

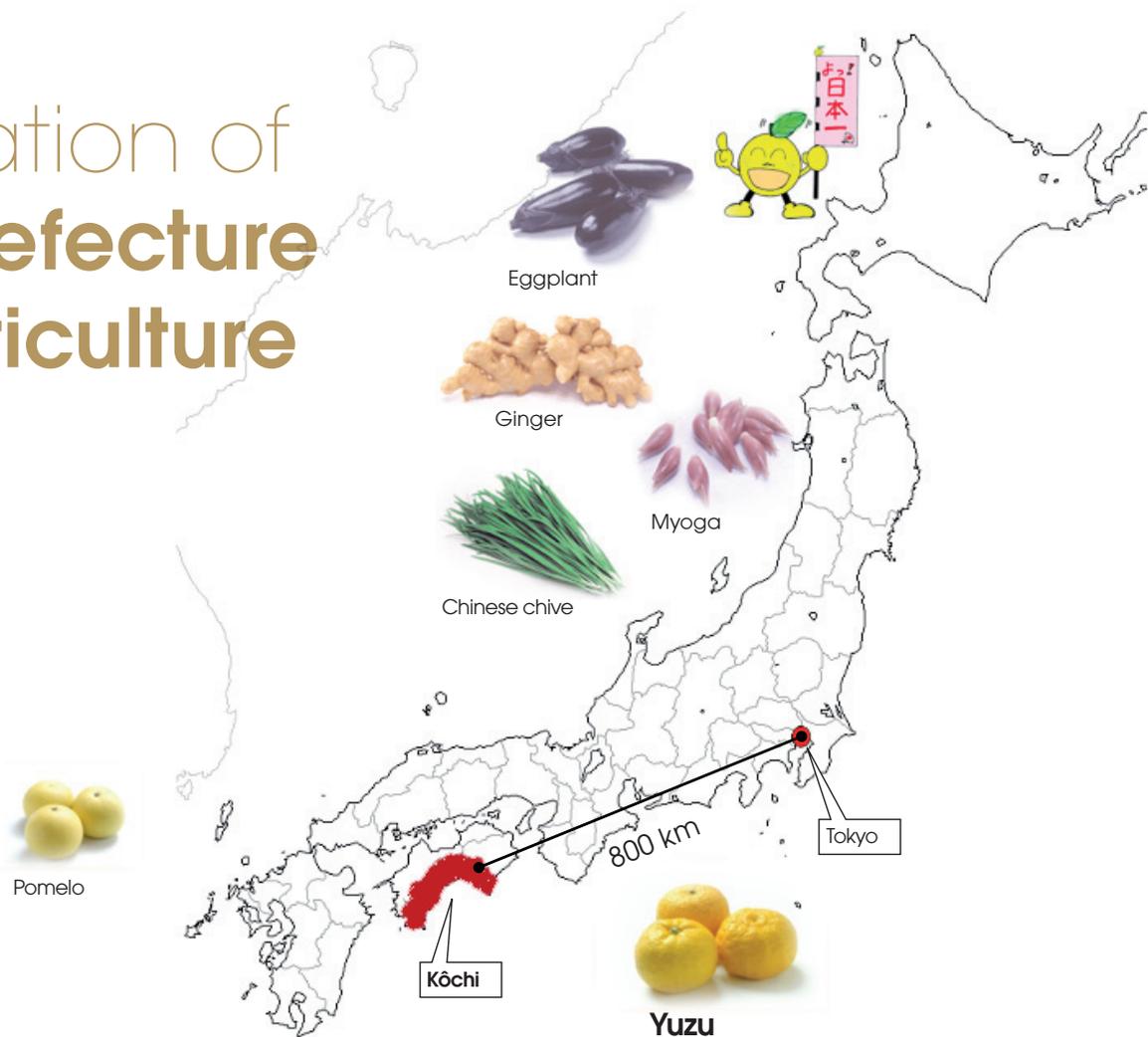
ユズ from Kôchi



For the first time in France & Europe from early
November to mid-December



Presentation of Kôchi prefecture and agriculture



Kôchi, the horticulture's country

With a warm weather and an ideal geographical position (a coastline between the Pacific Ocean and fertile mountains), Kôchi prefecture has many treasure to offer. Despite a very high afforestation level and very few flat lands, Kôchi has developed thanks to its warm climate in winter a rich horticulture, especially in greenhouse farming. Kôchi is also the precursor in Japan for IPM (integrated pest management), an approach avoiding the excessive usage of chemical pesticides by introducing natural predators of pests.

Kôchi prefecture is mainly renowned for its fruit-trees agriculture : especially Yuzu (50% of Japanese market share) and Tosa pomelo (90%).

Figures about Kôchi pref (2008)

	Value	Ranking
Area	7104,87 km ²	18
Afforesting level	83,3%	1
Population	797572 inhab.	45
Average yearly temperature	17,7°C	4
Sunlight per year	2034 hours	1
Precipitation per year	3213 mm	1
Agricultural turnover	96,3 bn JPY	31

Agricultural products market share (2008)

Product	Volume (tons)	Ranking	Market share
Eggplant	37 000	1	26 %
Ginger	15 800	1	32 %
Myoga	4 519	1	76 %
Chinese chive	14 300	1	22 %
Yuzu	10 040	1	50 %
Pomelo	9 643	1	90 %

Yuzu

(Citrus Junos)



Wild Yuzu tree



Grafted Yuzu tree

What is the yuzu?

The yuzu is a fruit of the citrus family (*Citrus junos*) coming from a thorny tree (2 to 5 cm thorns). A yuzu fruit usually weight between 120 to 130g. Its skin is thick and coarse. It is much appreciated in Japan for its freshness and very characteristic aroma, with similar uses in culinary applications to lemon.

Yuzu's history

Originally, the yuzu was found upstream of the Yangzi Jiang river in China, and was imported in Japan 1300 years ago during Nara period (710-794) through the Korean peninsula. During the Heian period (794 - 1185), the yuzu is cultivated in the western regions of Japan, primarily as a medication. Nowadays, yuzu juice is still used in vinegars, said to be beneficial to health. The scientific name «*Junos*» is said to come from the Japanese «*Yu no su*» (literally "yuzu vinegar" – a traditional product of Kôchi).

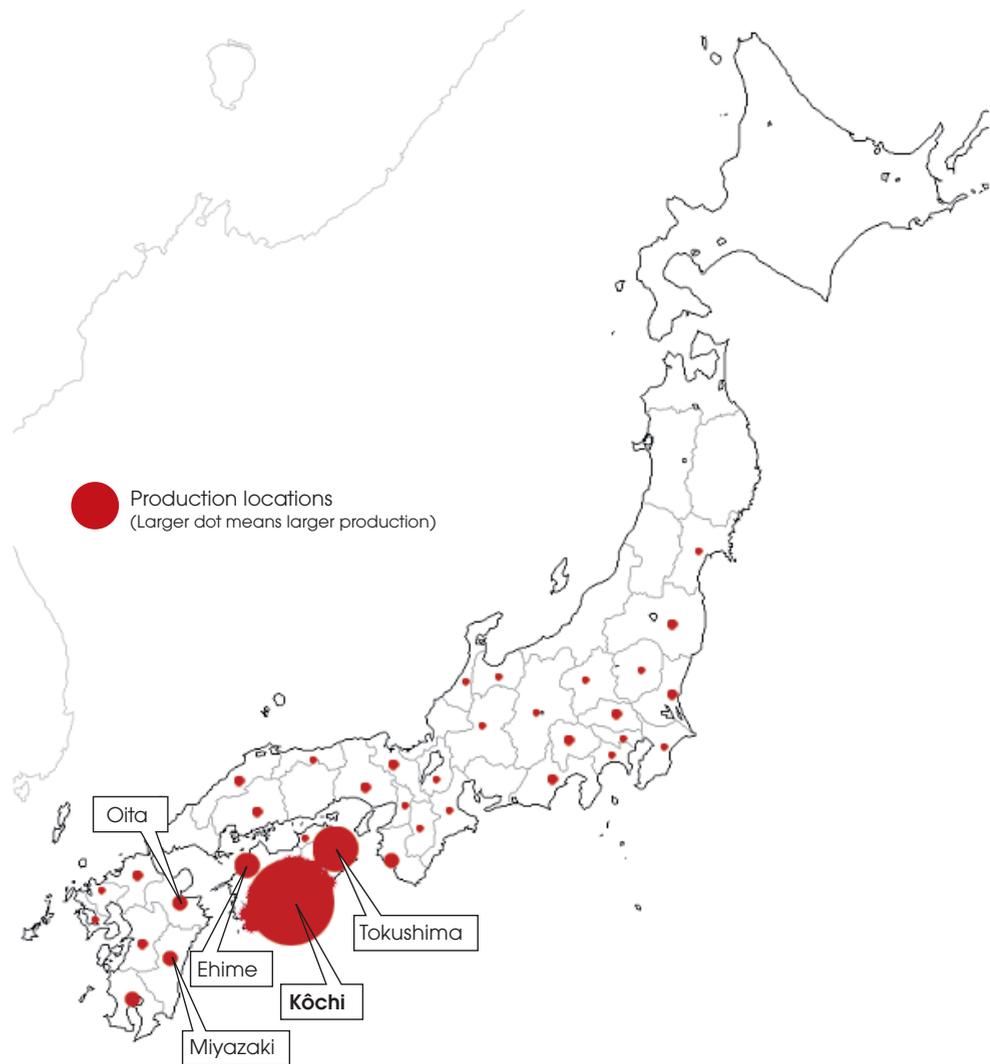
Regions of cultivation of yuzu

Yuzu is mainly cultivated in Japan, Korea and China, with Japan being the biggest producer and consumer. In Korea and China, yuzu obtained from imported Japanese trees are developing a taste and aroma inferior due to the cultivation zones being on coastlines, narrow daily temperature range and low precipitations.

Yuzu originated from sowing

In former times, the yuzu was cultivated both from sowed and wild trees. But due to the very long delay required to harvest the first fruits (15 to 20 years for a 5 to 6 m. tall tree), the grafting technic has generalized together with the enlargement of the culture fields to allow for a faster and more stable production. Nowadays, only 5% of natural trees are left, exclusively in Kôchi prefecture. The obtained «wild yuzu juice» (*misho yuzu*) is very sought-after for its powerful aroma and flavour, but is very rare due to its low production and juice content (15% vs. 18% in general).

yuzu production in Japan



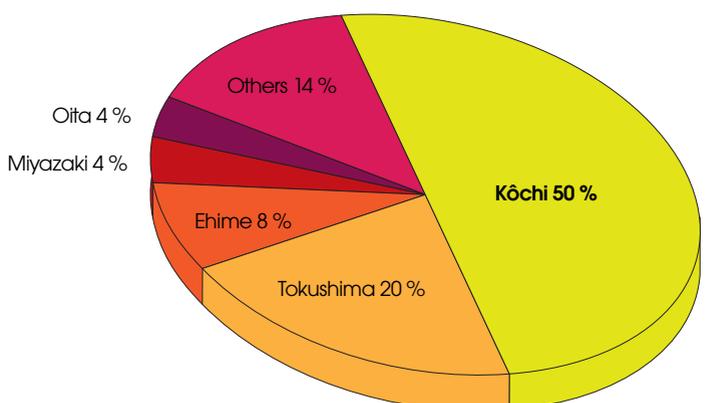
Yuzu from Kôchi prefecture accounts for 50% of Japanese market

Yuzu is cultivated in the prefectures south of Miyagi prefecture. The main area of production is on Shikoku Island (including the prefectures of Kôchi, Tokushima and Ehime) and Kyushu Island (Oita and Miyazaki).

Kôchi is the leader on the market with 50% of the national production.

Yuzu production volume & market share (2008)

Prefecture	Volume (tons)	Market share	Incl. volume for manufacturing (tons)	Market share
Kôchi	10 041	50 %	7 125	52 %
Tokushima	4 039	20 %	2 686	19 %
Ehime	1 632	8 %	1 388	10 %
Miyazaki	785	4 %	710	5 %
Oita	734	4 %	405	3 %
others	2 842	14 %	1 512	11 %
Total	20 073	100 %	13 826	100 %

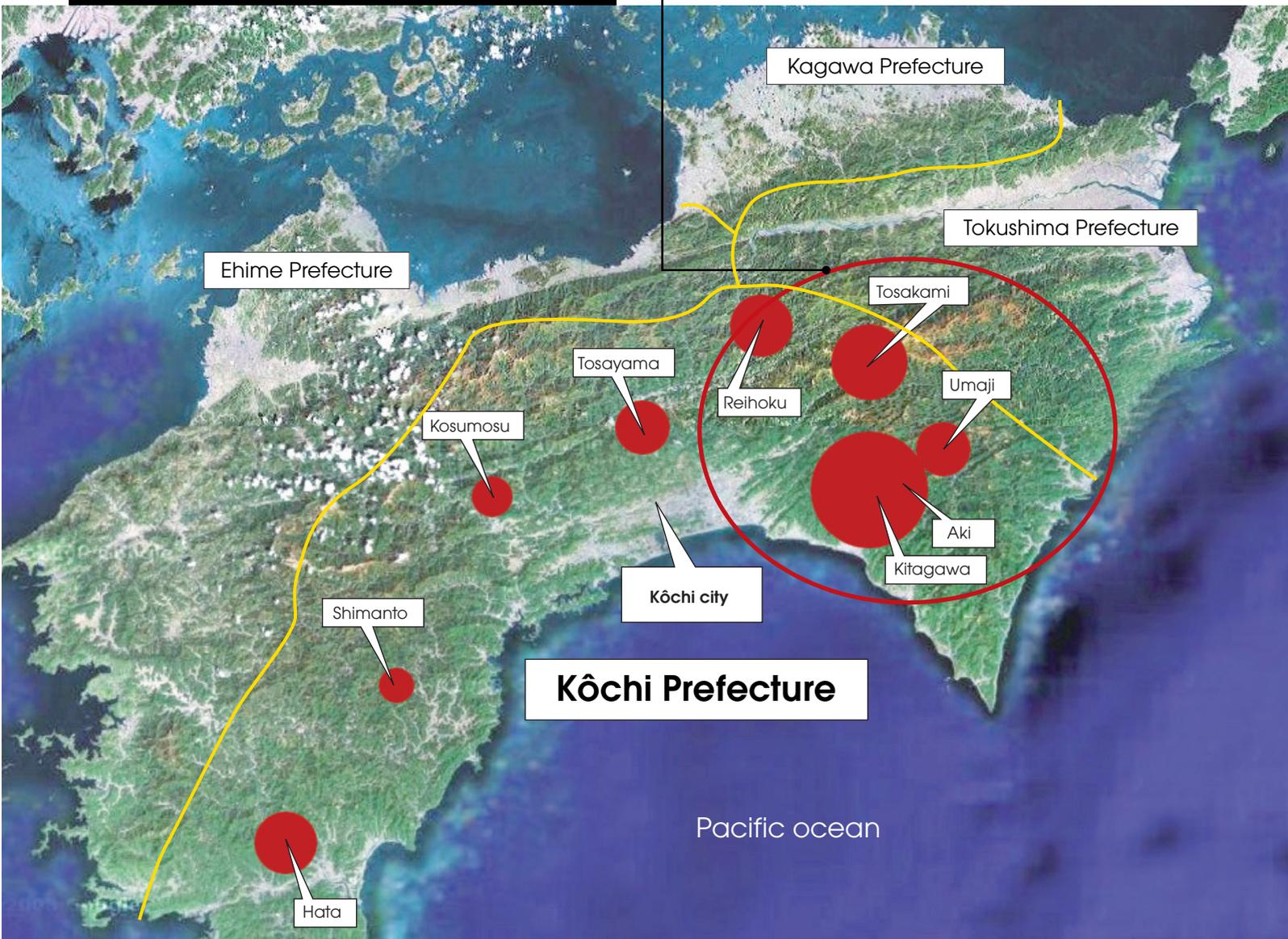


In 2008 : Total Volume 20 073 t



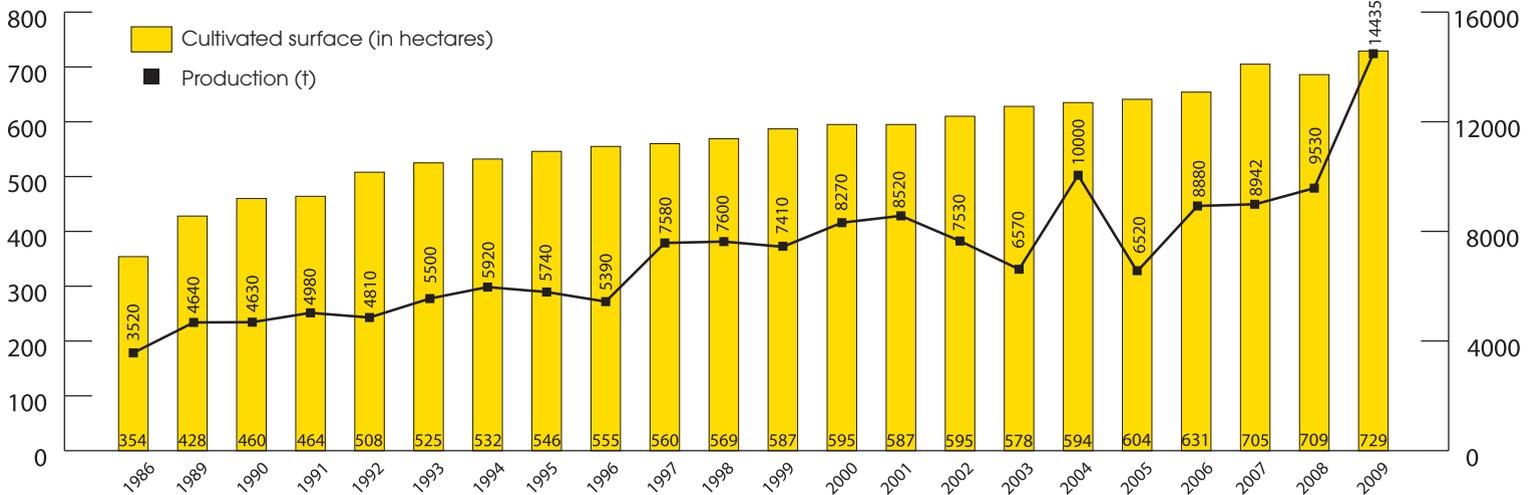
Main areas of production in Kôchi prefecture

Natural yuzu trees are mostly found in the oldest production zone, in the east part of Kôchi pref. and accounts for 5% of the total yuzu cultivation space.



 Agricultural cooperative of Yuzu

Yuzu of Kôchi evolution trend

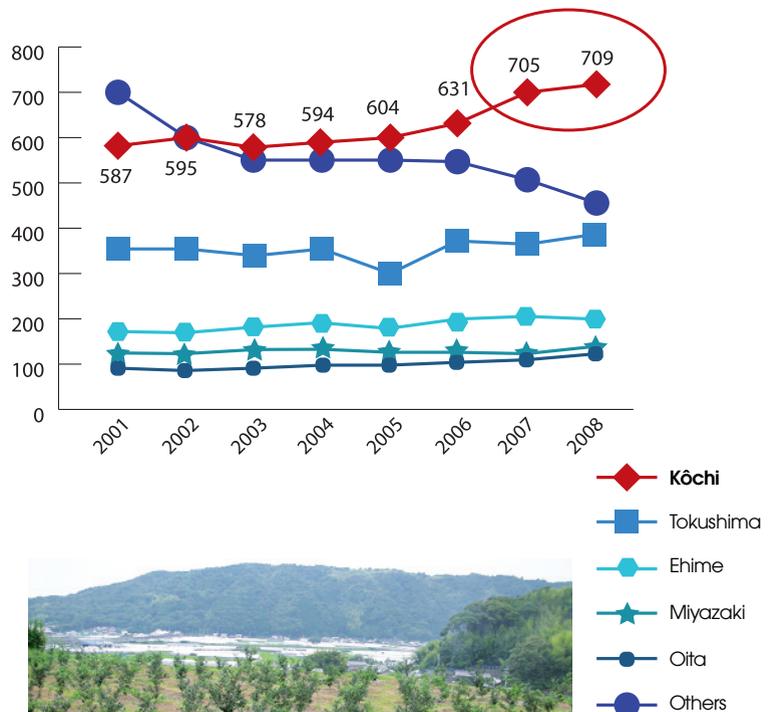


Source : Statistics published by the Japanese Ministry of Agriculture, Forestry and Fisheries.

Evolution of the cultivated surface and volume of production for the Yuzu from Kôchi

The cultivated surface and volume of yuzu in Kôchi are increasing faster than the others prefectures thanks to the special reputation and strong demand of its yuzu both on domestic and overseas markets.

Evolution of the cultivated surface in the main areas of production



Yuzu trees from plant nursery replanted in open field

Characteristics

Yuzu from Kôchi

Why Kôchi became the largest yuzu production area

It is unclear when exactly began the cultivation of yuzu in Kôchi, but it is long-established that its climate is ideal for Yuzu culture, proven by the presence of wild yuzu trees in Kôchi mountains. Since the 60's, with the increasing national demand for Yuzu, many cultivation areas developed in Kôchi mountains.

The mountainous region of Kôchi, with its important precipitations and sunshine, is ideal for the cultivation of Yuzu. The strong temperature variation in mountains helps to develop a powerful aroma. For all those reasons, Kôchi became the most renown and appreciated area for yuzu production.



Selection of yuzu-based products

The reputation of the yuzu from Kôchi in Japan

20% of the total production is sold in Japan in whole fruit format.

The other 80% are used for their juice and skin in extracting plants. It is then sold to manufacturers to produce vinegars and seasonings (esp. Ponzu vinegar), beverages or a multitude of other elaborated products. The producers of Kôchi always strive to improve and modernize their equipment, heighten the quality of their product, and systematically control hygiene in order to satisfy their customers.

Annual production and commercialisation of the yuzu from Kôchi

The yuzu from Kôchi is available all year long, which is unique in Japan and much appreciated by the market. It starts with the greenhouse yuzu in April; followed by the green and coloured yuzu during summer and early fall, and finally the yellow yuzu in November and December. The demand is booming during the festive end-of-year season until March.

Availability period of yuzu fruits

Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
Greenhouse yuzu			green yuzu		coloured yuzu		Yellow yuzu		stored yellow yuzu		
											

Yuzu from Kôchi



Yuzu trees before harvesting



Harvest



Harvested
fruits

Harvest

Green yuzu cultivated in greenhouse is harvested between April and June, and open field green yuzu between July and October. Yellow yuzu (open field) is harvested between end of October and end of December. Harvested fruits are directly sorted out (whole fruit or manufacturing) and shipped.

Yield

For open field culture, the yield is between 15 to 20 kg of fruits (about 150 pieces) per tree, i.e. 1,5 to 2 tons per hectare (100 trees). However, the harvest can differ from one year to the next, especially for old sowed trees. Due to the instability of the yield, price can vary for each harvest.

Juice extraction

The quantity of juice extracted from a fruit is generally about 18 to 20% of the total weight. But for yuzu issued from sowed or wild trees, the quantity is lower with only 15% (i.e. 2 to 3 litres of juice per tree).



Juice extraction

Yuzu nutritional components

Yuzu nutritional components		
Main components	Quantity per 100g	Beneficial effects
Dietary fibres	Skin : 690 mg Juice : 400 mg	Rich in dietary fibres and specifically in pectin. Dietary fibres improve the intestinal transit, slow down the glucose absorption and contribute to reduce cholesterol and blood sugar levels
Potassium	Skin : 140 mg Juice : 210 mg	Potassium helps to maintain ideal ion balance and cell activation.
Vitamin C	Skin : 150 mg Juice : 40 mg	Vitamin C strengthen the immunity system and protect against viral diseases.
Essential oils		The pinene, limonene and citral contained in the yuzu skin tone up the blood flow and help retaining body heat. Traditionally, it is recommended to take a bath with yuzu fruits inside, during winter solstice, to prevent cold and soothe the body.

Uses of yuzu		
Type	Part	Example of use
Yellow yuzu	Fruit (zest)	Seasoning (yuzu hot pepper), yuzu miso, yuzu tea (marmalade), liquors, pastries, cosmetics, bath salts
Yellow yuzu	Juice	Seasoning (Ponzu vinegars, whole), beverages, pastries
Yellow yuzu	Seeds	Cosmetics, oils, dietetic food
Green yuzu	Fruit (zest)	Seasoning (yuzu hot pepper), marinade, pastries
Green yuzu	Juice	Seasoning (Ponzu vinegars, whole)

The yuzu can be used in many culinary preparations. It can be blended in sauces and vinaigrettes, or used with grilled fish, salads, tofu, BBQ. It can also be used in seasoning (salt, peppers), sushi vinegars, pastries, alcoholic or non-alcoholic beverages. Its splendid fragrance is also used in cosmetics (lotions, soaps, essential oils...).

Various uses of yuzu and derivative products

Derivatives products



Uses of yuzu



Yuzu vinaigrette (salad)



Yuzu candies, Yokan, Jelly



Yuzu hot pepper (with grilled fish)



Yuzu sushi,, Yuzu fruit used as packaging



Mikan, Yuzu and Konatsu essential oils

Yuzu lotion



Yuzu juice



Yuzu beverage

Pure yuzu products



Frozen, non-pasteurized yuzu juice



Yuzu paste



Yuzu powder



Yuzu skin



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