

## II. Executive Summary

Home to many mountains and forests, farmers of the Arida-Shimotsu region led frugal lives in the past because they had few crops from flat fields. Farmers in this region, who had been farming since about 1700 years ago, sought a way to grow citrus. Citruses are suitable for the local climate, and farmers built magnificent stone terraces on slopes to cultivate Citrus Kinokuni (*Kishu mikan*). In addition, by skillfully taking advantage of the natural features resulting from the unique combination of geography and geology, Citrus Kinokuni cultivation expanded to become a means of livelihood from 400 years ago.

Citrus Kinokuni had been cultivated since the 16th century, and in the latter half of the 19th century the cultivation was changed to Citrus Unshiu (*Unshu mikan*) due to a change in consumer preferences. At present, more than 90 percent of the farmers grow Citrus Unshiu. The citrus orchards form a magnificent landscape of stone terraces extending from the coastal area to the mountain top of the inland area, making the Arida-Shimotsu region the largest Citrus Unshiu production region in Japan.

### History of System Formation

It is said that the cultivation of Citrus in Japan started about 1700 years ago, when Tajimamori received an order from Emperor to plant Tachibana in the Shimotsu region, which he had brought back from the land of eternal world. The culture of citrus cultivation has since been in the region.

In 1574, nursery plant of Small Citrus (later called Citrus Kinokuni) were introduced from the Kumamoto Prefecture to expand cultivation in mountainous and forest lands by constructing stone terraces for the citrus orchards. In addition to improving cultivation techniques, farmers discovered a variety of mutations through their cultivation management which produced fruits of better quality. In the 1600's, the volume of shipments to Osaka and Tokyo increased and the renowned position of Citrus Kinokuni was established. In this process, the farmers in the Arida-Shimotsu region established the Citrus Joint Shipping Organization (the first ever to be established in Japan), also locally known as "Mikangata," and developed the system of transporting and selling Citrus Kinokuni with the support of the Kishu Domain that governed the Arida-Shimotsu region. These efforts contributed to developing the cultivation of citrus as a means of livelihood for the local people, and became the very first region in Japan to do so. In the early 1800s, Citrus Unshiu was introduced and its production grew to replace that of Citrus Kinokuni. In 1881, Citrus were shipped to Tokyo ahead of other production regions in Japan and were highly acclaimed. After overcoming the decrease of orchards during World War II, expansion of cultivation during the post-war reconstruction

period, and price stagnation due to excessive production, the Arida-Shimotsu region has today become the largest Citrus Unshiu production region in Japan, by volume and value.

### Characteristics of the System

This site comprises the watershed of the river which flows between mountains and the coastal area, where lands have sloped terrains and flatlands are scarce. Geological zones are roughly divided into three groups, and the combinations of topography and geology is diverse. In such a natural environment, farmers cleared forests in the mountains to build stone terraces for citrus orchards. By selecting varieties suitable for the various combinations of topography and geology, developing local production and cultivation techniques for nursery plants, and developing storage techniques utilizing the characteristics of harvested fruits, high-quality yield of Citrus Unshiu are produced and made possible the long-term stable shipment of fruits over eight months.

It is difficult to increase the production scale of the stone terraces by mechanization, and 99 percent of the farms are family farmers owned, including ownership of farmland as small as 0.9 hectares per person. However, the proportion of farmers in the region who sell more than 5,000,000 yen in agricultural products per year is 33 percent, about double the national average of 16 percent in Japan, thus enabling livelihood security. This is made possible due to the production of high-quality yields, which enable the maintenance of high unit prices. The high-quality yields are a result of the cultivation techniques which are based on meticulous manual techniques refined since the 17th century, and the establishment and operation of strict quality standards by individuals and shipping organizations. The ability to respond quickly and sensitively to the needs of markets and consumers is a skill that can only be achieved by local farmers who oversee production and sales through the various shipping channels, which were developed alongside the growth in the popularity of the fruit.

Farmers have identified the high-quality varieties of citrus by introducing different cultivars suitable to the characteristics of the land and through careful cultivation and observation of each tree. This leads to the retention of the superior genetic characteristics of the citrus within the next generation. It also increases the resilience of the crops to disasters and diseases by extending the harvest time and the dispersion of labor in the harvest time, thus increasing agro-biodiversity and increasing the agricultural resilience of the region. Another important characteristic of the farming system is that nursery plant production is carried out by Citrus Unshiu farmers as a side business. This enables mutations which create varieties with favorable characteristics to spread rapidly within the region compared to that when buying seedlings from outside. In addition, it is possible to tailor the production to meet the individual needs of farmers by, for example adjusting the arrangement of the trees or shipping early growth

biennial nursery plants with soil.

In the clearing of mountains and forests for citrus cultivation, a buffer area of woodlands is left on the ridges to prevent soil erosion and to recharge water resources. The stone terraces situated in the middle of the mountains increase the land's resilience to landslide disasters, improving the safety of communities at the base of the mountain. The steep slope where stone terraces cannot be installed are allowed to grow over with grass fields to prevent soil erosion. These stone terraced landscape tell the history of farming practices that have adapted to the local natural environment and who making the most of the limited resources available. Small birds such as Meadow Bunting and Japanese White-eye live in the Citrus Unshiu trees and feed on citrus pests. Other resident creatures include the Japanese rat snake, Japanese five-lined skink, and crickets which use the crevices of the stone terraces as their hiding homes. Common buzzard, owls, and sparrowhawk, which prey on these species, also live in the woodlands left behind on the ridges.

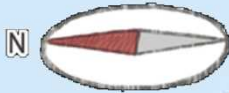
People in this region have developed their lives by cultivating Citrus Kinokuni and Citrus Unshiu for about 400 years, and the local people have high respect for the citrus, and its many related cultural practices and celebrations, such as the Citrus Festival of Kitsumoto Shrine. The culture related to citrus farming has been handed down and preserved over generations. In order to pass on to the next generation the history, culture, cultivation techniques, stone terrace construction techniques, and sales techniques related to Citrus Kinokuni and Citrus Unshiu, diverse entities in the region take the initiative and cooperate with each other to adapt. This ensures that the techniques and spirit of local farmers can be inherited for generations to come.

As described above, the stone terraced citrus orchard system in this region is a globally important agricultural heritage system that should be protected for future generations. Through skillfully adapting to the local natural environment the regional was able to establish itself as the first region in Japan to produce citrus as a livelihood and still stands the test of time over 400 years later.



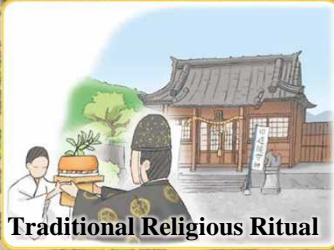
# The Stone Terraced Citrus Orchard System of Arida-Shimotsu Region

In the Arida-Shimotsu region, where the terraced citrus orchards have been built and maintained by farmers for more than 400 years, the stable production and continual shipment of citrus for a long period of eight months have been realized through skillfully utilizing natural conditions to introduce various varieties and lines of Citrus Unshiu, and effective use of fruit storage technology. This agricultural system is globally unique and important .



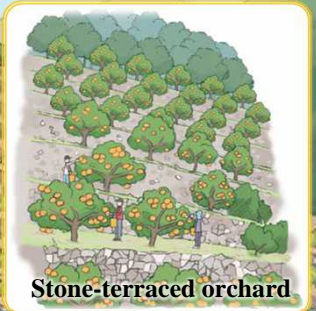
Citrus Unshiu storage room

**Advantageous sales through storage using the characteristics of Citrus Unshiu**  
※ Designation criteria 1, 3 and 5



Traditional Religious Ritual

**A Shinto ritual to pray for a good harvest to the god of citrus**  
※ Designation criteria 4



Stone-terraced orchard

**Cultivation of Citrus Unshiu on slopes**  
※ Designation criteria 1, 3 and 5

South-facing slope

North-facing slope

South-facing slope

Open Valley

Narrow Valley

North-facing slope

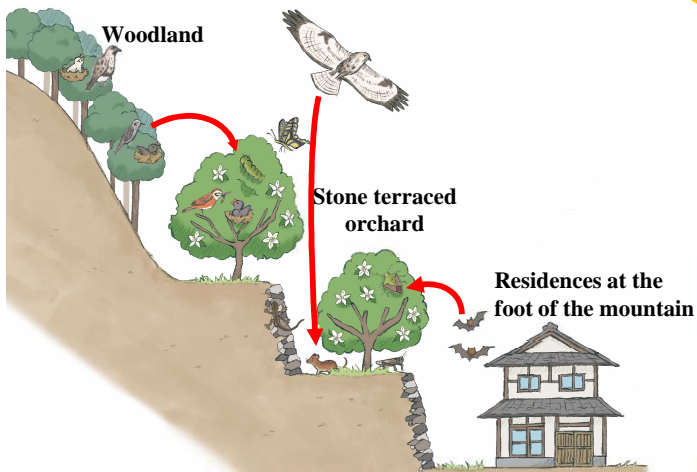
Arida River

Nursery plant production

**Production of Citrus Unshiu nursery plants by Citrus Unshiu farmers**  
※ Designation criteria 3

Coastal Area

Ocean



**Symbiotic relationship centered on stone terraced orchard areas**

**Land use that fosters a symbiotic relationship between organisms**  
※ Designation criteria 2



**Three geological zones**  
(Combination with various geographical features enhances variety of varieties and lines)  
※ Designation criteria 1, 2 and 3