HASS AVOCADO BOARD

2025

# Country Profile: Mexico

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World avocado production prospects

# Mexico

## A fragile colossus?

HASS AVOCADO BOARD

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## Acknowledgements

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# The avocado in Mexico

Mexico remains an exceptional player in the world Hass avocado industry, controlling over 40 % of export volumes. However, the innate assets of this zone that gave rise to the avocado have been weakened by a cyclically or more structurally tough climate context in recent seasons; and this has revealed the flaws of an industry that remains highly traditional, both in technical terms and in terms of relationships between producers and exporters. Given the now limited land availability in the most suitable zones, Mexico's rapid expansion phase seems to have passed, with its huge export flow increasingly focused solely on North America.

# History of the industry

## A native fruit, but fairly recent industrial development due to the export sector

Mexico is a cradle of the avocado, with the word itself being derived from Nahuatl, meaning "testicle". Archaeological digs conducted in a cave in the Coxcatlán region, in the State of Puebla, showed that this fruit was already present in the region 7 000 to 8 000 years ago. The country's central volcanic belt, which crosses Michoacán, is believed to be the natural habitat of one of the three races of *Persea americana* Miller, also known as the Mexican race. Nonetheless, the Mexican cultivation area has only fairly recently swelled to the immense proportions of approximately 260 000 ha seen today. According to the country's first agricultural statistics in the 1930s, this area covered only approximately 3 000 ha. The dissemination of better production techniques (grafting) and improved varieties such as Fuerte sparked a growth trend over the following decades, albeit to a relatively limited extent.

The foundations of the industry were laid in the 1950s and 1960s, with the creation of a network of industry-specific entities: a dedicated research institute (CICTAMEX in 1953), associations (the Cupanda cooperative in 1954, the Peribán producers' association in 1967, etc.), with the first nurseries selling Hass plants originating from California and the first agro-chemical products sales depot opening in 1968 in Uruapan. Surface areas really took off in the 1970s, driven in particular by a national fruit growing development policy. Indeed, a specific plan aimed at promoting the avocado was developed from 1973, led by CONAFRUT (Comisión Nacional de Fruticultura).

In particular, this entailed granting technical assistance, enhanced credits from FIRA (Fideicomisos Instituidos en Relación con la Agricultura) and even giving away plants. The context became favourable for development of the crop, although these funds were primarily absorbed by the downstream segment through the development of packing or transport infrastructures. An increasing number of smallholdings resulting from the agrarian reform of 1915 ventured into this industry. This was when the cultivation area saw rapid expansion, up to approximately 50 000 ha in the mid-1970s, and then to 100 000 ha in the 1980s, with Michoacán becoming the country's number one production area, and Hass the benchmark variety for its post-harvest resistance, its yield and its taste properties.

Faced with a massive influx of production and a saturated local market, professionals sought to diversify their outlets, by developing the export sector from the early 1980s. Great efforts were undertaken to reopen the US market, closed since 1914 for sanitary reasons (presence of pests assigned quarantine classification by the US authorities). Orchard monitoring and eradication campaigns of the insects concerned were launched, alongside lobbying of the US sanitary authorities, in a promising context of the implementation of a free trade treaty between the USA, Mexico and Canada (NAFTA). US multinationals specialising in the avocado began to set up in-country from 1994 onwards.

## Mexico in a few figures

- **Population:** 130 million in 2024 (source: World Bank)
- **GDP/capita:** US$14 157/year (source: World Bank - 2024)
- **Agriculture:** 3.8 % of GDP (industry 31.6 %) (source: World Bank - 2024)
- **Value of agri-food exports:** US$50 billion (source: SIAP - Banco de México - 2024)

**Main export agricultural products:**
(source: SIAP - Banco de México - 2023)

- **Avocado:** US$3 780 million
- **Tomato:** US$2 670 million
- **Sweet pepper:** US$1 593 million
- **Cucumber:** US$805 million
- **Strawberry and raspberry:** US$884 million

Avocados from Michoacán zones declared quarantine pest-free were authorised on the US market in a limited number of non avocado producer States from 1997, after nearly a decade of joint efforts by the Mexican industry. The progressive opening up of this market, complete by the end of January 2007, generated an exponential growth trend in the industry, especially with the intense promotion campaigns for this fruit launched in the USA in the early 2000s, driven by the APEAM (Asociación de productores y empacadores exportadores de aguacate de México), the MHAIA (US based Mexican Hass Avocado Importers Association) funded by the Hass Avocado Board assessment and through a direct contribution from APEAM.

A second State, Jalisco, got the green light to export to the United States in 2022. Its early production calendar, thanks to widespread planting of the Hass Mendez cultivar, enables the Mexican industry to top up the Michoacán supply, and provide Hass year-round. Despite this boost, having set a record level of nearly 1.5 million tonnes in 2020-21, exports have waned in recent seasons to between 1.2 and 1.3 million tonnes. This unprecedented downturn, going against the trajectory of surface areas, is the result of particularly unfavourable climate conditions over the period 2021-25; which demonstrates the weaknesses of this industry despite its vast dimensions. Could it be an artefact related to the ageing of the stock, and above all the intense El Niño/La Niña episode, or a genuine turning point?

# Current extension and location of the cultivation area

## More than 50 % of the world's Hass cultivation area based in Michoacán and Jalisco, but expansion on a definite slowdown

Mexico has an overwhelming grip over the world Hass industry, although this variety is not one of the native cultivars. Official statistics derived from surveys by the sanitary services in 2024 recorded a cultivation area of nearly 260 000 ha, by far the largest in the world, and accounting for nearly 50% of the world's Hass-planted surface areas. It is mainly packed into the volcanic belt running across the centre of the country, from the Gulf of Mexico in the West to the Pacific Ocean in the East. The vast majority of the plantations are situated in high-altitude zones (generally 1 400 m to 2 500 m), which has the benefit of avoiding the extreme heat on the plains in this region, situated on the latitude of the Tropic of Cancer, and often of harnessing high-quality volcanic soils.

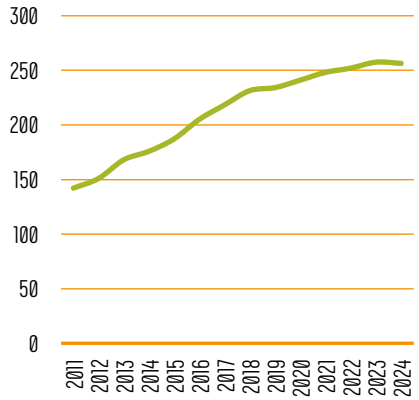
If Mexico is the Hass kingdom, then Michoacán is without any doubt its capital. This State, situated on the Pacific seaboard, is by far the country's leading production centre, with approximately 70 % of total surface areas, employing a highly traditional cropping system, often without irrigation.

Jalisco, a neighbouring province of Michoacán, holds second place (registering 31 000 ha in 2024), with just over 10 % of total surface areas. The pedoclimatic conditions, more restrictive although still highly favourable, require the implementation of a high-tech cropping system, generally on larger-scale orchards. Between them, Michoacán and Jalisco control nearly two-thirds of world trade, with a large proportion of the orchards declared free from quarantine pests, and free to take advantage of the the huge pull from the neighbouring US market. They are followed in the States' ranking by:

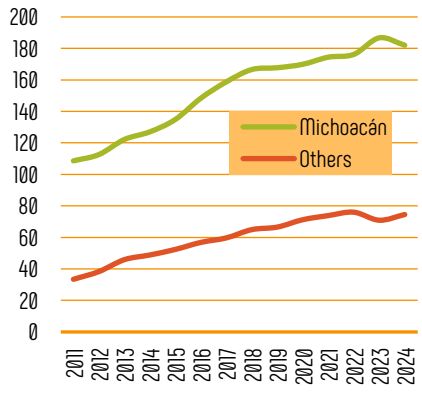
- **México**, registering approximately 13 000 ha, mainly concentrated in the south-west: municipalities of Coatepec Harina, Temascaltepec, Donato Guerra, etc.;
- **Nayarit**, with 8 000 ha in the centre of the State: municipalities of Tepic, Xalisco, etc.;
- **Morelos**, with 6 000 ha in the north-east corner: municipalities of Ocuituco, Tetela del Volcán, etc.;
- **Guerrero**, with 5 000 ha in the centre: municipalities of General Heliodoro Castillo, etc.).

Expansion in Mexican surface areas, which remained spectacular until the latter half of the last decade (approximately 12 000 ha per year between 2013 and 2018), has slowed down distinctly over recent years (less than 5 000 ha between 2022 and 2024).

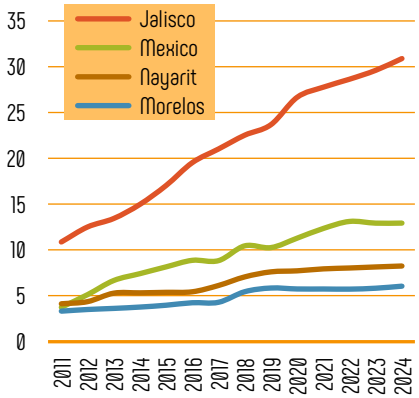

**Mexican avocado**
**Planted area**
(in 000 ha | sources: Sader, professionals)




**Mexican avocado**
**Michoacán share of planted area**
(in 000 ha | sources: Sader, professionals)




**Mexican avocado**
**Breakdown of other planted areas**
(in 000 ha | sources: Sader, professionals)



# Michoacán

**Michoacán is the flagship region for Hass cultivation, accounting for more than 40 % of the world's exports of this variety, thanks to a record-breaking cultivation area of more than 180 000 ha. Until recently, the excellent pedoclimatic conditions which prevailed in this avocado hotbed enabled the industry to achieve good results, in terms of both productivity and economic profitability, despite an often basic production system and highly fragmented plots. However, the producers, who hold the key to this industry of high social externalities, have in recent campaigns had to face a distinct deterioration in the climate conditions, revealing the fragility of this industry. Is this a cyclical phenomenon, or a long-term change?**

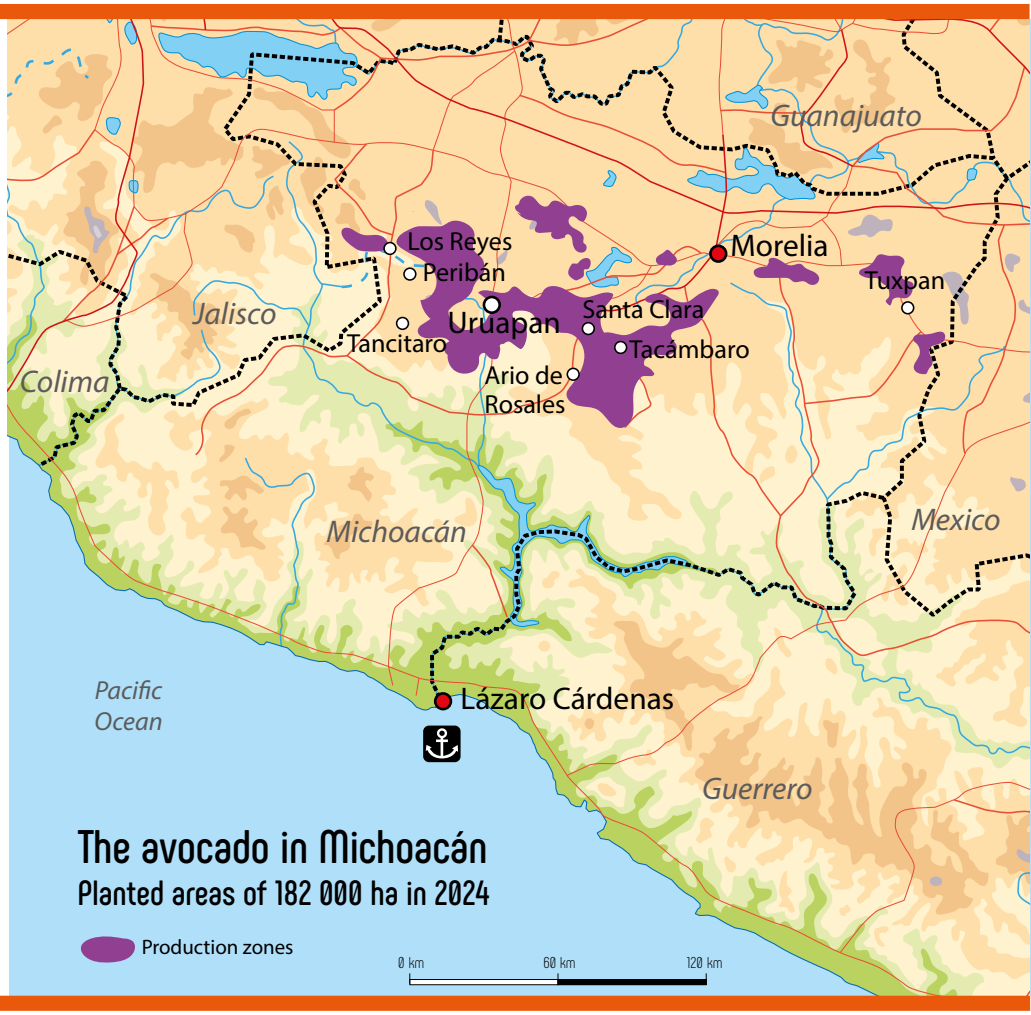
## Exceptional cropping conditions, until recently

The avocado production zone in the State of Michoacán is situated on the country's central volcano chain (Eje Volcánico), a Quaternary volcano region extending from east to west over approximately 900 km along the 19th parallel North. It stands out on its own for sheer size, with an area extending over nearly 185 000 hectares in 2024, stretching over a length of approximately 250 km, in a W-shape ranging from roughly Tigüindín in the west to Tacámbaro in the east, and centred on Uruapan. The cultivation area is concentrated within an altitude range of between 900 m and 2 600 m, in the transitional climate zone marking the boundary between the low-lying hot zones adjoining the Pacific Coast (Tierra Caliente) and the high-altitude cold zones on the Purépecha plateau. There are five districts that on their own encompass 50 % of the surface areas: Tancitaro with 26 000 hectares, and Uruapan, Tacámbaro, Salvador Escalante and Ario, with 18 000 to 20 000 ha apiece.

**Avocado – Michoacán – Hectares**

| Breakdown by districts | ha in 2024 |
|---|---|
| **East: District of Pátzcuaro**, incl. | 63 469 |
| Ario | 19 894 |
| Salvador Escalante (Santa Clara) | 16 830 |
| Tacámbaro | 17 517 |
| **Centre: District of Uruapan**, incl. | 67 107 |
| Tancítaro | 24 820 |
| Uruapan | 18 655 |
| **West: District of Zamora**, incl. | 36 065 |
| Los Reyes | 7 194 |
| Peribán | 11 756 |
| **Others** | 15 359 |

Source: DGSIAP



## Strengths:

- Pedoclimatic conditions can be ideal in some seasons.
- Easy access to the huge and highly lucrative US market.
- Unique production period due to its length (all year round).
- High social externalities (small to medium orchards).

## Challenges:

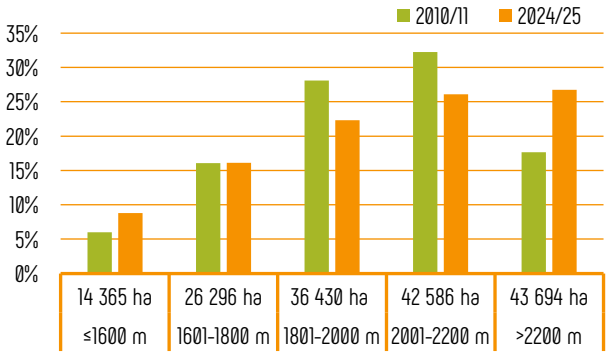
- Fragility of the production system to climate change.
- Ageing orchards.
- Multiple factors curbing modernisation.
- Low technical level of a significant proportion of producers.
- Disconnection between export and production sectors.
- Heterogeneous maturity due to four blooms.
- Security context.

This rugged region, similar to the original habitat of one of the main avocado races, provided a combination of ideal pedoclimatic characteristics for Hass cultivation, until the last few campaigns. Firstly, nearly 90 % of the production region is covered with andosols, highly fertile volcanic soils known locally as Topure, deep and well-draining. Aacrisol or luvisol type soils – leaner or heavier – are present in the lower-lying eastern and western edges. Secondly, the great variety of climates present due to the wide altitude range gives Michoacán a unique property: harvesting is possible practically year-round, thanks to four annual blooms in the intermediate climate stages. The climate stages situated between 1 800 m and 2 300 m are particularly favourable (humid to sub-humid temperate zone, deemed to be "natural" for the avocado).

Conversely, the climate conditions, particularly suitable until recently, are now raising questions. The hitherto temperate temperatures (between 20°C and 22°C in the hotter low-altitude zones, and between 12°C and 18°C in the cooler high-altitude zones), have increased across the board, increasing evapotranspiration and causing occasional heatwaves in the low-lying zones. Most of all, the rainfall level, from around 1 000 to 1 200 mm (except in the Uruapan area, where it was over 1 500 mm), has considerably decreased over the past three seasons. The rainy period, which used to be concentrated primarily during the summer from June to October, has narrowed considerably. Over the period 2022 to 2024, there were major anomalies from the period 1980 to 2010, in terms of both average temperature (+ 0.7°C) and rainfall (- 130 mm), according to Meteoblue data.

It is too soon to decide on the nature of this climate deterioration, whether it is cyclical due to the La Niña/El Niño episodes of recent years, or structural due to global warming. The rebound and record harvest in volume of the 2025-26 season also shows that we should not be fatalistic. However this climate uncertainty is now a black mark against what was until recently practically an ideal zone for Hass production, with the exception of two historic blemishes related to soil acidity and the rough terrain (45 % of orchards situated on slopes of more than 25 %). The consequences on production are all the more sensitive since large areas of plantations had been established in frontier zones, in terms of both climate and soils, driven by demand from the US market and due to lack of available space in the "ideal" zone. Going by the fine statistics available for orchards on the export programme to the USA (approximately 90 % of surface areas), more than 10 000 ha has been planted since 2010 in zones below 1 600 m, potentially hot and dry and with heavy soils, and approximately 35 000 ha in zones above 2 200 m, potentially exposed to frost and hail, and where the soils have less favourable properties.

Michoacán avocado
Surfaces by altitude stratum and evolution
(in ha | source: MHAIA)




## Production structure, and economic and social impact

One of the great peculiarities of the Michoacán avocado industry is the extreme fragmentation of its production structure. The annual Hass production of 2 million tonnes per year is harvested by more than 30 000 producers, with orchards under 10 ha representing nearly 70 % of total surface areas (with orchards under 3 ha representing up to 30 %). In 2024, there were just 269 orchards over 30 ha within the State, a seemingly incredible figure given the vast scale of the production. This splintering is on the increase, with small producers able to obtain export certification to the United States, but also because of the successions, whereby these smallholdings are divided between the different heirs. In this context it is understandable that the crop has huge socio-economic externalities, for Michoacán and the country as a whole. According to a 2024 study, the industry's nationwide turnover at the production stage was around 3 billion USD, i.e. approximately 7.5 % of the country's agricultural GDP (40 % of agricultural GDP for Michoacán). According to the same study, on a national scale, the avocado industry generates 79 000 direct jobs (80 % of which in Michoacán and Jalisco), and 140 000 indirect jobs. Nearly 70 % of producers farm their own land or rent it, with the remaining 30 % working communal land (ejido). A significant proportion of producers, especially small ones, are not specialised in the crop (urban investors, employees who may or may not belong to the agricultural world, and double jobbing).

## Cropping practices

Michoacán's 2-million tonnes annual harvest comes mainly from highly traditional, low-tech production systems. Although basic, this production mode yielded satisfactory results until the early 2020s, thanks to the excellent pedo-climatic conditions present in the "avocado W" described above. Between 2021-22 and 2024-25, the decreasing rainfall and considerable increase in temperatures, probably due to global climate change, revealed the fragility of the system. Yields have fallen steeply, and the proportion of small fruits has considerably increased. Nonetheless, there does not seem to be any perceptible significant movement towards adopting cropping practices that could mitigate these imbalances. While the increasing fragmentation of the plots and the absence of credit for agriculture are clearly curbing investment, the producers' mind-set remains a major impediment. The often-quoted expression "el árbol es muy noble" shows that they still assume that the tree can ensure its long-term survival on its own. The average production system can be described as below.

The plant stock is old, with 80 % of trees over 20 years old (35 % of which over 40 years old). The vast majority comes from nurseries not providing any sanitary guarantee (no certification system in place). A single rootstock is used, a "local" Mexican race variety ("Criollo Mexicano"). The planting density is low and generally between 150 and 200 trees per hectare (the oldest orchards have a 10 m x 10 m spacing, in staggered rows).

Cropping practices are basic, and consist above all in applying fertilisers and lime-based soil improvers (acidic volcanic soils) and managing the diseases and pests which are fairly common in the zone, because of the high moisture. The main pests are certain thrips (*Scirtothrips perseae* in particular), certain mites (*Oligonychus perseae* and *punicae*) and certain scale insects (*Abgrallaspis aguacatae*, *Hemiberlesia lataniae*). The sanitary pressure has increased in recent seasons, because of the considerably higher temperatures, with an increased insect population in the lower-lying zones (shorter diapause) and increased fungi populations in the wetter high-altitude zones. Implementing a strict control protocol has helped eradicate the quarantine pests: no interceptions have been registered since the start of the export programme to the USA. The main diseases are anthracnose and scab (*Sphaceloma perseae*). Conventional management is applied (no integrated pest management).

**Avocado in Michoacán:**
**45 % of irrigated areas in 2025-26**

| Method | Source |
|---|---|
| Sprinklers: 45 %<br>Drips: 63 % | Reservoirs: 65 %<br>Wells: 12 % |

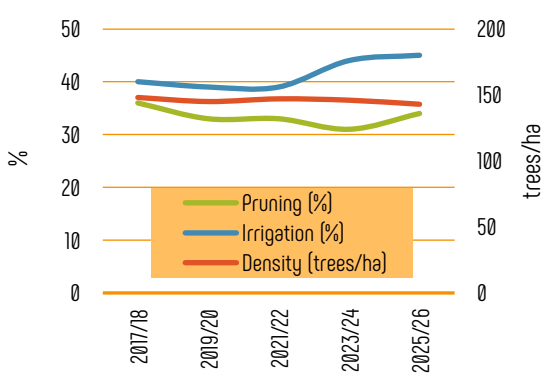
**Organic avocado in Michoacán:**
**7 % of surface areas in 2025-26**

Annual pruning is not generally applied, with producers unwilling to lose the benefit of harvesting some of the blooms. More than half the orchards are still rainwater-supplied, with installation of technical systems apparently making little progress, despite the water stress period registering a big increase with the climate imbalance, especially at certain key phenological stages. The absence of a low-rainfall season in February, highly beneficial for blooming, has become recurrent, and the main rainy season is tending to start later (June instead of May). The absence of irrigation is also limiting fertilisation practices. When it is applied, irrigation is mainly via micro-sprayers (70 %). The water is generally of good quality, and mainly supplied by catchment reservoirs ("ollas") or very deep wells (down to 500 m).

The average yields were around 8.5 t to 9.5 t/ha in traditional rain-supplied orchards, or as much as 15 t to 18 t/ha for higher-tech and irrigated orchards, a figure that better reflects the actual production potential of this region that enjoys a host of assets in the absence of climate stress. This average saw a distinct fall, particularly for rain-supplied orchards, between 2021-22 and 2024-25 before bouncing back in 2025-26. A large proportion of agricultural work is carried out by service providers. The harvest, which is covered by the purchaser of the produce, is still subcontracted.

The main production certification systems relate to reducing contamination risks (SRRC) and correct pesticide use (BUMP). The certification required by the major world markets besides the USA are under-developed, and on a downward trend (3 500 ha were Globalgap certified in 2019, as opposed to 9 000 ha a few years previously). Less than 5 % of surface areas are organic certified, with the orchards worked using this cropping method situated in the districts of Uruapan, Peribán, Tancítaro and Nuevo Parangaricutiro. Surface areas, which were around 8 000 ha in 2023, are on a downward trend, with producers tending to favour a more productive conventional system.

Michoacán avocado
Evolution of basic farming practices
(source: MHAIA)



## Production cost and profitability

Production costs are relatively low, due to the favourable pedoclimatic conditions and generally basic production practices. Direct variable production costs for an established orchard would appear to be approximately 5 500 to 6 000 USD for the traditional production systems without irrigation (or even below the bottom of the range in case of a very basic crop management system and limited equipment), and 6 500 to 7 000 USD or higher-tech irrigated orchards (excluding harvesting). The two main cost items are fertilisation and sanitary protection. The cost of labour is higher than the official pay scale (356 Mexican pesos per day in Michoacán and Jalisco, i.e. $20/day), but is still competitive.

## Varieties and production calendar

Hass is utterly dominant, representing approximately 90 % of planted surface areas. Its physiology is fairly unique in the region, due to the variety of climate stages where it is grown. In the "natural zone", the harvest starts from early to mid-July with the "flor loca" fruit (generally fairly round in shape), which represents approximately 5 to 20 % of the total harvest. It continues with the "aventajada" fruit, harvested from September, and which accounts for 10 to 25 % of overall production. The peak harvest comprises "normal" fruit (in October, with 60 to 80 % of the harvest). The season ends with the "marceña" fruit (in March, 15 to 30 % of the harvest). These start dates are indicative, falling earlier in the warmer low-lying zones, and later in the cooler high-altitude zones. The bloom harvest periods form an overlapping sequence, leading to heterogeneity in the maturity of the fruit placed during certain harvest periods.

Hass Mendez represents approximately 10 % of planted surface areas. This Hass mutation has the particularity of having a very early production calendar. Its main harvest is available from July, a particularly useful period since it coincides with the production low point of regular Hass. Mendez produces a second harvest, very limited in volume, later ("loca tardia"). Despite its useful harvest calendar, Mendez has not been much developed, due to a very marked alternate bearing phenomenon.

**Avocado – Michoacán – Production calendar**

| Variety | Harvest | J | A | S | O | N | D | J | F | M | A | M | J | Harvest share |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HASS | Loca | ■ | ■ | ■ | | | | | | | | | ■ | 5-20 % |
| | Aventajada | | ■ | ■ | ■ | ■ | | | | | | | | 10-25 % |
| | Normal | | | | ■ | ■ | ■ | ■ | ■ | ■ | | | | 60-80 % |
| | Marceña | | | | | | | | | ■ | ■ | ■ | ■ | 15-30 % |
| HASS MENDEZ | Principal | ■ | ■ | ■ | | | | | | | | | ■ | 90 % |
| | Loca tardía | | | | | | ■ | ■ | ■ | | | | | 10 % |

## Upstream/downstream relations

Commercial relationships are guided by a unique balance of power for the world of agriculture. Producers hold great negotiating power thanks to the incredible vitality of demand from the US market and the ability to store the fruit on trees for several weeks (even several months in the coldest areas). Hence the production and packing/export links are disconnected in the vast majority of cases: export production originates primarily from independent producers. Only a very small number of exporters are also producers, especially due to the agrarian reform which has caused a high degree of plot fragmentation, making it hard to create the large areas required for exports. The climate of insecurity has also contributed to discouraging investment.

There is also originality in the informality of the relationships between production and export: while most exporters have contractual commitments with importers/the supermarket sector (often for one-month periods), there is no formal contractual commitment between the production and export links, in terms of either volumes or price. Most exporters purchase all the fruit at prices fluctuating on a daily basis (spot). Advance purchases of the harvest as a whole do happen, but they remain very much in the minority (5 %). The bulk of fruit is purchased from the orchards (fruit paid for on the tree regardless of quality level or size), with picking at the exporter's expense, and often carried out by contractors. Hence producers choose between exporters according to the purchase price offered, payment times, relationships and feedback on quality of picking. Finally, purchases are either made directly between exporters and producers, or via intermediaries. This link, which covers between 10 % and 20 % of the supply, has expanded particularly over the past four or five years, with very small producers entering the US export programme. Hence intermediaries perform the function of aggregating production often located in remote zones, and representing very small volumes. However, their image is sometimes tarnished by tax evasion and producer intimidation scandals, with some locally dubbed "coyotes".

This system, that creates high added-value, allows producers to make massive investments in promotion, research and information via APEAM, MHAIA (and since 2013 AFM). By way of example, approximately 50 million USD per year were made available between 2018 and 2022 – a unique amount in the world of fresh fruits and vegetables. This is one of the keys to both the success of the Mexican industry and the development of the US market, which has been profitable for all industry stakeholders.

# Jalisco

**This recently developed production region is one of the world's top three in terms of cultivation area, thanks to an explosive growth dynamic over recent years. While the pedoclimatic conditions are generally less favourable than in Michoacán, Jalisco nonetheless has some powerful assets by virtue of its top-up production calendar and higher-tech production system, ensuring better resilience to climate uncertainty. The industry, which has switched its export focus to the US market since its opening in 2023, remains the Mexican benchmark in terms of international competitiveness.**

## Pedoclimatic characteristics

Commercial scale Hass cultivation in Jalisco is a recent industry, dating from the early 2000s, when land initially dedicated to livestock farming, major crops (maize, sugar cane, etc.) or forestry (pine) were converted into higher added-value crops, such as the avocado, or more recently berries. The avocado zone covers approximately 43 000 ha, according to professional sources, with 31 000 ha officially registered for export. The main production centre is situated in the south-east of the State, within a radius of fifty kilometres or so around Ciudad Guzmán, in the semi-developed area on the plain and mountains situated nearby. Close to the city, there are the major production centres of Zapotlán el Grande, Gómez Farías and Zapotiltic, situated at an altitude generally of between 1 100 m and 1 800 m. To the west, the Sayula zone, situated on the Sierra de Tapalpa and its foothills, at an altitude of between 2 000 m and 2 300 m, is also significant (San Gabriel, Tapalpa, Sayula). Finally, to the north-east of the city, some large areas of orchards have

**Avocado – Jalisco – Hectares**

| Breakdown by districts (>1 000 ha) | hectares in 2024 |
|---|---|
| **North-West: Tapalpa and Sayula Valley** | |
| Tapalpa | 1 412 |
| Sayula | 1 178 |
| **North and West of Sierra del Tigre** | |
| Gómez Farías | 2 578 |
| Concepción de Buenos Aires | 3 792 |
| Mazamitla | 1 323 |
| Tamazula | 1 080 |
| **East and West of Nevado de Colima** | |
| Zapotlán | 7 403 |
| Tuxpan | 4 578 |
| San Gabriel | 3 942 |
| Zapotiltic | 3 464 |
| **East - on the Michoacán border** | |
| Quitupan | 1 033 |

Source: SENASICA

## Strengths:

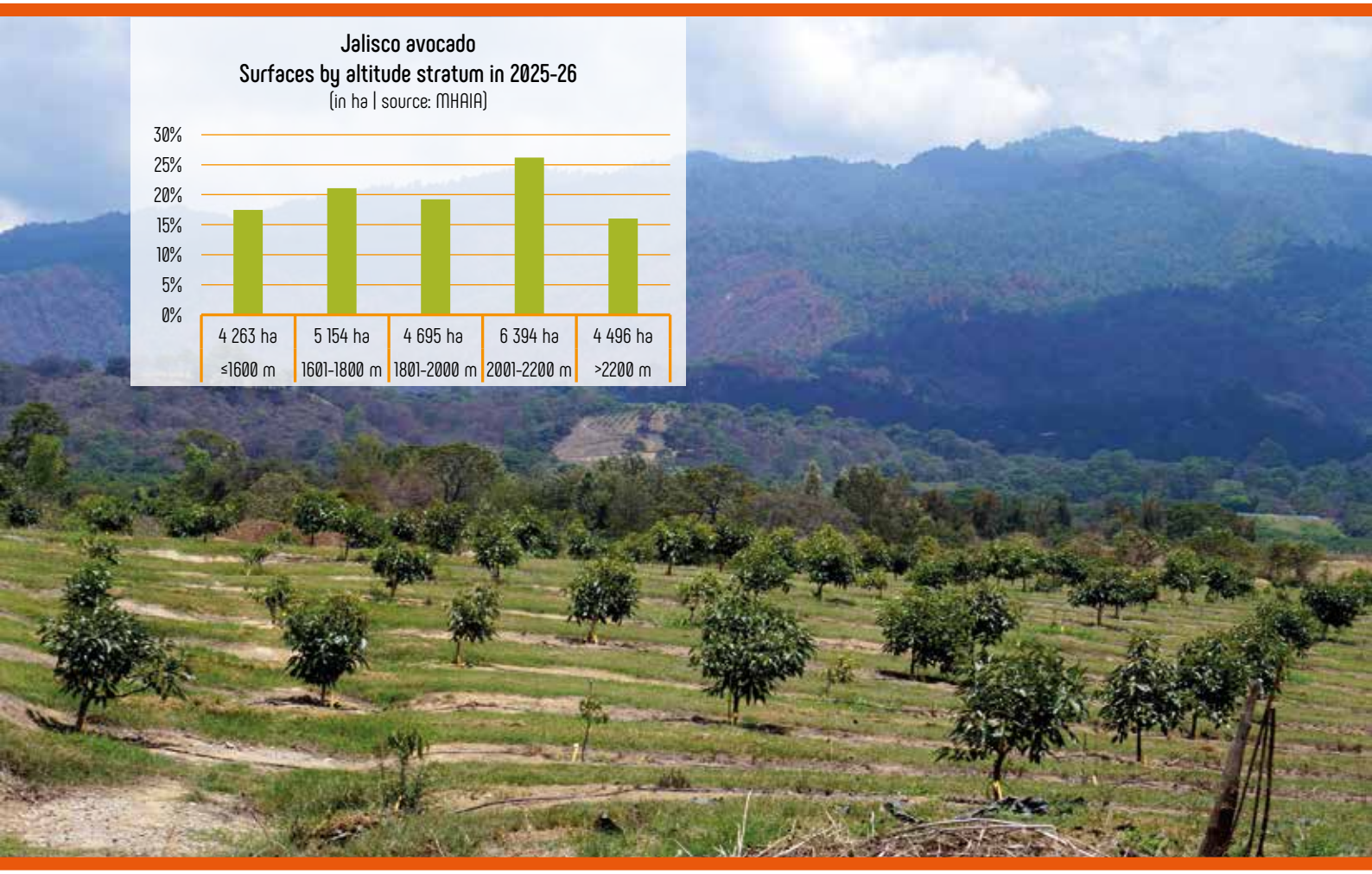
- Decent pedoclimatic conditions in most zones.
- Early and attractive production calendar.
- Flatter topography, enabling economies of scale.
- Good technical and certification level.

## Challenges:

- Water and land resources now limited.
- Security context.

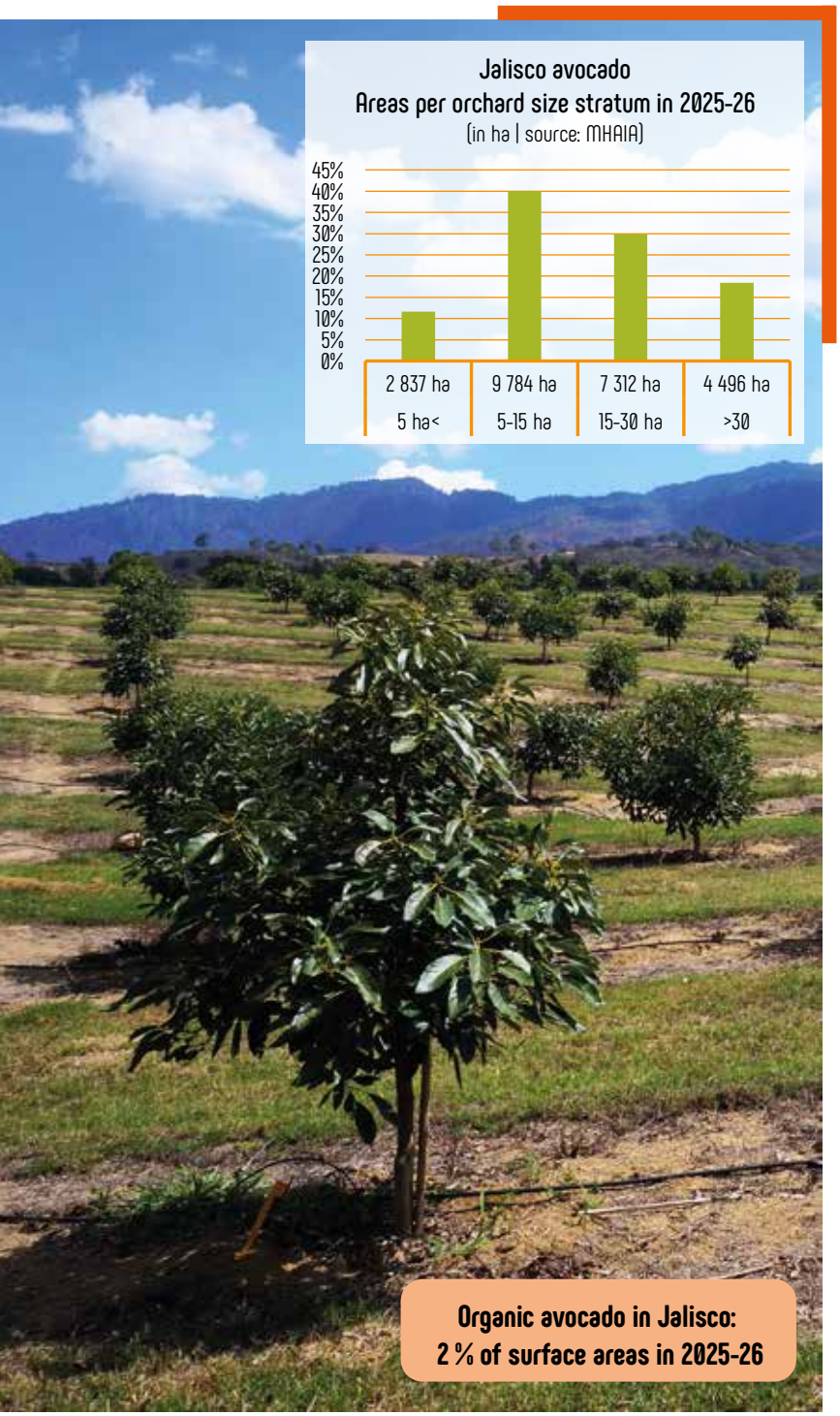
been planted on the Sierra del Tigre and its foothills, from Concepción de Buenos Aires to Mazamitla, at altitudes ranging from 2 000 m to 2 300 m. The rest of the cultivation area is smaller-scale, and further away from the city in the Mixtlán zone to the north-west and the Alto Sur zone to the north-east.

The pedoclimatic conditions vary with the altitude, but the constraints are tougher than in Michoacán, in terms of both soils and climate. Furthermore, the exposure to the Pacific Ocean increases the risks of extreme climate episodes (sometimes stormy winds, hail, etc.). The climate is temperate to semi-tropical, sub-humid, with rainy summers. The average minimum temperature fluctuates between 8°C and 16°C and the average maximum temperature between 25°C and 32°C. The average rainfall level in this zone is highly variable, though fairly short-lived, within a range from 450 mm to 1 400 mm, and increasing from north to south. The majority of the avocado region receives between 700 mm and 1 100 mm, largely concentrated between June and October. Just as for Michoacán, the climate has turned significantly warmer and drier in recent years. The soil type and quality vary greatly. Depending on the zones, we can find rich, deep and well-drained volcanic soils in high-altitude zones (andosol, known locally as topuré), or poorly developed, sandy or sandy-clayey soils of variable depth (regosol, cambisol). Plantations were originally set up in the high-altitude areas (1 700 to 2 300 m), where pedoclimatic conditions are most favourable, and later lower-altitude zones were developed. The altitude range between 1 100 m and 1 300 m seems to be distinctly less suitable, with 1 100 m apparently the boundary level for production.



## Production structure

The production structure is highly diverse, though a significantly greater proportion than in Michoacán is based on medium to large-sized orchards. According to the statistics relating to orchards with export certification for the USA, two-thirds of the total surface areas can be found in orchards of more than 10 ha, as opposed to 30 % in Michoacán. There are some very large plantations, with the State's top five producers on their own holding more than 20 % of total surface areas. Approximately 60 % to 70 % of the land is rented, with long-term leases. The State had more than 3 200 APEAJAL-affiliated producers in 2024.




## Crop management systems

The production system is significantly higher-tech than in Michoacán, in particular because of the distinctly tougher pedoclimatic and commercial constraints, as this State exported only to more competitive international markets than the USA until 2022. This has helped the producers to better withstand the climate crisis over recent campaigns, although the consequences in terms of yield have nonetheless been considerable.

The plant stock is younger (ten years or so for Mendez), and use of certified plants is common. The local Mexican race rootstock remains omnipresent, with practically no clonal plants. The planting density is considerably higher, generally 300 trees/ha (in a square pattern known as the "marco real", and less frequently in staggered rows). On some very high-tech plantations, this figure can be as high as 550-600 trees/ha.

More than 90 % of orchards are irrigated, with fertirrigation also being a common practice. The irrigation requirements vary greatly according to the soil, between 3 500-6 000 $m^3$ per hectare in the high-altitude zones and 6 000-10 000 $m^3$ per hectare in the low-lying zones, which generally have better access to water. The water supply, increasingly constrained, relies mainly on deep wells (80 to 600 m), with the quality still good except in zones close to the Laguna de Sayula wetlands. Water catchment systems ("ollas") are also frequently encountered in the high-altitude zones. Drip or micro-spray systems are employed for irrigation.

The most commonly encountered sanitary problems are, in terms of diseases, anthracnose, scab and stem-end rot, with the pests present the same as in Michoacán. Integrated pest management techniques are employed on some plantations. Pruning, an increasingly necessary practice given the current age of the orchards, is increasingly applied, though a significant margin for progress remains.

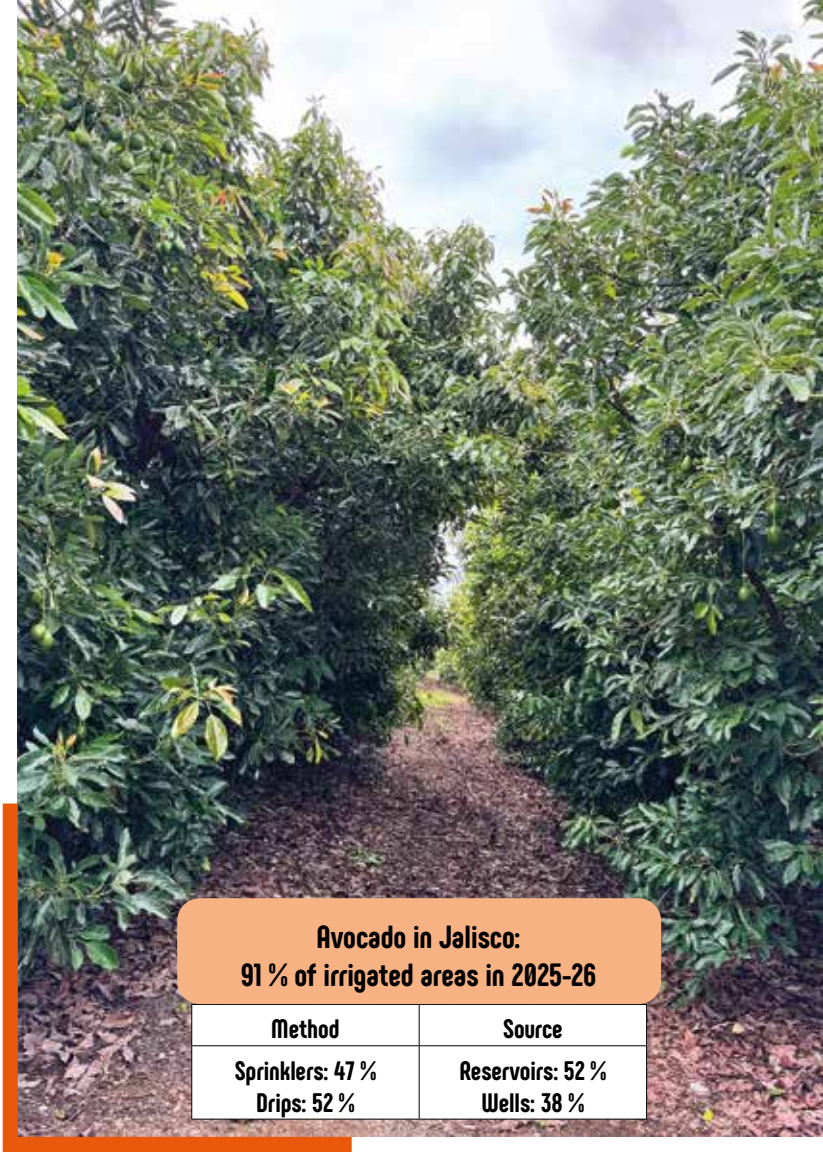
Precision agriculture is developing on large plantations, with the implementation of high-tech irrigation management systems or sanitary treatments. The plantations enjoy a high certification level, in order to be able to export to and stand out on most world markets (Globalgap, Rainforest Alliance, Smeta, etc.). Just as in Michoacán, the average yields vary according to the technical level, but a larger proportion of the plantations are within the upper range. While the higher-tech production system has helped this State better withstand the tougher climate conditions in recent seasons, some considerable falls have been observed (approximately - 20 %, according to most professionals surveyed).

## Production cost

The average production cost in Jalisco is higher than in Michoacán, since irrigation is essential in most zones. Nonetheless, it remains competitive, at somewhere between 6 500 and 7 000 USD per hectare excl. harvest. The width of the cost range is due to the differences in technical level of the production systems, and sometimes to the land situation (owned or rented).

## Calendar and varieties

The varietal range is the same as in Michoacán (Hass and Mendez clone), though in very different proportions. Mendez represents approximately 50 % of planted surface areas. This variety has a major asset under Jalisco's cultivation conditions. The produce from its first bloom, which represents 90 % of the total harvest, matures very early, in May (the exact date depends on the altitude and rainfall level, which may reduce the dry matter and defer the harvest date). The season then extends until August-September. This variety also bears a second harvest at the beginning of the year (January-February), which is smaller in volume. Hass, Jalisco's other main variety, has a different production calendar from Michoacán. It blooms only twice, with the production periods running from August-September at the beginning of the year for the main harvest, and from May to June for the secondary harvest limited in volume.



**Avocado in Jalisco:**
**91 % of irrigated areas in 2025-26**

| Method | Source |
|---|---|
| Sprinklers: 47 %<br>Drips: 52 % | Reservoirs: 52 %<br>Wells: 38 % |

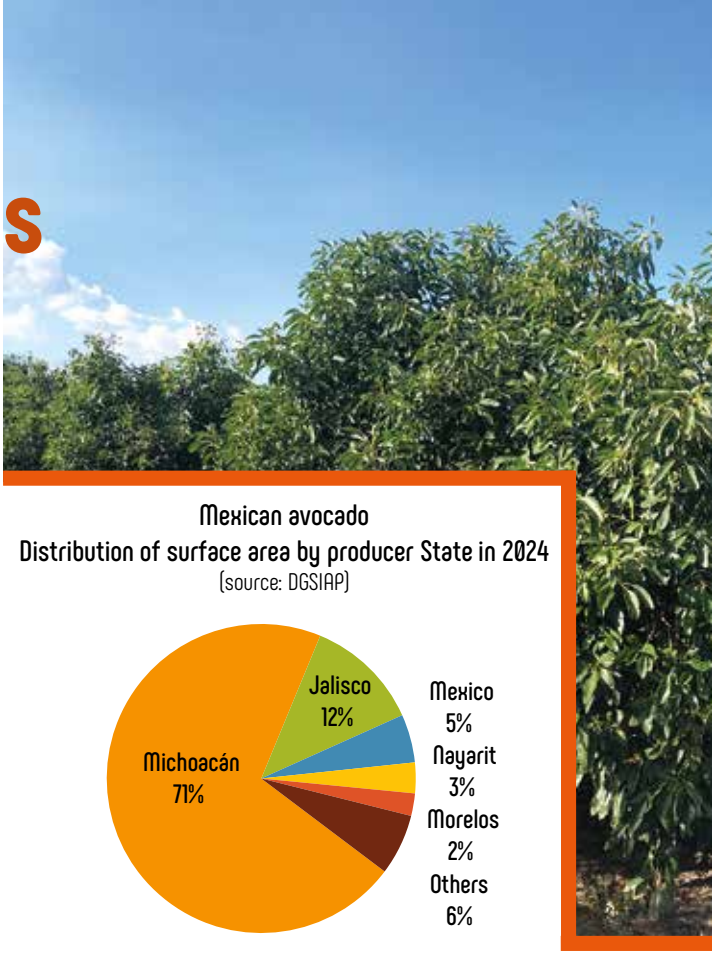
**Avocado – JALISCO – Production calendar**

| Variety | Harvest | J | A | S | O | N | D | J | F | M | A | M | J | Harvest share |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HASS MENDEZ | Principal | ■ | ■ | ■ | ■ | ▒ | | | | | | ▒ | ■ | 90 % |
| | Loca tardía | | | | | ▒ | ▒ | ▒ | ▒ | | | | | 10 % |
| HASS | Principal | | | ▒ | ■ | ■ | ■ | ■ | ■ | ■ | ▒ | | | 90 % |
| | Loca | | | | | | | | | | | ▒ | ■ | 10 % |

## Upstream/downstream relations

Unlike in Michoacán, a large proportion of exporters own their production, thanks to higher availability of surface areas for purchase or rental (land generally belonging to owners from Ciudad Guzmán, and rented out). Thanks to this, exporters can soften periods of tension, and work on a contract basis with some US distributors. However, the bulk of the supply consists of volumes from a host of independent growers, which just like in Michoacán, are not bound to exporters via formal contracts. Similarly, exporters purchase all of the fruit from the orchards (paid for on the tree regardless of quality level or size), at prices fluctuating on a daily basis (spot). Picking is at the exporter's expense, and often carried out by contractors. Conversely, the intermediaries link (the coyotes) is much less developed (or even non-existent) in Jalisco.

# Other producer States



**In the national ranking for planted surfaces, Michoacán and Jalisco are followed by the States of México, Nayarit, Morelos and Guerrero. Most of these States are implementing active protection and sanitary control measures, in order to comply with the protocol defined by the US authorities, with a view to eventually being able to export to this market. However, at present, their production is aimed primarily at the domestic market, particularly dynamic, as well as at the processing industry. Fresh export initiatives to Europe, Japan and Canada have already been implemented, particularly by means of exporters in Michoacán.**

Mexican avocado
Distribution of surface area by producer State in 2024
(source: DGSIAP)




## MÉXICO STATE

México State is the country's number three Hass avocado producer, with a cultivated surface area of nearly 13 000 ha in 2024 (source: SIAP). The planted area has tripled since the early 2010s, thanks to the crop's success, supported by aid from the State and SENASICA, in particular since 2018 (subsidies covering 50 % of plant purchase costs, phytosanitary support programmes, certification of small packhouses). This State has seen the most dynamic surface area expansion after Jalisco and Michoacán.

Production is located mainly close to the border with Michoacán, in a zone extending south-west from the Nevado de Toluca volcano. It covers 31 municipalities, including Coatepec Harinas (which packs in approximately 50 % of cultivated surface areas), Valle de Bravo, Tejupilco, Temascaltepec, Donato Guerra, Tenancingo, Almoloya de Alquisiras and Villa de Allende.

The pedoclimatic conditions are favourable for avocado cultivation, and similar to Michoacán, with a variety of deep volcanic soils (andosols, cambisols, vertisols) and wet, temperate climates varying with altitude (between 1 800 and 2 500 m). However, because of the high altitude, the conditions are overall cooler and wetter than in Michoacán, causing a higher fungal pressure and limiting expansion of the crop (high-altitude and forest zones). Depending on the altitude, the harvest time ranges between October and April/May.

Furthermore, the production is just as fragmented as in Michoacán, which is curbing its development, with a host of small producers farming plantations between 1 and 30 ha. The State has just four packhouses, which makes placement more difficult.

## NAYARIT

Nayarit has more than 8 000 hectares dedicated to Hass avocado cultivation, packed into the central region, mainly in the municipalities of Xalisco, Tepic and San Blas. Production, historically rooted in and aimed at the local market, has achieved considerable acceleration since the mid-2010s, thanks to increased support from the authorities. However, this dynamic has tended to slow down since 2020. The agricultural landscape comprises a mixture of small and medium-sized plantations, as well as some medium to large ones (50 to 80 ha).

The production zone is naturally restricted, and therefore cannot develop any further: it is bounded to the west by the Pacific, to the north by the border with Sinaloa, a region with an arid climate and high temperatures. The altitude, lower than that seen in Michoacán (between 800 and 1 600 m), is combined with soils that are less rich and a warmer climate, sometimes excessively so; these factors affect the fruit quality – often making them rougher – and can lead to maturing difficulties. Furthermore, irrigation in the region remains under-developed.

While the majority of production is aimed at the domestic market, some volumes are exported to Europe and Canada. There are two packhouses, as well as a "guacamolera" processing factory. In November 2025, the sanitary status of the Hass orchards in two districts of Nayarit (San Pedro Lagunillas and Santa María del Oro) was declared compliant with the US standards by the local government. Exports to the USA could start after the signature of the official agreement by APHIS.

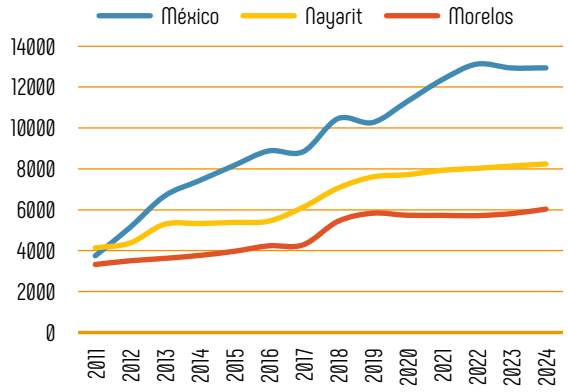
# MORELOS

With approximately 6 000 hectares in production, Morelos is the country's number five Hass avocado producer. The crop has been present there for fifteen years or so, and expanded considerably since 2016-2017, when planted areas doubled from their level at the start of that decade. However, this dynamic seems to have been running out of steam since 2018, with a slight fall in surface areas recorded in recent years, partly due to drought and water access constraints.

The production zone is situated in the far north-east of the State, in the foothills of the Popocatépetl volcano, mainly in the municipalities of Ocuituco and Tetela del Volcán. This region is characterised by deep, fertile volcanic soils (andosols), favourable for avocado cultivation. However, its climate conditions are tougher than in other production regions, with high inter-annual variability in rainfall, a marked dry season and practically no technical irrigation systems. The harvest is generally from November to March.

Production here too is highly fragmented, with the majority of family smallholdings consisting of plantations of between 1 and 5 hectares, although it does also have some medium-sized orchards. There are two packhouses in Morelos.

**Mexican avocado - México, Nayarit, Morelos states**
**Evolution of surface areas** (in ha | source: DGSIAP)




We can also mention the State of Guerrero, which has an Hass avocado planted area of 5 100 hectares, situated mainly in the central zone (especially the municipality of General Heliodoro Castillo).

The States of México, Nayarit and Morelos are gradually becoming established as Mexico's secondary Hass avocado production centres. Their development is based on favourable pedoclimatic conditions, albeit not as ideal as in Michoacán, the vitality of the domestic market and institutional support. However, each State is facing specific constraints: limited access to water, a less suitable climate and rainfall pattern for the crop, insufficient post-harvest infrastructures, certification difficulties or insecurity. While their export potential is still limited compared to Michoacán, these territories have margins for progress, provided that they can overcome the various curbing factors identified. In the medium term, they could contribute to diversifying the geographic origin of Mexican production, and strengthening the sector's resilience.

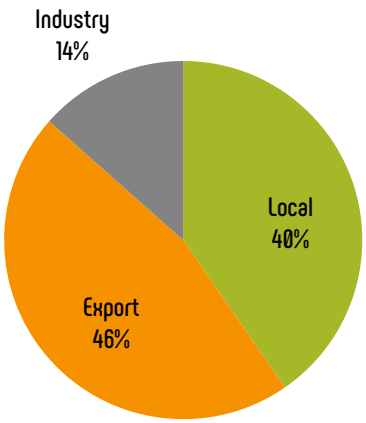
# Outlets

The Mexican avocado industry changed tack in the early 2000s. Initially, production was aimed at the local market, where the avocado is a staple often consumed on a daily basis in various forms (including the iconic guacamole). The industry then switched to the export sector, contributing to building demand in the USA. The export sector, the main outlet at the beginning of the 2020s, has seen its market share go down to approximately 40-45 % in recent seasons. The insufficient size of a significant proportion of the fruits due to the drought is not the only reason. The local market, a major outlet, is experiencing a resurgence..

The local market remains a major outlet, and has regained strong vitality in recent seasons. This is not solely due to the larger proportion of non-exportable fruit in recent seasons. The government's economic policy to boost purchasing power has also had a positive impact on sales, especially from more modest households. The size of the local market has been around 1.0 to 1.1 million tonnes in recent seasons, equating to a consumption level of around 8 kg/capita/year.

An estimated 350 000 t are aimed at the processing industry. Several large guacamole and frozen fruit piece production units are in operation, some of which own cutting-edge high-pressure pasteurisation equipment. There are several oil factories in place in the production areas, with Mexico dominating the world market for this product, consumed primarily in the USA.

**Mexican avocado - Outlets in 2025**
(various sources)




# Players

The export sector comprises a host of players. The top five groups control approximately one third of volumes, which is down considerably from 2019. For the most part, they are US companies. These are followed in the ranking by Mexican or mixed-capital companies. There were 91 packhouses approved for export to the USA by SENASICA as at the end of 2025 (80 in Michoacán, and 11 in Jalisco).

The packhouses have a wide range of certifications, and are enjoying a boom phase with their facilities expanding and modernising; in contrast with the highly traditional nature of some of the production.

# Logistics

Exports are mainly by road-freight (to the USA and Canada): it takes just 18 hours by truck container between Uruapan and the Texan border (McAllen, Pharr and Laredo), which are redistribution hubs for the rest of the USA and Canada. It takes in total three or four days by road between Michoacán and the East Coast of the USA or Canada. The cost of road transport to the border is low, at around 3 000 to 3 100 USD per lorry (20 pallets, 18 tonnes). At peak periods, such as the Superbowl, in 2026 one week there were 1 800 truckloads and another week a record of more than 2 000 shipped to the USA. Despite the short distance, ripening is carried out at the consumption centres in the USA and Canada rather than at the point of shipment.

The US-bound fruit is packed in 11.3-kg lugs (25-pound double layer lugs), under a specific sizing system, different from the EU one. Plastic crates (folding and reusable or single-use) are increasingly used. Segmentation is developing, in particular with net bags containing small and very small-sized (mini) fruit. In Europe, the predominant packing system remains the 4-kg box.

Although at certain peak consumption periods, some batches can sometimes be transported by air-freight, the bulk of trade to the most distant destinations is by sea-freight. Fruit bound for the Japanese market travels by road-freight to the port of Manzanillo (Colima), situated less than 200 km away on the Pacific Coast (2-hour trip), or Lázaro Cárdenas in Michoacán. The total sea-freight transport time to Japan is 21 days, for an average transit time of 17 days, with a 4-day layover at the arrival port for additional sanitary inspections (demanding destination, with specific maximum residue limits). Europe is served from the Gulf of Mexico via the port of Altamira, approximately 900 km away (approximately 11-hour trip), with the crossing taking generally 20 days, although it can be as much as 25 days in case of poor sailing weather, especially during the peak production period (October/November). The sea-freight cost for these two destinations is around 8 500 USD/container. Transport to China takes 25 to 26 days, though it may be as many as 30 days, depending on the layovers. The import specifications are similar to the USA, but more demanding in cosmetic terms.

**Avocado – Mexico – Sea-freight logistics**

| Port of departure | | Port of arrival | | | Main lines |
|---|---|---|---|---|---|
| | | Altamira (Gulf of Mexico) | Manzanillo (Colima) | Lázaro Cárdenas (Michoacán) | |
| EU | Antwerp | 19-22 days | 24-25 days | 22-24 days | Hamburg Sud<br>Hapag Lloyd<br>CMA-CGM<br>Maersk |
| | Rotterdam | 21-24 days | | | |
| | Algeciras | 21-25 days | | | |
| Japan | Yokohama | | 16-18 days | 18 days | |
| China | Shanghai | | 20-28 days | 24-32 days | |

# Exports

Mexico is undoubtedly the world's number one Hass exporter, with volumes fluctuating between 1.2 and 1.3 million tonnes in recent seasons, and a huge market share of around 60 %. Nonetheless, it does not control the world trade, since more than 95 % of its flows are aimed at North America, i.e. the neighbouring markets of Canada and above all the United States. However, historically, the export activity genuinely began to support the growth of the young European market and the Japanese market in the 1990s (after some early forays in the 1980s by certain pioneering players).

However, what triggered the boom of the Hass export industry was the gradual lifting of sanitary protection measures on access to the neighbouring US market, from 1997. Hass from Michoacán, the only State declared free from quarantine pests at the time, was able to clean up in an ever-increasing number of States (19 States authorised in 1997, rising to fully open in 2007, under the NAFTA agreements). During these "wild years", exports underwent a twofold trajectory, combining record growth and a change in focus to the US market. Volumes went from less than 50 000 t in the early 2000s to nearly 1.5 million tonnes during the record 2020-21 campaign, with the share for the US growing steadily in parallel, to nearly 90 %. The roots of this exemplary success story, featuring an average annual growth rate of more than 15 % over this twenty-year period, are twofold.

On the one hand, Mexican exporters invested heavily to boost demand in the USA, as the leading contributor to the promotions conducted under the aegis of the HAB. To this end, in 2013 the two organisations representing Mexico as an origin in the USA, the Mexican Hass Avocado Importers Association (MHAIA) and the Association of Avocado Exporting Producers and Packers of Mexico (APEAM), set up a branch dedicated to marketing, Avocados from Mexico (AFM). This body works to promote the origin on the US market, with a highly substantial marketing budget, which should be in excess of 70 million USD in 2025-26. This budget is 67 % funded by the MHAIA, with a 33 % voluntary investment from APEAM.

On the other hand, there are clear geographic assets. The proximity between the production zones in Michoacán and the consumption market gives the origin advantages in the USA in terms of freshness, maturity, competitiveness (cheap road logistics, arriving within 24 hours), providing producers and exporters with excellent economic returns. Finally, there is considerable vertical integration on the export side: the packing and export sector was developed mainly by historic operators from the US market, who set up in Mexico to top up the Californian supply and develop a year-round avocado presence on their market. The Mexican supply is concentrated mainly in the centre and West Coast of the USA.

Since the 2021-22 campaign, the damaging effects of climate change on production have interrupted this unique 20-year period of practically continuous growth. Exports reached heights of between 1.2 and 1.3 million tonnes until 2024-25, further highlighting the increasing focus on the USA (more than 90 % of shipments), to the detriment of the other destinations. This decline came despite Jalisco joining the export programme to the USA in July 2022. Note that besides its additional large export potential, Jalisco possesses a considerable asset by completing Michoacán's supply calendar, thanks to its Mendez variety, available from May onwards. Canada is the number two destination for Mexican avocados, with shipments stabilised at approximately 100 000 t since 2022-23. Volumes sent there, primarily small fruits, are heavily dependent on the market situation in the USA (acting as a damper). In recent seasons, the Mexico-North America pairing has operated practically in isolation from the rest of the world market. There are multiple big advantages for both partners. For the US importers, sourcing is easy, as the fruits are hyper-fresh and import quantities can be adjusted to the needs of the market practically in real time. For Mexican exporters, the competition is limited, in terms of both certification and post-harvest requirements, compared to other markets such as Europe.

Exports to Japan have collapsed in recent seasons, with retail prices soaring due to the combination of greatly increased costs, due to shortages at the production stage, and the weakness of Japan's economy (big fall in the yen against the dollar, increasing prices of imported products), in a context of stronger Peruvian competition during the May-August period. From around 70 000 t per season at their peak in the late 2010s, volumes have constantly waned since, reaching a level below 30 000 t in 2024-25.

The figures are even starker for the EU27+ market, from which Mexico has practically disappeared, having even in 2020-21 been the top supplier to the winter market, with exports of more than 100 000 t. This was a breakup by mutual consent, with Mexican exporters having a lucrative and easy alternative market in North America, while the commercial conditions (often firm purchase) and quality curbed interest from European importers.

Shipments to other world markets, having risen until 2020-21, have also slowed down since the shortage. They are primarily focused on Central America (El Salvador, Honduras and Costa Rica reopened since mid-2022). Some shipments are also sent to the Gulf States and China.

## Avocado – Mexico – Production global calendar

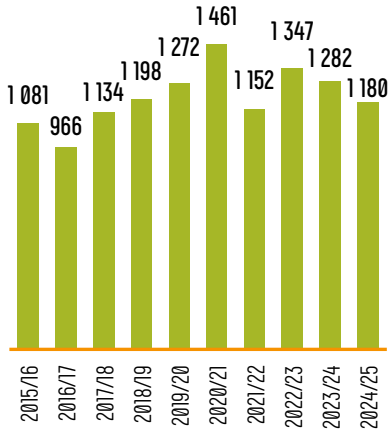
| Zone | J | A | S | O | N | D | J | F | M | A | M | J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Jalisco | | | | | | | | | | | | |
| Michoacán | | | | | | | | | | | | |

## Avocado – Mexico – Exports

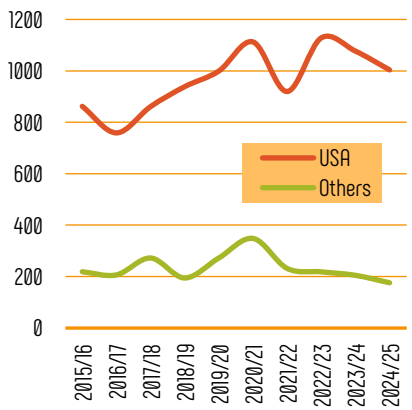
| in tonnes | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 | 2021/22 | 2022/23 | 2023/24 | 2024/25 |
|---|---|---|---|---|---|---|---|---|---|---|
| United States | 862 457 | 759 318 | 861 393 | 938 953 | 999 541 | 1 112 693 | 920 000 | 1 128 443 | 1 077 000 | 1 004 000 |
| Canada | 62 148 | 71 607 | 83 346 | 88 854 | 89 010 | 94 273 | 92 487 | 99 939 | 104 587 | 99 462 |
| Japan | 64 864 | 62 459 | 60 455 | 69 960 | 66 150 | 72 541 | 53 085 | 42 773 | 38 474 | 35 502 |
| European Union | 47 689 | 38 768 | 62 146 | 48 348 | 73 097 | 104 164 | 44 700 | 35 000 | 15 747 | 5 980 |
| Others | 44 092 | 33 820 | 66 306 | 51 465 | 44 213 | 77 368 | 41 500 | 40 800 | 46 192 | 35 200 |
| **Total** | **1 081 251** | **965 972** | **1 133 646** | **1 197 580** | **1 272 012** | **1 461 039** | **1 151 772** | **1 346 955** | **1 282 000** | **1 180 144** |

Source: Mexican Customs

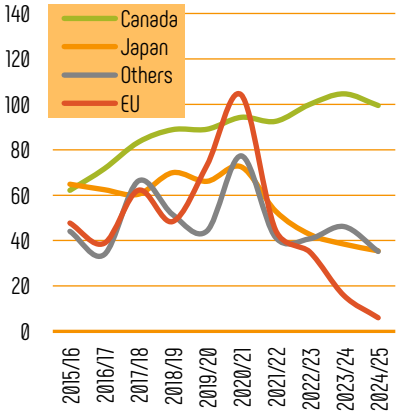
Mexican avocado - Evolution of exports
(in 000 t | source: Mexican Customs)



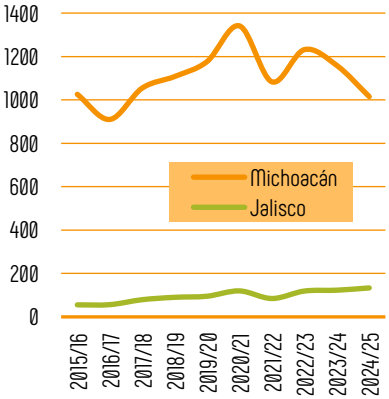

Mexican avocado
Exports by destination
(in 000 t | source: Mexican Customs)



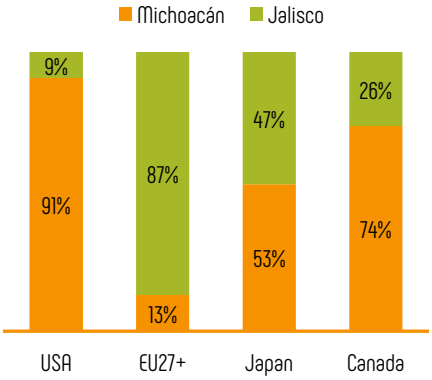

Mexican avocado - Exports
Breakdown of other destinations
(in 000 t | source: Mexican Customs)




Mexican avocado
Exports by main producer states
(in 000 t | source: APEAJAL, APEAM)




Mexican avocado - Market share
of exports by destination in 2024-25
for Michoacán and Jalisco
(source: APEAJAL, APEAM)




# Production forecast for 2030

The key points on which we based our thinking for this 2025-2030 update of our forecast were as follows:

## MICHOACÁN

### A system that works, but is fragile and close to its limits?

#### Large proportion of the cultivation area exposed to climate risk

It is important to emphasize that the structural nature of the climate crisis recently experienced by the avocado-growing region is by no means established. The rebound in production recorded in 2025-26 demonstrates this, while some climate models even predict a slight increase in rainfall levels by 2050. Nevertheless, this risk must be taken into account. The climate crisis of the last few campaigns has revealed the fragility of the world's leading Hass production region. The rainwater-supplied production system in place on nearly 50 % of its surface areas is showing its limits, in a context of more extreme temperatures and a less abundant and shortened rainy season, leading to a big fall in yields and average fruit size. In such a context, the future of orchards recently planted in low-altitude zones (< 1 500 m), at the limit in terms of the heavier soils, the temperatures and water availability, would be ecologically and economically uncertain (14 000 ha planted below 1 600 m in 2025). Conversely, the warmer climate is raising the upper climate boundary, though zones situated above 2 400 m (10 000 ha in 2025) require very good technical management, especially in terms of fertilisation, to obtain a good productivity level. In summary, there are particularly large surface areas with a high climate risk exposure, due to the absence of irrigation or the altitude range.

#### Low productivity gains in the medium term

There is a wide technical margin for manoeuvre to limit the productivity fall in case of a climate shock, or even raise productivity, given the highly traditional nature of the region's cropping practices. To mention just a basic lever, irrigation would have mitigated the effects of the drought, largely responsible for the loss of yield and sizing in recent seasons (20 % to 30 %, according to professionals). However, the rate of uptake of improved cropping practices remains very slow, as is demonstrated by the proportion of irrigated orchards, which has levelled out at approximately 50 % since 2023-24, despite the climate emergency. There are a host of factors curbing innovation, often associated with the highly conservative mind-set among small producers. This is manifested by their opposition to innovations, and their trust in the tree's adaptability ("el árbol es muy noble"). In technical terms, the fragmentation of the cultivation area limits the possibilities for economies of scale (construction of "ollas", pumping stations, etc.), not to mention the producers' reticence to a cooperative system. In addition, exporters do not offer any support services in the absence of a long-term relationship with the production sector. The financial dimension is another impediment, with agricultural credit under-developed, and not well-rooted in the minds of producers. Professionals we surveyed expressed doubts over the effects of the generational change, with young people exhibiting a limited attraction to agriculture. Only an economic shock at present seems able to trigger the mentality shift required to adopt innovative cropping practices. The current system, which is holding back production, has proven economically resilient in the current context of a "captive" US market, with falls in yields largely offset by big price increases.

#### Limited possibilities for surface area expansion

There was an extremely strong cultivation area expansion dynamic throughout the majority of the 2010s: more than +8 000 ha per year registered between 2011 and 2018, i.e. the equivalent of the current Hass cultivation area of a country like Israel. It has slowed down significantly in recent years, to an average level of around +2 500 to +3 000 ha per year, and there is no bounce-back expected. Firstly, the zones situated outside of the ideal zone (1 500-2 400 m) have shown their limits. Secondly, surface areas open to agricultural use situated within this altitude range are at saturation point. Finally, the regulations on the protection of this State's iconic pine forests, passed in 2003 and supplemented in 2018, are enjoying much better compliance nowadays. They have just been reinforced by a new legal system, aimed at verifying that export-registered orchards do not belong to areas deforested since 2018 (satellite photo inspection system). So surface area expansion should remain moderate in future, primarily in the framework of changes to agricultural land usage.

#### Ageing stock

While surface areas saw big expansion over the last decade, most of Michoacán's stock is old. According to official statistics, surveys recorded approximately 70 000 ha of Hass in the early 1990s, with a large proportion of these orchards probably still in place, since replanting is very rarely applied. So we might imagine that at least one third of the trees present today are around 35 years or older, and have a low productivity, even though they seemingly occupy the ideal climate zone. There are no indications of a replanting movement taking shape.

# JALISCO

## A resilient industry

### A cultural difference

Jalisco does not enjoy such exceptional pedoclimatic conditions as Michoacán does in normal circumstances, with in particular a larger proportion of heavier soils, more restricted water resources and a higher risk of climate incidents. This apparent weakness has proven to be a strength, since producers have, from the moment they set up their orchards, had to implement production systems that were both higher-tech and more resilient, and which have coped better with the climate crisis of recent seasons. By way of example, irrigation is systematically employed. This structural difference can also be found in the export sector, as the industry earned its spurs on markets that were more distant, more competitive and more demanding in terms of certification than the US market, only open to it since 2023. In addition, the production structure is different, with a greater proportion of medium to large-sized orchards, and a handful of very large companies driving the industry. There is a greater propensity for investment, not only for the simple reason of greater economic resources, but also because of a different mind-set. Hence, we should take into account some new productivity gains, with crop management systems continuing to be upgraded.

### Margins for growth in the export sector, without any major expansion in surface areas

Just as in Michoacán, there is little land left available for the avocado cultivation area to expand. Agricultural water resources are highly constrained, and the legal framework will become tougher with the current reworking of the "Act on national water" (*Ley General de Aguas*). The tougher nature of the soils too greatly restricts the zones suitable for the production of a crop so sensitive to root diseases as the avocado. Conversely, a large proportion of the 43 000 ha of orchards currently in place is not yet export-registered (just over 21 000 ha in the special programme for the USA, and approximately 30 000 ha for other destinations). There are large swathes of volumes that can still be mobilised to feed the world market.

# OTHER PRODUCER STATES

## Top-up volumes, but no game changers

The States of México, Nayarit and Morelos, to name just the biggest, are also in the running to develop their export activity, in particular to the lucrative US market. Some zones in Nayarit (San Pedro Lagunillas and Santa María del Oro) and México State (Temascaltepec) are compliant with the sanitary protocol, and are only awaiting the final green light from the US authorities. Nonetheless, the surface areas involved are not comparable with those of the top two States, the cultivation systems are similar to the highly traditional set-up in Michoacán, and the opening up of the US market should be a very gradual process.

# CALCULATION METHOD

## High-quality sources, but analysis still difficult

It is hard to factor the chosen hypotheses into a quantitative model, given the heterogeneity of the orchards in Michoacán, and any approximations or errors will have major consequences on the production estimate, in view of the vast surface areas involved. So the numerical conclusions of this study are intended to show a general trend, with the absolute value to be taken with a degree of reserve. The sources used for this quantitative information are the regular reports published by APEAM and MHAIA, which specifically set out some structural data on the cultivation areas registered on the export programme to the USA. This information is highly representative in general terms for Michoacán (applicable to 163 000 ha out of the 180 000 ha authorised for export), though possibly less so for Jalisco (24 000 ha out of 28 000 ha).

## Michoacán: heading for low growth

**For surface areas**, regarding the active 180 000 ha export-registered area (all markets) in 2024, we opted to deduct the 14 000 ha planted below the 1 600 m mark, as it is unviable in the short term due to agronomic and/or economic reasons. The annual expansion of certified surface areas is assumed to be 2 000 ha/year, as opposed to 3 000 ha on average between 2020 and 2024, to take into account the slowdown in the planting rate and the probably fairly limited surface areas left outside of the export programme.

**For yields**, we sought to distinguish high-tech, high-potential orchards from traditional ones. We made the decision based on the presence of an irrigation system, which is of course a major differentiating factor between these two classes. We assumed that the uptake rate would increase by 1.5 % per year over the period. The yield hypotheses adopted are 16 t/ha for high-tech orchards, and 9 t/ha for the more traditional ones. We assumed that the orchard ageing hypothesis is already taken into account in the yields of traditional production system orchards. The productivity loss due to the increasing proportion of this age class in the stock as a whole is offset by slight yield gains due to investment.

## Jalisco: good export dynamic maintained

According to the official 2024 data, Jalisco had an active export-registered area of approximately 28 000 ha, out of a cultivation area of approximately 43 000 ha. So we opted to incorporate an additional 2 000 ha per year, a similar level to that registered in recent seasons over the period 2020-2024.

Just as for Michoacán, we sought to distinguish high-tech, high-potential orchards from traditional ones. As irrigation is practically mandatory in all the zones and therefore not a differentiating factor, we chose to adopt orchard size as a differentiating factor. We defined three classes: small (35 % of surface areas below 10 ha), medium (47 % of surface areas between 10 ha and 30 ha) and large (18 % of surface areas above 30 ha), with yields ranging from 8 to 15 t/ha in 2025. We assumed a rise of 1 t/ha over the period, to factor in productivity investment.

## Two scenarios, based on the uncertain climate conditions

As we are unable to determine whether the long-lived recent climate imbalance is cyclical or more structural, we adopted for these two regions two different climate scenarios: wet seasons with nominal yields, and hot, dry seasons with yields down by 30 % for non-irrigated orchards, and by 10 % for irrigated orchards.

**Avocado – Mexico – Surface areas**

| in hectares | Michoacán | Jalisco |
|---|---|---|
| **Situation in 2025*** | 180 000 | 28 400 |
| **"Inviable" surface areas** | 10 000 | - |
| **Annual growth** | 2 000 | 2 000 |
| **Surfaces in 2030** | 180 000 | 38 400 |

* export-approved surface areas, all destinations

# SUMMARY

## Modest growth and possible "climate breakdowns"

According to our hypotheses, Mexican production could increase by approximately 20 % between 2025 and 2030, i.e. approximately 325 000 t to 360 000 t. Its level should continue to be largely dependent on the climate context (variation within a range of 0 to 200 000 t), with large swathes of the Michoacán cultivation area still highly vulnerable to spells of drought. The proportion of export volumes could drop slightly, with measures aimed at boosting the purchasing power of the least well-off section of the population tending to strengthen the local market. Conversely, the flow should remain more focused than ever on the North American markets (USA and Canada), due to their proximity (assets of price visibility, freshness and easy post-harvest stage), and the wide growth margins present, whereas the competition should continue to stiffen in both Europe and Asia. The latest developments of US customs policy remain favourable to Mexico (zero customs duty retained), though it remains subject to change, and a point to be monitored given the stakes. The efforts currently being undertaken in terms of sustainability should be highlighted.

**Avocado – Mexico – Breakdown of surface areas by production system**

| Production system | Michoacán | | Jalisco | |
|---|---|---|---|---|
| | IRRIGATION criterion | | ORCHARD SIZE criterion | |
| | 2025 | 2030 | 2025 | 2030 |
| High-tech | 45 % | 52.5 % | 18 % | 20 % |
| Intermediate | - | - | 48 % | 50 % |
| Traditional | 55 % | 47.5 % | 34 % | 30 % |

**Avocado – Mexico – Yield hypotheses** (tonnes per hectare)

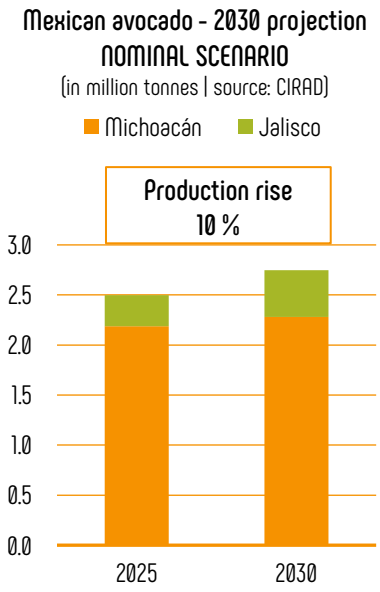
| Production system | Michoacán | | Jalisco | |
|---|---|---|---|---|
| | 2025 | 2030 | 2025 | 2030 |
| High-tech | 16 | 16 | 15.0 | 16.0 |
| Intermediate | - | - | 11.5 | 12.5 |
| Traditional | 9 | 9 | 8.0 | 9.0 |

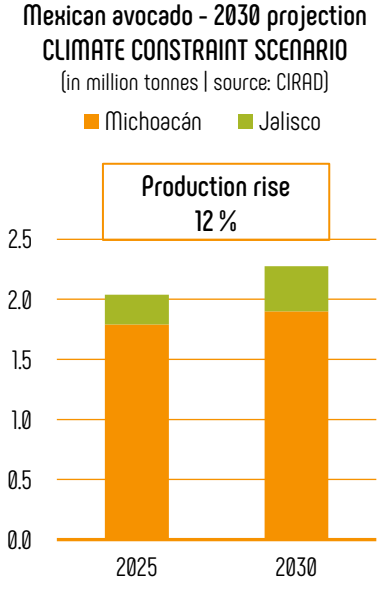
**Avocado – Mexico – Climate uncertainty hypothesis: fall in yield**

| | Michoacán | Jalisco |
|---|---|---|
| Nominal situation | 100 % | 100 % |
| Severe climate constraint | | |
| High-tech orchards | - 10 % | - 10 % |
| Intermediate orchards | - | - 20 % |
| Traditional orchards | - 30 % | - 30 % |

**Avocado – Mexico – Production hypotheses results**

| in million tonnes | Michoacán | Jalisco | Total |
|---|---|---|---|
| 2025 | | | |
| Nominal situation | 2.2 | 0.31 | 2.5 |
| Climate constraint | 1.8 | 0.25 | 2.0 |
| 2030 | | | |
| Nominal situation | 2.3 | 0.47 | 2.7 |
| Climate constraint | 1.9 | 0.38 | 2.3 |
| 2025/2030 delta | | | |
| Nominal situation | 4 % | 50 % | 10 % |
| Climate constraint | 6 % | 51 % | 12 % |



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