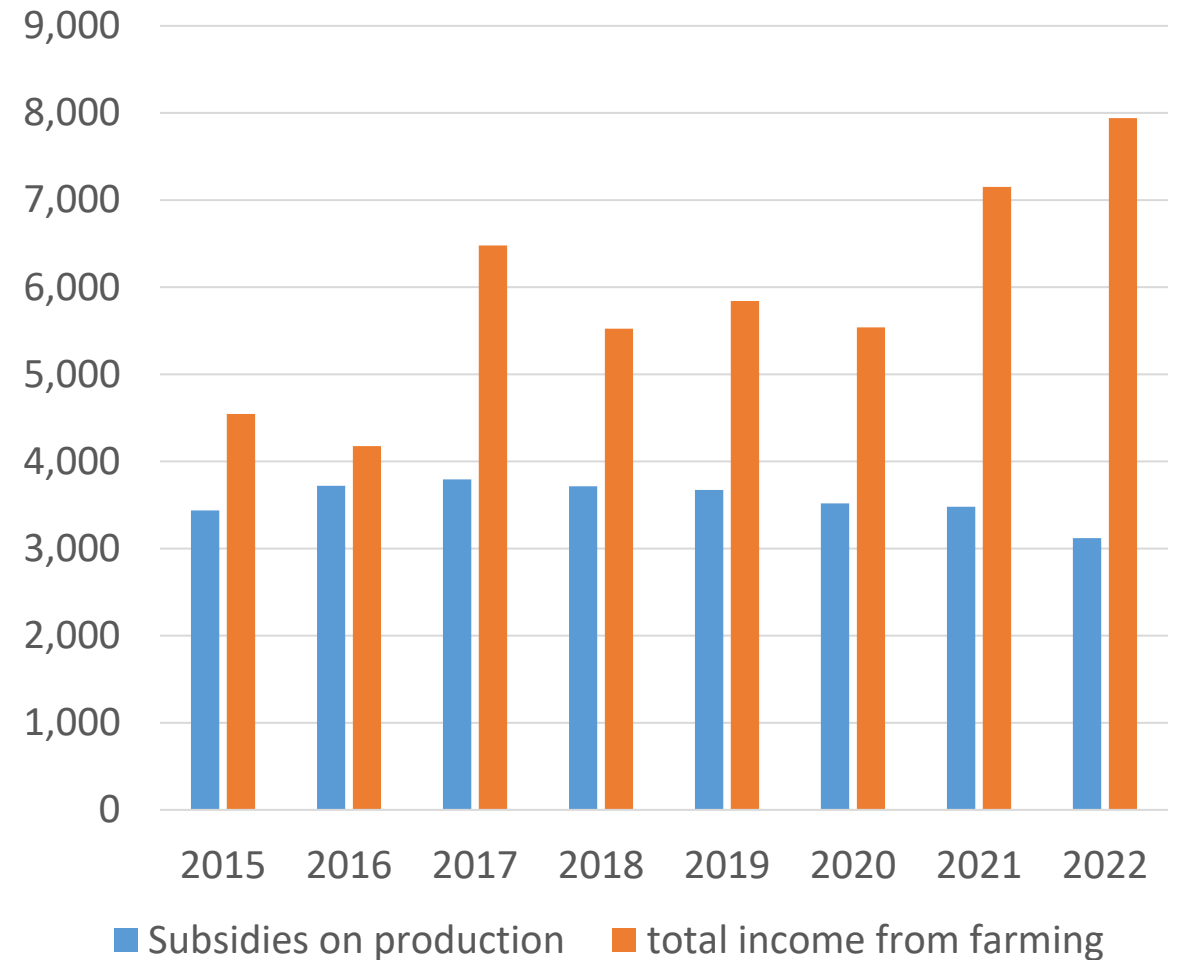
No control over who/where impacted



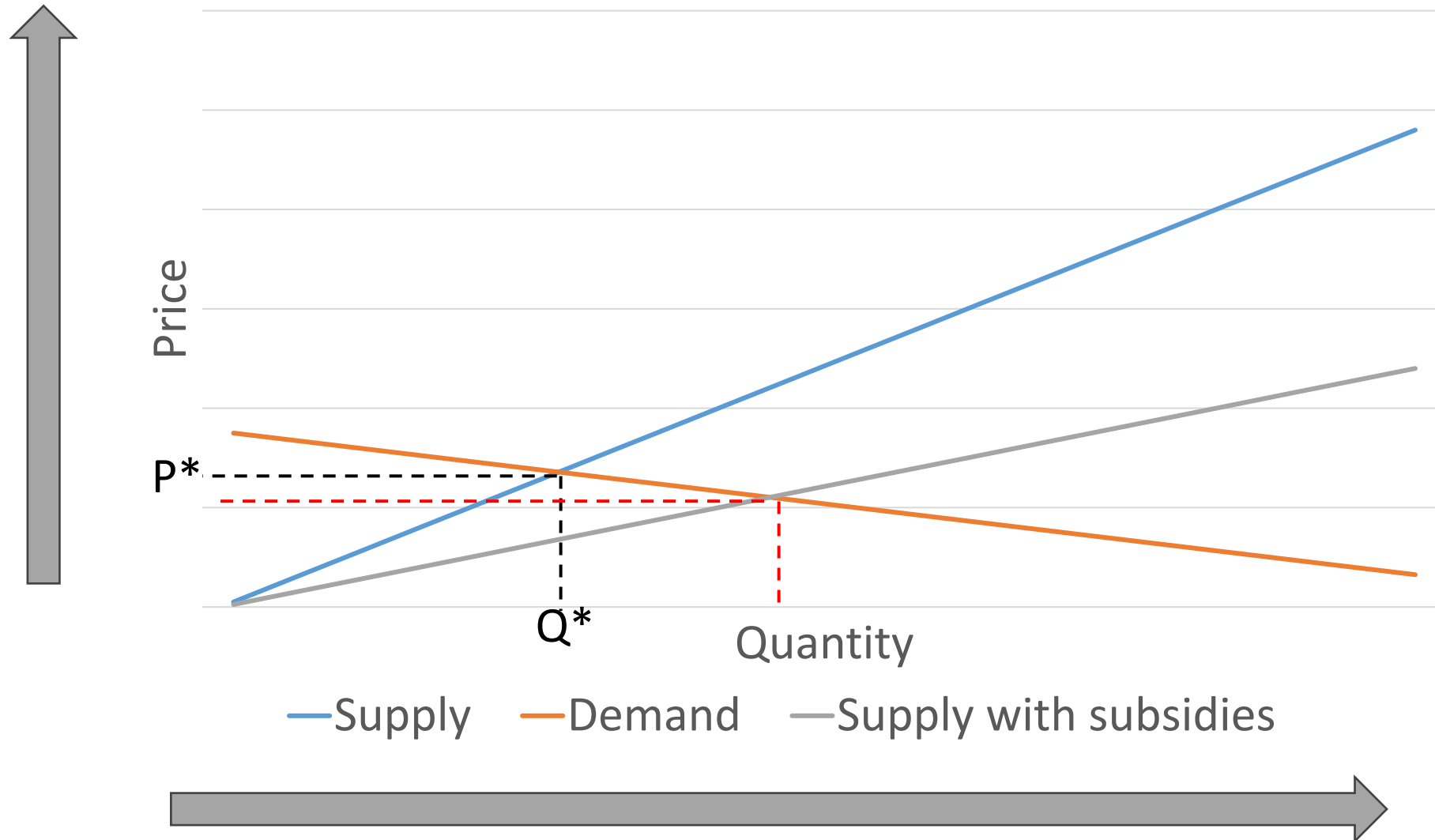
Market interventions (subsidies)

£ output per £100 input	Percentage of farms
0 < 60	3.6
60 < 70	3.9
70 < 80	6.0
80 < 90	10.7
90 < 100	13.2
100 < 110	15.7
110 < 120	13.5
120 < 130	9.4
130 < 140	7.6
140 < 150	4.6
150 < 160	4.3
160 < 170	2.9

37%



Subsidies that shift the supply curve



Artificial markets (cap and trade)

- Negative (e.g. carbon emissions) or positive (e.g. renewable energy) externality given a ceiling (e.g. EU ETS) or floor (e.g. ROC)
- Efficient way to meet a target
 - Choice to abate emissions/meet obligation, or, purchase 'credits' from others
 - Least cost solution to meet the target
- 'Market price' not the same as 'social cost' as driven by the target
 - How much artificial scarcity or minimum supply
 - Adjustment costs of those subject to the target
- 'True price' is the cost to society for each additional (fewer) unit
 - For some externalities (e.g. water pollution, landscapes) this marginal social cost will vary considerably across space

Ecosystem services 'markets'

- More difficult than energy-related emission markets
 - Importance of context
 - variation in marginal social costs for key negative externalities
 - Additionality
 - can sequestration be sold on a market but the right to emit methane be free?
 - Transaction costs
 - Complex information required
- People are trying!
 - EU Regulation on deforestation-free products
 - UK woodland carbon code
 - Peatland code

Ecological value-added for livestock products?

- Commonly accepted framework to determine the *net* benefit to ecosystems
- Regulated communication and branding standards
- Dynamic certification process to reflect tipping points or changing conditions



Photo credit: AFBI

Thank you

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