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From Desert Wheat to Global Sourcing: Fifty Years of Food Security Policy in the Kingdom of Saudi Arabia (1975–2025)

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Abstract

Saudi Arabia offers one of the most dramatic natural experiments in modern food policy. After the 1973 oil embargo and fears of a retaliatory food embargo, the Kingdom used its oil wealth to subsidise desert wheat on a vast scale. Production rose from about 148,000 tonnes in 1981 to 4.1 million tonnes (Mt) in 1992, turning the country into a net wheat exporter from the mid-1980s. Irrigated area expanded from about 373,000 hectares in 1973 to 1.57 million hectares in 1992, and the programme absorbed subsidies estimated at more than US$5 billion per year in 1984–2000. The price was paid in non-renewable groundwater: agriculture came to account for up to 80% or more of national water use, drawing down fossil aquifers that recharge only negligibly. Policy reversed in stages, first through procurement cuts in the 1990s and then through a 2008 decision to phase out state wheat purchases by 2016. As a result wheat imports rose from about 0.3 Mt in 2008 to 3 Mt in 2014 and 4.8 Mt in 2022, when they covered about three-quarters of demand. Food security strategy shifted towards strategic storage, diversified imports, overseas agricultural investment through the Saudi Agricultural and Livestock Investment Company (SALIC), and high-value, water-efficient domestic production in poultry, dairy, dates and protected horticulture. This review traces those phases, evaluates their costs and outcomes, and examines new risks, including the 2026 disruption of shipping through the Strait of Hormuz. Saudi Arabia ranked 41st of 113 countries in the 2022 Global Food Security Index. The central lesson is that, in hyper-arid states, food security is best pursued as a portfolio of trade, storage, investment and targeted production rather than as cereal self-sufficiency.

Keywords: *Saudi Arabia; food security; wheat self-sufficiency; groundwater depletion; agricultural subsidies; overseas agricultural investment; SALIC; Vision 2030; Strait of Hormuz; Gulf Cooperation Council*

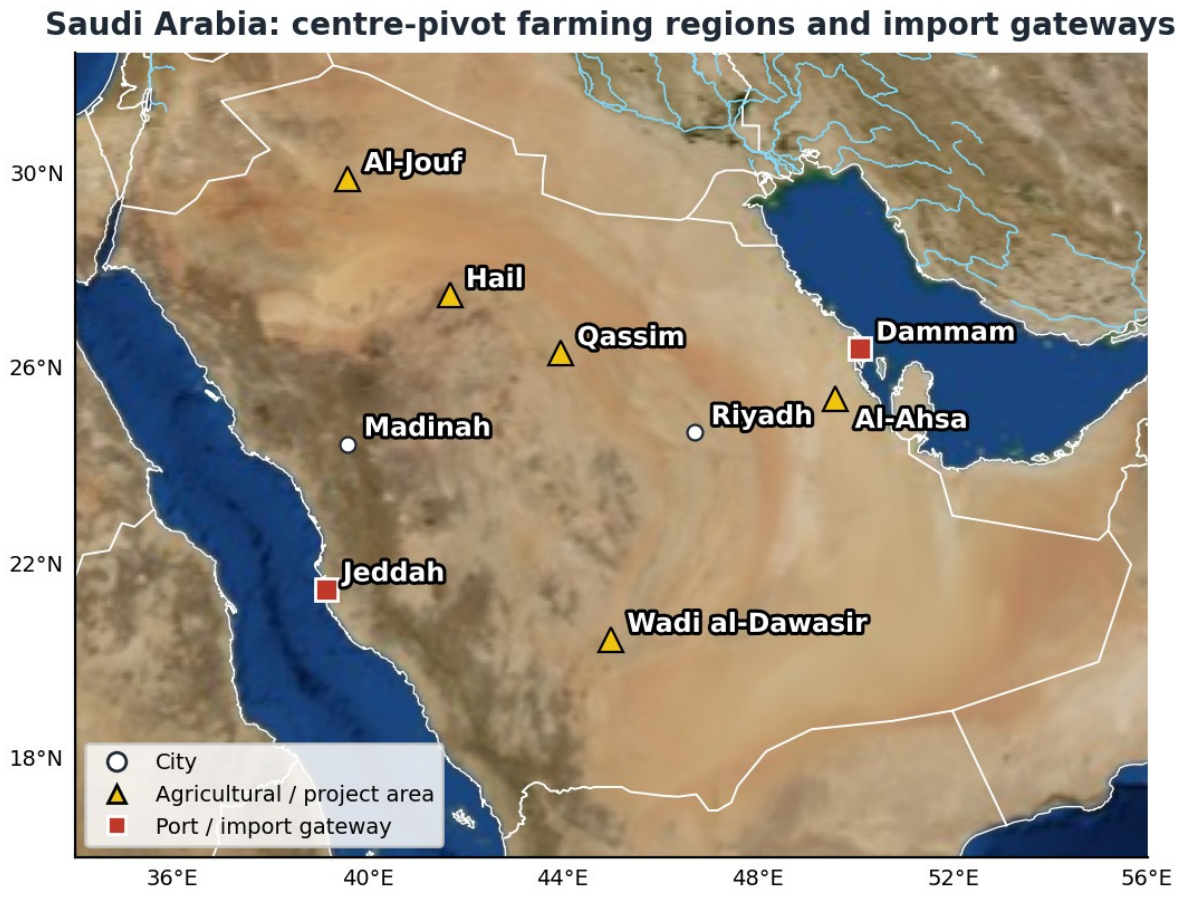
1. Introduction

In 1975 Saudi Arabia had about 7 million inhabitants. It produced little food beyond dates, small amounts of sorghum and millet, and pastoral livestock. Its population had passed 16 million by 1990 and exceeds 33 million today. Rising incomes transformed diets towards wheat, rice, poultry, dairy and processed foods.

The 1973 Arab oil embargo prompted public discussion in the United States of a "food weapon" to answer the "oil weapon". That discussion left a lasting impression on Gulf policy-makers that food dependence was a strategic vulnerability (Woertz, 2013). The Kingdom's response, a state-financed drive for self-sufficiency in wheat, became one of the most expensive agricultural programmes in history. Its partial reversal three decades later is equally instructive.

This review covers:

- the boom-and-bust trajectory of Saudi wheat (Section 3);
- its water costs (Section 4);
- the post-2008 shift to a diversified food-security portfolio (Section 5);
- current vulnerabilities, including the Hormuz crisis of 2026 (Section 6).



Base image: NASA Blue Marble satellite composite (public domain); boundaries: GSHHG/Basemap. Labels by the author.

Figure 1. Satellite view (NASA Blue Marble composite) of Saudi Arabia showing the principal centre-pivot farming regions (Al-Jouf, Hail, Qassim, Wadi al-Dawasir and Al-Ahsa) and the main import gateways of Jeddah on the Red Sea and Dammam on the Gulf. The Red Sea ports provide an import route that does not depend on the Strait of Hormuz.

2. Methods and sources

This narrative review draws on:

- historical analyses of the Saudi agricultural programme (Elhadj, 2004; Jones, 2010; Lippman, 2010);
- trade-press and news-agency reporting of official production and import figures;
- the Economist Impact Global Food Security Index;
- FAO regional analysis of 2026 shipping disruption.

Figures for the 1980s and 1990s come from historical sources and carry some uncertainty. Recent import figures are reported on a marketing-year basis.

3. The wheat programme: boom, bust and partial rebound

3.1 Building the programme (1975–1992)

The Second and Third Development Plans (1975–1985) made agricultural self-sufficiency a national goal. Farmers received a package of support:

- interest-free loans from the Saudi Arabian Agricultural Bank;
- subsidised machinery, fertiliser and diesel;
- free land distribution;
- above all, a guaranteed purchase price for wheat set by the Grain Silos and Flour Mills Organization (GSFMO).

In the early 1980s that price was 3,500 riyals per tonne, around US$930 and four to five times the world price (Elhadj, 2004; Jones, 2010).

Production responded spectacularly. Wheat output rose from about 148,000 tonnes in 1981 to more than 2 Mt by the mid-1980s, and peaked at about 4.1 Mt in 1992. This was far beyond national consumption of roughly 1.5–2 Mt. From 1984 Saudi Arabia was a net exporter, shipping surplus grain abroad or donating it as aid at a fraction of its cost. The irrigated area expanded from about 373,000 ha in 1973 to roughly 1.57 million ha in 1992 (Elhadj, 2004). The landscape of central Arabia changed visibly, with tens of thousands of centre-pivot circles in Qassim, Hail, Al-Jouf and Wadi al-Dawasir.

Fiscal costs were very high. Chatham House estimates put agricultural subsidies at more than US$5 billion per year between 1984 and 2000, a cumulative transfer that dwarfs the market value of the grain produced.

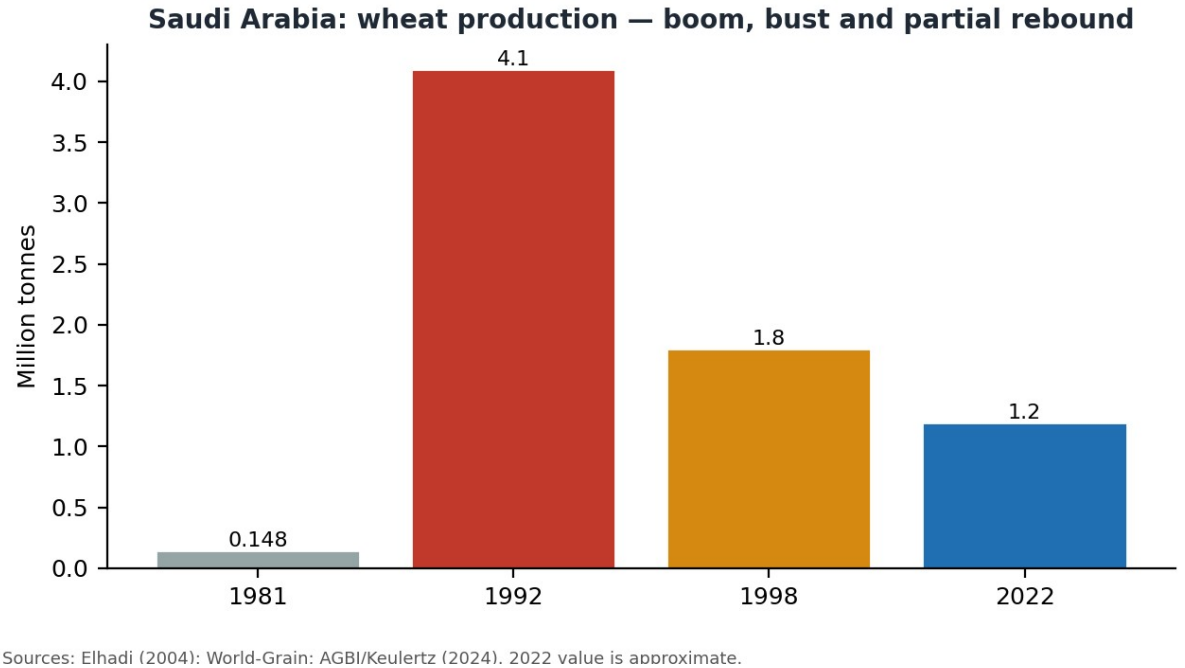


Figure 2. Saudi wheat production at four reference years: the start of the boom (1981), the peak (1992), after the first procurement cuts (1998) and the partial rebound after 2016 under a limited domestic purchase scheme (2022, approximate).

3.2 Retrenchment (1993–2016)

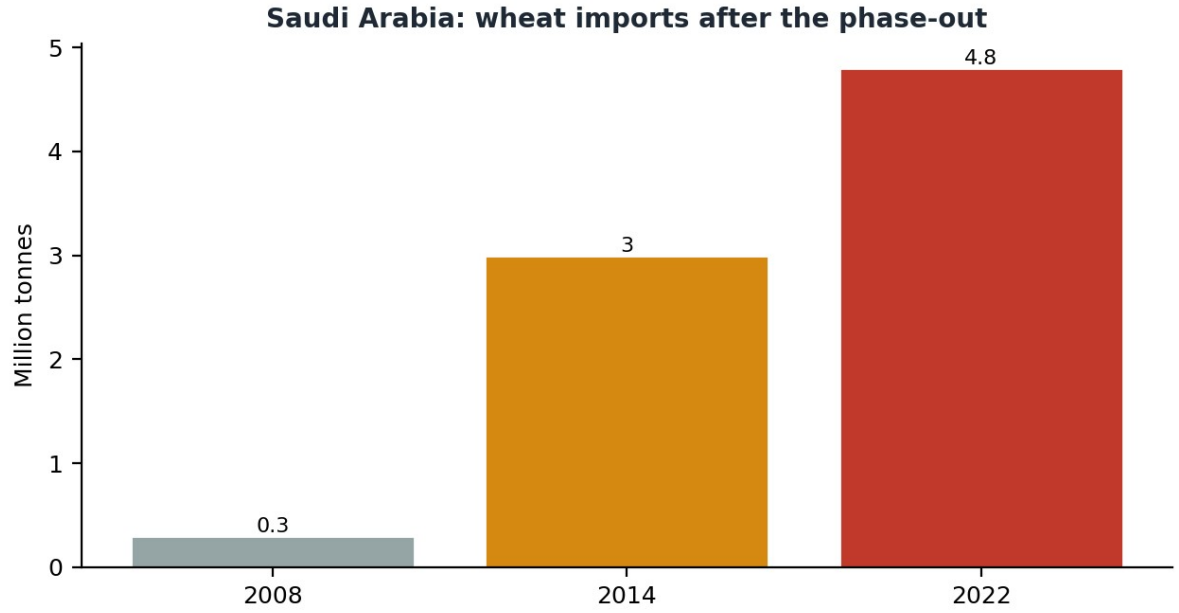
The oil-price collapse of the late 1980s and a budget squeeze in the 1990s forced a first correction. Purchase prices and quotas were cut, and production fell to about 1.8 Mt by 1998. Policy debate increasingly centred on water.

In January 2008 the government announced that it would reduce state wheat purchases by 12.5% per year and end them entirely by 2016 (Lippman, 2010). Domestic wheat production therefore collapsed, and imports rose from about 0.3 Mt in 2008 to about 3 Mt in 2014.

3.3 Limited rebound (2016–2025)

After 2016, policy shifted from full phase-out to tightly controlled cultivation. Small and medium farmers in approved areas, using approved water-saving methods, could again sell wheat to the state. This was a hedge against total import dependence, not a return to the boom. Output recovered to roughly 1.2 Mt. Even so, the Kingdom imported about 4.8 Mt in 2022, about 75% of its needs (Keulertz, 2024, via AGBI).

Saudi Arabia has also become the world's largest importer of barley, buying 3.5–5 Mt per year for its large sheep and camel herds. This substitution away from domestic fodder reflects the same water logic.



Sources: AFP (2008, 2014); AGBI/Keulertz (2024).

Figure 3. Saudi wheat imports in 2008 (start of the phase-out), 2014 (two years before purchases were scheduled to end) and 2022.

4. The water account

Most Saudi irrigation water came from deep fossil aquifers in the Saq, Wajid, Minjur and Wasia–Biyadh formations. These aquifers were recharged in wetter Pleistocene climates and receive negligible recharge today. Several things followed from relying on them:

- **Agriculture's share of water use:** it rose to around 80% or more of total national water use at the peak, and agricultural water use far exceeded total municipal and industrial use combined.
- **Falling water tables:** water levels fell by tens to hundreds of metres in parts of the main farming areas.
- **Shift to other crops:** much of the water once used for wheat moved into alfalfa and other fodder. Alfalfa is even thirstier, which prompted later restrictions on green fodder cultivation, announced in 2015 and phased in from 2018.

In effect, the Kingdom converted non-renewable water capital into grain that could have been bought on world markets far more cheaply. The concept of virtual water (Allan, 1998) explains why water-scarce states gain from importing water-intensive staples. Saudi policy since 2008 has moved explicitly in that direction.

5. A new portfolio: storage, sourcing, investment and selective production

5.1 Strategic storage and import diversification

The General Food Security Authority (GFSA), the successor to GSFMO, holds strategic wheat reserves and has privatised flour milling. It diversifies tender origins across the Black Sea, the European Union, North and South America and Australia. Saudi Arabia's Red Sea coastline gives it an import route (via Jeddah and other western ports) that is independent of the Strait of Hormuz. Most other Gulf states do not have this advantage.

5.2 Overseas agricultural investment

After the 2007–2008 food price crisis and temporary export bans by major producers, the King Abdullah Initiative for Saudi Agricultural Investment Abroad (2009) encouraged private and state investment in farmland and agribusiness overseas. SALIC, established in 2009 and owned by the Public Investment Fund, now holds stakes in:

- grain and livestock companies in Australia, Canada, Brazil, Ukraine and India;
- the international grain trader Olam Agri.

Early "land-grab" approaches in Sudan and Ethiopia proved politically and logistically difficult. The strategy shifted towards equity in established supply-chain companies that guarantee access rather than ownership of farmland (Woertz, 2013).

5.3 Selective domestic production

Domestic production has been refocused on sectors where water productivity is higher and where freshness, logistics or food safety matter:

- **Dairy:** the Kingdom is largely self-sufficient in fresh milk, with large integrated companies.
- **Poultry:** a national programme targets around 80% self-sufficiency, supported by Vision 2030.
- **Eggs.**
- **Dates.**
- **Greenhouse vegetables.**

- **Aquaculture,** expanding along the Red Sea coast.

These sectors still depend on imported feed, so their contribution to resilience is partial.

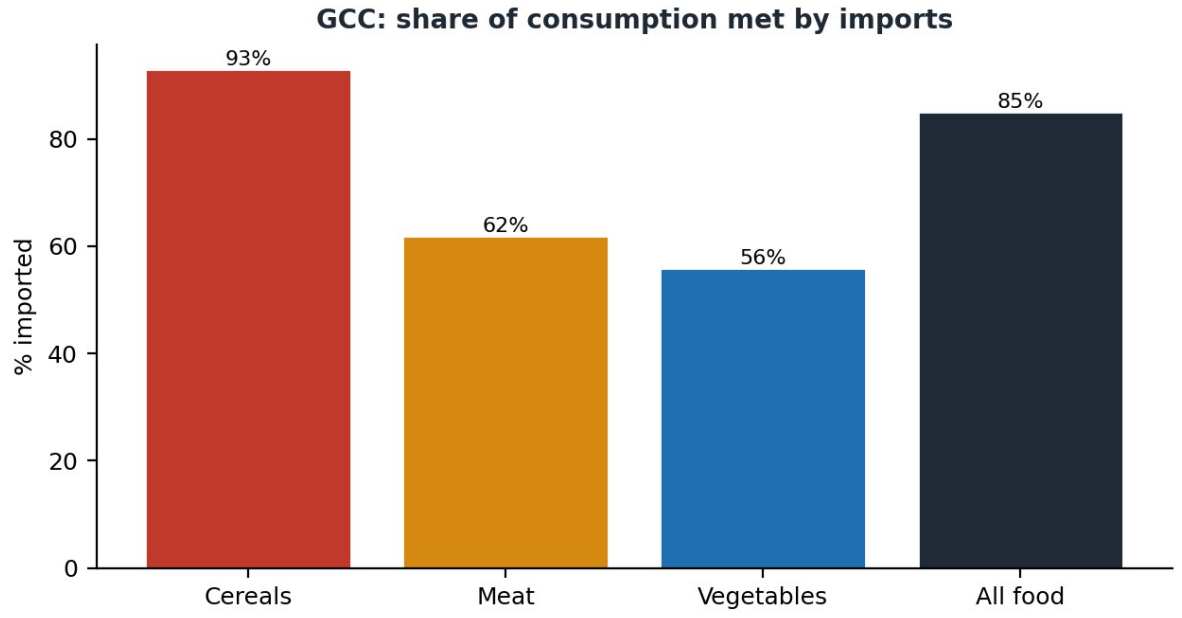
Table 1. Phases of Saudi food-security policy, 1975–2025

Phase	Years	Core strategy	Main outcomes
Self-sufficiency drive	1975–1992	Guaranteed wheat prices, free land, subsidised inputs	Wheat output from <0.2 Mt to 4.1 Mt; net exporter from 1984; rapid aquifer depletion
First correction	1993–2007	Procurement quotas and price cuts	Output ~1.8–2.5 Mt; continuing fodder expansion
Phase-out	2008–2016	End of state wheat purchases; overseas investment (SALIC)	Imports from 0.3 Mt to >3 Mt; water savings in cereals
Portfolio approach	2016–2025	Limited domestic wheat, fodder restrictions, storage, high-value sectors, Vision 2030	~75% wheat import dependence; strong dairy, poultry and date sectors

6. Current vulnerabilities

6.1 Import dependence across the Gulf

Across the Gulf Cooperation Council (GCC), imports supply roughly 85% of food consumed: about 93% of cereals, 62% of meat and 56% of vegetables (Marmore, 2023). Saudi Arabia is the least import-dependent GCC member because of its domestic dairy, poultry and date output. Even so, it imports around three-quarters of its food by value.



Source: Marmore MENA (2023), reported by FoodNavigator; all-food share is an approximate aggregate.

Figure 4. Share of GCC consumption met by imports for major food groups.

6.2 The 2026 Hormuz disruption

Escalation in the Gulf in 2026 sharply reduced shipping through the Strait of Hormuz. FAO reported that tanker traffic fell by more than 90% at the height of the disruption. It estimated that about 59% of Saudi food imports move on routes exposed to the strait, against 100% for Bahrain, Qatar, Kuwait and Oman's Gulf-coast trade (FAO Regional Office for the Near East and North Africa, 2026). Saudi Arabia's Red Sea ports and land corridors allowed partial rerouting. The episode nonetheless demonstrated that physical logistics, not only price, is a core food-security risk in the Gulf.

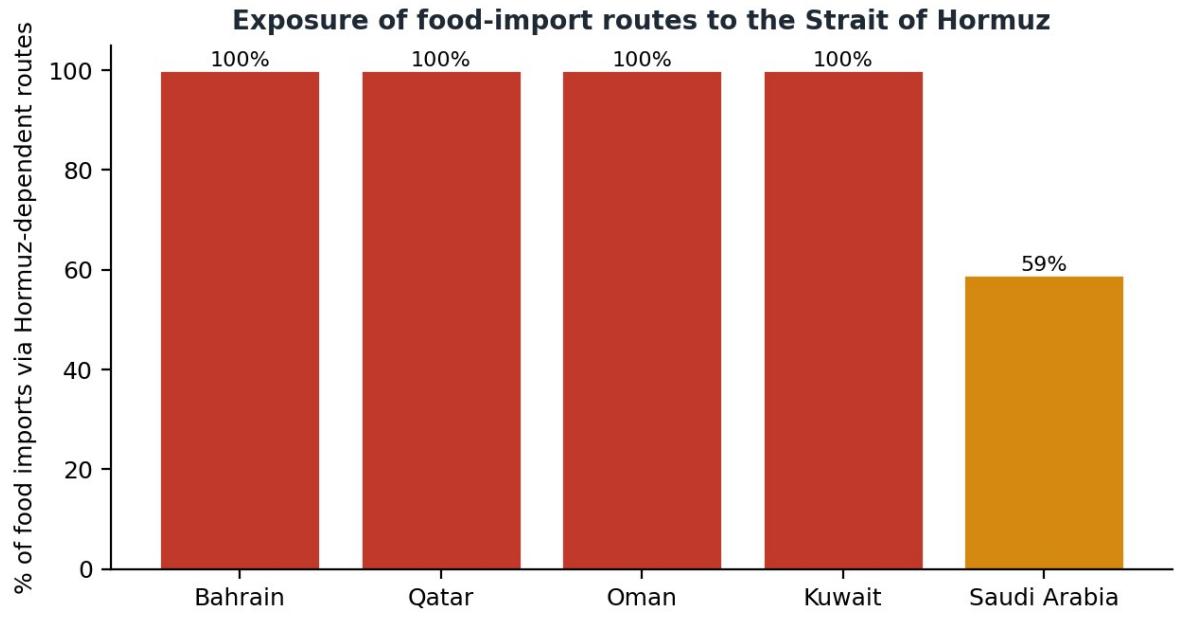


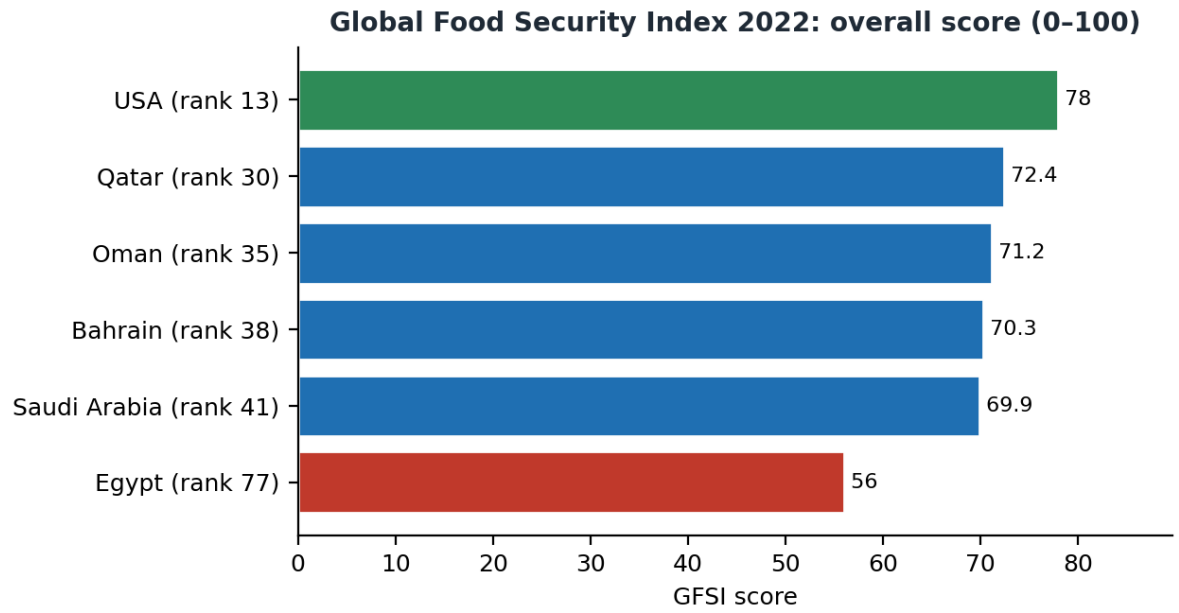
Figure 5. Exposure of GCC food imports to routes passing through the Strait of Hormuz during the 2026 disruption. Saudi Arabia's lower exposure reflects its Red Sea coastline.

6.3 Climate and nutrition

Rising temperatures raise cooling and water demand in livestock and greenhouse production. On the utilisation side, the Kingdom faces high rates of overweight, obesity and diabetes. Food-security policy is therefore increasingly coupled with nutrition and public-health goals, for example through the sugar and sugary-drinks tax and front-of-pack labelling.

7. International comparison

In the 2022 GFSI, Saudi Arabia scored 69.9 (41st of 113). It scores strongly on affordability and on the presence of food-safety-net programmes. It scores weakly on natural resources and resilience, which reflects water scarcity and climate exposure.



Source: Economist Impact, Global Food Security Index 2022 (113 countries).

Figure 6. Global Food Security Index 2022 overall scores for the six countries in this series.

8. Conclusions

Saudi Arabia's fifty-year experience shows both the power and the limits of oil-financed agricultural policy. The wheat programme achieved its narrow goal of self-sufficiency within a decade. It did so at extraordinary fiscal cost and by depleting aquifers that cannot be replenished on human timescales. The policy shift since 2008 recognises that food security in a hyper-arid country rests on several pillars:

- reliable access to world markets;
- strategic reserves;
- diversified logistics, including routes that avoid single chokepoints;
- investment in global supply chains;
- domestic production concentrated where water productivity is highest.

Remaining priorities are:

- water pricing and metering for agriculture;
- further fodder substitution through imports;
- expansion of Red Sea and land-bridge logistics;
- integration of nutrition targets into food-security planning.

Declarations

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Competing interests: The author is the founder and president of the Future Association for Science and Education (FASE), the publisher of this journal. The author declares no other competing interests.

Data availability: No new primary data were generated. All values shown in figures and tables are taken from the cited sources. Satellite base maps use the NASA Blue Marble composite (public domain) rendered with the Basemap library.

Use of generative AI: The author used Claude (Anthropic) to assist with literature searching, drafting and figure preparation. The author reviewed and edited all content, verified the references and takes full responsibility for the published article.

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