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## Desk Study on the Horticulture Sector in Iraq and the Kurdistan Region of Iraq

A Report commissioned by the Consulate General of the Kingdom of  
the Netherlands in Erbil  
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## **LIST OF ABBREVIATIONS**

<b>Abbreviations</b>	<b>Definition</b>
FDI	Foreign Direct Investment
GAP	Good Agricultural Practice
GDP	Gross Domestic Product
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
ISIS	Islamic State of Iraq and Al Sham
ITC	International Trade Centre
KDP	Kurdistan Democratic Party
KRG	Kurdistan Regional Government
KRI	Kurdistan Region of Iraq
NGO	Non Governmental Organisation
NL	Netherlands
NPK	Nitrogen - Phosphorus - Potassium
PESTLE	Political, Economic, Social, Technological, Legal, Environmental
PUK	Patriotic Union of Kurdistan
SME	Small to Medium Enterprise
UN	United Nations
USA	United States of America
CSO	Central Organization for Statistics
FAO	Food and Agriculture Organisation
ICARDA	International Center for Agricultural Research in the Dry Areas
ILO	International Labour Organisation
IOM	International Organisation for Migration
IQD	Iraqi Dinar
MoA	Ministry of Agriculture (of the Government of Iraq)
MoAWR	Ministry of Agriculture and Water Resources (of the Kurdistan Regional Government)
PMF	Popular Mobilization Forces
UNDP	United Nations Development Programme
USD	United States Dollar





## **1. EXECUTIVE SUMMARY**

This Iraqi Horticulture Sector Report was commissioned by the Consulate General of the Kingdom of the Netherlands in Erbil. It has been developed to provide a concise overview of the Iraqi horticultural sector. This Review informs potential Dutch investors on the opportunities and challenges in entering the horticultural sector in Iraq.

The Iraqi horticulture sector is underdeveloped relative to countries with a similar GDP/capita. Geopolitical and security challenges over the past decades are in large part responsible for this. Iraq is a middle income country, with a large population and has significant demand for horticultural products. The security situation at the time of writing in early 2024 is stable, with economy developing and opportunities for investment emerging.

Horticultural production is less productive relative to neighbouring countries. Iraq imports a large percentage of its horticultural products, particularly from Iran and Turkey. Iraq also imports most of its horticultural sector inputs such as fertiliser, agrichemicals, and seed. There is negligible export of any agricultural product except dates.

The horticultural input supply market is moderated well developed. There are large international companies operating in the market. Licencing of products is an issue. Enforcement of rules to prevent fake or harmful agricultural inputs is weak. The Dutch seed sector has made significant inroads into the Iraqi market, and Dutch brands are well regarded.

Horticultural postharvest value chains are underdeveloped. There is very little postharvest processing and packaging. Cold storage capacity is developing but is not sufficient for industry needs. There is very high postharvest loss due to poor transport and lack of cold storage.

The horticulture sector in Iraq is developing. There is strong political interest in the development of the broader agricultural sector. Investment is underway in protected horticulture and modernisation of horticultural production. The potato sector has been growing rapidly over the past decade, with Dutch potato seed companies capturing 75% of the imported seed market. There is strong local awareness of Dutch horticultural expertise and interest in Dutch horticultural products.

Investment opportunities exist for the Dutch horticultural sector in Iraq. This report notes some of the challenges in the operational environment, and recommends working with local partners to overcome these. The relative stability and investor openness of the Kurdistan Region of Iraq is discussed as part of a strategy for market entry. The seed, protected horticulture, specialised agriculture equipment, post-harvest machinery and systems and ornamental plant and flower markets are highlighted as opportunities. Direct investment in horticultural production, and the provision of expertise around protected horticulture and water use efficiency are also seen as areas of potential investor interest. The report concludes with recommendations for potential investors.



## **2. INTRODUCTION**

### **2.1. Iraqi Context**

Iraq is an upper middle income country, with a GDP per capita of \$USD 5,937 in 2022<sup>1</sup>. The economy relies on Iraq's large earnings from oil exports, which account for around 99% of export revenue, and 85% of the government's budget. A key component of Iraq's economic model is high public sector employment, which distributes government oil revenues. Due primarily to historic instability, Iraq's private sector is weak across most sectors, with a lack of infrastructure, knowledge, and capacity relative to other economies of a similar level of GDP/capita.

The population of Iraq is estimated at 44.5 million people<sup>2</sup>. The population growth rate is estimated at 2.2% per year<sup>3</sup>, resulting in population growth of around 1,000,000 people per year. Cities are rapidly expanding. The population in urban agglomerations of more than 1 million has increased from 7.2 million in 2007 to 10.7 in 2022<sup>4</sup>. There is a large middle income consumer class with significant purchasing power. Most Iraqis purchase their horticultural produce at local markets with limited processing. This is changing, with more of the population shopping at supermarkets. There is increasing demand for more highly processed and packaged produce, convenience products, out of season products, and specialized varieties.

The underdeveloped state of the Iraqi private sector, large size of the economy, and current relative stability of Iraq make it an interesting country to explore for trade, collaboration and investment opportunities. Within horticulture, there is high demand for international products, technologies and expertise.

### **2.2. Iraqi Security and Political Landscape**

Iraq is in a volatile region, with a history of conflict and ongoing security risks. Most recently the conflict with Islamic State of Iraq and al-Sham (ISIS) led to substantial displacement of people and economic damage. As of March 2023, the Government of the Netherlands travel advisory typically places the Kurdistan Region of Iraq (KRI) as an 'orange' rating, while the remainder of the country is at 'red', with travel not recommended. Iraq has had an absence of armed conflict since the defeat of ISIS in 2017. At the time of writing in March 2024, the Iraqi economy is growing, with opportunities emerging for investment and development.

This Report makes the distinction between territory directly controlled by the Government of Iraq (GoI) in Baghdad, and the semi-autonomous Kurdistan Region of Iraq (KRI).

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<sup>1</sup> The World Bank, GDP per Capita – Iraq

<https://data.worldbank.org/indicator/NY.GDP.PCAP.CD?locations=IQ>

<sup>2</sup> The World Bank, Iraq Country Page, <https://data.worldbank.org/country/IQ>

<sup>3</sup> The World Bank, Population growth (annual %) – Iraq

<https://data.worldbank.org/indicator/SP.POP.GROW?locations=IQ>

<sup>4</sup> Humanitarian Data Exchange, Iraq - Urban Development.

[https://data.humdata.org/dataset/world-bank-urban-development-indicators-for-iraq?force\\_layout=desktop](https://data.humdata.org/dataset/world-bank-urban-development-indicators-for-iraq?force_layout=desktop)



Doing business in these two administrative areas is dramatically different. The Kurdistan Region of Iraq is stable and safe. The Kurdistan Region is administered by the Kurdistan Regional Government (KRG). The Kurdistan Regions' army, or *peshmerga*, and the Regional security and intelligence services, the *asayish*, maintain security within the Region. Erbil International Airport and Sulaymaniyah International Airport are connected to Europe by regular direct flights. English is widely spoken as a second language by educated people, and is preferred over Arabic as a second language by the younger generation. Rates of criminality and violent crime in the KRI are lower than many European countries. The Dutch travel advice for the KRI reflects this situation and the region consistently has a lower level of risk than Federal Iraq.

Within the Kurdistan Region of Iraq, there are two key political parties. These are the Kurdistan Democratic Party (KDP), and the Patriotic Union of Kurdistan (PUK) parties. Each party is represented in the Kurdistan Regional Government, however at the time of writing the KDP dominates the Government. Within the Sulaymaniyah Governorate, in the south eastern part of the KRI, the PUK is in control of most functions of the State.

Government of Iraq (GoI) territories in general are more challenging for foreign direct investment. While there is an absence of armed conflict, the political situation is turbulent. Protests can erupt rapidly. Non-state armed groups such as the Popular Mobilization Forces (PMF) are active. However significant business opportunities do exist. Business visas for travel to GoI territory are straightforward to maintain. Most foreign investors do business through local or regional partners to ensure they can navigate the complex operating environment.

### **2.3. Geography and Climate**

Iraq's land area is approximately 435,052 square kilometres<sup>5</sup>. Its population consists of an Arab majority and Kurdish minority, with several minor ethno-religious groups.

The country has a range of agro-ecological zones. While the national average rainfall is 216 mm per year<sup>6</sup>, there is significant diversity in the productive potential of Iraq. Deserts cover the west of Iraq with limited opportunity for horticultural development except potentially along the Euphrates River.

The Tigris-Euphrates alluvial plains in central and south-eastern Iraq has large tracts of irrigated land. These plains produce a wide variety of vegetable crops, including potatoes, tomatoes, eggplants, cucumbers, and okra. Date palms are a very important crop and cereals are also grown. This is the agricultural heartland of Iraq with opportunity for horticultural development. However it is also vulnerable to climate related risks and faces issues with soil and water salinity. Average rainfall in Baghdad is around 152 mm/year

In the northern Governorates of Nineveh, Kirkuk, and Salah-Haddin agriculture is reliant on seasonal rainfall. Seasonal cropping of wheat based on winter rains predominates. Average rainfall in the major Nineveh Governorate city of Mosul is

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<sup>5</sup> Britannica, Iraq Country Page, <https://www.britannica.com/summary/Iraq>

<sup>6</sup> Alessandro Tinti. (2017) *Water Resources Management in the Kurdistan Region of Iraq*, American University of Sulemania



around 400 mm/year<sup>7</sup>. Some irrigation from wells enables year-round vegetable cultivation and orchards.

The north eastern regions (roughly the area of the Kurdistan Region of Iraq) are higher elevation, with higher rainfall and a four-season climate. The area is mountainous with large flat valleys. There are some large plains, especially in southern Erbil Governorate spreading towards Dohuk, and around Halabja spreading towards Sulaymaniyah. Some of the highest potential horticultural land in Iraq can be found in these regions. For example, the area around Halabja is flat, has excellent soils, with around 850 mm of rain per year, and available ground water for irrigation. Important crops in these higher rainfall areas include fruits such as apples, grapes and pomegranates, and vegetables, such as tomatoes, cucumber, watermelon and eggplant.

The range of agro-ecological zones across Iraq enables an extended growing season for many crops, particularly between the Tigris-Euphrates alluvial plains and Northern Iraq. The KRI has the highest potential for rainfed horticulture, with temperatures ranging from highs of 43-48 degrees Celsius in summer to lows of around 2 degree Celsius in winter. KRI rainfall varies on location and elevation from around 350 mm per year, up to more than 1000 mm/year. Around 90% of this rainfall occurs between November to April<sup>8</sup>.

#### **2.4. Doing Business in Iraq**

Iraq scored 172 out of 190 ranked countries in the 2023 World Banks 'Ease of Doing Business' Index<sup>9</sup>. Significant issues include a lack of stable electrical supply from the main electrical grid, high levels of corruption, complex legislation, challenges in enforcing contracts, and an inefficient public sector. The Index groups the GoI and KRI administrations together. In the KRI the business climate is better than in federal Iraq, however still faces some similar challenges. Kurdistan Regional Government is supportive of investment and offers some incentives which are outlined in the section on policy below.

The challenging business environment, and perceptions of the Iraq as unsafe have meant that foreign investment interest has been low in recent decades. The market is relatively undeveloped, and potential return for businesses that do enter the market successfully can be high.

### **3. SECTOR OVERVIEW**

#### **3.1. Introduction to the Sector**

The majority of farmers operate small plots of land. Average land size varies around the country. One study found that farms in the KRI are on average 10 - 30 hectares,

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<sup>7</sup> Al-Ansari, N. (2021). *Topography and Climate of Iraq*. Journal of Earth Sciences and Geotechnical Engineering, Vol. 11, No. 2, <https://doi.org/10.47260/jesge/1121>

<sup>8</sup> Food and Agriculture Organisation. (2019). *Review of the Agricultural Sector In The Kurdistan Region Of Iraq: Analysis On Crops, Water Resources And Irrigation, And Selected Value Chains*. Commissioned by the UNDP Funding Facility for Economic Reform for Kurdistan Regional Government

<sup>9</sup> World Bank, Ease of Doing Business Rankings, <https://archive.doingbusiness.org/en/rankings>





while in Basra and Baghdad farms are only 1 - 2.5 hectares<sup>10</sup>. Another study found that small-scale farms (2.5 ha – 7.5 ha) account for 35% of the total number of farms, while medium-sized farms (7.6 ha – 12.5 ha) make up 34% of the total number of farms<sup>11</sup>. There is an estimated 213,882 farmers in the KRI<sup>12</sup>, with data not available for GoI territories.



*Recently constructed tomato hydroponics in Erbil, KRI. Source: Author*



*Typical low-input cultivation of chilli, Mahmoudiya, near Baghdad. Source: Author*

Yield and productivity data is unreliable, however is consistently cited in the literature as below regional averages for most crops. Farmers utilise primarily family labour with hired labour for busy periods. Horticultural crop production is labour intensive, however cultivation is typically mechanised. An International Trade Centre (ITC) survey found that 68% of tomato farmers and 53% of 'other vegetable' farmers have annual revenue between 2,000,000 to 20,000,000 IQD. Just 14% of tomato farmers and 25% of 'other vegetable' farmers have revenue greater than 20,000,000 IQD per year. At the time of writing, 20,000,000 IQD equals approximately 14,220 Euro.

Currently most Iraqi horticultural products are relatively uncompetitive compared to imports. Decades of private sector stagnation due to conflict, sanctions, and political instability are key causes. Neighbouring countries, especially Iran and Turkey, supply horticultural products to Iraq below the local cost of production. One study by ITC suggested that 45% of produce at wholesale markets was imported<sup>13</sup>. A Delphy study suggests that in 2021 61% of tomatoes, 22% of cucumbers, and 35% of potatoes consumed in the KRI were imported.

### **3.2. Horticultural Production**

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<sup>10</sup> Delphy. (2020). *Iraqi Horticulture Development Program: Horticulture Sector Gaps and Opportunities—Kurdistan Region of Iraq Report*. EcoConsult.

<sup>11</sup> International Trade Centre. (2022) *Iraqi Agribusiness Market Research and Commercial Insights: A Technical Brief*, ITC, Geneva.

<sup>12</sup> Hannah Zevenbergen, Mink Vermeer, Maarten Kommers. (2023). *Market Systems Analysis KRI*. Delphy.

<sup>13</sup> International Trade Centre. (2022) *Iraqi Agribusiness Market Research and Commercial Insights: A Technical Brief*, ITC, Geneva.



Data availability and quality for crop production across Iraq is limited. FAOSTAT information on crop production and area cultivated for the year 2022 is available, based on official figures and estimates. Crops with a total of at least 10,000 tonnes of production in Iraq in 2022 are listed in Table 1 below<sup>14</sup>.

*Table 1: Crop production and volume and area in Iraq, 2022 FAOSTAT data*

<b>Crop</b>	<b>Annual Production (Tonnes)</b>	<b>Production Area (Hectares)</b>
<b>Wheat</b>	2,764,692	997,587
<b>Dates</b>	715,293	278,159
<b>Tomatoes</b>	630,160	30,607
<b>Maize (corn)</b>	496,003	82,844
<b>Watermelons</b>	440,149	23,733
<b>Grapes</b>	384,984	22,322
<b>Potatoes</b>	270,591	12,645
<b>Cucumbers and gherkins</b>	195,924	20,381
<b>Eggplants (aubergines)</b>	183,056	12,388
<b>Cantaloupes and other melons</b>	180,852	12,597
<b>Oranges</b>	175,058	123,509
<b>Barley</b>	144,493	91,144
<b>Okra</b>	88,843	14,014
<b>Apples</b>	77,800	23,771
<b>Onions and shallots, dry (excluding dehydrated)</b>	75,469	8,228
<b>Other fruits, n.e.c.</b>	69,397	15,084
<b>Onions and shallots, green</b>	47,030	4,598
<b>Chillies and peppers, green</b>	43,904	5,068
<b>Other vegetables, fresh n.e.c.</b>	42,513	9,559
<b>Broad beans and horse beans, green</b>	40,586	5,203
<b>Pumpkins, squash and gourds</b>	38,783	4,016
<b>Lettuce and chicory</b>	36,326	3,882
<b>Sugar beet</b>	32,208	5,575
<b>Olives</b>	31,511	7,545
<b>Apricots</b>	31,151	6,024
<b>String beans</b>	23,038	3,723
<b>Cauliflowers and broccoli</b>	14,247	1,476
<b>Pears</b>	13,609	1,937
<b>Plums and sloes</b>	13,138	1,981
<b>Rice</b>	11,637	3,839
<b>Cabbages</b>	10,664	1,107

<sup>14</sup> FAOSTAT. Crops and Livestock Products. <https://www.fao.org/faostat/en/#data/QCL>



In the KRI, there is Ministry of Agriculture and Water Resources (MoAWR) data available on the crops with the highest production in 2020. The crops with estimated production above 20,000 tonnes per year include watermelons, cucumber, tomatoes, potatoes, onion, pomegranates, and melon (cantaloupe)<sup>15</sup>. Other significant crops include cabbage, squash, grapes, lettuce, eggplant, sweet pepper, apples, hot pepper, okra, figs, stone fruit (apricots, peaches, plums) and pomes (apples and pears). Other vegetables are produced in small volumes.

The MoAWR has published data on the average yields of crops in the KRI. This data is not considered reliable, however is presented below in Table 2. A donum is the local unit of area measure, equal to 0.1 hectares.

*Table 2: Kurdistan Region of Iraq average crop yeild estimates*

<b>Crop</b>	<b>KRI Average yields (kg/donum)</b>	<b>KRI Average yields (kg/hectare)</b>
<b>Onion</b>	3,470	347
<b>Pepper</b>	3,092	309
<b>Melon</b>	1,434	143
<b>Watermelon</b>	5,706	571
<b>Okra</b>	1,829	183
<b>Tomato</b>	3,768	377
<b>Cucumber</b>	3,376	338
<b>Eggplant</b>	3,866	387
<b>Squash</b>	1,192	119

The KRI is not self-sufficient in any of these crops, with local production of food crops only covering 30% of domestic demand on average. The top five imported crops by volume are apples, tomatoes, oranges, onions and water melon<sup>16</sup>.

In the whole of Iraq, the top ten horticultural products with the highest forecast import demand are (in descending order of value); tomatoes, potatoes, apples, oranges, watermelons, lemons and limes, other citrus fruit, onions and shallots, lentils, pistachios<sup>17</sup>

Greenhouse production in simple plastic tunnel houses has been developing rapidly in both GoI and KRI regions. Protected horticulture began developing in around 2008, with plastic tunnel greenhouses now widespread. In recent years there have been some investments in multi-span mid and high tech greenhouses, with more investments planned. The number of greenhouses in the KRI is estimated to be growing by 15% per year<sup>18</sup>, with around 30,000 greenhouses in 2023. Total area under

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<sup>15</sup> Delphy. (2020). *Iraqi Horticulture Development Program: Horticulture Sector Gaps and Opportunities—Kurdistan Region of Iraq Report*. EcoConsult.

<sup>16</sup> Delphy. (2020). *Iraqi Horticulture Development Program: Horticulture Sector Gaps and Opportunities—Kurdistan Region of Iraq Report*. EcoConsult.

<sup>17</sup> International Trade Centre. (2021). *Identifying agricultural and agrifood products with potential for production and Commercialization in Iraq*. ITC, Geneva.

<sup>18</sup> Personal Communication, KRG Board of Investment, February 2024



greenhouses is estimated to be 1,376 ha. Within the KRI, Sulaymaniyah Governorate is leading in area under greenhouse cultivation. In 2022, Sulaymaniyah Governorate had an estimated 22,103 greenhouses, compared to 3,248 in Erbil Governorate and 3,259 in Duhok Governorate<sup>19</sup>. Total estimated production from the Data is presented in Table 3. Data does not exist on greenhouse numbers in GoI.

*Table 3: Estimated greenhouse production data for the Kurdistan Region of Iraq in 2022*

	<b>Sulaymaniyah</b>	<b>Erbil</b>	<b>Duhok</b>	<b>Halabja</b>
<b>Number of farmers</b>	1,940	665	976	323
<b>Number of greenhouses</b>	22,103	3,248	3,259	1,251
<b>Total area in hectares</b>	1,024 ha	148 ha	147 ha	57 ha

### 3.3. Input supply

Agricultural input supply has a reasonably well developed network, with several large agricultural input companies dominating the market. Some of the key agricultural input companies in Iraq include:

- ARD Unifert Company
- Debbane Agri
- Kurdistan Holland Company
- Agro Plant Company
- Nahar Al Awrad Company
- Bluefield Lebanese Company
- Mawared Al Korom Company
- Green Countryside Company
- Al Reef Al Khadraa Company
- Rabeea Dejla Company
- Plant House Company
- Al Rand Royal Company
- Jawharat Al Rabie Company



*Typical agricultural input store in Mahmoudiya, near Baghdad. Source: Author*

Due to the restrictive policies around seed, fertiliser, and pesticide registration, larger companies have had an advantage in being able to wait up to three years for product registration. There is around 5 larger agricultural input companies, usually with foreign parent companies. The larger international product importers then wholesale to medium and small sized agricultural input companies. Medium sized Iraqi companies also register and import their own products as well.

<sup>19</sup> Hannah Zevenbergen, Mink Vermeer, Maarten Kommers. (2023). *Market Systems Analysis KRI*. Delphy.





Farmers typically purchase agricultural inputs from small local retailers. Retailers offer inputs sourced from a range of wholesalers. Farm inputs are mostly imported. Turkey, Iran, and China are common countries of origin for agri-chemicals. The quality of agricultural inputs is variable, with a lack of trust from farmers in the products. While there are a number of large agricultural input companies in the market, product range at the local level is often restricted. For example, the range of fertiliser blends and seed varieties retailed outside major urban centres is typically limited.

In a 2021 study conducted by ITC, the biggest challenge to accessing inputs reported by farmers was high prices<sup>20</sup>. The same study found that the cost of seeds made up 30% of vegetable farmers annual cost of production. Fertilisers made up 10% of the total cost of production, and pesticides/herbicides 8% of the cost of production.

The presence of fake products in the market is a major complaint from farmers, especially in Federal Iraq. In the KRI there is reports that in 2023 the KRG has begun enforcing quality standards for agricultural inputs. There is very little enforcement of standards by the GoI.

There is a substantial trade in seed from the Netherlands to Iraq, particularly for seed potatoes. More than ten Dutch vegetable seed companies and ten Dutch seed potato companies are active in the Iraqi market<sup>21</sup>. Dutch companies are a significant part of the total market for seed.

Under the 1970s and 1980's Socialist policies of the Ba'ath Party, agricultural inputs were heavily subsidised. Farmers often cite a lack of government price subsidies on fertiliser as one of their main problems and lobby for this. Some subsidies are still provided to cereal producers, which distorts the market. Implementation of the governments agricultural support program still focuses on direct subsidisation of inputs, not in developing a competitive and profitable agricultural sector.

### **3.4. Sorting, Processing and Packaging**

In general the value chain post-harvest is poorly developed for most crops across Iraq. There is a high level of food wastage due to lack of quality source material, lack of cool storage and poor handling, and lack of processing opportunities. Iraqi product quality at retail is often lower than competing importing products due to issues post-harvest rather than production. Cool storage, transport logistics, processing and packaging require modernisation and investment in all crop value chains.

There is very little sorting, processing, and packaging of fresh produce. Tomatoes for example are typically packed in 30kg plastic grades, without grading. They are sold in these crates all the way down the value chain to retail, where customers sort through bruised tomatoes. Common crops such as eggplant, zucchini, potato and onion have similar treatment, usually packed into large plastic bags on farm. Retailers place in piles in bins or boxes for retail display.

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<sup>20</sup> International Trade Centre (2021). *Competitiveness of SMEs and Farmers in the Food and Agricultural Sector*. ITC, Geneva.

<sup>21</sup> Nectaerra B.V. (2023). *Seed Sector Framework in Iraq – An Exploration on Seed Regulations, Compliance, and Stakeholder Experiences*. Seed NL.





Notable exceptions to this lack of investment is in the potato sector, which has invested in chip production factories in recent years. There is a vegetable processing line in Sulaymaniyah capable of washing, sorting, cutting, and drying vegetables, with a capacity of 1,000 kg/hr of product. Also new greenhouse production projects are beginning to package lettuce in cellophane wrap and tomatoes in plastic cartons for sale.

### **3.5. Transport, logistics, and cold storage**

Transport of produce from the farm or for short distances is typically done in small trucks owned by farmers or traders. For longer distances across the country or for large volumes of product refrigerated transport is often used. This is not always the case, with unrefrigerated trucks carrying tomatoes in 40 degree Celsius heat a common sight on the roads into Mosul.

Logistics services centre around the wholesale markets for most horticultural products. In one study, only 2 out of 203 farmers reported sending their products to supermarkets, bazaars, or to export, while the remainder sent produce to the wholesale markets<sup>22</sup>. Supermarkets and other large produce users may have contracts for supply, but the supply is often routed through the logistics hubs of these markets. Produce importers often import directly to the wholesale market before distribution. Some imports, such as bananas, are imported into the facilities of the Iraqi company, before distribution directly to clients.

There is a range of contracting and marketing arrangements. The most typical is a spot market however. Farmers negotiate with traders or wholesalers for the best price on the day, and traders or wholesalers also negotiate with produce retailers on short term contracts or informal agreements. There has been some development of contract farming models in the industrial potato subsector, which have been part of the successful recent expansion of area cultivated in potato.

Cold storage is lacking across much of the country. Nationwide issues with electricity supply require generators to run cold storage reliably. Product spoilage rates are high, especially with daily summer temperatures above 40 degrees Celsius. In one study, 50% of aggregators, 33% of transporters, and 100% of wholesalers report that 21-40% of their tomatoes are lost due to poor post harvest management<sup>23</sup>. Another study estimates that 45% of tomatoes are lost<sup>24</sup>. The same report estimates that 29% of potatoes, 18% of aubergine, and 27% of watermelon product is lost.

Cold storage is an area of some investment with the KRI currently, notably with the development of cool storage for potatoes. There were approximately 76 cold stores in the KRI in 2022, with the majority privately owned and two publicly owned. Farmers

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<sup>22</sup> Delphy. (2020). *Iraqi Horticulture Development Program: Horticulture Sector Gaps and Opportunities—Kurdistan Region of Iraq Report*. EcoConsult.

<sup>23</sup> FAO. 2021. *Agricultural value chain study in Iraq – Dates, grapes, tomatoes and wheat*. Bagdad. <https://doi.org/10.4060/cb2132en>

<sup>24</sup> Delphy. (2020). *Iraqi Horticulture Development Program: Horticulture Sector Gaps and Opportunities—Kurdistan Region of Iraq Report*. EcoConsult.



reported issues with access to cold storage, and those who could access complain of high costs<sup>25</sup>.

### **3.6. Wholesale**

Products are typically transported from the farm to wholesale markets by either the farmer or a trader who purchases from the farm. The infrastructure quality of these wholesale markets varies. Some have paved roads, loading bays, and cold storage. Many do not have any of this infrastructure or are poorly maintained. Some are publicly owned and others are private. At the wholesale markets traders may buy and transport to larger markets or across the country. Retail greengroceries and restaurants typically buy directly from the wholesale markets.

One study suggested that in the KRI, there were 341 wholesalers in 2022. Data does not exist for GoI territories<sup>26</sup>.

### **3.7. Retail**

The majority of horticultural produce is sold to consumers with very little grading, washing, or packaging at local greengroceries. Neighbourhood greengroceries are the preferred retail outlet in Iraq, with most consumers purchasing several times a week in smaller quantities<sup>27</sup>. Many local greengroceries operate with their shop open to the street, or without any temperature control.

Supermarkets are also an important retail outlet, however smaller supermarkets tend not to stock fresh produce or meat. People tend to purchase fresh produce and meat from dedicated retailers. Larger supermarkets stock more imported and value-added produce, as they tend to attract customers with higher purchasing power.



*Typical greengrocer store in Erbil, KRI. Source: Author*

Data for crop consumption in the KRI shows that the crops with the highest volumes of consumption are; watermelons, apples, tomatoes, cucumbers, potatoes, onions, oranges, and melons (cantaloupe)<sup>28</sup>. This is based on MoAWR data for 2020. The exact

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<sup>25</sup> Hannah Zevenbergen, Mink Vermeer, Maarten Kommers. (2023). *Market Systems Analysis KRI*. Delphy.

<sup>26</sup> Hannah Zevenbergen, Mink Vermeer, Maarten Kommers. (2023). *Market Systems Analysis KRI*. Delphy.

<sup>27</sup> International Trade Centre. (2022) *Iraqi Agribusiness Market Research and Commercial Insights: A Technical Brief*, ITC, Geneva.

<sup>28</sup> Delphy. (2020). *Iraqi Horticulture Development Program: Horticulture Sector Gaps and Opportunities—Kurdistan Region of Iraq Report*. EcoConsult.





*Table 5: Top ten countries of origin for fruit and nut import flows into Iraq*

<b>Country</b>	<b>Value (\$USD)</b>
<b>Iran, Islamic Republic of</b>	407,694,000
<b>Türkiye</b>	197,548,000
<b>United Arab Emirates</b>	101,613,000
<b>Ecuador</b>	82,164,000
<b>South Africa</b>	44,107,000
<b>Viet Nam</b>	43,117,000
<b>India</b>	35,049,000
<b>Egypt</b>	26,751,000
<b>Lebanon</b>	19,694,000
<b>Jordan</b>	14,368,000

The largest component of Iran’s export to Iraq is melons (\$USD 124,320,000) with significant volumes of most other categories of fruit and nuts. Turkey’s major exports to Iraq are nuts and citrus.

Processed horticultural products (classified as ‘preparations of vegetables, fruit, nuts, or other parts of plants’) are also an important import, with the majority of the \$USD 670,188,000 of imports coming from Turkey. Table 6 below presents the trade value of imports from the top ten countries of origin for these products.

*Table 6: Top ten countries of origin for processed horticultural product import flows into Iraq*

<b>Country</b>	<b>Value (\$USD)</b>
<b>Türkiye</b>	441,598,000
<b>Iran, Islamic Republic of</b>	84,618,000
<b>China</b>	65,054,000
<b>United Arab Emirates</b>	29,322,000
<b>Jordan</b>	8,899,000
<b>India</b>	8,095,000
<b>Egypt</b>	6,149,000
<b>Saudi Arabia</b>	4,922,000
<b>Spain</b>	3,809,000
<b>Lebanon</b>	3,152,000

The most important imported processed vegetable crop is tomatoes, with \$USD 344,289,000 imports from Turkey alone.

Iraq’s imports of live plants and cut flowers (classified as ‘Live trees and other plants; bulbs, roots and the like; cut flowers and ornamental foliage’) in 2022 was \$USD 33,432,000. The majority of this value is imports of live plants, at \$USD 25,066 imports. In order of value, Iran, Turkey, Italy, the Netherlands, Kenya, and the United Arab Emirates are the most important exporters. The Netherlands exported \$USD 3,909,000 of live plants to Iraq in 2022, with minor exports of cut flowers (\$USD 134,000) and bulbs (\$USD 107,000).

Local demand for fresh flowers and potted plants is mostly met by imports. The individuals behind these businesses have typically lived in the Netherlands before



returning to Iraq, or have strong personal connections to Kurdish people based in the Netherlands. The Iraqi diaspora communities are key in facilitating this trade, and also bringing back new ideas and technology in the horticultural sector.

### Imports of inputs

Iraq imported \$USD 308,975,000 of fertilisers in 2022. The majority of fertilisers were imported from Turkey (\$USD 113,753,000) , Iran, (\$USD 89,509,000) and Jordan (\$USD 88,957,000). The Netherlands exported \$USD 903,000 of fertiliser to Iraq in 2022, mostly specialised blends. Iraq imported \$USD 53,436,000 worth of insecticides, pesticides, and herbicides in 2022.

Dutch companies have been successful in entering the vegetable and potato seed markets in Iraq. Dutch seed dominates the premium vegetable seed market. Dutch potato seed exports to Iraq have grown rapidly over the past decade, with a market share of around 75% of European seed potato imports. In 2020 this market was worth around 15,000,000 Euros annually, with 25,000 tonnes seed potato traded<sup>31</sup>.

### Export of produce and inputs

Iraq has very limited exports of horticultural produce. In 2022, it exported just \$USD 3,210,000 of vegetable products. Exports in the fruit and nuts category are larger, at \$USD 111,985,000 in 2022, and comprised almost entirely of dates. Iraq exports \$USD 5,658,000 of processed horticultural products. Dates are typically exported with minimum value added packaging. Premium varieties of dates sold in Iraqi supermarkets are typically imported.

There is negligible export of agricultural inputs from Iraq.

## **3.9. Extension Services and Advisory**

There are two extension and advisory systems in Iraq, under the Federal Government, and the Kurdistan Regional Government of Iraq. These operate in the two different jurisdictions without overlap. Overall the extension services and advisory systems are not operating well. In a FAO survey, 81% of farmers stated that they were not satisfied with government policies or technical support, particularly extension services<sup>32</sup>.

It should be noted that public sector employment has long been a tool of politicians in Iraq to create clientelist relations, and thereby gain power. Due to this, the state provides around 42% of jobs nationwide. In the KRI, this increases to 47% of jobs, with 65% of households on a public payroll<sup>33</sup>. While budget is directed to salaries, operation of many government departments is chronically underfunded. This impacts the ability of the government to provide effective extension, advisory, and research services.

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<sup>31</sup> Nectaerra B.V. (2023). *Seed Sector Framework in Iraq – An Exploration on Seed Regulations, Compliance, and Stakeholder Experiences*. Seed NL.

<sup>32</sup> FAO. (2021) *Agricultural value chain study in Iraq – Dates, grapes, tomatoes and wheat*. Bagdad. <https://doi.org/10.4060/cb2132en>

<sup>33</sup> Jongerden, Joost, Wouter Wolters, Youri Dijkxhoorn, Faik Gür, and Murat Öztürk. 2019. "The Politics of Agricultural Development in Iraq and the Kurdistan Region in Iraq (KRI)" *Sustainability* 11, no. 21: 5874. <https://doi.org/10.3390/su11215874>





In the KRG, the General Directorate of Agricultural Research, Training and Extension (GDARTE) within MoAWR has responsibility for extension services and research. They have offices across the Kurdistan Region, with MoAWR data showing 43 agricultural extension offices<sup>34</sup>. In practice, the General Directorate has not received sufficient funding for operational expenses since 2014. Staff often do not receive their salary. There is a lack of qualified staff. The General Directorate has limited ability to provide training and advisory services to farmers.

Under the Federal Governments' Ministry of Agriculture (MoA) there are two relevant agencies. These are the Directorate of Extension and Training, and the Directorate of Agricultural Research. These Directorates are better resourced than the KRG system. Demonstration plots across the country are maintained, and there is some limited extension services provided. The frequency of farm visits and overall impact of extension services is generally regarded as low.

Due to a substantial NGO and UN agency presence in Iraq, there has been farmer extension services delivered by NGO's across much of Iraq. This has been project-based with mostly short term trainings provided to relatively small numbers of farmers. There is a small number of local consultants and consulting firms providing consulting services in horticulture. There is limited willingness to pay for advisory services from farmers.



*Typical plastic tunnel houses common across Iraq, Mosul. Source: Author*



*Typical greenhouse production of cucumber, Mosul. Source: Author*

### **3.10. Research**

Government horticultural sector research is very limited due to budget and capacity issues. The KRGs GDARTE's Erbil Research Directorate for example, has 138 employees, of which none are PhD holders and four have Masters degrees<sup>35</sup>. MoAWR's

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<sup>34</sup> Ministry of Agriculture and Water Resources, Kurdistan Regional Government. (Undated) *Opportunities for Investment in Agriculture and Water Resources Sectors in Kurdistan Region – Iraq*. KRG Erbil

<sup>35</sup> Food and Agriculture Organisation. (2019). *Review of the Agricultural Sector In The Kurdistan Region Of Iraq: Analysis On Crops, Water Resources And Irrigation, And Selected Value Chains*. Commissioned by the UNDP Funding Facility for Economic Reform for Kurdistan Regional Government



data shows that there are 17 agricultural research stations across the KRG. However there is no publicly available research outputs from these stations<sup>36</sup>.

There are many academic institutions in Iraq with agricultural and horticulture departments. The University of Baghdad's College of Agriculture has an Agricultural Advisory Bachelors programme. However there is little horticultural research meeting international quality standards produced. There is very little integration between the horticulture sector, policy makers, and academia. Generally academic research does not consider how to address commercial needs.

There is some opportunity to utilise expertise within the university systems. Due to low working hours and salaries, many academics also have private consulting practices outside of their official roles. There are some experts that have both academic and industry expertise through this, and are useful for the horticulture sectors development. There have been some examples of successful university knowledge and research integration into horticultural projects, usually within the context of NGO or UN agency funding.

### **3.11. Industry Coordination and Governance**

There are a number of large, vertically and/or horizontally integrated agribusiness companies in Iraq. These companies, for example Nahar Al Awrad Company, comprise of a range of sister companies working in retail of agricultural inputs, agricultural processing, and sometimes also agricultural production. There is potential for this model to grow, but currently most production is still conducted by smallholder farmers.

Farmers associations are common across the country. These are primarily seen as political organisations, lobbying for the rights of farmers to politicians. The main issues of interest are often increased direct government price support for marketing, and subsidised inputs. Some farmers associations can provide valuable services of information provision, networking, and market access, however this is uncommon. Cooperatives and farmer producer organisations are not common, with most cases being supported by NGOs and UN agencies.

Vertical coordination down the value chain is weak, with most horticultural product passing through wholesale markets. An interesting recent development is the emergence of contract farming in the potato sector. Large, vertically integrated companies provide a guaranteed market for product, technical support, and inputs on credit. They then buy all of the crop that meets quality specifications and deduct the agricultural input credit from the payment to farmers. This has been part of the potato sectors recent growth and modernisation.

Local traditional leaders such as chiefs and sheikhs can have a large influence on issues to do with land management, adoption of technology, and trade. In more traditional areas approval of local traditional leadership is essential to ensure smooth relationships with the community. Local politics can also play a part in access to land rights, water, electricity, and other services.

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<sup>36</sup> Ministry of Agriculture and Water Resources, Kurdistan Regional Government. (Undated) *Opportunities for Investment in Agriculture and Water Resources Sectors in Kurdistan Region – Iraq*. KRG Erbil



### **3.12. Finance and Access to Credit**

The financial services sector in Iraq is underdeveloped. Customary Islamic rules prohibit usury (charging interest), meaning that many Iraqi's are unwilling to take out loans with interest payments. Traditional banks do not offer seasonal finance for farm operating expenses. Obtaining a loan for purchase of capital equipment is challenging, and out of reach for small to medium scale farmers. Farmers and investors typically rely on family and person networks for raising loans if required. There are no microfinance institutions or relevant insurance schemes for farmers. As referenced earlier in the report, there is some recent success in contract farming agreements within the potato sector. Under these agreements seasonal loans for agricultural inputs are provided.

## **4. CASE STUDIES**

This section presents one case study on the value chain for tomatoes. It also presents two case studies of Dutch investment into the horticultural sector in Iraq.

### **4.1. Tomato case study**

Tomatoes are presented as a case study as there is greater data available on this crop than other crops in Iraq. The tomato value chain is typical of most horticultural products in Iraq and is useful as an example of production and value chain dynamics. Tomatoes are a common part of the cuisine across Iraq, and are one of the most commonly grown horticultural crops. Ministry of Agriculture data estimates total national production of 771,000 tonnes<sup>37</sup> which FAOSTAT estimates total national production at 630,160 tonnes<sup>38</sup>. Tomatoes are produced both in open fields (especially in the south of Iraq near Basra, Kerbala, and Najaf), and also in greenhouses. Typically greenhouse tomatoes are cultivated in low tech plastic tunnel houses, growing directing in the soil.



*Low-input cultivation of tomatoes, Choman, KRI. Source: Author*



*Packaging of tomatoes for transport and sale, Choman, KRI. Source: Author*

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<sup>37</sup> Food and Agriculture Organisation. 2021. *Agricultural value chain study in Iraq – Dates, grapes, tomatoes and wheat*. Bagdad. <https://doi.org/10.4060/cb2132en>

<sup>38</sup> FAOSTAT. Crops and Livestock Products. <https://www.fao.org/faostat/en/#data/QCL>



Yield estimates for tomatoes vary widely. According to FAOSTAT 2020 data, tomato yields per hectare are estimated at 27.06 tonnes per hectare in Iraq, compared to 43.3 tonnes/ha in Iran and 70.8 tonnes/ha in Turkey. The Central Organization for Statistics (CSO) of the Ministry of Planning (CSO) estimates average Iraqi tomato yields at 59 tonnes/ha<sup>39</sup>. Research commissioned by GIZ<sup>40</sup> in 2022 estimated open field yields at 49 tonnes/ha, while greenhouse yields were just 31 tonnes/ha.

Low productivity can be attributed to factors such as small farm size, traditional production techniques, and lack of locally adapted agronomic research, lack of suitable varieties for local condition, poor quality agricultural inputs, inefficient irrigation, and inappropriate use of agricultural inputs.

Tomatoes have the highest projected import demand in Iraq according to ITC estimates. ITC estimates import demand by 2025 for fresh tomatoes at \$USD 183 million, \$USD 291 million for processed tomatoes. Domestic production of tomatoes and tomato products accounted for just 25.2% of domestic supply in 2017<sup>41</sup>.

Tomato price volatility is high, depending on the season and if imports are being allowed into the market. Consumer prices for standard variety tomatoes range from 500 IQD/kg to 1,500 IQD/kg. Farmgate prices range from 70 IQD/kg to 850 IQD/kg<sup>42</sup>. Premium varieties in supermarkets, such as cherry tomatoes, are typically imported and fetch much higher prices. Highly seasonal production results in gluts of production followed by shortages of supply. In both the KRI and GoI areas there is some level of trade protection, with borders closing to imported tomatoes from Iran and Turkey during local production periods to protect local producers. This is not enforced with predictability, and farmers often cite dissatisfaction with product dumping from neighbouring countries. Price is the main reason for the demand for imported tomatoes, with surveys of customers showing strong preferences for local produce at the same price<sup>43</sup>.

Tomatoes are harvested by hand and typically packed into 30kg plastic boxes. They are then transported by small truck to wholesale markets or sold directly to traders who collect from the farm. The product may pass through more than one trader and distributor before being sold to a retailer. Only 25% of farmers perform any post-harvest cleaning, weighing, sorting, or grading. Tomatoes typically are sold through the wholesale market to independent greengroceries, who retail direct to consumers. During transportation and retail display the product is typically not refrigerated. Around

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<sup>39</sup> AFC Agriculture and Finance Consultants. (2023). *Value Chain Analysis for Potato, Tomato, Cucumber and Date in Selected Areas of Al-Anbar Governorate, Iraq*. Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

<sup>40</sup> AFC Agriculture and Finance Consultants. (2023). *Value Chain Analysis for Potato, Tomato, Cucumber and Date in Selected Areas of Al-Anbar Governorate, Iraq*. Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

<sup>41</sup> International Trade Centre. (2021). *Iraq Sustainable Development Strategy Tomato Sector (2022 – 2026)*, ITC, Geneva

<sup>42</sup> International Trade Centre. (2021). *Iraq Sustainable Development Strategy Tomato Sector (2022 – 2026)*, ITC, Geneva

<sup>43</sup> International Trade Centre. (2021). *Iraq Sustainable Development Strategy Tomato Sector (2022 – 2026)*, ITC, Geneva





75% of wholesalers interviewed in one study had access to cold storage, however this was typically run from private generators due to unreliable electricity supply<sup>44</sup>. As daily temperature highs exceed 30 degrees Celsius for most of the year, the product spoils rapidly. Consumers pick through highly bruised tomatoes, and there is high wastage.

Under the protectionist policies and subsidies to agriculture of the 1970s – 1980s Iraq produced its own processed tomato products. Most of these factories have since closed, with just four tomato processing factories still 'partially' operational in the latest data from 2011. This is attributed primarily to the high cost of local tomatoes for processing relative to imports, and the removal of government support. The majority of processed tomato products are imported from neighbouring countries.

#### **4.2. Case Study: Dealing with Bureaucracy in Market Entry**

This case study presents the experience of a Dutch seed potato company in entering the Iraqi market. The case is anonymised.

A medium sized Dutch seed potato company met an Iraqi Kurdish businessman through a mutual connection. They formed a Joint Venture for the purpose of registering, importing, and retailing new varieties of seed potato. The owner of the Dutch seed company enjoyed working with his Kurdish business contacts and saw high potential due to the amount of fertile land in the KRI.

In the first year, the Dutch company sent 1500kg of seed potato to the KRI for registration. The seed arrived in the KRI, however was impounded in customs as the correct documentation had not been obtained. The seed was not released for almost a year, by which time it was unsuitable for trials.

The following year around shipment of seed was sent, and the required documents were submitted in January. However, National Committee for Registration and Release of Agricultural Varieties in Baghdad declined to process the application, on the grounds that the application was received too late. The deadline for applications is not clear. At the time of writing negotiations with officials are still ongoing.

When asked if he had advice for other companies looking to do business in Iraq, the owner of the Dutch seed company stated, "First thing is to really find out what is the route to get into the market". He highlights that bureaucratic requirements have caused at least a year's delay in registration, and that it is important to understand these requirements before beginning the process.

#### **4.3. Case Study: Successful Market Entry**

This case study presents the experience of a Dutch horticultural supplies company in entering the Iraqi market. The case is anonymised.

A Dutch garden centre owner was informed of the market opportunity in the KRI and invited to visit through a chance meeting. The owner visited the KRI, and began to develop some business relationships. Over the course of several years, he began to

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<sup>44</sup> AFC Agriculture and Finance Consultants. (2023). *Value Chain Analysis for Potato, Tomato, Cucumber and Date in Selected Areas of Al-Anbar Governorate, Iraq*. Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH





supply compost, grass seed, seed potatoes, and flowers to Iraq. Within three years revenue from this market was over 200,000 Euros annually.

No compost was being produced locally in Iraq at the time, and the Dutch company saw an opportunity to produce locally rather than export with high transport costs. With a local business partner, they established a compost production company in Sulaymaniyah Governorate.

This led to investment in several other horticultural projects, through a joint venture. The joint venture initiated the 'Dutch Agri-City', which has permits to develop more than 700 hectares of land for horticultural production near Halabja, in Sulaymaniyah Governorate. This is some of the highest potential horticultural land in Iraq, with very little development to date.

Ten years after the initial scoping mission to the KRI, the joint venture now produces around 800,000 cuttings of plants every year from mother plants imported from the Netherlands. They have around 6-7 hectares planted in ornamental plants that they imported as young plants from Italy, the Netherlands, and Turkey. These plants are grown on for maturity and sold. The joint venture is in the process of establishing a 5,000 square metre greenhouse and hydroponic system. The greenhouse will supply lettuces year-round.

More than 30 Dutch companies have been involved to some capacity in the 'Dutch Agri-City' at the time of writing.

## **5. MARKET TRENDS AND DEMAND ASSESSMENT**

### **5.1. Market Trends**

**Growing and modernising protected horticulture sector:** The horticulture sector in Iraq has a large yield gap between the current productivity and potential productivity. Moreover, there is a mismatch between demand and offer of the type of products. For most horticultural products, there is high local demand and local supply cannot meet this. There is very little out of season production of common vegetable crops locally, leading to premium prices for out-of-season imported vegetables.

Market demand is shifting towards quality products, and having a continued supply. There is a growing awareness of this market opportunity, and high interest among entrepreneurial farmers and business-people to modernise the sector. The steady expansion of protected horticulture with increasing numbers of low-tech tunnel houses is part of this trend.

Use of improved technologies such as water efficient irrigation, new seed varieties, production of new crop species, and production of crops out of season are accelerating. The local input supply market still lacks specialised input to meet the requirements of this development, with products such as pollination bumblebees or net cups being imported directly by producers. Installation of mid- and high-tech temperature controlled multi-span greenhouses and hydroponic systems is just beginning, with large projects in both Erbil and Sulaymaniyah Governorates due to be commissioned early 2024. High tech producers are currently importing many of their inputs from the Netherlands directly.



The protected horticulture sector is likely to continue modernising, with increasing surface area under tunnel houses, and a transition to higher technology production.

**Post-harvest value chain modernisation:** Most horticultural product value chains are showing little development at the time of writing. However there are some notable success stories where this is changing. These show the possibilities that investment can unlock.

In the potato value chain some large investments in industrial potato processing capacity has led to an expansion of demand for high quality industrial processing potatoes. It is worth noting that this has been catalysed by a combination of investment from larger Iraqi businesses, with technical and financial support from the Dutch Consulate General. Dutch companies have played an important role in providing technology, equipment, and potato seed. Within the Kurdistan Region of Iraq especially this has led to rapid modernisation of the potato value chain and production. There is growth in cold storage capacity for potatoes. Potato companies are seeking to contract local production to meet demand rather than importing fresh potatoes. Farmers are utilising improved production practices and increased mechanisation to meet the quality requirements and increase yield.

An issue in the development of post-harvest processing in Iraq is the relative competitiveness of neighbouring countries. Turkey and Iran both have more well developed agriculture and food processing sectors, and lower costs of production. Processing of lower value commodities such as canned and frozen vegetables (e.g. tomato paste) is unlikely to have a strong business case without reliable protectionist policies to enable the sector to develop. The cost of horticultural products and the cost of processing will be lower in both Turkey and Iran for many products.

Post-harvest value chain development is occurring primarily around reduction of wastage (cold storage and logistics improvements), and processing of higher value food products.

In Erbil, a modern agricultural logistics hub has been established since 2010, which has the ambition of facilitating horticultural sector trade across the whole value chain. The hub includes auction spaces, cold storage, and an exhibition centre where international companies can display products. It has not been able to transition wholesalers from the currently used vegetable wholesale market, despite the current market's infrastructure not being fit for purpose. The agricultural logistics hub management cites political issues as the reason for this. The hub has attracted logistics companies to use its cold storage facilities, however many of these only utilise this during the summer months.

Especially within the KRI, the market is ready for investments into value chain development. There is interest from local businesses in investment, demand from consumers for better quality products, and support from government.

**Investments in water saving technology and management of water salinity:** Issues of water scarcity and salinity are growing, especially in the Centre and South of Iraq. These issues are likely to continue to worsen over time, and are discussed later in the report section on sustainability. There is growing awareness of these issues from both business and government.



Flows of water in the Tigris and Euphrates rivers are declining and forecast to continue declining. Irrigation infrastructure is poorly maintained and often has not been repaired after previous conflicts. Farmers in many locations are not able to access water reliably any more to flood irrigate their fields, and are looking for alternatives. Ground water or surface water from flood irrigation run-off often have issues with high salinity, especially in the South of Iraq.

These concerns are one of the drivers for the development of protected horticulture in Iraq. Sprinkler, and to a lesser extent, centre-pivot irrigation is currently the most common replacement for flood irrigation. Management of the spray irrigation is often poor, with over-watering or irrigation during the day leading to high evapotranspiration. Farmer acceptance of drip irrigation is relatively low. Simple plastic tube drip irrigation lines, with gravity fed pressure are a modest investment within reach of large numbers of Iraqi farmers. For example, in a 2023 project funded by the Dutch Enterprise Agency (RVO), around 1,500 Euro was sufficient investment for half a hectare of drip irrigation lines. Resistance to changing production methods is forecast to change, as the technology is increasingly demonstrated by more innovative farmers and NGOs. There are cases of some large investment projects utilising water filtration for irrigation in Southern Iraq.

## **5.2. Demand Assessment**

**Increasingly discerning customers with purchasing power:** While a large portion of Iraq's population live in relative poverty, there is a large middle class. The total purchasing power of the Iraqi market is large, as it is a middle income economy with a large population. Most consumers still prefer to purchase food products at smaller scale local greengroceries. In cities these local greengroceries also retail imported and out of season products such as mangos, coconuts, cherry tomato, and avocado can be found. Wealthier and younger customers are increasingly shopping in large supermarkets. The supermarkets sell a wider range of differentiated products, with more packaging, premium products, and consistent supply of out-of-season imported products.

Horticultural product quality is currently relatively poor. Products like tomatoes are typically bruised at retail due to poor transport and handling. Many local greengroceries also lack any air conditioning. This causes rapid deterioration of the product in summer months when temperatures reach over 40 degrees Celsius daily.

Part of the consumer market is willing and able to pay more for products which are higher quality. Pushing these products out through the greengrocer network is required to reach a larger market, however supermarkets attract people willing to pay premiums. New specialised varieties of products like out of season herbs or cherry tomatoes are already in the market. The convenience market of pre-washed and packaged vegetables is currently small, but can be expected to grow as product offerings improve, and the number of city-based consumers booms. There is little local processing, packaging, and branding of local product, however there is clearly demand for imported horticultural products that have undergone more value addition.

**Maturing input supply markets:** Horticultural input supply markets have a reasonably well developed distribution network and several major agribusiness companies supplying product. Currently most of the products sold are of Turkish or Iranian origin.



The product range for seeds, fertilisers, and agrichemicals that are readily available is relatively unsophisticated and there is a lack of trust in the quality of products from farmers. Dutch seed imports have done well in taking the premium share of the market, however as horticultural production modernises the market for quality horticultural inputs can be expected to grow. The protected horticulture, potato, and water efficient irrigation sub-sectors are currently growing faster than other sub-sectors. Demand is expected to grow and mature in these subsectors fastest.

There is strong demand for Dutch horticultural expertise. However there is little evidence that there is a willingness to pay for consultants from the private sector. To date most expertise has been delivered through development projects, or as part of Joint Ventures.

There is some demand for specialised Dutch horticultural equipment and machinery. This can be expected to grow. There has recently been imports of multi-span greenhouses fabricated in the Netherlands, for installation in the KRI. There has also been development in the potato sector, with new spray rigs and harvesting equipment. A number of private investment groups hired Dutch experts to design farms or food industry, or assist in management.

## **6. POLICY AND REGULATORY INSIGHTS**

### **6.1. Government of Iraq**

The Federal Government in Baghdad has recognised the need to promote agriculture and agro-industries to diversify the economy away from dependence on oil and promote employment. The (now outdated) 2018-2022 National Development Plan targets an agricultural sector growth rate of 8.4% per year. The White Paper adopted by the GoI in October 2020 sets out the economic reform plan for the government. This outlined priorities for agriculture and agro-industries in order to ensure sustainable food supply, including reviewing public support programmes, reviewing regulatory and policy frameworks, increasing investment, and ensuring access to technology, knowledge, and skills<sup>45</sup>.

#### **Policy and Practice**

In both GoI and (to a lesser extent) the KRG, implementation of government policies is not always consistent. There is frequently not sufficient resourcing for full implementation of new policies and regulations. Corruption also means that the law does not apply consistently. Transparency International ranks Iraq 23 out of 100 on their Corruption Perceptions Index, compared to the Netherlands score of 79<sup>46</sup>. The operational environment is very different to a rules-based system such as the Netherlands. Market access in significant industries can be dependent on personal relations with individuals, dominant families, and political parties.

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<sup>45</sup> AFC Agriculture and Finance Consultants. (2023). *Value Chain Analysis for Potato, Tomato, Cucumber and Date in Selected Areas of Al-Anbar Governorate, Iraq*. Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

<sup>46</sup> <https://www.transparency.org/en/cpi/2023>





### Water management

The Government has not been able to adapt policy to declining water availability. There are typically no metered water use charges, resulting in a lack of incentives for water conservation. Irrigation infrastructure across Iraq is in poor repair. This is largely due to the destruction of past conflicts, however government management and maintenance of irrigation systems is poor. Water supply in many areas is limited or unreliable. This has resulted in stunting of the potential for horticultural development. One expert stated that farmers in many areas of GoI tend towards short term vegetable crops to manage water availability risk. Tree crops that require longer periods to mature are risky, as a short period without water availability in the summer can kill years of investment<sup>47</sup>.

### Land policy

Land tenure is an issue across Iraq. It is possible to obtain secure, registered, freehold tenure over land but this should not be assumed by investors. There are no fewer than 11 land laws currently applicable to land ownership in Iraq. Inquiries should be made to relevant land offices and lawyers in case of lease or purchase of land. In some areas of Iraq government ownership of land and lease to the private sector is common. There are also some very large landholders who lease tracts to smallholders.

There are a wide variety of traditional classes of land tenure, some dating from the Ottoman era and still existing. During the Ba'athist period (1964 – 2003), processes for property titling and registration were fairly effective, with 96% of land owners indicating that their property was registered in 2005<sup>48</sup>. During this period various policies such as land reform in tribal areas limiting landholding size, collective ownership, allocation of land to government supporters, and expropriation of land from political opponents left grievances that still in some cases still persist. Since 2005 the incidence of unregistered possession of lands has increased.

Another issue is fragmentation of land size and absentee owners. Women are not prohibited from land ownership, however this is uncommon due to custom and Islamic norms. As land is traditionally passed down the paternal line, landholdings are often split into smaller units at each generation transfer. Migration of people away from their family lands can make it more difficult to consolidate contiguous areas of land, as owners are absent but wish to retain their family land. Consolidation of land into economically productive units is made more complicated. In the KRI land holding size is recognised as an issue to agricultural development. Fragmentation of land is identified as a policy issue by the KRG under their Regional Development Strategy<sup>49</sup>.

### Import controls

Policies around importation of products are often restrictive and not updated based on industry needs. GoI and KRG have different importation policies, despite imports from

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<sup>47</sup> Personal Communication, Dr Khalid Gayeed Saaseea of Al Khiamiat Organisation

<sup>48</sup> USAID.(undated) *USAID Country Profile – Property Rights and Resource Governance*. Retrieved from: [https://www.land-links.org/wp-content/uploads/2018/03/USAID\\_Land\\_Tenure\\_Country\\_Profile\\_Iraq.pdf](https://www.land-links.org/wp-content/uploads/2018/03/USAID_Land_Tenure_Country_Profile_Iraq.pdf)

<sup>49</sup> KRG MoP. (2011) *Regional Development Strategy for Kurdistan Region 2012–2016*; KRG MoP: Erbil, Iraq.



Turkey via land needing to pass through the KRI to get to the rest of Iraq. It is common for goods to be held up at the border for administrative reasons. In practice, bribery of customs officials is common practice and it is possible to bring most products into Iraq. An example of the inefficiency is cocopeat imports. Cocopeat import was banned in around 1963 due to risk of introducing a particular insect. This insect is not widespread across Iraq, however the import rules have never been updated to allow import of cocopeat.

The MoA has a policy (Law No. 11 of 2010) of banning or taxing imports of horticultural products in different months following a schedule, to protect local producers during the harvest season. In practice this is often not implemented, resulting in markets flooded with cheap produce. The lack of predictable import controls is one of the main issues farmers have with government policy.

### Seed variety registration and protection

Two main seed laws govern the seed sector in Iraq (covering both GoI and KRI), law No. 50 (2012) which regulates quality and trade in seed and tubers, and No. 15 (2013) which regulates variety testing, release, and protection<sup>50</sup>. The National Committee for Registration and Release of Agricultural Varieties approves variety registration and release. New seed varieties must submit a description of the variety and agronomic performance to the Committee. A sample of the seed is sent to the Committee's appointed agronomists, who then work with the company registering the variety to conduct blind trials of the variety's performance. The results of the field trials will be analysed by Committee appointed agronomists and then submitted to the Committee for approval. The seed must also be certified in a lab operated by the Committee.

This process can take up to a year, and local knowledge is necessary to help navigate the process. Over twenty Dutch companies have completed registration successfully and several new varieties are registered each year. It is worth noting that once a seed variety is registered, it is the Iraqi distributor who then owns the seed variety rights for ten years inside Iraq, and this is not transferable to another company. Some Iraqi agronomists have specialised in helping companies to comply with the registration processes. International companies are recommended to work with a local seed sector expert in navigating the registration process.

## 6.2. Kurdistan Region of Iraq

The KRG's 'Kurdistan Region Vision 2020 for Agriculture and Agro-industry Development' is out of date however still reflects the overall goals of the Kurdistan Regional Government. The stated Vision is that 'Food security for the people of the Kurdistan Region, economic prosperity for farmers, and prosperity through the export of our agricultural and food products'. The KRG has some awareness of the issues facing horticultural sector development, and has been making modest progress towards addressing these issues. Lack of budget in implementing agencies, and a focus on public-sector driven development is a theme across KRG horticultural policy. In a high-profile example of KRG action, the Prime Minister's Office directly set up a unit to collect and market pomegranates to the United Arab Emirates in 2022 – 2023.

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<sup>50</sup> Nectaerra B.V. (2023). *Seed Sector Framework in Iraq – An Exploration on Seed Regulations, Compliance, and Stakeholder Experiences*. Seed NL



### Investment

To start doing business in the region, it is recommended to meet face-to-face with the Board of Investment. The Kurdistan Regional Government is actively seeking FDI, especially within agriculture and horticulture. The Board of Investment's Foreign Direct Investment Unit is available to guide investors through any questions they may have. This includes support in accessing information, facilitation of legal requirements, matchmaking, and arranging site visits. The 'Invest Kurdistan' website contains comprehensive information and contact details.

The KRI has an attractive package of investment incentives to encourage foreign direct investment in horticulture. These include:

- Identification and provision of land on 99 year leases.
- Exemptions from non-custom taxes and duties for 10 years.
- Full foreign ownership of the project is permitted.
- Full repatriation of investment profits and capital is permitted.
- Exemption from import duties on imported equipment and machinery.
- Exemption on imported raw materials customs duties for 5 years.

Additional incentives are available in underdeveloped rural areas and in Joint Ventures that include Kurdish business partners.

### Registration

There are different bodies within the Kurdistan Regional Government which can give business licences. There is no clear distinction when the registration of a business should shift from one entity to another. For large investments over around \$USD 1 – 2 million, the Board of Investment will grant a licence. For smaller investments, then the Ministry of Industry and Trade or Ministry of Agriculture and Water Resources can grant a licence. The Chambers of Commerce can also grant licences. It is recommended to visit government offices in-person early on during investment scoping to discuss administrative and compliance issues.

### Import competition

Under the 2014 Local Production Protection law importation of horticultural products can be restricted. However this is not consistently applied, with MoAWR applying the restrictions in different time periods to try to protect local producers. The restrictions in practice not consistently applied at the border. This introduces challenges for produce importers and volatility for the local market.

### Seed variety registration and protection

The KRI falls under the seed registration policy of the GoI, as discussed above. The government of the Kurdistan Region of Iraq (KRI) has also enacted KRI Law No. 15 of 2021. This law is not recognized by Bagdad, but aims at licensing KRI seed importers and to control seed imports at the KRI borders. The law regulates the production and



importation of seeds and seedlings, and registering, confirming, and preserving agricultural species in the Kurdistan Region of Iraq<sup>51</sup>.

There appears to be overlap between the GoI and KRI seed laws without any harmonisation between them. In practice the seed certification process under GoI regulation described above still applies, and GoI seed registration process still needs to be followed. The law is being used to licence local KRI seed importers and control seed import at the borders.

## **7. SUSTAINABILITY**

Iraq is highly vulnerable to climate change, with the United Nations Environment Programme ranking Iraq as the 5<sup>th</sup> most vulnerable country in the world to decreasing water and food availability and extreme temperatures<sup>52</sup> in a 2019 report. Iraq's climate is arid, with horticultural production in most of the country relying on irrigation. Environmental protection regulatory frameworks are weak and poorly enforced. This impacts on the long term productive potential for horticulture in Iraq. It also presents opportunities for investments in technology that address these environmental challenges.

Water availability is a critical issue for horticulture and is dealt with below. Other climate related issues include desertification, increased incidence and severity of droughts, heatwaves, and dust storms. Inappropriate and excessive use of agricultural inputs such as fertilisers, pesticides, and herbicides risk environmental damage and also poses a risk to human health. Limited to no food quality control, lots of fake labelling and mixing in of cheaper ingredients, many chemical residues, no certification. Food safety is an issue of concern to Iraqi consumers. Finally increased saltwater intrusion and salinity is an issue, especially in the south of Iraq.

### **7.1. Water**

The Tigris and Euphrates rivers run through Iraq, and have historically been foundational to the country's agricultural productivity. The fertile floodplains of these rivers gave rise to some of the earliest agricultural civilizations. However the headwaters of these rivers are in Turkey, Syria, and Iran. In the absence of any international agreement or cooperation on water sharing, these neighbouring countries have been constructing dams and retaining increasing amounts of water within their national borders. Flows of water in the main rivers are significantly reduced from historic levels and also increasingly polluted. UN estimates have predicted a 50 – 80% decline in water flowing into Iraq from the Tigris and Euphrates in 2025 relative to 2009<sup>53</sup>.

Combined with issues in transboundary water management, national water governance is weak. Despite forecasts that Iraq's water demand will exceed water supply, the daily

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51 Nectaerra B.V. (2023). *Seed Sector Framework in Iraq – An Exploration on Seed Regulations, Compliance, and Stakeholder Experiences*. Seed NL

52 UNEP. (2019). *Global Environment Outlook (GEO-6)*, Retrieved from [https://www.unep.org/resources/global-environment-outlook-6?\\_ga=2.95367452.1058631058.1658645613-830083883.1658645613](https://www.unep.org/resources/global-environment-outlook-6?_ga=2.95367452.1058631058.1658645613-830083883.1658645613)

53 United Nations Development Programme. (2010). *Drought Impact Assessment, Recovery and Mitigation Framework and Regional Project Design in Kurdistan Region (KR)*. UNDP.





consumption of water per capita estimated at 392 litres/day in 2013, in excess of the international standard of 200 litres/day per capita.<sup>54</sup> Water tariffs are low, and metering of water use is not consistently applied across users. There is a general lack of care for personal wastage of water. Water is wasted through flood irrigation, and polluted through discharge of pollutants to waterways. Agriculture is the biggest user and also the biggest waster of water, with an estimated 87.8% of water withdrawn in 2017 for agriculture<sup>55</sup>. There is evidence that in Central and Southern Iraq water scarcity is leading to a reduction in areas cultivated, and rural – urban migration<sup>56</sup>.

In central and southern Iraq large irrigation networks deliver water from the major rivers to enable flood irrigation of fields. Water availability for irrigation is declining, with water no longer reliably delivered down these systems due to low river levels and poor maintenance of the irrigation network. Flood irrigation remains the typical irrigation method despite high wastage of water. There a growing interest in water efficient irrigation techniques from farmers and policy makers.

There is less severe water stress in the KRI than GoI. A 2016 Central Organization for Statistics survey found that 50% of people living in Northern Iraq do not experience water supply problems. However only 4.5% and 5.9% of people in Central and Southern Iraq, respectively, reported not experiencing water supply issues<sup>57</sup>. The KRI has annual rainfall rates between 350 and 1000 mm, well above the national average of 216 mm. The KRI's MoAWR reported 39,208 wells in 2011, however around half of them were unauthorized<sup>58</sup>. Over 70% of farmers rely on shallow wells. Regulation of groundwater exploitation is vague and largely unenforced. Groundwater levels in some areas of the KRI have dropped 30-40 metres over 10 years<sup>59</sup>.

There is growing awareness of the importance of water efficient irrigation and water management. Protected horticulture is seen as a potential solution to these challenges long term by allowing more efficient use of water. Dutch expertise and technology around water management and irrigation efficiency is highly relevant.

## **7.2. Appropriate use of agricultural inputs**

Across all of Iraq there is a lack of effective enforcement mechanisms to ensure producers can access safe inputs, and that consumers receive safe products. Enforcement on issues such as ensuring quality of agricultural inputs such as seed, fertiliser, and agro-chemicals, ensuring appropriate use of agriculture inputs is lacking. There is a lack of standards or compliance with food safety or GAP. Traders purchasing food products typically do not require proof of food-safe production.

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<sup>54</sup> UN Iraq. (2013). *Water in Iraq Factsheet*. <https://www.iraqicivilsociety.org/wp-content/uploads/2014/02/Water-Factsheet.pdf>

<sup>55</sup> Fanack Water. (2022). *Water Use in Iraq – Country Report*. [https://water.fanack.com/iraq/water-use-in-iraq/#\\_ftn7](https://water.fanack.com/iraq/water-use-in-iraq/#_ftn7)

<sup>56</sup> Laila Barhoum, Elise Nalbandian. (2022). *Unfarmed now. Uninhabited when? Agriculture and climate change in Iraq*. Oxfam.

<sup>57</sup> CSO, KRSO & UNICEF, *Knowledge, Attitudes and Practices of Society on the Use of Water and Environmental Aspects in Iraq*, 2016

<sup>58</sup> Alessandro Tinti. (2017) *Water Resources Management in the Kurdistan Region of Iraq*, American University of Sulemania

<sup>59</sup> Alessandro Tinti. (2017) *Water Resources Management in the Kurdistan Region of Iraq*, American University of Sulemania



There are reports that in 2023 and 2024 enforcement of agricultural input quality standards in the KRG improved, with one informant reporting that there are no longer retailers selling unregistered products in the main Erbil agricultural input retail zone<sup>60</sup>. However there are other reports that in Dohuk Governorate, unregistered agri-chemicals such as Paraquant and Indosolfan are available for sale<sup>61</sup>.

The use of agri-chemicals that are no longer accepted in the European Union, or inappropriate use of agri-chemicals is widespread. Farmers typically do not practice any kind of GAP or Integrated Pest Management. Rather they apply blanket applications of large amounts of pesticides, herbicides, and fungicides. There is no effective testing and control of pesticide and herbicide residue in food.

There is an increasing awareness of the environmental and human health issues associated with inappropriate use of agricultural inputs. Iraqi consumers often display a preference for local products on the assumption that food safety is better than for imported produces. Anecdotal evidence suggests interest in organic fertilisers from producers is increasing.

The lack of enforcement in agricultural chemicals also extends to seed. There is a lack of trust in the authenticity of imported agricultural inputs from farmers, who often cite issues with fake seed. The quality of Dutch seed is well regarded in the market.

### **7.3. Salinity**

Iraq's soils have high natural salinity in many areas. In the Mesopotamian floodplain, irrigated by the Tigris and Euphrates, salinity levels in the topsoil have reached levels severely affecting crop production<sup>62</sup>. This is attributed to thousands of years of flood irrigation in these areas, where salts have accumulated in the topsoil rather than being leached through the soil profile. An estimated 50% of irrigated Iraqi areas were moderately saline (> 4 dS/m) and 4% severely saline (>16 dS/m) in 2002. Groundwater in many areas is also saline, requiring careful use to avoid accumulation of salts in the soil.

Some private sector trials of water desalination for use in drip irrigation, and use of salt tolerant varieties are ongoing. Work has already been conducted by Dutch Institutions such as Wageningen University, Necterra, and Sowatr on analysis of the issues and formulating potential adaptation strategies. At least one Dutch consulting firm, HollandDoor, has been advising on potential import of salt tolerant crop varieties developed in the Netherlands. In this context, Dutch expertise on management of soil salinity is highly relevant.

## **8. OPPORTUNITIES AND CHALLENGES ANALYSIS**

This chapter presents a PESTLE analysis of the overall Iraqi horticultural sector. A PESTLE analysis examines a sector on political, economic, social, technological, legal, and environmental dimensions. Following this Opportunities and Challenges are

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<sup>60</sup> Personal communication, Dr Didar Taweed, Green Solutions Company

<sup>61</sup> Personal communication, Hussam Mohammed, CABI

<sup>62</sup> Managing Salinity in Iraq's Agriculture Current State, Causes, and Impacts, ICARDA, 2012



presented, from the perspective of a Dutch horticultural company interested in doing business in Iraq.

**8.1. PESTLE Analysis**

Dimension	Analysis
Political	<ul style="list-style-type: none"> <li>• Iraq has GoI and KRI regions with very different characteristics</li> <li>• Country has influence from several outside interests, especially Iran, the USA, and Turkey.</li> </ul> <p>GoI</p> <ul style="list-style-type: none"> <li>• Volatility, corruption, and dysfunction in GoI, with limited chance of improvement in near term</li> <li>• Security risks in GoI and unrest however currently relatively stable in major urban centres</li> <li>• Personal connections important in business, with capital and influence often in the hands of politically connected individuals</li> </ul> <p>KRI</p> <ul style="list-style-type: none"> <li>• Political situation in KRI controlled by two political parties in different zones, with KDP dominant in the Regional Government. Not a fully democratic system however relatively stable, secure, and investor friendly.</li> <li>• Overall supportive political will for horticultural development in KRI. Some strong enabling policies.</li> <li>• Personal connections very useful in business.</li> </ul>
Economic	<ul style="list-style-type: none"> <li>• Overall, a middle income country, with a sizeable wealthy urban consumer base. Sizeable consumer market.</li> <li>• Dumping of horticulture produce in the market by Iran and Turkey, largely as a result of policies to subsidize local production and/or generate reserves of \$USD exchange</li> <li>• High demand for horticultural products such as potatoes, tomatoes, cucumber etc. Most horticulture products have high rates of importation.</li> <li>• Overall growth in area under protected horticulture across GoI and KRI.</li> <li>• Transition underway to more intensive forms of production, market maturing. Simple plastic tunnel houses the typical form of protected horticulture now, however investments in high tech and multi-span greenhouse just starting.</li> <li>• Oil driven economy. Volatile national income depending on oil price. Issues with KRI export of oil due to dispute with Baghdad and Turkey.</li> <li>• Presence of well capitalised businesses capable of making large investments</li> <li>• Generally uncompetitive at all sectors other than oil</li> <li>• Internal border issues, incidently random closure</li> <li>• Federal Iraq and KRI agreed upon an agricultural schedule: to protect domestic production of crop produce, borders will be closed in the high season</li> </ul>



	<ul style="list-style-type: none"> <li>• High reliance on public employment. Public salaries are often not paid on time (or payments missed) and have an important impact on consumption expenditure</li> <li>• Opportunities presented by large market size, ability of Iraqi businesses to invest, and current lack of capacities/expertise/infrastructure for investment</li> <li>• Travel restrictions</li> <li>• Banking system inefficient and bureaucratic</li> </ul>
Social	<ul style="list-style-type: none"> <li>• Fractured society after decades of conflict and deep political divides. Tribalism or ethno-religious divides common. Creates issues in governance, security risks etc and increases cost of doing business. Lack of trust common cited issue</li> <li>• Client-patron system of governance and corruption common.</li> <li>• Large wealthy urban consumer class able to afford high quality and expensive produce.</li> <li>• Lack of horizontal coordination and ineffective farmers associations</li> <li>• Value Chain coordination across horticulture sectors poor. Notable outlier in agribusiness is the potato sector, where large companies vertically and horizontally integrate to diversify and provide a wide basket of services/goods/markets to farmers.</li> <li>• Large diaspora population of Iraqis with connections to Europe, bringing back international ideas, connections, investment.</li> </ul>
Technological	<ul style="list-style-type: none"> <li>• In general technology and productivity in horticulture is below international standards. Huge potential for increases in yields and quality of produce</li> <li>• Maturing market for tunnel production of horticulture crops. Beginning of improved technology for production, with investments being made by local and international investors</li> <li>• Agricultural hub in Erbil provides cool storage, transport, and logistics infrastructure, marketing services etc</li> <li>• Lack of cool storage across GoI and KRI. Some progress occurring</li> <li>• Very good reputation of Dutch horti-products, technologies and knowhow, though expensive.</li> </ul>
Legal	<ul style="list-style-type: none"> <li>• Bureaucratic, slow, unclear and counterproductive policies common in GoI and to a lesser extent KRI. Many laws not enforced or not consistently enforced. For example,             <ul style="list-style-type: none"> <li>○ Seed variety registration process</li> <li>○ Variety protection</li> <li>○ Import of produce from neighbouring countries</li> <li>○ Importation of equipment cross border</li> <li>○ Regulation/lack of regulation of water use</li> </ul> </li> <li>• Difficult to use courts to enforce contracts</li> <li>• Checkpoints can block movement of product around the country or require onerous processes to ensure movement</li> </ul>
Environmental	<ul style="list-style-type: none"> <li>• Declining quality and quantity of water available, especially in GoI</li> </ul>





- Increasing issues of water salinity, especially in Southern Iraq
- Increased incidence of drought, dust storms, lack of water, heat waves, volatile weather
- Common use of harmful agriculture inputs

## **8.2. Key opportunities**

**High quality seed:** Dutch seed is already an important part of the market, particularly for seed potato. There is an awareness that many seeds available on the market are of poor quality and Dutch seed is well regarded. While cost is a key consideration for farmers, there is demand for trusted high quality seed. This is especially important as protected horticulture grows and demand for specialist varieties matures.

**Protected horticulture inputs:** As protected horticulture grows and high tech greenhouses are installed, there is forecast growth in demand for specialised fertiliser mixes, bio-active fertilisers, pesticides, herbicides, and fungicides. The current quality of agricultural inputs is variable, and range limited. There is a strong interest and nascent demand for hydroponic systems. The market for horticultural inputs is not thoroughly developed. Fertilisers are mostly NPK blends, and there is low availability of specialist micronutrient nutrition for horticulture. There is opportunity for new specialist agri-inputs for the developing horticulture sector. This is likely to be low volume initially as market demand for these products still maturing.

**Specialised agricultural equipment:** Mechanisation of cereal harvest and cultivation is widespread. However, mechanisation of horticultural harvest is just starting to develop. The potato sector is beginning to mechanise, with demand for potato harvesters, and spray rigs. There is strong interest in mechanisation of harvest for crops such as onions, which are currently typically harvested by hand. Availability of these machines in country is limited.

**Expertise in protected horticulture and water use efficiency:** There is high awareness of the expertise of the Netherlands in horticulture and water management. Iraq has developed a relatively large protected horticulture sector, however this is still low tech and low yield. Larger horticultural businesses and investors are seeking expertise to develop more profitable production. Water scarcity issues are also increasingly of concern to farmers and agribusinesses, especially in central and southern Iraq. Solutions that address these issues are in demand.

**Post-harvest machinery and systems:** There is an awareness of the issues associated with lack of cool storage, processing, and packaging. Some large investments have been made in the KRI potato sector recently in potato sector cold storage and processing. There is interest from Iraqi investors into developing horticultural value chains in the potato and protected horticulture subsectors. Dutch equipment would be competing with lower cost Turkish and Iranian equipment for agriculture grading, washing, processing, packing lines. There are opportunities for Dutch business in supply of specialised food processing equipment.

**Direct investment in horticultural production:** There is strong interest from Iraqi companies and wealthy individuals at investments in modernised horticultural production, especially in high tech protected horticulture. With low productivity and few



high tech multi-span greenhouses currently operating, Dutch expertise in production could potentially result in lower costs of production and higher quality products than is currently available in the market. Investments opportunities include enabling out of season of production to take advantage of higher market prices, production of niche products with high value, or production of higher quality commonly consumed products such as tomatoes, cucumber, and capsicum. The investment incentives offered by the KRI and local investor interest make Joint Ventures a potentially attractive open.

**Ornamental plants and flowers:** The market is currently dominated by medium sized Iraqi companies who import via Turkey. Cut flowers are predominately sources from the Netherlands. Ornamental plants typically come from Thailand, Iran and the Netherlands. There is large demand for mature ornamental plants which are all imported. Currently there are just one known multi-span greenhouse conducting commercial trials of rose production. Opportunities exist for Dutch companies to directly invest and control the value chain. There is some limited local propagation of ornamental plants, with one Dutch-Kurdish Joint Venture in ornamental plant propagation. Significant opportunities exist for upgrading of local propagation.

**Erbil agro-logistics hub:** The Erbil agro-logistics hub provides modern horticultural product storage and marketing. The agro-logistics hub has a facility where international companies will be able to display their products in a large showroom without needing to open an office in Iraq. The hub has had significant challenges in attracting companies to utilise their facilities of writing in March 2024. Should the hub begin to attract a critical mass of companies, the showroom will enable low cost access to the market to test demand and market products.

**Kurdistan Region of Iraq investment incentives:** The investment incentives from the KRI offer very good terms to foreign investors. They allow for a lower risk entry to the Iraqi market through the Kurdistan Region. Foreign companies can supply or source product from all of Iraq while established in the KRI.

### **8.3. Key challenges**

**Political volatility and security:** Iraq's political landscape remains complicated and volatile. Rapid deterioration in access and security to parts of the country is possible. The KRI is generally safe for foreign citizens to live and conduct business affairs. GoI is consistently rated as 'do not travel' under the Government of the Netherlands travel advisory. Working with trusted local contacts is essential.

**Economic volatility:** The unstable political environment in GoI also creates an unstable economic environment. National income and therefore economic activity are heavily reliant on oil exports and the international oil price. Public sector salaries are a large part of the economy, however are frequently not paid in the KRG, which collapses demand.

**Weak governance and legal institutions:** Legal enforceability of contracts in both GoI and KRI is weak. In dealing with government there is often a discrepancy between the official legal process and how regulation is actually applied. Corruption is common. Government administration is typically bureaucratic, slow, and inefficient, with GoI



significantly worse than KRI. Protection of property rights is an issue in GoI. Getting things done relies on personal relationships.

**Banking system:** The financial services sector in Iraq is unreliable. Iraqi banks are bureaucratic and inefficient. The Federal Government is currently attempting to 'Dinarise' and economy that has heavily utilised the \$USD for contracts, payments, and savings. In 2023 there was a \$USD liquidity crisis that saw Iraqi banks ration withdrawals of cash. In some cases they refused to accept international transfers of foreign exchange, because there was not sufficient cash in the country to allow withdrawal of transfers. The Iraqi Dinar (IQD) is pegged at an official exchange rate that does not match the rates found at local foreign exchange agents. The local exchange rate can fluctuate significantly, while the official rate remains stable. There is at least one case of a Dutch investor who has had funds in their accounts frozen and were unable to repatriate profits.

## **9. CURRENT LINKS WITH DUTCH KNOW-HOW, TRADE AND COLLABORATION**

The presence of Dutch seed companies in the Iraqi market is strong, with a recent study listing more than twenty active Dutch seed companies in the market<sup>63</sup>. More companies are in the process of registering seed varieties. Most of the larger Iraqi agribusiness companies have a Dutch seed supplier.

In other horticultural sector inputs, Dutch business interests are not currently as strong as for seed. Agri machinery products compete with other European brands, but also cheaper Turkish machinery. Turkish and Iranian horticultural input products are lower cost than Dutch products, and Dutch products have a small market share.

There has been a strong connection with Dutch Knowledge Institutes through various projects in Iraq. NUFFIC, the Dutch organisation for internationalisation in education, has had a number of projects in Iraq working in the field of agricultural and water management. Projects funded through the international humanitarian system, International NGO's, and other development partners have also utilised Dutch expertise. The Dutch Consulate General and ecosystem of Dutch agencies such as RVO have been an important facilitator and funder of technical transfer of Dutch expertise. Knowledge institutes with recent or ongoing projects in Iraq include Wageningen University, IHE Delft, Maastricht University, The Salt Doctors, Delphy, HollandDoor, Future Water, Nectaerra and more. This has built some capacity within Iraqi stakeholders, and also built an understanding of the Iraqi context among Netherlands based organisations and experts.

The Iraqi diaspora community has been important in the development of business relationships between Iraq and the Netherlands. There has been high numbers of Iraqis migrating to Europe over the past several decades. In particular there was a wave of Kurdish migration in the 1980's and 1990's. Many of these people spent significant time in the Netherlands and then returned to Iraq as stability and the economy improved. They brought with them an understanding of Dutch culture and technology

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<sup>63</sup> Nectaerra B.V. (2023). *Seed Sector Framework in Iraq – An Exploration on Seed Regulations, Compliance, and Stakeholder Experiences*. Seed NL



with them. Many more Iraqis have links to family who are still based in the Netherlands.

Many of the business relationships and Joint Ventures between the Netherlands and Iraq include an Iraqi with a strong connection to the Netherlands. A lot of the import of Dutch products into Iraq is done by Iraqi companies, facilitated by personal connections in both countries. For example, many of the cut flower shops in Erbil import directly from the Netherlands, with a family member residing in the Netherlands organising logistics.

## **10. CONCLUSIONS AND RECOMMENDATIONS FOR DUTCH COMPANIES**

### **10.1. Conclusions**

The Iraqi horticulture is a large, growing market. There is high demand from a middle income consumer class for horticultural products, that is currently not being met by local supply. The Iraqi horticulture sector is developing, particularly in the protected horticulture and potato subsectors. However, the level of technology and inputs available in the market is relatively low. There is a significant yield gap between potential productivity and realised productivity. The post-harvest value chain in most subsectors is weak and input markets relatively undeveloped.

Security issues and political volatility make travel to GoI more complex. The good security and relative ease of doing business in the Kurdistan Region of Iraq provides a point of entry to the Iraqi market.

The Dutch seed sector has had significant market penetration and other horticultural sector products are in demand. Dutch expertise and investment is of interest to Iraqi businesspeople. Large agribusinesses and investors are active locally, providing opportunities for business partnerships and joint ventures.

### **10.2. Why the Iraqi Horticulture market?**

The Iraqi horticulture sector is large and relatively underdeveloped. Demand for horticultural products is high and not currently met by local production. There is development occurring across the sector that is demanding inputs and expertise that the Netherlands is a world-leader in. Numerous opportunities exist for Dutch horticultural businesses. The risks of investment in the Iraqi market are relatively high, but competition is lower than other markets.

Opportunities mentioned in this report include; high quality seed, protected horticulture inputs, specialized agricultural equipment, expertise in protected horticulture and water use efficiency, and post-harvest machinery and systems, direct investment in horticultural production, and import of ornamental plants and flowers. KRI investment incentives are worth considering for investors.

### **10.3. Recommendations**

**Visit the market:** Business is typically done face-to-face in Iraq, and in-person visits are crucial for fact-finding and relationship building. Travel to the Kurdistan Region of Iraq is straightforward. An e-visa can be obtained for a 30 day visit, with a fee of around \$75. See the website: <https://visit.gov.krd> for more information. Travel can be to





either Erbil or Sulaymaniyah International Airports. Safety and security are good, and English is widely spoken. Taxi services, hotels, and restaurants meeting European standards are all available.

Travel to Baghdad is also possible, however note the current Government of the Netherlands travel advisory when planning travel. Sixty day visa on arrivals are issues to Netherlands passport holders, with a fee of \$75. Travel to Baghdad should be arranged with local Iraqi partners to ensure a safe trip.

**Connect with Board of Investment's Foreign Direct Investment Unit:** The Board of Investment's FDI Unit provides support services to potential investors interested in the region. Agriculture is a priority sector for them. They are able to provide information and business advisory services, facilitation of administrative requirements, matchmaking with local businesses or investors, facilitation of site visits and meetings. They are the point of contact for inquiries into the KRG investment incentives. These services are provided under the 'Invest Kurdistan' brand. An internet search of 'Invest Kurdistan' will bring up their website, <https://invest.gov.krd>. The website provides comprehensive details on investment in the KRI, and contact details.

**Reach out to the Netherlands Consulate General:** The Consulate General of the Kingdom of the Netherlands in Erbil has been highly engaged in the development of the horticultural sector in Iraq. The Consulate General has an Agricultural Advisor and other experts on staff. They have a wide network of Dutch and Iraqi businesses and a deep understanding of the market. The Consulate General organises occasional study tours for Dutch businesses to visit the KRI, and host various workshops and other networking events. The contact email address for the Erbil Consulate General is [ERB-LNV@minbuza.nl](mailto:ERB-LNV@minbuza.nl).

**Good partner identification is crucial:** A key theme is the success Dutch investments in Iraq is the relationship with local partners. Relationships are key to getting things done in Iraqi business. Good local partners can help navigate the challenges with bureaucracy. Poor partner capability, misaligned incentives, or a breakdown in the relationship is a key cause of investment failure. Take time to get to know potential partners and build a personal relationship with them.

**Work with local partners and distributors in GoI:** The security, political, and business environment in Government of Iraq territory is complex. Establishment of an office or direct investment in GoI required a deep understanding of the context and local staff. Working through local companies as much as possible on market entry helps to mitigate these risks.



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Source Interviewed	Institution/Role
Mr Stirling Foxworthy	American Investor in the Iraqi horticulture sector, producing blackberries and strawberries, currently importing greenhouse equipment and installing hydroponic tower commercial demonstration greenhouse in Erbil
Dr Luaay Khalaf	Plant Protection Lecturer, University of Baghdad
Dr Mustafa Adhab	Agronomist working for the National Committee for Registration and Release of Agricultural Varieties in seed certification trials, and University of Baghdad Plant Science academic
Mr Hayder Mustafa Saaid	Private Consultant, Former DG for Studies and Information at the Board of Investment, Former DG for Strategic Planning at the Ministry of Planning
Mr Sarchiya Omar and Ms Alla Ibrahim	Foreign Direct Investment Unit, KRG Board of Investment
Dr Halkawt Dukani	General Directorate of Horticulture, Forests and Rangeland, Ministry of Agriculture and Water Resources, Kurdistan Regional Government
Mr Jan-Eric Geersing	Owner, Geersing Potatoes, a Dutch seed potato breeder and exporter
Dr Rafail Toma	Professor of Horticulture, Dohuk University
Mr Jeroen Hummel	Dutch investor in several horticultural production projects in the KRI. Partner in the 'Dutch Agri-City'.
Mr Ayub Tahir Khan	Manager, Erbil food logistics hub
Dr Didar Taweeq	Horticulture Engineer and General Manager, Green Solutions Company
Mr Baderkhan Abdulrahman	CEO, Green Solutions Company
Mr Hussam Mohammed	Project Coordinator, CABI
Dr Khalid Gayeed Saaseea	Baghdad based Agronomist, Al Khiamiat Organisation