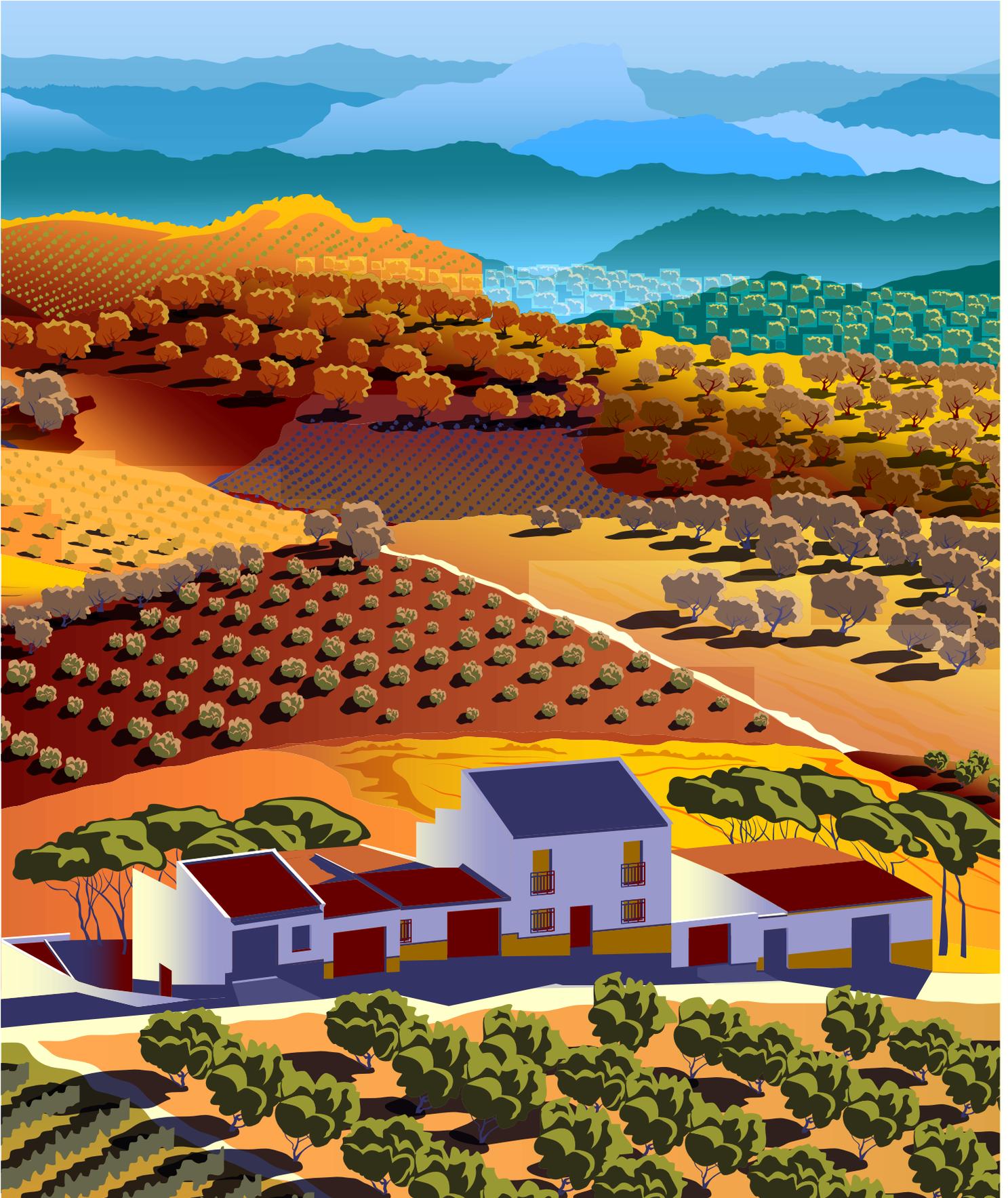


UK Rural - September 2023

Q
SPOTLIGHT
Savills Research

Global Farmland



Market performance • Changing land uses • Investment opportunities

3.3%

The average global farmland value growth during 2022

45.2%

increase in Brazilian farmland values during 2022

10%

The compound annual growth of global farmland values over 20 years

Welcome to our latest research publication on global farmland. The importance of farmland in terms of global food and energy security, environmental sustainability and economic growth is unequivocal and continues to attract considerable interest. In this publication we review the performance of global farmland markets, discuss the varying factors influencing the demands on land across the globe and analyse the current opportunities for farmland investment across the world, with a particular focus on Spain.

Long-term drivers of global farmland investment still apply

Farmland continues to be a safe haven for capital and a hedge against inflation with capital and income returns

Looking back over a decade of Savills research publications on global farmland markets, there has been significant global change, but the traditional drivers for investing in farmland overseas have not diminished. Our 2012 publication, for example, described farmland as a safe haven for capital and a hedge against inflation through both capital and income returns. It discussed the benefits of economies of scale offered through large scale farming operations in a global market, the tax benefits of investing in agriculture and the need to feed a growing global population.

shifted significantly. Consumers increasingly understand that the food we eat has major implications for our health, the environment and society at large. “The environment, food security and nature friendly farming practices have become global megatrends,” says Jonny Griffiths, Savills Head of International Farmland.

GLOBAL FARMLAND PERFORMANCE

The value of farmland across the world is tracked by our Global Farmland Index. The index reports to 2022 and illustrates the continued rise in farmland values globally over the past 20 years, with a 10% compound annual growth rate over this period. 2021 recorded the highest rate of farmland value growth since 2011 at an average rate of 19.5%, with the strongest performers being New Zealand, Brazil and Australia. Growth in farmland values has been more restrained in 2022 averaging just 3.3%. The top performers have been the US (14.3%), Australia (10.9%) and Brazil, which has continued an extraordinary few years of growth with a 45.2% increase (figure 1) during 2022. Average farmland values in Brazil have more than doubled in the last three years and this is due to a combination of factors:

- Interest rates have been low during this period, making it affordable for borrowers to purchase land.

Fast forward 10 years to 2023 and these factors remain, but the demands on farmland have never been greater. As people and politicians across the globe increasingly understand the importance of farmland in mitigating against climate change, further investment drivers have emerged (*far right*). Farmland is a vital resource in terms of sequestering carbon from trees, hedges, crops and soil and is recognised as an important factor in tackling the biodiversity crisis.

Food producing land is scarce and the demands on farmland are being further squeezed by a growing global population and growth in the number of calories consumed per person. Furthermore, over the past 10 years the way people think about food has



SAVILLS GLOBAL FARMLAND INDEX

The Global Farmland Index is based on the average value of crop or arable land in USD per hectare in 15 key farmland markets – Argentina, Australia, Brazil, Canada, Denmark, France, Germany, Ireland, New Zealand, Poland, Romania, Spain, United Kingdom, United States and Uruguay. Due to the restrictions on buying farmland in Hungary, the index composition has been revised to remove Hungary and introduce Spain. We focus on Spain and its farmland investment opportunities later in this publication. Converting to USD per hectare gives potential investors a good starting point for comparable analysis. It is a common denominator that corresponds to the currency of global financial markets. The values are relative to those in the year 2002 (2002 = 100). Exchange rates will affect the performance in domestic currency. By necessity average values are used – it should be noted within countries there can be significant local or regional variation.

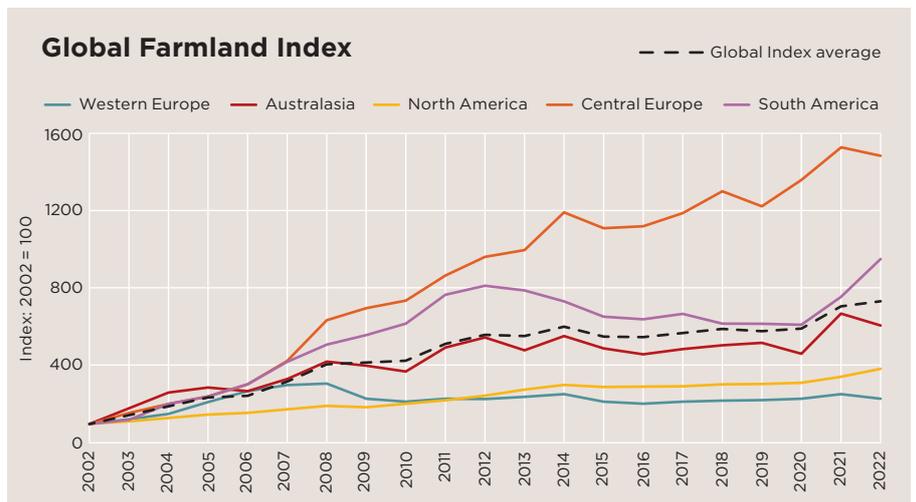


figure 1

Source Savills Research, USDA, REINZ and other national sources

🍷 Farmland is a vital resource in terms of sequestering carbon from trees, hedges, crops and soil and is recognised as an important factor in tackling the biodiversity crisis 🍷

■ The Brazilian real has been weak in recent years, which has attracted foreign investors leading to increased demand. It depreciated by about 30% against the dollar between January 2019 and December 2022.

■ High commodity prices have benefited Brazilian landowners, as the price of soybeans doubled at its peak during this period.

Farmland in Australia has continued to increase in value with no negative growth since 2015. The increase in average farmland values in 2022 can be attributed to a significant decrease in properties marketed, with the national transaction volume down by 37.5% and only the Northern Territory showing an increase in supply, according to Elders Real Estate.

From a wider perspective the slightly slower rate of growth reported elsewhere could be attributed to the stronger US dollar. This has exaggerated some value movements downwards, after appreciating over 12% in 2022,

and hitting a two-decade high in September 2022. In domestic currencies, only Denmark and New Zealand recorded a negative annual performance. This compares to a total of eight countries in the index reporting negative annual growth when converted to USD per hectare.

PERFORMANCE AGAINST OTHER ASSET CLASSES

Despite a slower rate of growth, global farmland continues to perform well against other asset classes, particularly over the longer term, and with increasing demands on farmland, we expect this to continue (figure 2). Elsewhere, gold prices rose in 2022, as they generally do in times of high inflation, but geopolitical issues meant its increase was not at the level many people expected. Oil soared to a peak in March 2022 at prices not seen since 2008 as a result of the conflict in Ukraine, but declined from June onwards due to market uncertainty.

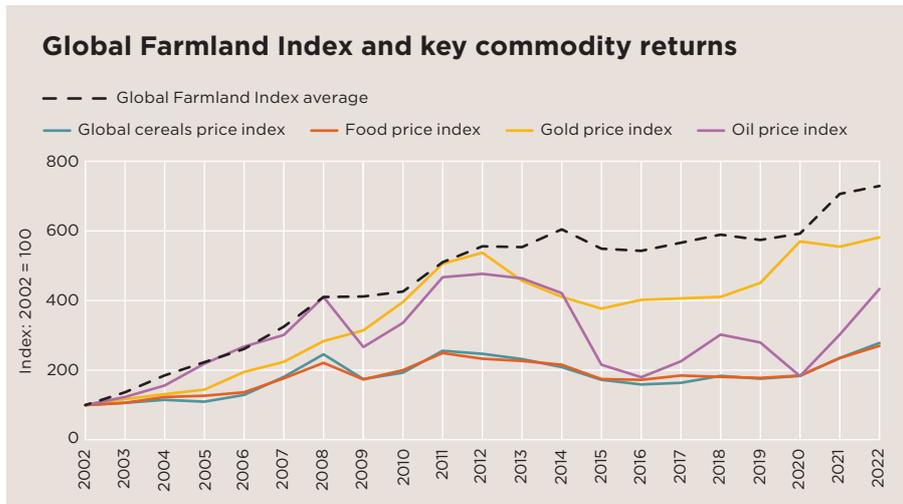


figure 2

Source Savills Research, FAO, OPEC, KitCo

FOREIGN OWNERSHIP RESTRICTIONS

The policies and restrictions placed upon ownership by foreign investors is often a major issue in farmland investment overseas. These can come in the form of an outright ban, limits on the amount of land held, pre-emptive rights, residence requirements or even language requirements. Savills Research has identified the top five least and most restrictive countries across Europe for foreign investment:

Least restrictive market	Most restrictive market
Czech Republic	Bulgaria
Germany	Hungary
UK & Ireland	Latvia
Netherlands	Norway
Spain	Switzerland



WHY CONSIDER INVESTING IN OVERSEAS FARMLAND?



TRADITIONAL FACTORS

- Farmland is a safe investment and the volatility is typically lower than major common listed investments
- Farmland is a real asset, with consistent growth, which regularly outperforms inflation
- With overseas farmland, greater risk can result in higher yields, with certain areas and crop types returning investment yields of up to 12%
- Farmland provides a good balance to investors' portfolios
 - There are often tax reliefs for agricultural land



ENVIRONMENTAL FACTORS

- There are new opportunities for farmland in the face of climate change and biodiversity loss that can generate income as well as benefit the environment:
- Carbon sequestration through soil or afforestation
 - Renewable energy generation
 - Nature-based solutions
 - Biodiversity offsetting schemes
 - Water management



THE FUTURE AND FOOD SECURITY

- People always need to eat, and food production needs to increase:
- While estimates differ, most put the global population at 9.7 billion in 2050
 - Increases in height, BMI and wealth mean the average daily calorie requirements could increase from 2,285 kcal per person in 2010 to 2,538 kcal in 2100, an 11% increase
 - Diet changes mean people are predicted to eat more meat - it is projected that by 2050, 2.3 times more poultry and between 1.4 and 1.8 times more red meat will be consumed as in 2010
 - At the same time, the amount of farmland will reduce, due to competition from other land uses

“ Besides food production, policymakers across the world are placing targets on renewables, housing, biodiversity, forestry and water ”



Reconciling competing pressures on land use

We highlight the global opportunities and the potential issues facing different countries

The pressures on farmland have never been greater. Besides food production, global policymakers are placing targets on renewables, housing, biodiversity, forestry and water.

As well as a knowledge of the restrictions on foreign ownership, there is a need for those looking to buy farmland overseas to understand the environmental targets placed on landowners. Some may provide income related opportunities while creating sustainable solutions. The regulatory environments and pace of policymaking varies significantly across the world. Our research has highlighted three competing land uses to food security that can offer opportunities for landowners and we discuss how these uses are being administered in different countries.

RENEWABLES

Solar PV installed power capacity is set to surpass that of coal by 2027, becoming the largest source of power in the world. However, solar energy within the UK has received negative media attention for taking high-quality land out of food production. Currently, solar covers approximately 0.1% of UK land. Approval has been given for a 1,060-acre solar farm at Longfield in Essex, making it the largest in the country. In comparison, at the time of writing, the five largest solar farms in the world by surface area are:

- 1 Mohammed bin Rashid al Maktoum Solar Park, in the UAE at 19,000 acres
- 2 Bhadla Solar Park, in India at 14,000 acres
- 3 Pavagada Solar Park, in India at 13,000 acres
- 4 The Tengger Desert Solar Park, in China at 10,600 acres
- 5 Benban Solar Park, in Egypt at 9,140 acres

Source The Eco Experts

The food versus fuel debate is not unique to the UK. China, currently the largest producer of solar energy, has recently announced that new solar developments should not be built on farmland, grasslands or protected forest lands. In contrast Germany, where agrivoltaics are increasingly popular, has announced that where solar arrays can share land with farming, these will be allowed on set-aside land designated to promote biodiversity under the Common Agricultural Policy. Similarly, in Spain renewables are being encouraged; since July 2023 environmental evaluations are no longer necessary for wind and solar parks that are outside Natura 2000 conservation areas and below 220 kilowatts in capacity.

BIODIVERSITY OFFSETTING

Biodiversity is declining at an alarming rate,

primarily due to human activities, pollution and climate change. One method of compensating for the losses caused by human activities is biodiversity offsetting, which provides measurable biodiversity gains in response to unavoidable losses. While Biodiversity Net Gain (BNG) only becomes mandatory in England from November 2023, other countries have been undertaking biodiversity offsetting for decades, albeit primarily under a “no net loss” criteria as opposed to a “net gain”. Currently over 100 countries have biodiversity compensation policies in place or enabled.

One challenge for many countries is the design and implementation of a register or database to allow for monitoring and evaluation of the offset sites. A 2022 review by Kujala et al, found that the lack of accessibility and transparency in existing registers is one of the biggest issues in ensuring that biodiversity targets are being achieved.

In New South Wales, Australia, the Biodiversity Offsets Scheme (BOS) provides offsets to compensate for significant biodiversity loss from development projects as the final step in the mitigation hierarchy. Like BNG, it is implemented through the planning system, with proposed developments undertaking an assessment that determines offset obligations, and landholders establishing Biodiversity Stewardship Agreements to

2027

Solar PV becomes the largest source of power in the world

3.8%

The amount Uruguay has increased forest cover from 2000 to 2020

9.7bn

This is predicted to be the global population by 2050

generate credits. However, an audit of the scheme in August 2022 found it was failing to protect the species and ecosystems it was set up for. Reportedly, the supply of credits is lacking and poorly matched to the growing demand. Additionally, the governing bodies are not taking the necessary steps to ensure the biodiversity outcomes on landowners' sites are monitored, with around 90% of the sites falling short. This has caused some concern, particularly considering recent consultations on an Australian national biodiversity market, aiming to launch in 2024.

AFFORESTATION

Afforestation has numerous benefits, with one of the most prevalent being the potential for carbon sequestration. One hundred and forty countries committed to both net zero emissions by 2050 and to halting and reversing forest loss by 2030 at COP26 resulting in the Forests

and Climate Leaders' Partnership launching at COP27. It is clear, therefore that afforestation is high up the agenda as a land use across the world.

Currently, forest covers over four billion hectares of the Earth, which accounts for around 31% of the total land area. Of the countries included within the global index, eight fall beneath this average, with the other eight being equal to or above. Positively, 11 countries have increased their forest area as a percentage of land area from 2000–2020 (figure 3), with the largest increase occurring in Uruguay at 3.8%. Alarminglly however, Brazil has decreased its percentage by 6.5% in the same period.

With net zero goals being a catalyst for planting, there has been some dispute as to whether countries are too reliant on carbon offsetting to hit these goals. New Zealand's independent climate advisory commission has advised the government that by 2050 the country will still be reliant on fossil fuels and further emission

reduction work will need to be undertaken instead of purely relying on tree planting.

FOOD SECURITY

All of these factors are competing with food security and as the world's population grows and we look to mitigate climate change across the globe, there is no doubt that further pressure will be placed on agricultural land. Figure 4 shows the relatively stable levels of pasture and cropland since the 1960s, while population growth is on an upward trajectory and is estimated to rise to 9.7 billion by 2050. Not only will population increase, but increases in height, BMI and wealth mean the average daily calorie requirements could rise from 2,285 kcal per person in 2010 to 2,538 kcal in 2100, an 11% increase. If we don't adapt Bajzelj et al estimated that by this point we would need 120% more water, 42% more cropland, lose 14% more forest, and produce 77% more GHG emissions.

Sustainable intensification and new technologies are required to ensure we continue to feed the world; since 1961 the arable land area needed to produce a fixed quantity of crops has fallen by two thirds from 1 to 0.29 due to improved yields (Our World in Data). Arguably this intensification has led to the soil degradation we are now endeavouring to reverse and future efficiencies are more likely to come from technological advances. Genetic engineering of crops could improve nutritional content, alongside providing more resistance to pests or disease and even increase tolerance to drought, raising yields of the existing croplands.

Lab-grown meat has the potential to be a more sustainable alternative to traditional meat production. Of the food products in a study by Poore and Nemecek (2018), beef and lamb topped the charts for land used per 100 grams of protein produced. The lab-grown alternative would need less land, however at this point it is not commercially viable. In addition, a recent study has suggested that with current technologies the global warming potential is in fact worse than traditional beef products. There is also the argument that the land used for beef and lamb may have limited alternative uses besides meat production, so a mixed approach in the future may be the answer.

Vertical farming can produce crops in a smaller space, ideal for where land is scarce, but at this stage they are difficult to justify in terms of cost. Savills Research estimates a vertical farm can cost as much as 750% more than a basic glasshouse in the UK (see our *Spotlight on Controlled Environment Horticulture*).

A combination of these will likely be utilised in the future as the pressures on land grow and it will be interesting to see how consumer tastes and preferences evolve and the prevalence of environmentally led decision-making increases.

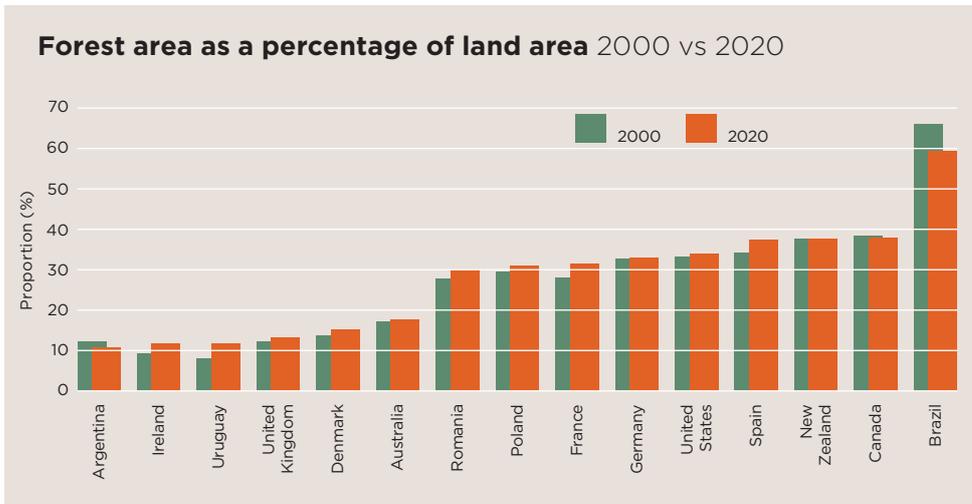


figure 3

Source FAO Global Forest Resources Assessment 2020

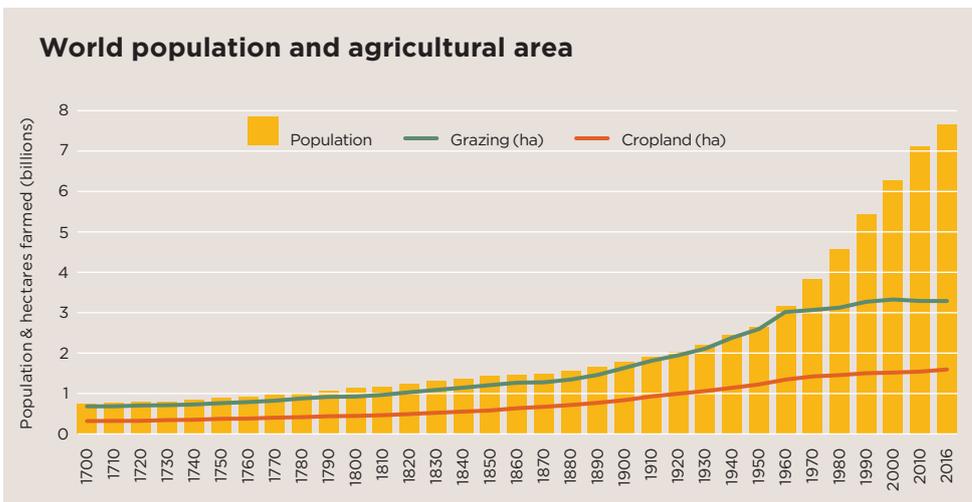


figure 4

Source Our World in Data

2nd

Spain is the second largest almond producing country

14,000

hectare increase in blueberry and avocado producing land over the last five years

12%

yield for higher operational risk products such as almonds and avocados

Spain offers significant investment opportunities

Crop productivity and varied geography make it a thriving agricultural economy

Spain has one of Europe’s largest and arguably most advanced agricultural sectors. It is a leading producer and exporter of high value crops such as vegetables, fruit and tree nuts, and is also the centre for off-season production of fresh produce for the northern European winters. Investors and corporates can gain great advantage from exposure to farmland and agriculture there. Spain’s geography and many microclimates can provide good mitigation to the climate change risks that affect agriculture across the world.

artificial heating. As a result Spain has become a major producer of these types of vegetable and is the second largest exporter worldwide, exporting to 64 destinations – the most significant being Germany, France, the United Kingdom and the Netherlands.

■ **Tree nuts**

Global almond consumption has increased at an annual average rate of 4.8% over the last 20 years and Spain, as the world’s second-largest

almond producing country, is very well placed to take advantage of this. Spain is also Europe’s largest producer of pistachios and pecans and the seventh largest producer of walnuts, as well as Europe’s largest exporter of tree nuts.

■ **Fruit**

Spain is Europe’s largest producer of fruits such as avocados, strawberries, blueberries and citrus fruit. This has attracted a huge amount of investor interest, and areas of blueberries and avocados have increased from 9,000 to around 23,000 hectares over the past five years.

■ **Other crops**

Spain is the world’s largest producer of olives, both table olives and olive oil. Investor interest in olive orchards has also increased, not least as they have been shown to sequester carbon very effectively, thereby providing additional income streams in the carbon credit market. Spain is also a major producer of field vegetables including onions, broccoli and potatoes.

CROPS

■ **Salads and Mediterranean vegetables**

Spain is Europe’s largest producer of salad crops such as lettuce, celery and cucumbers. In addition to its domestic consumption, it is Europe’s largest producer of salads for northern Europe during the winter months. Spain is also a major producer of Mediterranean vegetables such as tomatoes, peppers, cucumbers, aubergines and courgettes, which grow best in protected greenhouse conditions. The climate in the south of Spain provides sufficient heat that polytunnels or greenhouses do not require

Crop	World ranking	Average consumption growth*
Fruit	1	2.2%
Tree nuts	7	4.0%
Salads and Mediterranean vegetables	7	3.1%

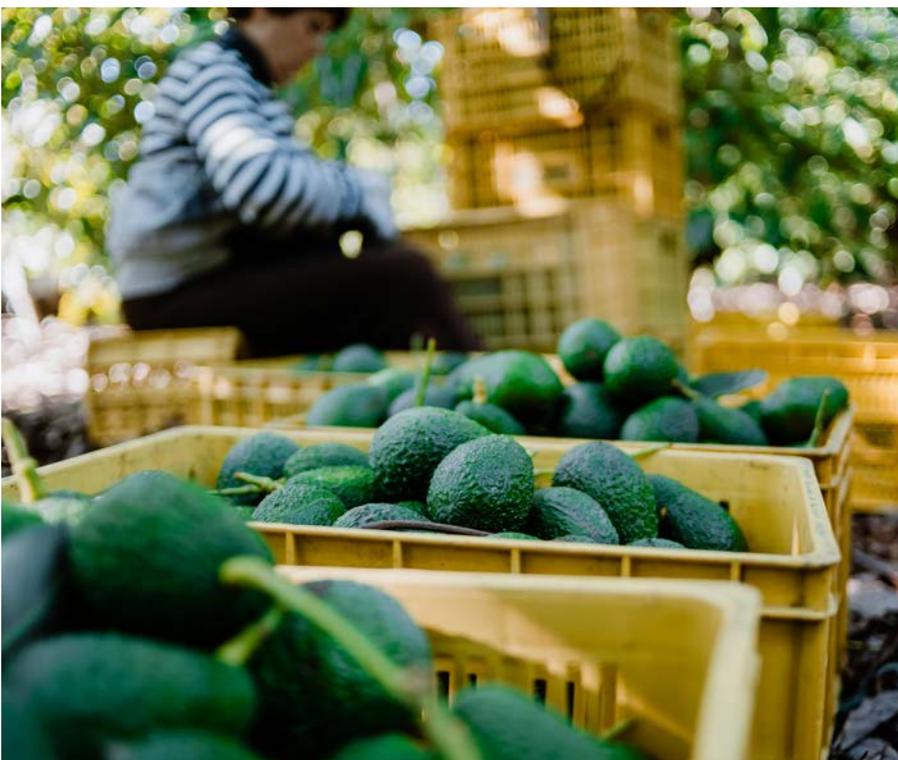
*Annual average global consumption growth since 2000

Source: FAO

MAIN PRODUCING REGIONS

The majority of productive agricultural land is located within an arc from the Pyrenees (in Catalonia and Aragon) down through the major citrus and salad-producing regions of Valencia and Murcia, towards Castilla-La Mancha, Andalucia and Extremadura where most tree crops such as olives and tree nuts are produced. The coastal areas of Andalucia are also major salad and Mediterranean vegetable producing regions (particularly in Almeria, Granada and Malaga) with Huelva a centre for avocados, blueberries, citrus and strawberries.

Overseas investment has traditionally been in the vegetable sector, with many UK fresh produce groups establishing operations in order to supply the UK during the winter. More recently, there has been a trend to invest in crops such as tree nuts, olives, citrus, avocados and blueberries, not only as a diversifier to the traditional producing regions of the world in North and South America, but also reflecting Spain’s own status as a leading producer of these high demand crops. Regions of interest have been the Cordoba area of Andalucia, Extremadura, Aragon and Castilla-La Mancha, where farms of over 500 hectares and investments of €10 million or more can readily be made. A number of farm contracting and agronomy businesses exist in those regions as



“Spain’s geography and many microclimates can provide good mitigation to the climate change risks that affect agriculture across the world”

well, meaning that investors wishing to gain direct exposure to crop markets can outsource the day-to-day crop management process.

CLIMATE CHANGE

Rainfall in major agricultural producing regions of Spain has always been typically lower than in northern Europe. This can have benefits as well as drawbacks, as disease pressure can often be less, which can be crucial for growers of high value crops, and issues with field logistics as a result of rainfall can largely be avoided. The lack of rain has traditionally not affected crop water availability as the high water demands of vegetable, fruit and nut crops have been supplied by irrigation. This is sourced through a combination of surface water and boreholes, depending on the location, with major rivers including the Guadiana (for Huelva and Extremadura), Guadalquivir (for northern Andalusia), Tagus (for Castilla-La Mancha), Segura (for Murcia and Valencia) and Ebro (for Aragon and Catalonia). Rising temperatures have led to a concern that the mountain precipitation that feeds surface water may potentially be compromised in future. Investors and operators can prepare for this by:

- *Investing in a variety of locations and, where possible, crop types:* locations that now may be well suited for production of specific crops may in the future become suboptimal, while locations further north that may not have ideal temperature levels currently may well be suitable later on. Salad producers, traditionally located in the coastal areas of Murcia, are moving into cooler mountainous areas where water availability is less compromised. Likewise, almond investors are diversifying between Cordoba (traditionally an area of strength for almond production), Extremadura (where surface irrigation water availability has been shown statistically to be unaffected by higher temperatures) and Aragon (where there is more reliable water availability due to its mountainous location).
- *Studying historic irrigation drought resilience:* examples include Extremadura or southern Castilla-La Mancha, which in times of irrigation restriction had minimal or no restrictions. These areas have attracted significant investment in water-sensitive crops such as almonds.
- *Diversifying into new crops or varieties:* climate change has made large-scale avocado production in southern Spain possible, where previously the suitable microclimates were extremely limited.

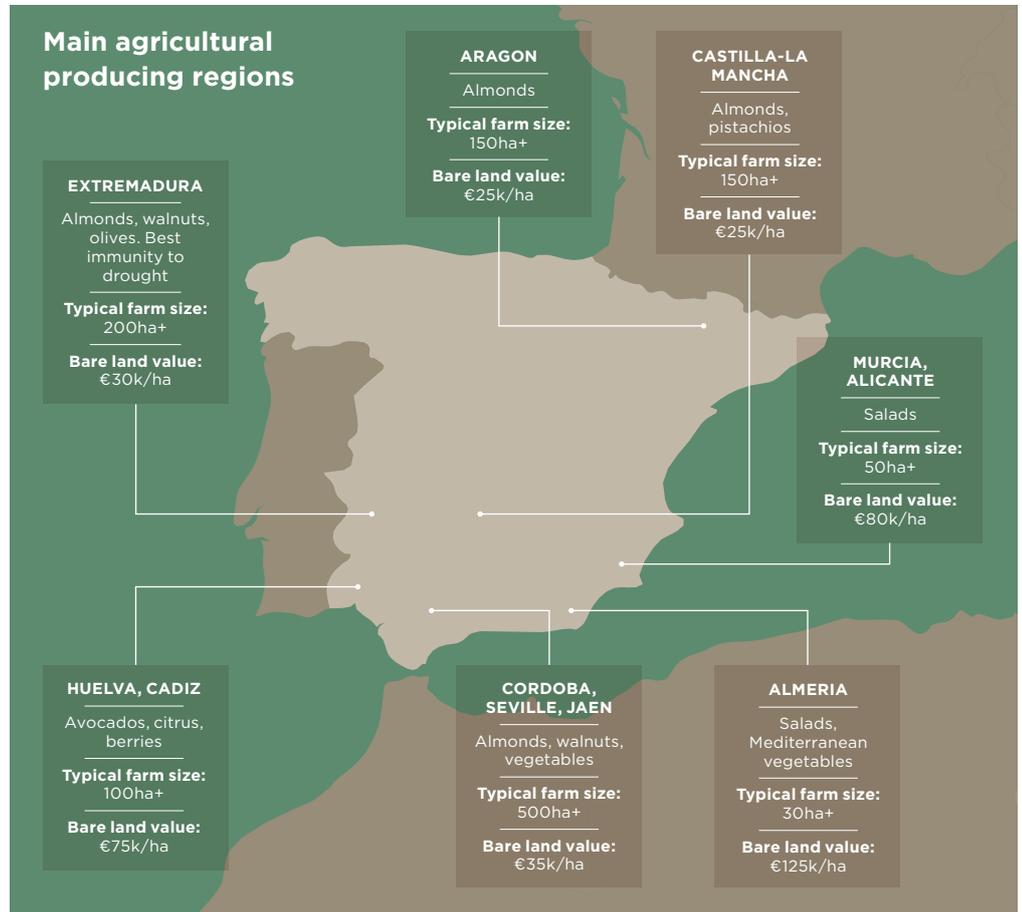


figure 5

Source Savills Research

Plant breeders, particularly those based in Spain have also developed drought-resistant varieties of crops to further mitigate climate change. In some locations where water is compromised, almonds for instance have been replaced with olives, irrigated cork or solar farms.

- *Adopting a long-term investment horizon:* the highest level of climate volatility often occurs in the short term, with crop productivity often far more consistent when a long-term average is taken.

INVESTMENT RETURNS

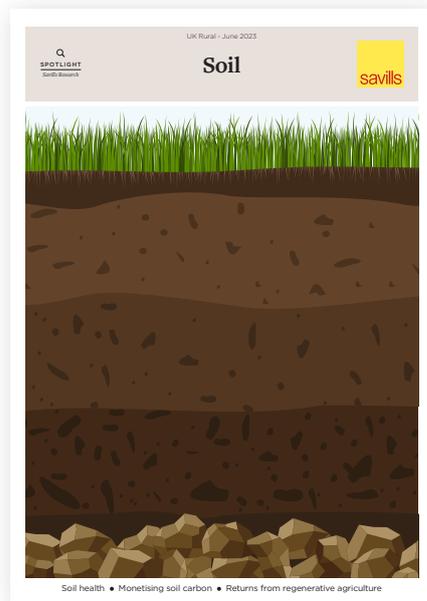
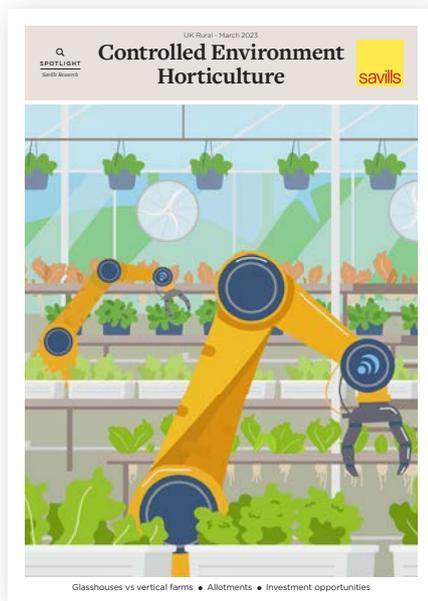
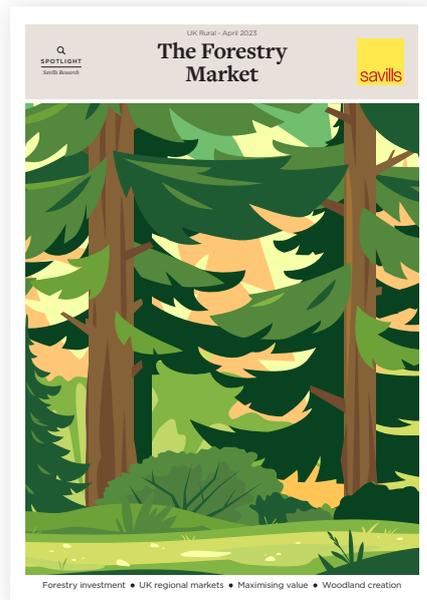
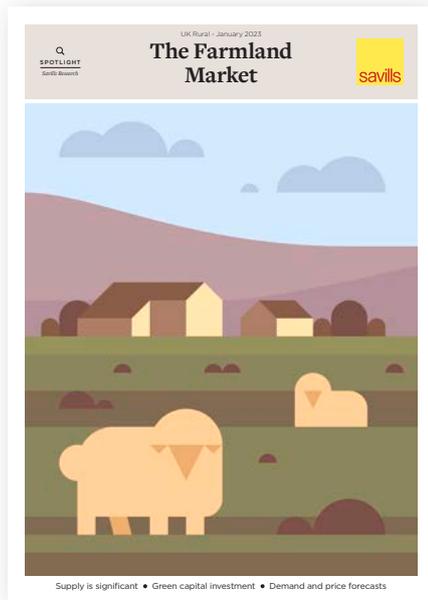
Investing in agriculture can generate returns in two ways; through an annual income whether from leasing or directly operating, and through appreciation of the underlying farmland asset. In Spain farmland investment returns are dominated by the annual cash yield component. Cash yields range from around 7% for leased olive orchards or covered vegetable crops, through to 12% or higher if operational risk is taken with crops such as avocados or almonds.

Land price appreciation is less significant than in other geographies; this is mostly connected to the fact that many of the assets contain a significant depreciating component, such as trees, irrigation systems, greenhouses or polytunnels, which often offsets appreciation of the underlying land. At the same time, the cash yield component gives a degree of predictability to the return profile.



WHY? AND WHY NOW?

- 1 Spain is Europe’s leading producer of many key fruits, vegetables and tree nuts.
- 2 Spain is one of Europe’s leading agricultural economies and has an unparalleled business environment for the sector to thrive.
- 3 Cash yields for agriculture assets continue to increase.
- 4 Large scale properties of 500 hectares or more continue to come to the market.



Savills Research

We're a dedicated team with an unrivalled reputation for producing well-informed and accurate analysis, research and commentary across all sectors of the UK property market. To view copies of our previous Spotlight publications, go to www.savills.co.uk/insight-and-opinion/

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