UNITED KINGDOM · AT A GLANCE · V0.2, NOVEMBER 2026 · FOR INDEPENDENT APPRAISAL

Strategic Food Reserve and Food Independence

Food is the one thing nobody can live without. Britain is better placed to grow it than most countries: mild, rain all year, no dry season, broad flat fertile lowlands. But every harvest relies on imported fertiliser, feed and energy, and there is no national food reserve, only just-in-time supply chains. In an era of wars on trade routes, El Niño swings and global instability, **that is inadequate.**[1]

Our aim: grow a reliable surplus, make farming a skilled career, and insure the harvest with a national food reserve, for **about 4p a person a day**.

WHERE WE ARE

THE UK

69.5 m	people to feed[2]
16.8 m ha	of farmland, 69% of the UK. Only 6.1 m hectares can grow crops; the rest is mostly grass and hills[3]
0.09 ha	of cropland per person: about three and a half tennis courts. France has three times as much[4]
Twice	the world average wheat harvest per hectare (about 7.8 tonnes)[5]
446,200	people work on farms; 4 in 10 English farmers are over 65[6]

WHAT WE GROW

112%	of the calories we need, averaged over 10 years: a surplus before waste, but shrinking (105% over 5 years, 101% in 2025)[7]
52%	of our wheat, barley and oats is fed to animals. Animals use 84% of farmland[8]
~170 kcal	extra per person per day if animals got 10% less grain (our estimate)[9]

HOW FRAGILE IT IS

2.39 Mt	of soya animal feed is imported each year, mostly for pigs and poultry[10]
0	large UK ammonia plants (the base of nitrogen fertiliser) since 2022; all phosphate imported. Urea prices doubled in early 2026[11,12,13]
~10 days	of food in shops and their depots (industry estimate); 39 days of wheat in store just before harvest[14,15]
4 of 5	of the UK's smallest harvests on record are likely to fall in this decade[16]
0	national food reserve: firms hold working stock only, and the government has "no plans" for one[17]

WHAT WE CAN DO

STORE · THE INSURANCE POLICY

About £10 a person a year, our design budget: £10.33 for ~6.8 m tonnes[18]

4.35 Mt	of bread wheat: flour for ~10 months at today's use, or ~84 days of everyone's raw calories[19]
3 days	of ready-to-eat food (no cooking) for every person, ~2,000 kcal a day, stored locally[20]
For all	90 days of vitamins with doses set by nutritionists; baby milk and medical foods; bottled water on top of water firms' legal duty[21,22,23]
4 months	of rice and cooking oil, 2 months of sugar, plus beans, oats, milk powder, tinned fish[24]
1.2 Mt	for next year's harvest: seed, safe fertiliser, 10 weeks of soya feed[25,26,27]
~40	stores at grain ports (e.g. Immingham, Liverpool, Belfast) and in every region, plus local points in schools and depots[28]
£3.69bn	up front over ~5 years, mostly the food; run by a small open agency (~65 staff)[29,30]

GROW · BUILD THE SURPLUS

£4.46 a person a year (£310m) of new money[31]

£35m	a year: free soil tests for every crop field, cheap moisture sensors, a soil map. Pays back if it trims the £1.8bn fertiliser bill by 2%[32]
£100m	a year for farm reservoirs that store winter rain for dry summers (today ~£15m a round)[33]
£175m	for British seed, recycled nutrients, home-grown protein, and helping farms switch to soil-building methods[34,35]
~3,600	jobs across both pillars: stores, labs, soil testing, water, seed, processing (gross)[36]

Can Britain feed itself?

On calories, yes: in an average year our farms grow more than we need. In a crisis, only if grain goes to people first and fertiliser, fuel and power keep flowing. The reserve covers that gap.[7,9]

Not all calories are equal.

We grow plenty of wheat, milk and lamb, but only 14% of our fresh fruit. Bananas will always be imported, and that is fine. Greenhouses on waste heat could grow more salad and berries; on gas they fail, as Dutch growers found in 2022.[37,38]

Who will farm?

The Netherlands made farming a high-tech, highly trained profession exporting €88bn of its own produce a year, though it imports more calories than it exports. Britain can make farming a skilled, respected career too.[38]

We started from a budget: £10 a person a year (national insurance for food, not the tax). With GROW, £14.79: 4p a day, under 2% of defence.[39] Estimates: knock-on costs could mean £12–17 (£16–21 with GROW).[40]

Next steps: an independent audit of our two models · a regional pilot with one mill, a few councils and the food pack · a formal appraisal against the Government's current approach.[41]

Sources and references

Every number on page 1 has an entry below: what it says, where it comes from, and our arithmetic where the number is ours. **[P]** official statistics or peer-reviewed research · **[S]** secondary or press source · **[E]** our estimate or model. Check any of it yourself, or paste these pages into an AI and ask it to. Models, research notes and the full evidence file: github.com/planetarycouncil/food-security-climate-regeneration.

> **Check it with AI.** Paste these pages into any AI with this prompt: *"This is a one-page proposal for a UK strategic food reserve. Fact-check every number against its source and check the arithmetic. List errors, unrealistic assumptions and missing costs. If the case holds up, suggest practical next steps."*

1. **"That strategy is inadequate."** [P/I] The government holds no national food stockpile and relies on commercial supply chains (note 17). The National Audit Office found the UK food supply chain not sufficiently prepared for catastrophic disruption (NAO, Sep 2026). In 2026 the Strait of Hormuz closed and Black Sea grain shipping came under attack (note 13). El Niño swings shift harvests in major food-producing regions (Iizumi et al. 2014, *Nature Communications*). "Inadequate" is our judgement from this evidence.
2. **69.5 million people.** [P] ONS mid-2025 estimate ≈ 69.48 m, rounded. Used throughout as the per-person divisor. ONS, population estimates
3. **16.8 Mha of farmland, 69% of UK land; 6.1 Mha croppable.** [P] Utilised agricultural area, June 2025. Defra, *Agriculture in the UK 2025*, ch. 2 (table 2.1)
4. **0.09 ha of cropland per person; France ~0.28 ha.** [E] Our arithmetic: FAO arable land totals ÷ population for each country. For scale, 0.09 ha ≈ 900 m², about three and a half doubles tennis courts.
5. **~7.8 t/ha wheat, about twice the world average; a mild, wet climate.** [P/E] UK average derived from AHDB's survey; world average from FAO. A single season varies: 2026 winter wheat was ~6.9 t/ha, ~11% below the five-year average (AHDB, final harvest report (2026)). Temperate oceanic climate, rain all year, no dry season (Met Office, UK climate zones). About 42% of England's farmland is graded best and most versatile (Natural England land classification). [I] "Better placed than most countries" is our judgement from these facts; the limits are land per person (note 4), and weather that is becoming less reliable (note 16).
6. **446,200 work in farming; 40% of English farm holders over 65, 5% under 35.** [P] Defra, *Farming evidence pack* (Sep 2026)
7. **112% of calories over ten years; 105% over five; 101% in 2025.** [P] Farm output equal to 2,150 kcal per person a day against an average need of 2,119 (a margin of 31 kcal), before waste and processing losses; 105% on average over five years, 112% over ten. Defra notes the margin would shrink if imported feed stopped. 31 kcal is less than half a slice of bread (a medium slice is ~80–100 kcal: our comparison). Defra, *Nutritional supply of agriculture in the UK 2025* (15 Oct 2026)
8. **~52% of cereals to animal feed; livestock use 84% of farmland.** [P] Feed share from Defra cereal usage statistics (2023 data); the land share counts grazing plus feed crops, under Defra's stated assumptions, and livestock supply ~31% of farm calories. Defra, *Agriculture in the UK 2025*, ch. 2
9. **~170 kcal per person per day if animals got 10% less grain.** [E] Much feed wheat and barley does not meet bread-making standards, so it would be eaten as porridge, flatbread or heavier wholegrain loaves. Our arithmetic: UK livestock eat ~13.4 Mt of cereals a year (AHDB cereal supply and demand, 2025/26). 10% is 1.34 Mt × ~3.3 m kcal a tonne ÷ 69.5 m people ÷ 365 ≈ 174 kcal, about five times the 2025 margin of 31 kcal. Grain is not a whole diet, and less feed means less meat, milk and eggs. In our grain model (a scenario, not a demonstrated capability), with feed at 90% of today, normal harvests carry the UK through three years without imports and without extra reserve (`cereal_balance.py`).
10. **2.39 Mt soya meal, ~1.1 Mt protein.** [S/E] Import tonnage from the AIC soya report (2024); protein is our arithmetic at ~46% crude protein.
11. **No large-scale UK ammonia production; all phosphate imported.** [P] CF Fertilisers idled the Billingham ammonia plant in August 2022 and proposed permanent closure in July 2023; fertiliser is still made there from imported ammonia (CF Industries (Jul 2023)). Also Defra, *UK Food Security Report 2024*, theme 3. Phosphate: ~174 kt of phosphorus imported a year, under half used productively. Lancaster University, UK Phosphorus Transformation Strategy (2022)
12. **904 kt of fertiliser nitrogen, 2025.** [P] Defra, British Survey of Fertiliser Practice 2025
13. **Urea $400 → $850 a tonne (early 2026 to April); up to 30% of traded fertiliser through Hormuz.** [P] WTO data blog (10 Jul 2026); FAO, chief economist on the Strait of Hormuz (2026). We could not confirm whether Hormuz was open in late October 2026.
14. **~10 days of food in the shops.** [S] The industry's rule of thumb for retail stock, not a measured national inventory; it leaves out farm, manufacturer and wholesale stocks, and varies by food. Full Fact, the UK's food supply
15. **1.514 Mt of wheat at the pre-harvest low ≈ 39 days.** [P/E] Commercial stocks at end of season; days are our arithmetic against total UK wheat use. AHDB, end-of-season UK cereal supply and demand (Sep 2026)
16. **Four of the UK's five worst harvests on record likely this decade** (2020, 2024, 2025, 2026). [S] ECIU's analysis of key-crop volume from AHDB and Defra data, before final 2026 figures (due December); it expects 2026 to be the smallest on record. ECIU (Oct 2026)
17. **No national strategic food reserve, "no plans to create these".** [P] Firms hold working stock (note 15); the government relies on commercial supply chains. UK Parliament, written answer HL15829 (31 Mar 2026)

18. **£10.33 per person a year, £718m, ~6.8 Mt.** [E] Who holds what: firms hold ~6.7 Mt by law and rotate it through normal trade (wheat, rice, oil, sugar, pulses, oats, milk powder, tinned fish, soya meal, seed and fertiliser; stock worth £2.24bn). The state owns the public tranche (the 3-day food pack, specialist packs, vitamins, flour premix, sacks and bottled water; stock worth £0.72bn), with baby milk held by manufacturers under contract. An economic cost, not one government bill: £4.93 a person through taxes, £5.40 through food prices. Not yet checked against supplier quotes. Our cost model: £375m carrying cost of compulsory commercial stocks (6.7 Mt, held by firms, cost passed through food prices: £5.40 a person) plus £343m for the public tranche and operations (taxes: £4.93). Carrying cost = finance + storage + rotation losses, not the purchase price. `reserve_basket.py`

19. **4 Mt food-grade wheat + 0.35 Mt high-protein wheat; ~10 months of bread; ~84 days of calories.** [E] Raw energy, before milling losses and waste, and not a complete diet. 4 Mt ÷ UK mill intake (4.8 Mt a year, UK Flour Millers) ≈ 304 days, if mills have power, staff and the right mix. The strong wheat for today's sliced loaf lasts ~90 days; after that bread becomes heavier. As raw energy: 4 Mt × ~3.3 m kcal/t ÷ (69.5 m × 2,250 kcal) ≈ 84 days. Annual cost £182m. Same model as note 18.

20. **No-cook pack: 104 kt.** [E] 3 days × 69.5 m × ~500 g of crispbread, biscuits and oatcakes ≈ 104,000 t, ~2,000 kcal a day at 4 kcal/g; stored near where people live, rotated into schools, forces and food banks every ~2 years. £28m a year. Not yet designed by dietitians. Model as note 18.

21. **90 days of supplements.** [E] The model budgets vitamins A (as beta-carotene), C and D plus zinc for 69.5 m, £19m a year. One formula will not suit everyone: high-dose beta-carotene raised lung-cancer risk in smokers in two large trials (ATBC, *NEJM* 1994; CARET, *NEJM* 1996), and children and pregnancy need their own doses. Formulas must be set by public-health nutritionists. Model as note 18.

22. **Infant formula ~7 kt; medical foods; 7-day specialist pack for 5 m people.** [E] Formula held by manufacturers; specialist pack for people who cannot use the standard ration (allergies, coeliac disease, texture needs). £44m a year together. Model as note 18.

23. **90 m litres of bottled water.** [E] 10 m people × 3 days × 3 L. All 69.5 m would need ~625 m L. Under the Security and Emergency Measures Direction, water companies must already plan to supply 10 L a person a day within 24 hours if pipes fail, rising to 20 L after 5 days (DWI, Security and emergencies; United Utilities, drought plan annex citing SEMD). The bottled water is a small extra buffer, not national water security. £6m a year. Model as note 18.

24. **Imported staples ~1.2 Mt.** [E] Rice 220 kt (~4 months of UK use), vegetable oil 135 kt (~4 months of rapeseed-oil use), sugar 330 kt (~2 months), pulses 300 kt, oats 100 kt, skimmed milk powder 50 kt, tinned fish 40 kt. Each rotates at 4–16% of UK use a year, so it does not swamp the market. £81m a year. Model as note 18.

25. **300 kt of cereal seed.** [E] Winter 0.2 Mt + spring 0.1 Mt, kept separate. £44m a year. Reviewers note certified seed loses germination if held over, so a smaller cold vault plus paid options on seed-growing land may be cheaper; under review.

26. **162 kt of nitrogen.** [E] 200 kt protected urea (92 kt N) + 250 kt UAN-28 in heated tanks (70 kt N), ~18% of a year's use: a pre-season buffer. Solid ammonium nitrate, the Beirut chemical, is excluded on safety grounds. HSE, ammonium nitrate and COMAH; model as note 18.

27. **460 kt of soya meal, ~10 weeks of imports.** [E] Rotated first-in-first-out through normal trade. £45m a year. Model as note 18.

28. **8–10 port hubs, ~30 district stores, thousands of local points.** [E] Hubs at bulk-grain ports, not Dover (a lorry port); district stores across all four nations, away from Humber and Wash flood zones; a statutory minimum in Northern Ireland in case ferries stop. Research note 23

29. **£0.70bn of new stores; £3.69bn up front.** [E] 2 Mt of new wheat storage at ~£350/t, financed by store operators. Up front: public stock £0.72bn + firms' stock £2.24bn + new stores £0.70bn + sensors £0.02bn. Reviewers suggest turnkey aerated silos may cost £420–520/t, which would add ~£0.14–0.34bn up front. Model as note 18.

30. **Agency of ~65, £33m a year.** [E] Staff £5.8m; innovation £8m; sensors and auto-samplers £2.9m; data platform and backups £4m; lab certificates £3m; open data £1.5m; independent inspectorate £8m. Every role has a lead and two deputies; two signatures per release. Model as note 18.

31. **£4.46 per person a year, £310m.** [E] New money only. Existing farm support (£4.87bn, ~£70 a person) would gradually be aimed at resilience, but some of it is tax relief or signed contracts. Defra, *Agriculture in the UK 2025*, ch. 10–11; model as note 18.

32. **£35m a year for soil testing and monitoring; pays back at a 2% fertiliser saving.** [P/E] UK farms spent £1,779m on fertiliser in 2025 (Defra, *Agriculture in the UK 2025*, ch. 4); £35m ÷ £1,779m ≈ 2.0%. A standard pH, phosphate, potash and magnesium test costs ~£18–24 a sample (AHDB, soil testing companies). Testing all 6.1 m ha of cropland every 5 years at roughly one sample per 4 ha is ~305,000 samples a year, ~£7m (our arithmetic; the sampling density is our assumption). The rest buys low-cost moisture sensors on farms, satellite moisture data and a national soil-health map. Today the UK has ~50 research-grade soil-moisture stations (COSMOS-UK, *ESSD* (2021)). Model as note 18.

33. **£100m a year for reservoirs.** [P/E] Current grant rounds £10–15m; the August 2026 round was £15m. Defra Farming blog (Aug 2026)

34. **£125m: seed £40m, nutrients £60m, protein £25m.** [E] Gene banks and UK seed multiplication; manure testing, phosphorus recovery and a green-ammonia pilot; dehulling and pulse mills. Model as note 18.

35. **£50m for the regenerative transition.** [P/E] Independent advice, farmer networks and bridging payments. Profit often improves after 3–5 years, but paying back the switch takes ~9 years without support. WBCSD, *Closing the gap*

36. **~3,600 jobs across both pillars.** [E] Gross: about 1,070 permanent jobs in the reserve (agency, stores, labs, haulage, local planning) plus soil testers, water engineers, seed breeders, nutrient advisers and pulse processors under GROW, including some temporary building work; not net of jobs displaced elsewhere. No study yet shows people losing office jobs to AI moving into land work; pay, training and housing decide that. Research note 25

37. **60% of food by value; over 80% in the 1980s; wheat 83%, fresh vegetables 56%, fresh fruit 14%.** [P] "Production to supply ratio", 2025. The 60% is by money value, so it moves with import prices; it is not a calorie share. The crop shares are by volume. Defra, *Agriculture in the UK 2025*, ch. 14

38. **The Netherlands; greenhouses.** [P/I] Dutch farm exports were €137.5bn in 2025: €88.4bn of Dutch produce and €49.1bn of re-exports (Statistics Netherlands, Mar 2026). On balance the Netherlands imports more calories and protein than it exports (Wageningen University). In 2022 greenhouse gas costs rose from about €0.80 to €2.50 a cubic metre and some growers shut down completely (New Zealand MFAT market report, Sep 2022). Lesson: copy the skills and technology, not the dependence on imported feed and gas. Waste-heat greenhouses and a skilled-career push are our proposals, not costed in the plan.

39. **£14.79 a person a year; under 2% of defence.** [P/E] £10.33 + £4.46 = £14.79 ÷ 365 ≈ 4p a day. In total £14.79 × 69.5 m ≈ £1.03bn a year, 1.7% of Ministry of Defence spending of ~£62bn (2025/26; the departmental measure, not NATO's wider one), which is ~£890 a person. House of Commons Library, CBP-8175

40. **£10 as a design budget; range £9.40 to £25.57.** [E] Per person a year, reserve alone · with GROW: central £10.33 · £14.79; firms borrowing at 8% £11.92 · £16.38; stress £16.56 · £21.02; extreme £25.57 · £30.03. We asked what about £10 a person a year could buy, then built up to it: bread first, then no-cook food, running costs, special diets, next harvest, staples. Hence "£12–17" (£16–21 with GROW). The central case assumes firms borrow at ~4% with a state-backed facility; without one, 8% gives £11.92. Not yet independently validated. These are annual carrying costs, including finance; the £3.69bn up front (note 29) is financed within them, not added on top. Low: finance 3.5%, storage −10% (£9.40). Prices +30% (£11.35). Firms financing at 8% without a state facility (£11.92) or 10% (£12.73). Grain and fertiliser prices doubled (£13.73). Stress (£16.56); severe (£18.34); extreme (£25.57). If the ONS counts firms' stock as public, government debt rises by ~£2.2bn. Model as note 18.

41. **Decisions.** Next steps from independent AI fact-checks: audit our two models; pilot one region; test a 30-day port closure, a 90-day trade and energy shock and several poor harvests; appraise against alternatives (Green Book). The law: emergency regulations under the Civil Contingencies Act lapse after 30 days, so a permanent compulsory stockholding regime may need new legislation; the powers already available should be assessed. Britain already directs refiners and importers to hold emergency oil stocks by law (Oil Stocking Order 2012, under the Energy Act 1976), a model to study (Civil Contingencies Act 2004, Part 2). No power to direct food firms today, and local planning found "insufficient" (NAO, Sep 2026). Comparable countries already hold reserves: Finland at least 6 months of bread grain; Switzerland 2–4 months of staples, held by firms by law (réservesuisse). The full 22-page briefing sets out the case chapter by chapter: `pdf/can-britain-feed-itself.pdf`

This is not a fringe concern

Asked five times in Parliament in 2026. Dr Roz Savage MP (February), Lord Truscott (March), Tim Farron MP and Baroness Bennett (April), David Reed MP (July), and debated in the Lords on 15 October. Each time: no national stockpile and no plans for one. Asked how many days of food the country holds, ministers gave no number.

Households are told to stockpile; the nation is not. Government guidance asks every home to keep 3 days of non-perishable food. The country keeps none.

The warnings keep coming. May: food experts write to ministers that Britain is "sleepwalking into a food crisis". June: the Cold Chain Federation calls food disruption an "immediate national priority". September: the National Audit Office finds the food supply chain unprepared for catastrophic disruption. October: over 150 experts write to the Prime Minister asking for national food stores.

Jets, yes. Food, no. On 20 October the Defence Secretary told Parliament that instability around the Red Sea "has direct consequences for the United Kingdom" and announced RAF Typhoon operations in the region (HCWS394). The same trade routes carry our food and fertiliser.

Who is Planetary Council?

An independent group of citizens working on food security, climate and regenerating the land. We publish our working in the open: every number sourced, every model public, every critique welcome. **Resilience through transparency: tell us where this breaks.**

About the author. Mars Robertson wrote this proposal and filed the Freedom of Information request "Strategic food reserves and compound risk" with Defra on 21 October 2026; the reply is due by 18 November. Read everything, models included, on GitHub.

Open to collaboration, consultancy, research and conversation.

Email planetarycouncil@protonmail.com

Open materials github.com/planetarycouncil/food-security-climate-regeneration

Also read the business case for farming that rebuilds soil

The question: can Britain feed itself, and stay standing when the world stops trading?

Bottom line: we believe the UK has the land, the climate and the water to feed itself and to be strategically food independent, if it plans for it. Store and grow is the best long-term insurance policy we know: one that helps the United Kingdom thrive and survive for the next thousand years.

Drafted with Claude Opus 5.5 (Anthropic) · fact-checked by ChatGPT, Gemini and Grok, November 2026 · fact-checks from AI models built outside the US particularly welcome.