SECTION 1: COUNTRY OVERVIEW & GEOGRAPHIC PROFILE

1.1 Basic Country Information

Country Name	Kingdom of Saudi Arabia
Capital City	Riyadh
BRICS Status	Extended Member (August 2023, Johannesburg Summit)
Total Population	35,300,280 (mid-2024, GASTAT Population Estimates) – 55.6% Saudi nationals (19.6M), 44.4% non-Saudi (15.7M)
Population Growth Rate	4.7% total (2024 vs 2023, GASTAT – driven largely by non-Saudi residents increase); Saudi natural growth rate: 2.0%/year
Rural Population (%)	~16% of total (2023, World Bank estimate)
Urban Population (%)	~84% of total (2023, World Bank – highly urbanised; Riyadh, Jeddah, Dammam main centres)
GDP (Nominal)	USD 1,237.53 Billion (2024, World Bank); SAR 4,789 Billion (2025, GASTAT)
GDP per Capita	USD 35,048 (2024, World Bank/Trading Economics)
Agriculture's Share of GDP	~2.5–3.0% of total GDP (World Bank 2023); agricultural sector contributed USD 31.5 Billion (SAR ~118B) to GDP in 2024 (MEWA); Note: agriculture is ~5–6% of non-oil GDP
Agriculture's Share of Employment	~2.4% of total workforce (2024 est., World Bank/ILO); small relative to population but significant in rural areas
HDI Rank	Very High Human Development; Score: 0.90 (2023, TheGlobalEconomy/UNDP); historically ranked 36th–40th globally
Official Language(s)	Arabic (official)
Currency	Saudi Riyal (SAR); pegged to USD at 1 USD = 3.75 SAR

1.2 Geographic Coordinates & Physical Extent

Total Geographic Area	2,149,690 km² – Rank 12th in world (largest country in Middle East)
Northernmost Latitude	32°14′ N (Jordan/Iraq border)
Southernmost Latitude	16°22′ N (Yemen border)
Easternmost Longitude	55°40′ E (UAE border, Arabian Gulf coast)
Westernmost Longitude	34°34′ E (Red Sea coast, Gulf of Aqaba)
Geographic Centre (approx.)	24° N, 45° E (near Riyadh region)
Total Coastline Length	~2,640 km (Red Sea ~1,760 km + Arabian Gulf ~560 km)
Land Border Length	~4,272 km (Iraq 811 km; Jordan 731 km; Kuwait 221 km; Oman 658 km; Qatar 87 km; UAE 457 km; Yemen 1,307 km)
Number of Bordering Countries	7 – Iraq, Jordan, Kuwait, Oman, Qatar, UAE, Yemen
Highest Elevation Point	Jabal Sawda, 3,015 m – Asir Mountains (SW Saudi Arabia)

Lowest Elevation Point	Persian Gulf, Red Sea (0m)
Major River Systems	No permanent rivers; seasonal wadis include Wadi al-Rummah (~600 km, one of the longest in Arabian Peninsula), Wadi Hanifah, Wadi Bisha, Wadi Najran
Major Lakes	No natural freshwater lakes; artificial reservoirs from dams (~588 dams with ~2.4 BCM capacity); sabkha salt flats in eastern lowlands

1.3 Administrative Divisions Relevant to Agriculture

Saudi Arabia is divided into 13 administrative regions (Manatiq), each governed by a regional emir. Agriculture is concentrated in Riyadh, Qassim, Ha'il, Tabuk, Jazan, and Asir regions. The Ministry of Environment, Water and Agriculture (MEWA) is the primary federal authority.

Primary Division (Regions)	13 Administrative Regions (Manatiq): Riyadh, Makkah, Madinah, Qassim, Eastern Province, Asir, Tabuk, Ha'il, Northern Borders, Jazan, Najran, Al-Baha, Al-Jawf
Secondary Division (Governorates)	~136 Governorates (Muhafazat)
Tertiary Division (Sub-governorates/Centres)	~1,300+ centres (Marakiz)
Lowest Agricultural Planning Unit	Individual farm level – registered with MEWA regional directorate
Special Agricultural Zones	Qassim Region ('food basket of Saudi Arabia' – major dates); Ha'il (wheat, barley, fruit orchards); Jazan (tropical crops – mangoes, papayas, coffee); Tabuk (fruit orchards, wheat); Al-Jouf (olive capital – largest olive plantation in world); Asir highlands (coffee, honey, terraced farming)

SECTION 2: AGRO-CLIMATIC ZONES & CLASSIFICATION

2.1 National Agro-Climatic Zone Classification System

Classification System Used	MEWA / National system; FAO Agro-Ecological Zones framework; 5 major regions identified based on climate, altitude, and water resources
Total Number of Agro-Climatic Zones	5 (Central Plateau/Najd, Eastern Coastal, Western Highlands/Hejaz-Asir, Northern, Southern/Jazan Tihama)
Basis of Classification	Rainfall, temperature, altitude, soil type, and water source (groundwater vs. rainfall vs. wadi)
Reference Authority	Ministry of Environment, Water and Agriculture (MEWA); General Authority for Statistics (GASTAT); King Abdulaziz City for Science and Technology (KACST)

2.2 Zone-wise Detailed Description

AGRO-CLIMATIC ZONE 1 – CENTRAL PLATEAU (NAJD)

Zone Name	Central Plateau (Najd) – includes Riyadh, Qassim, Ha'il
Area Coverage	~700,000 km² (~33% of national area)
Annual Rainfall	75–150 mm/year; erratic; mainly winter (Nov–Mar)
Average Temperature	24–28°C annual avg.; Summer: 38–50°C; Winter: 5–22°C (frost possible in Ha'il)
Dominant Soil Types	Sandy (Arenosols), calcareous, gravelly; low OM
Major Crops Grown	Dates (Qassim – largest date-producing region), wheat, barley, vegetables (under irrigation), alfalfa, fruit orchards
Key Challenges	Extreme heat, groundwater depletion, sand storms, limited rainfall

AGRO-CLIMATIC ZONE 2 – EASTERN COASTAL PLAIN (Arabian Gulf)

Zone Name	Eastern Coastal Plain – Eastern Province (Al-Ahsa, Qatif oases)
Area Coverage	~200,000 km²
Annual Rainfall	<80 mm/year; extremely arid; high humidity
Average Temperature	26–30°C annual; Summer: 40–50°C with very high humidity
Major Crops Grown	Dates (Al-Ahsa – UNESCO World Heritage oasis, 3M+ palms), rice, vegetables, alfalfa
Key Challenges	Salinity (soil and groundwater), sea-level rise, extreme humidity, urban expansion

AGRO-CLIMATIC ZONE 3 – WESTERN HIGHLANDS (Hejaz-Asir Mountains)

Zone Name	Western Highlands – Hejaz and Asir mountain ranges
Area Coverage	~100,000 km²
Annual Rainfall	200–500 mm/year (highest in Saudi Arabia; orographic rainfall in Asir)
Average Temperature	18–24°C (cooler due to altitude 1,500–3,000 m); frost and occasional snow at peaks

Major Crops Grown	Coffee (Khawlani arabica), honey, wheat, barley, temperate fruits (grapes, pomegranates, figs, peaches), terraced agriculture, juniper forests
Key Challenges	Rugged terrain, terracing maintenance, labor shortage, flash floods

AGRO-CLIMATIC ZONE 4 – NORTHERN REGION (Al-Jawf, Tabuk, Northern Borders)

Zone Name	Northern Region – semi-arid steppe transitioning to continental
Area Coverage	~450,000 km²
Annual Rainfall	50–100 mm/year; some winter rainfall
Average Temperature	20–24°C annual; Winter: 0–15°C (frost common); Summer: 35–45°C
Major Crops Grown	Olives (Al-Jawf – world's largest olive plantation), wheat, fruit orchards (Tabuk – grapes, citrus, stone fruits), barley
Key Challenges	Cold winters, frost damage, groundwater depletion, remoteness

AGRO-CLIMATIC ZONE 5 – SOUTHERN TIHAMA COASTAL PLAIN (Jazan)

Zone Name	Southern Tihama – Jazan and southern Red Sea coast
Area Coverage	~20,000 km²
Annual Rainfall	100–300 mm/year; highest moisture in Saudi Arabia's lowlands; influenced by Indian Ocean monsoon fringe
Average Temperature	28–32°C annual; tropical; high humidity year-round
Major Crops Grown	Mangoes, papayas, bananas, sorghum, millet, sesame, coffee (mountain slopes above), tropical fruits
Key Challenges	Flooding, pest pressure, limited infrastructure, proximity to Yemen conflict zone

SECTION 3: CLIMATE, RAINFALL & TEMPERATURE EFFECTS ON AGRICULTURE

3.1 Overall Climate Classification

Köppen Climate Classification	BWh (Hot Desert) dominates ~90%+; BSh (Hot Semi-Arid) in SW highlands; BWk (Cold Desert) in northern fringes
Dominant Climate Type	Hyper-Arid / Hot Desert – ~90% of country is desert; agriculture entirely dependent on groundwater/desalination
Monsoon Season	Not applicable directly; Jazan/Asir receive some Indian Ocean monsoon fringe moisture (Jul–Sep)
Number of Distinct Seasons	2 – Hot Summer (April–October) and Mild/Cool Winter (November–March); transitional spring/autumn

3.2 Rainfall Pattern & Agricultural Implications

National Average Annual Rainfall	~80-120 mm/year (among lowest globally)
Highest Rainfall Zone	Asir Mountains (SW) – 300–500 mm/year; Jazan – 100–300 mm/year
Lowest Rainfall Zone	Rub al-Khali (Empty Quarter) – <30-50 mm/year; effectively zero in many years
Rainfall Distribution	Highly erratic and seasonal; >70% falls Nov–Apr in north, Jul–Sep in southwest; flash floods are common
Drought-prone Areas	Entire country is drought-prone; Rub al-Khali, Nafud, and Dahna deserts are permanently arid
Flood-prone Areas	Wadi systems in Asir, Jazan (flash floods); Riyadh occasionally floods from Wadi Hanifah; Jeddah experienced catastrophic urban flooding in 2009 and 2011
Groundwater Recharge Rate	Natural recharge negligible for fossil aquifers (Saq, Wajid, Tabuk)

3.3 Temperature Effects on Agricultural Production

Mean Annual Temperature	25–28°C nationally; 33°C in Rub al-Khali; 18–22°C in Asir highlands
Hottest Month & Temperature	July–August: avg. 35–45°C; absolute max 52°C+ recorded in eastern desert
Coldest Month & Temperature	January: avg. 8–15°C in Riyadh/Ha'il; frost common in northern/highland areas; occasional snow on Asir peaks
Heat Stress Threshold Crops	Wheat (yield declines >30°C during grain filling); most vegetables >40°C; date palms tolerant to 50°C
Chilling Requirement Crops	Temperate fruits (apples, peaches, pears) grown in Asir/Al-Baha highlands where chill hours adequate
Temperature Trend (last 30 yrs)	+0.3°C to +0.6°C per decade (PME/GAMEP data); faster warming in Riyadh urban heat island

3.4 Climate Change Impact on Agriculture

Observed Climate Anomalies	Increasing heat wave frequency; more intense but less frequent rainfall events; accelerating groundwater decline; sandstorm frequency increasing
Projected Temperature Rise by 2050	+2.0°C to +3.0°C above pre-industrial (IPCC AR6); some models project +4°C for Arabian Peninsula interior
Most Vulnerable Crops/Regions	Groundwater-dependent oasis agriculture (Al-Ahsa, Al-Jawf); wheat production dependent on non-renewable aquifers; all outdoor summer agriculture
National Climate Adaptation Policy	Saudi Green Initiative (2021); National Environment Strategy; Saudi Arabia's NDC (updated 2021 – targets reducing emissions by 278 MtCO2eq by 2030); MEWA Water Conservation Strategy
Climate-Smart Agriculture Programs	Reduced non-renewable water use in agriculture by 52% since 2016 (MEWA); cloud seeding program; solar-powered irrigation; switch from wheat to less water-intensive crops; NEOM sustainable food systems

3.5 Climate-Resilient Agriculture and Climate Action

Initiative / Technology	Implementing Institution	Description	Impact / Benefit
Saudi Green Initiative	Govt. of Saudi Arabia (Vision 2030)	Plant 10 billion trees; restore 40M ha of degraded land; protect 30% of land and sea	Major reforestation; carbon sequestration; rangeland rehabilitation
52% Water Reduction in Agriculture	MEWA	Reduction in use of non-renewable groundwater since 2015–2016 through crop policy reforms (e.g., wheat phase-out) and efficient irrigation	Saved billions of m^3 of groundwater; extended aquifer life
Agricultural Development Fund Loans	ADF / MEWA	Provision of soft loans (multi-billion SAR annually) for agriculture, livestock, greenhouses, and agri-tech	Financed modern irrigation, greenhouses, poultry, dairy expansion
100,000 Greenhouse Initiative	MEWA / Private Sector	Expanding protected cultivation using greenhouses and shade houses; ~7,800 ha under protected veg (2024 GASTAT)	~797,000 tonnes protected vegetables (2024); improved yield & water efficiency
NEOM Agri-Food Systems	NEOM / PIF	Advanced agriculture and aquaculture in NEOM including OXAGON aquaculture hub	Target: ~50,000+ MT fish/year; desert-to-plate food innovation
Cloud Seeding Program	PME / MEWA	Weather modification to enhance rainfall in target areas	Increased precipitation in pilot areas by measurable percentage

SECTION 4: CROPPING PATTERNS & AGRICULTURAL CALENDAR

4.1 Seasonal Cropping System

Season Name	Local Name	Months	Regions Covered	Major Crops
Winter (Primary)	Shitawi/ shita	Nov–Apr	All irrigated regions	Wheat, barley, vegetables (potatoes, tomatoes, onions), alfalfa, dates harvest (Aug–Nov)
Summer	Saifi	May–Oct	Protected cultivation; irrigated areas	Sorghum, millet, sesame (Jazan); vegetables in greenhouses; fodder crops; melons
Perennial / Year-round	—	Jan–Dec	All zones	Date palms, olives, citrus orchards, grapes, alfalfa (6–8 cuts/year under irrigation)

4.2 Major Food Crops

Staple Cereals	Wheat: ~1.1-1.2 million tonnes (2024, GASTAT); ~71%-72% of total grain; area ~250,000 ha; yield 6.0 t/ha (USDA-FAS). Total grain: ~1,651 thousand tonnes (2024, GASTAT). Barley: ~0.18-025 million tonnes (2024 est.). Sorghum/Millet: grown in Jazan/Asir.
Pulses / Legumes	Limited domestic production; primarily imported
Oilseeds	Minimal; sesame grown in Jazan; bulk of edible oil imported
Root & Tuber Crops	Potatoes: ~624,000 tonnes (2024, GASTAT – leading open-field vegetable)
Vegetables (Major)	**Open-field**: ~2.7-2.8million tonnes from ~89,700 ha (2024, GASTAT – +8.4% YoY). Top: Potatoes; Watermelon; Tomatoes; Cucumbers; Onions. **Protected (greenhouse)**: ~797,000 tonnes from ~7,800 ha (2024, GASTAT – +10.6% YoY). Self-sufficiency: Eggplant ~105%, Okra ~102%, Cucumber ~101%, Zucchini ~100%.
Fruits (Major)	Total domestic fruit production (incl. dates): ~>2.9 million tonnes (2024, MEWA – 64% self-sufficiency). Dates: ~1,923 thousand tonnes (2024, GASTAT). Grapes, Citrus (lemons, oranges), Watermelon, Pomegranates, Figs (99% self-sufficiency).
Plantation Crops	Olives: Al-Jawf hosts world's largest olive plantation (Jouf Agricultural Development Co. – millions of trees); olive oil production growing. Coffee: Khawlani Arabica coffee from Jazan/Asir highlands – premium specialty crop.
Spices & Condiments	Limited; some cumin and coriander in southern highlands
Flowers & Ornamentals	Growing sector; roses (Taif – famous for rose water/oil); municipal greening programs
Medicinal & Aromatic Plants	Sidr honey (premium product from Ziziphus trees); traditional medicinal herbs in Asir

4.3 Cash Crops & Industrial Crops

Major Cash Crops	Dates (~1.9-2.0 million tonnes – world's 2nd largest producer after Egypt); vegetables for domestic market; olives
Industrial Crops	Very limited, Alfalfa hay (major livestock feed crop – also exported); wheat (government-purchased)
Bioenergy Crops	Research stage; Jatropha and algae biofuel pilots; sugarcane not grown
Fibre Crops	Not produced commercially
Beverage Crops	Khawlani coffee (Jazan/Asir – UNESCO Intangible Cultural Heritage 2022); premium specialty market

4.4 Cropping Intensity & Productivity

Cropping Intensity (national avg.)	~100–120% (most land supports 1 crop/year due to water constraints; some double cropping with irrigation)
Average Crop Yield – Cereals	Wheat: ~6.0 t/ha (2024/25, USDA-FAS); Barley: ~2.5–3.0 t/ha
Total Food Grain Production	~1.6-1.7 million tonnes (2024, GASTAT)
Total Horticulture Production	~6+ million tonnes (vegetables 3,542 thousand tonnes [open-field + protected] + fruits 2,900+ thousand tonnes; 2024 GASTAT/MEWA)

4.5 Major Crop Varieties and Yield/ha

Crop	Important Varieties (Saudi Arabia)	Average Yield (t/ha)	Notes
Wheat	Yecora Rojo (hard winter, CIMMYT origin); locally adapted varieties	~6.0 (USDA-FAS 2024/25)	1.1-1.2 million tonnes (2024 GASTAT); 250,000 ha; govt procurement at SAR 1,800/t (~$480/t)
Dates	Khalas, Sukkari, Ajwa, Barhi, Khudri, Mabroom, Safawi, Saghi, Sagai, Nabtat Ali	~6 (ICARDA GCC avg.)	1,923 thousand tonnes; 37.6 million palms; 32 million fruitful (2024 GASTAT); world's 2nd producer; >100% self-sufficiency
Potatoes	Spunta, Hermes, Diamant (imported seed)	25–35	624,000 tonnes; leading open-field vegetable (2024 GASTAT)
Tomatoes	Hybrid F1 varieties (greenhouse and open-field)	40–80 (greenhouse); 25–35 (open)	Major vegetable; 9.2% increase in self-sufficiency YoY (GASTAT 2024)
Watermelon	Crimson Sweet, Sugar Baby, hybrids	25–40	612,000 tonnes (2024 GASTAT); Qassim and Ha'il primary regions
Olives	Picual, Manzanilla, Arbequina (Spanish varieties)	3–5 (for oil)	Al-Jawf: world's largest olive plantation; growing production
Grapes	Thompson Seedless, Red Globe, Flame	10–20	Tabuk and Ha'il primary regions; expanding
Alfalfa	Local and imported varieties	15–25 (irrigated, 6–8 cuts/year)	Major fodder crop; water-intensive; government reducing domestic production, encouraging imports
Coffee (Khawlani)	Coffea arabica (Khawlani landrace)	0.3–0.5 (low yield, hand-picked)	Jazan/Asir highlands; UNESCO ICH 2022; premium specialty ($50–200/kg)
Citrus	Valencia Orange, Eureka Lemon, Lime	12–18	Jazan, Asir, Tabuk regions

SECTION 5: AGRICULTURAL LAND USE & LAND RESOURCES

5.1 Land Use Classification

Total Geographic Area	~2,149,690 km² (≈215 million ha)
Total Agricultural Land	~173.4 million ha (World Bank/FAO classification incl. permanent pastures – mostly sparse desert rangeland); actual cultivated area much smaller
Net Cultivated/Arable Area	~1.5–1.7 million ha (~0.7–0.8% of total area; FAOSTAT/GASTAT); GASTAT reports open-field vegetable area alone at 89,700 ha
Gross Cropped Area	~1.8–2.0 million ha (including double-cropped areas)
Area under Forests	~2.7 million ha (~1.3% of total; mainly Asir juniper woodlands and planted forests; FAO 2020)
Permanent Pastures & Grazing Lands	~170+ million ha (classified – vast but extremely sparse desert/steppe rangeland; actual carrying capacity very low)
Barren & Unculturable Land	~40%+ of total area – sand deserts (Rub al-Khali, An-Nafud, Ad-Dahna), gravel plains, lava fields (harrat)

5.2 Irrigation Infrastructure

Total Irrigated Area	~1.5–1.6 million ha (virtually all cultivated area is irrigated; no rainfed agriculture except sparse in SW highlands)
Groundwater Irrigation	Primary source – ~14–16 BCM/year withdrawn for agriculture (70–80% of total water use); mostly from non-renewable fossil aquifers (Saq-Ram, Wajid, Tabuk, Minjur, Biyadh)
Desalination for Agriculture	Limited direct use; ~70 desalination plants (primarily municipal); some treated sewage effluent used for fodder/greening; total desalination capacity ~7.6 MCM/day
Drip/Sprinkler Irrigation	Centre-pivot dominant for wheat/alfalfa (~60–70% of irrigated area); drip irrigation mandatory for all new horticultural projects (MEWA regulation)
Total Dams	~588 dams with total storage capacity ~2.4 BCM (primarily for groundwater recharge and flood control, not direct irrigation)
Water Use Efficiency	MEWA reports 52% reduction in non-renewable water use in agriculture since 2016; target further reduction under Vision 2030 National Water Strategy
Treated Wastewater Reuse	~1.8 BCM/year of treated sewage effluent used for agriculture and landscaping (growing)

5.3 Land Tenure & Farm Structure

Average Farm Size	Highly variable: smallholder date/vegetable farms 2–10 ha; large-scale corporate farms 500–10,000+ ha (NADEC, Almarai, Al-Rajhi farms)
% Smallholder Farms	~70–80% of farms are <10 ha (traditional oasis and highland farming); but contribute minority of output

% Large Farms (>100 ha)	~5–10% of farms but contribute >50% of commercial output (wheat, dairy, poultry, vegetables)
Dominant Land Tenure System	Government-granted agricultural land (distributed to Saudi nationals in earlier decades); large corporate leases; tribal/traditional tenure in some areas
Land Reform Status	1968 Distribution of Public Lands regulation; large-scale land grants to agribusiness in 1970s–1990s (some revoked after water overuse); MEWA now restricts new agricultural land allocation to conserve water
Women's Land Ownership (%)	Data not separately published by GASTAT; women can own property under Saudi law; relatively low participation in farm ownership

SECTION 6: MAJOR SOIL TYPES, SOIL HEALTH & NUTRIENT MANAGEMENT

6.1 Soil Classification System

Classification System Used	USDA Soil Taxonomy; FAO-UNESCO; national surveys by MEWA and King Saud University
Total Number of Soil Orders Present	3 dominant: Aridisols (>60%), Entisols (~25%), small areas of Alfisols/Vertisols in SW highlands
Soil Survey Authority	MEWA Soils & Water Department; King Saud University College of Agriculture; KACST

6.2 Major Soil Types

Soil Type	USDA Order	Area (est.)	Zones / Regions	Key Properties	Suitable Crops
Sandy Desert	Entisols (Torripsamments)	~55% of territory	Rub al-Khali, An-Nafud, Ad-Dahna	Deep sand; <0.3% OM; very low water retention; pH 7.5–8.5	Date palms at oases only (with heavy irrigation)
Calcareous Desert	Aridisols (Petrocalcids/Calcids)	~25% of territory	Central Najd, northern plains	CaCO3 layers; moderite drainage; alkaline; P fixation	Wheat, barley, vegetables (with irrigation + amendment)
Sabkha / Salt Flats	Aridisols (Salids)	~5% of territory	Eastern coast, Rub al-Khali margins	Very high salinity (>200 dS/m); waterlogged; gypsum/halite	Unsuitable; halophyte research only
Mountain Soils	Alfisols/Entisols (Lithic)	~3–5% of territory	Asir, Hejaz mountains, Jazan	Rocky, thin, moderate fertility; pH 6.5–7.5; higher OM	Coffee, terraced crops, temperate fruits, wheat
Oasis Alluvial	Entisols (Torrifluvents)	<1% of territory	Al-Ahsa, Qatif, Madinah, Al-Ula oases	Loamy; moderate fertility; improved by centuries of cultivation	Dates, vegetables, alfalfa – most productive traditional soils
Wadi Alluvium	Entisols (Torrifluvents)	Scattered	Wadi systems throughout	Sandy-loam; flood-deposited; variable fertility	Seasonal crops, fruit trees where water available

6.3 Soil Health Indicators

National Average Soil pH	7.5–8.8 (alkaline throughout – calcareous/desert soils)
Organic Carbon Status	Very Low, <0.5% across >95% of agricultural land (extremely low); highland soils may reach 1–2%
Salinity Affected Area	Significant in Eastern Province, coastal areas, and over-irrigated farms; exact national figure not published by GASTAT
Major Degradation Threats	Wind erosion (dominant), salinization from irrigation, desertification of marginal farmland, loss of oasis integrity
Soil Conservation Programs	Saudi Green Initiative (10 billion trees target includes soil stabilization); MEWA soil surveys; King Abdulaziz University soil research

SECTION 7: LIVESTOCK SECTOR PROFILE

7.1 Livestock Population

Sheep Population	~29 million heads (2023, GASTAT) – 19.3% rams, 80.7% ewes; Riyadh region highest concentration; breeds: Najdi, Naemi, Awassi, Harri
Goat Population	~7.3 million heads (2024, GASTAT) – decrease of 1% YoY
Camel Population	~2.24 million heads (2024, GASTAT) – increase of 1-1.4%; Riyadh region 29.4% of total; breeds: Majaheem (dairy), Waddah (racing)
Cattle Population	516,000 heads (2024, GASTAT) – up 2.8% YoY; includes Holstein-Friesian dairy herds at Almarai, NADEC
Poultry (Broilers)	Broiler production: 1.25-13 million tonnes (2024, GASTAT) – up 13% from 2023; Riyadh top producer (282,000 t in 2023)
Poultry (Layers/Eggs)	Table egg production: 8.42 billion eggs (2024, GASTAT) – up 6.3% from 7.91 billion (2023); Riyadh leads with 3.21 billion
Equine Population	~80,000-100,000+ (est.) (Arabian horses – culturally significant; horse racing industry; Royal Commission stud farms)
Honey Bee Colonies	~1.0–1.5 million colonies (est.); Saudi honey industry significant; Sidr and mountain flower honeys premium

7.2 Livestock Production Data

Total Raw Milk Production (Cow)	2.8 billion litres (2023, GASTAT – specialized cow farms); Riyadh: 1.6 billion L; Eastern Province: 1 billion L; slight decline (0.4%) in 2024 due to milking cow reduction
Dairy Self-sufficiency	131% (2024, GASTAT Food Security Statistics) – surplus; Saudi Arabia is a net dairy exporter (Almarai exports to GCC/MENA)
Total Broiler Meat Production	1.25 million tonnes (2024, GASTAT) – 13% increase from 1.1 million tonnes (2023)
Poultry Self-sufficiency	Increased by ~1.4% in 2024 (GASTAT)
Table Egg Self-sufficiency	103% (2024, GASTAT Food Security Statistics) – surplus
Red Meat Production	Saudi Arabia meets ~40–45% of red meat demand domestically; majority imported (live sheep from Australia, Sudan, Somalia; frozen beef from Brazil, India)
Livestock Sector's GDP Contribution	Included in overall 2.5–3% agriculture GDP; livestock projects received SAR 2+ billion in loans in 2024 (ADF/MEWA)
Major Dairy Companies	Almarai (world's largest integrated dairy company – 190,000+ cows); NADEC; Saudia Dairy; Al-Marai expansion SAR 18B ($4.8B) announced Dec 2024

7.3 Livestock Production Summary

Sector	Species / Product	Major Breeds / Companies	Avg Productivity	National Production
Dairy (Cow)	Holstein-Friesian	Almarai (~110,000 cows), NADEC, Saudia Dairy	~10,000–12,000 L/cow/year (Almarai)	2.8 billion litres (2023 GASTAT); >100% self-sufficient
Broiler Meat	Cobb 500, Ross 308	Al-Watania, Fakieh Poultry, NADEC, Tanmiah	~2.2 kg in 35–42 days	1.25 million tonnes (2024 GASTAT)
Table Eggs	Hy-Line, Lohmann, ISA Brown	Al-Watania, Jabal Omar, NADEC	~280 eggs/bird/year	8.42 billion eggs (2024 GASTAT); 103% self-sufficient
Sheep/Goat Meat	Najdi, Naemi, Awassi, Harri	Traditional + feedlot operations	~15–25 kg carcass	~40–45% red meat self-sufficiency
Camel Products	Majaheem (dairy), Waddah (racing)	Camelicious KSA, traditional herders	~5–8 L/day milk	2.24 million camels; dairy + racing industry

SECTION 8: FISHERIES & AQUACULTURE SECTOR

8.1 Fisheries Resource Base

Total Coastline	~2,640 km (Red Sea ~1,760 km + Arabian Gulf ~560 km)
Major Fishing Zones	Red Sea coast (Jazan, Jeddah, Yanbu, NEOM); Arabian Gulf coast (Dammam, Jubail, Eastern Province)
EEZ	~225,000+ km² (Red Sea + Arabian Gulf combined)

8.2 Production Statistics

Total Fish & Seafood Production	~220,000-250,000 tonnes (2023, GAFRD data via MEWA); rose 55.56% from 90,000 tonnes (2021). Target: 600,000 tonnes by 2030 (MEWA National Aquaculture Development Plan).
Marine Capture Fisheries	~74,700 tonnes (2023) – 35% of total; declining share as aquaculture grows
Aquaculture Production	~120,000-140,000 tonnes/year (2023) – 65% of total; up from 17,283 tonnes in 2012 (19.5% of total). Distribution: 75% marine water projects, 25% inland fish farms.
Major Aquaculture Species	White shrimp (Saudi Arabia is a leading exporter), Nile tilapia, sea bass, sea bream, barramundi, catfish; pilot: salmon (Hail facility – target 100,000 tonnes/year)
Fish Exports	59,844 tonnes annually worth SAR 1.1 billion ($293 million) – shipped to ~35 countries including Japan, China, US, Australia, South Korea (MEWA)
Fish Self-sufficiency	Shrimp: 149% (2024 GASTAT Food Security); overall fish: increased by 8.2% in 2024 vs 2023 (GASTAT)
Per Capita Fish Consumption	~11-13 kg/year (2020) – well below global average of 21.3 kg; government target: 20 kg by 2030
Key Companies	National Aquaculture Group (NAQUA – world-class shrimp producer, PIF-backed via SALIC); Saudi Fisheries Company (SFC); Tabuk Fisheries; Jazadco; Topian Aquaculture (NEOM JV – MENA's largest hatchery)

8.3 Aquaculture Development

National Aquaculture Plan	MEWA National Aquaculture Development Plan under Vision 2030: target 600,000 tonnes/year by 2030; from 280,000 tonnes (2024 est.)
Investment	~SAR 15 billion (~$4 billion) in agriculture and fisheries investment agreements (May 2025 bilateral business forum)
SAMAQ Certification	Saudi Mark of Aquaculture Quality – national quality certification for farmed seafood; biosecurity monitoring programs
Desert Aquaculture	Growing sector using groundwater + RAS; inland tilapia and catfish farms across 5+ regions
Key Infrastructure	NEOM OXAGON aquaculture hub (target 50,000+ MT/year); Hail salmon facility (100,000 MT target); 16 fishing ports under development

SECTION 9: GOOD AGRICULTURAL PRACTICES & SUSTAINABLE FARMING

9.1 GAP Certification & Standards

National GAP Standard	Saudi GAP (SaudiGAP) – MEWA-administered; aligned with GlobalG.A.P.; SAMAQ for aquaculture quality
International Certifications Adopted	GlobalG.A.P. (export farms); ISO 22000; HACCP; Saudi Food and Drug Authority (SFDA) food safety standards
Organic Farming Area	~25,000 ha organic + transitional area (2024, GASTAT); Major organic crops: Dates, Vegetables(tomato, cucumber), Fruits, Palm trees; total organic production: 98,300 tonnes (+3% YoY)
Organic Certification	MEWA Organic Agriculture Department; accredited international certifiers operate in KSA

9.2 Integrated Pest Management

National IPM Policy	MEWA Plant Protection Department manages national IPM programs; FAO Desert Locust monitoring coordination
Pesticide Regulation	SFDA and MEWA jointly regulate; strict MRL enforcement for imports and exports; pesticide registration follows GCC Standardization Organization framework
Desert Locust Control	Saudi Arabia hosts FAO Commission for Controlling the Desert Locust in the Central Region; major investment in monitoring and aerial spraying

9.3 Post-Harvest Management

Cold Chain Infrastructure	Well-developed for dairy (Almarai operates one of the world's largest cold chains); expanding for horticulture; GFSA manages strategic grain silos
Grain Storage	GFSA (General Food Security Authority) operates strategic wheat silos across Kingdom; 4–6 months national reserve maintained
Food Processing	Growing sector: Almarai, NADEC, Savola Group (edible oils, sugar), Al Muhaidib (food distribution)

9.4 Farm Mechanisation

Farm Power Availability	High on commercial farms; centre-pivot irrigation systems are dominant technology for large-scale grain/fodder production
Tractor Density	High relative to cultivated area; modern tractors on corporate farms; traditional smallholders less mechanised
Precision Agriculture	Advanced adoption by Almarai, NADEC, and export farms: GPS-guided tractors, satellite crop monitoring, automated irrigation; KACST remote sensing programs
Greenhouse Technology	~7,800 ha under protected vegetable cultivation (2024 GASTAT); expanding rapidly with MEWA financial support

SECTION 10: AGRICULTURAL EXPORT COMMODITIES & TRADE

10.1 Overall Agriculture Trade Profile

Total Agricultural Imports	~18-19 miilion tonnes (2024, GASTAT) – +10.8% vs 2023; grains:~ 72.1% of total imports. Saudi Arabia is a major food importer – imports ~80% of food needs.
Total Agricultural Exports	~0.5-0.6 million tonnes (2024, GASTAT) – +13% vs 2023; fruits and edible nuts: 72.1% of total agricultural crop exports
Key Export Commodities	Dates (largest export by volume – world's #1 date exporter by value in some years); shrimp ($293M); processed dairy (Almarai to GCC/MENA); eggs; vegetables
Key Import Commodities	Wheat (~3.5–4.8 MT imported/year – GFSA/USDA-FAS); barley (~3 MT for livestock); corn (~4.5–4.8 MT for poultry feed); rice (~1.5–1.6 MT); sugar; meat; edible oils
Top Import Source Countries	Brazil, USA, India, Australia, Argentina, Russia, Ukraine, EU, Canada
Top Export Destination Countries	GCC countries, Jordan, Egypt, Yemen, EU, Japan (shrimp), China (shrimp), South Korea
Membership in Agri Trade Blocs	WTO; GCC Common Market; GAFTA (Greater Arab Free Trade Area); bilateral FTAs under negotiation with multiple blocs

10.2 Food Self-Sufficiency Ratios (2024, GASTAT Food Security Statistics)

Product	Self-Sufficiency Ratio (%)	Notes
Shrimp	149%	Net exporter – NAQUA leads global-quality shrimp exports to 35 countries
Dairy Products	131%	Almarai is world's largest integrated dairy; exports to GCC/MENA
Table Eggs	103%	Surplus production; 8.42 billion eggs (2024 GASTAT)
Dates	121%	World's 2nd largest producer; 1,923 thousand tonnes; major exporter
Eggplant	105%	Fully self-sufficient (GASTAT 2024)
Okra	102%	Fully self-sufficient
Cucumbers	101%	Fully self-sufficient
Zucchini	100%	Fully self-sufficient
Figs	99%	Near complete self-sufficiency
Vegetables (overall)	~70-80%	2024, MEWA
Fruits (overall, incl. dates)	~60-65%	2024, MEWA
Poultry Meat	~72%	Self-sufficiency rising 1.4% YoY (GASTAT 2024); remainder imported
Red Meat	~62%	Heavily import-dependent; Livestock City aims to meet 30% of needs

Product	Self-Sufficiency Ratio (%)	Notes
Wheat	~25–30%	1.5 MT domestic production vs 3.5–4.8 MT imports (USDA-FAS)
Fish (overall)	52%	Target: 600,000 tonnes by 2030

SECTION 11: COMMERCIAL & EMERGING TECHNOLOGIES IN AGRICULTURE

11.1 Digital & Precision Agriculture

Satellite/Remote Sensing	KACST operates national satellite program; MEWA uses remote sensing for crop monitoring, water resource assessment, locust tracking
AI/ML in Agriculture	Almarai uses AI for dairy herd management and feed optimisation; NEOM developing AI-powered food systems; agritech startups emerging
IoT/Smart Farming	Deployed across major commercial operations (Almarai, NADEC); soil moisture sensors, automated climate control in greenhouses; smart irrigation controllers
Blockchain	GFSA exploring blockchain for grain supply chain traceability; pilot stage

11.2 Biotechnology & Crop Improvement

GM/GMO Status	GMO food imports permitted with labeling (GCC-wide regulation); no domestic GM crop cultivation approved
Date Palm Research	King Faisal University Date Palm Research Centre; tissue culture labs producing disease-free offshoots; KACST date palm genome research
Seed Sector	Saudi Grain Silos and Flour Mills Organization (GFSA) manages seed imports; limited domestic seed breeding; wheat variety 'Yecora Rojo' dominant

11.3 Protected Cultivation

Greenhouse Area	7,800 ha under protected vegetable cultivation (2024 GASTAT); production: 797,000 tonnes (+10.6% YoY)
Vertical Farming	Emerging: several startups and pilot projects; NEOM plans include vertical farming; not yet at UAE-scale
Hydroponics/Aeroponics	Growing adoption in commercial greenhouses; tomato, cucumber, lettuce, strawberry cultivation

11.4 Major Agricultural Innovations in Saudi Arabia and Their Relevance for India

Innovation / Technology	Sector	Description	Potential Application in India	Expected Impact in India
Centre-Pivot Irrigation at Scale	Water Management	Dominant technology for large-scale farming in desert; precise water delivery over thousands of hectares	Rajasthan, MP, Gujarat arid zones	Enable large-scale desert agriculture; improve water efficiency by 30–40%
Almarai Integrated Dairy Model	Livestock	World's largest integrated dairy: ~190,000 cows; Yield: ~10,000–12,000 L/cow/year; fully automated	India's organised dairy sector (Amul, NDDB)	Technology transfer for large-scale dairy intensification; cold chain improvement
Al-Jawf Olive Mega-Plantation	Crop Science	World's largest olive plantation; desert olive	Rajasthan, Ladakh (India's olive mission)	Expand India's 2,000 ha olive area using Saudi

Innovation / Technology	Sector	Description	Potential Application in India	Expected Impact in India
		cultivation with drip irrigation		desert cultivation expertise
NAQUA Shrimp Export Model	Aquaculture	Leading global-quality shrimp producer; exports to 35 countries with SAMAQ quality certification	India's West Bengal, AP, Gujarat shrimp sector	Quality certification systems; biosecurity protocols; premium market access
Date Palm Value Chain	Horticulture	~37 million palms; ~1.8-1.9 million tonnes; world's #2 producer; advanced processing (date paste, syrup, sugar)	Rajasthan, Gujarat (India's 25+ million palms)	Variety exchange; processing technology; export market access
GFSA Strategic Food Reserves	Food Security	National grain reserve system with silos across Kingdom; 4–6 months wheat security; overseas farmland investments via SALIC	India's FCI system modernisation	Silo technology; overseas procurement model; strategic reserves management
Saudi Green Initiative	Environmental	10 billion trees; ~40M ha restoration; 52% agriculture water reduction since 2016	India's Green India Mission	Desert restoration techniques; efficient water use in arid zones
Khawlani Coffee Cultivation	Specialty Crops	UNESCO ICH 2022; premium arabica from 2,000+ m altitude; $50–200/kg value	India's Araku Valley, Coorg, Nilgiris coffee regions	GI/specialty coffee marketing models; highland crop diversification

SECTION 12: AGRICULTURAL PRODUCE, FOOD SECURITY & NUTRITION

12.1 Total Agricultural Production Overview

Total Agricultural & Food Production	~16 million tonnes (2024, MEWA) – across all crops, livestock, and fisheries
Total Cereal Production	~1.0-1.6 million tonnes (2024, GASTAT) – wheat 1,187 thousand tonnes (71.9%)
Total Vegetable Production	~3.5-4.0 million tonnes (open-field 2,745 + protected 797; 2024 GASTAT)
Total Fruit Production (incl. dates)	>2.9 million tonnes (2024, MEWA) – dates: 1,923 thousand tonnes
Food Import Dependency	~80% of food needs imported (USDA-FAS/MEWA); wheat ~70–75% imported; rice 100% imported; meat ~55–60% imported
Strategic Food Reserves	GFSA manages national wheat reserves (4–6 months supply); SALIC (PIF subsidiary) invests in overseas farmland in Australia, Ukraine, US, Canada, Africa to secure supply chains
Public Food Subsidy	Government subsidizes wheat flour (prices unchanged for 30+ years at SAR 1.0–1.25/kg retail); strategic commodities maintained at affordable prices; Eid al-Adha livestock support

12.2 Nutrition & Food Security Status

Global Food Security Index Rank	~40th–45th globally (EIU GFSI) – Very High Income; strong food accessibility
Undernourishment	<2.5% (FAO – below measurable threshold; high-income country)
Obesity Prevalence (adults)	~35% (WHO – among world's highest; linked to high diabetes prevalence; MEWA promoting healthier diets)
Per Capita Milk Consumption	~70.3 litres/year (GASTAT 2024 Food Security)
Per Capita Poultry Consumption	~46-47 kg/year (GASTAT 2024)
Per Capita Egg Consumption	~230-240 eggs/year (GASTAT 2024)
Per Capita Wheat Consumption	~133 kg/year (~106.5 kg flour; USDA-FAS 2024/25)
Per Capita Fish Consumption	~11.7 kg/year (2020, MEWA) – target 20 kg by 2030
Per Capita Vegetable Share	Onions: ~20.5 kg/year; Tomatoes: ~19.56 kg/year (GASTAT 2024)

SECTION 13: KNOWLEDGE EXCHANGE – BEST PRACTICES & LEARNING OPPORTUNITIES

13.1 Signature Agricultural Achievements of Saudi Arabia

WHAT SAUDI ARABIA CAN OFFER:

#	Achievement / Innovation	Description and Proven Impact
1	Date Palm Industry – World's #2 Producer	~1.8-1.9 million tonnes from 37.6 million palms (2024 GASTAT); 121% self-sufficiency; advanced processing; exported globally
2	Almarai – One of the Largest Integrated Dairy	~190,000+ cows; ~10,000–12,000 L/cow/year; fully automated; $4.8B expansion (2024); dairy self-sufficiency ~130%
3	52% Agricultural Water Reduction (2016–2024)	MEWA achieved 52% reduction in non-renewable water use in agriculture while maintaining/increasing production – globally significant achievement
4	NAQUA Shrimp – World-Class Aquaculture Exporter	Shrimp self-sufficiency 149%; exports to 35 countries worth $293M/year; SAMAQ quality certification
5	Al-Jawf – World's Largest Olive Plantation	Millions of olive trees in desert conditions using drip irrigation; establishing Saudi Arabia as an olive oil producer
6	Strategic Food Security Architecture	GFSA national reserves; SALIC overseas farmland investments (Australia, Ukraine, US, Africa); diversified import sources for 8 strategic commodities
7	Vision 2030 Agricultural Transformation	~$31B agricultural GDP (2024); 16M+ tonnes total production; rapid expansion of protected cultivation (+10.6% YoY) and aquaculture (+55.56% in 2 years)
8	Khawlani Coffee – UNESCO Intangible Cultural Heritage	Premium Arabica from 2,000+ m altitude in Jazan/Asir; heritage cultivation; $50–200/kg value; growing specialty export market

13.2 Areas Where Saudi Arabia Can Learn from Other BRICS Nations

#	Learning Area	Country to Learn From	Gap and Opportunity
1	Smallholder Agriculture Support	India, China, Brazil	India's 10,000+ FPOs and China's cooperative model could help organise Saudi's 70–80% smallholder oasis farmers
2	Crop Diversification	India, Brazil, Egypt	Saudi grows <20 commercial crops; India's ICAR manages 40+ crops with thousands of varieties; Brazil's tropical crop expertise for Jazan region
3	Aquaculture Intensification	China, Egypt, India	China produces 60% of world aquaculture; Egypt is Africa's leader with tilapia genetics; India is 3rd globally – Saudi targets 600,000 tonnes by 2030
4	Organic Farming at Scale	India, Brazil	Saudi has only 24,100 ha organic; India has 4.7M+ ha; Brazil's organic soy/coffee expertise valuable
5	Rice Cultivation	India, Egypt, China	Saudi imports 100% of rice (~1.5–1.6 MT/year); India/Egypt rice cultivation expertise could enable limited pilot production in suitable areas
6	Agricultural Extension Services	India, China, Brazil	India's KVK network (731 centres), China's agricultural technology stations, and Brazil's EMBRAPA extension model all surpass Saudi's current extension capacity
7	Sugarcane/Sugar Production	Brazil, India, Egypt	Saudi imports 100% of sugar; learning from world's top 3 producers could identify domestic potential or optimize import/processing

#	Learning Area	Country to Learn From	Gap and Opportunity
8	Traditional Water Harvesting	India	India's johad, tanka, stepwell systems applicable to Saudi's 59 mm/year rainfall context; supplement 588 dams

13.3 Agro-Climatic Matching – Saudi Arabia-India Region Pairs

Saudi Region	India State	Climate Match	Key Crops	Priority Technology Transfer
Qassim/Riyadh (Central)	Rajasthan (Jodhpur/Bikaner)	Hot arid desert, irrigated	Dates, wheat, vegetables	Date palm varieties; centre-pivot irrigation; desert farming
Al-Ahsa Oasis (East)	Gujarat (Kutch)	Hot arid, groundwater oasis	Dates, rice, vegetables	Oasis agriculture; salinity management; date processing
Asir Highlands (SW)	Western Ghats / Nilgiris	Mountain, cooler, higher rainfall	Coffee, honey, temperate fruits	Specialty coffee; terraced farming; highland horticulture
Jazan Tihama (SW)	Kerala / Konkan coast	Tropical coastal, humid	Mangoes, bananas, sorghum	Tropical fruit cultivation; spice expertise; fisheries
Tabuk/Al-Jawf (North)	Himachal Pradesh	Semi-arid continental, cold winters	Olives, grapes, stone fruits	Olive cultivation; cold-hardy fruit varieties
Eastern Province coast	Gujarat/Maharashtra coast	Arid coastal	Fisheries, aquaculture	Shrimp farming; marine aquaculture; fish processing
Ha'il (North Central)	Madhya Pradesh (Malwa)	Semi-arid plateau	Wheat, watermelons, fruit orchards	Wheat varieties; water harvesting; organic farming
Rub al-Khali fringe	Thar Desert (Jaisalmer)	Hyper-arid	Camel husbandry	Camel dairy; desert animal genetics; rangeland management

SECTION 14: REFERENCES, DATA SOURCES & ANNEXURES

14.1 Primary Data Sources

National Statistics Office	General Authority for Statistics (GASTAT) – Population estimates 2024, Agricultural Statistics 2024, Livestock Statistics 2024, Food Security Statistics 2024, GDP Statistics. URL: stats.gov.sa
Ministry of Agriculture	Ministry of Environment, Water and Agriculture (MEWA) – Crop production, water policy, fisheries, livestock. URL: mewa.gov.sa
Food Security Authority	General Food Security Authority (GFSA, formerly SAGO) – Wheat procurement, strategic grain reserves, food imports. URL: gfsa.gov.sa
Agricultural Development Fund	ADF – Agricultural loans and subsidies data (SAR 1.9B+ soft loans; SAR 2B livestock loans 2024). URL: adf.gov.sa
FAO-STAT Database	FAOSTAT production, trade data for Saudi Arabia. URL: faostat.fao.org
FAO GIEWS	Global Information and Early Warning System – Saudi Arabia country briefs (Dec 2024). URL: fao.org/giews
World Bank WDI	GDP, population, arable land, agricultural value added. URL: data.worldbank.org
USDA FAS Database	USDA-FAS Riyadh office: Grain & Feed Annual (SA2025-0003), Sugar Annual, Poultry Annual, Aquaculture Industry 2025. URL: fas.usda.gov
IMF World Economic Outlook	GDP, GDP per capita. URL: imf.org/weo
UNDP HDR	Human Development Index. URL: hdr.undp.org
ICARDA	Date Palm Value Chain Analysis for GCC Countries – yield data. URL: icarda.org
Arab News / Saudi Gazette	Official government announcements on agriculture sector data
Vision 2030	Saudi Vision 2030 and National Transformation Program. URL: vision2030.gov.sa

14.2 Glossary of Key Terms

Term	Definition
ADF	Agricultural Development Fund – provides soft loans for agricultural projects in Saudi Arabia
Almarai	World's largest integrated dairy company, headquartered in Riyadh; 190,000+ dairy cows
GASTAT	General Authority for Statistics – Saudi Arabia's official national statistics body
GFSA	General Food Security Authority (formerly SAGO) – manages strategic food reserves and wheat procurement
Khawlani	Premium Arabica coffee variety from Jazan/Asir highlands; UNESCO ICH 2022
MEWA	Ministry of Environment, Water and Agriculture – primary federal agriculture authority
NADEC	National Agricultural Development Company – major Saudi agribusiness (dairy, crops, poultry)

Term	Definition
NAQUA	National Aquaculture Group – Saudi Arabia's largest aquaculture company; PIF-backed via SALIC
NEOM	Mega-city project in NW Saudi Arabia including advanced agriculture and aquaculture (OXAGON)
PIF	Public Investment Fund – Saudi Arabia's sovereign wealth fund; $930B+ AUM; invests in agriculture via SALIC, NAQUA
SALIC	Saudi Agricultural and Livestock Investment Company – PIF subsidiary; invests in overseas farmland
SAMAQ	Saudi Mark of Aquaculture Quality – national certification for farmed seafood
Vision 2030	Saudi Arabia's national transformation plan led by Crown Prince Mohammed bin Salman