

Globally Important Agricultural Heritage Systems (GIAHS) Application Proposal

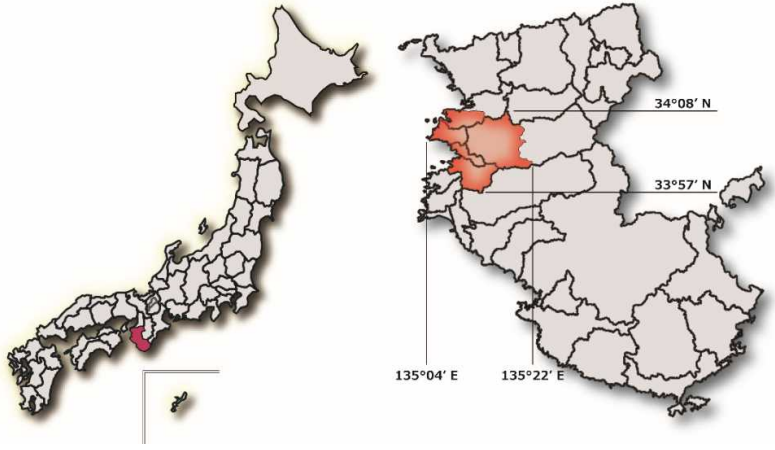
The Stone Terraced Citrus Orchard System of Arida-Shimotsu Region (Arida-Shimotsu region, Wakayama Prefecture)



**Arida-Shimotsu Region
Globally Important Agricultural Heritage Systems
Promotion Association**

October 2023

I.Summary Information

Name/Title of the Agricultural Heritage System	The Stone Terraced Citrus Orchard System of Arida-Shimotsu region
Requesting Agency/ Organization and contact information	<ul style="list-style-type: none"> • Name of the organization: Arida - Shimotsu Region Globally Important Agricultural Heritage Systems Promotion Association (TEL +81-73-441-2867) • Organizational structure : Kainan City, Arida City, Yuasa Town, Hirogawa Town, Aridagawa Town, Agricultural Cooperative Nagamine, Agricultural Cooperative Arida, Shimotu Town Commerce and Industry, The Kishu-Arida Chamber of Commerce and Industry Inc., Yuasa Town Society of Commerce & Industry, Hirogawa Town Society of Commerce & Industry, Aridagawa Town Society of Commerce and Industry, Kainan City Tourism Association, Arida Town Tourism Association, Yuasa Town Tourism Organization, Hirogawa Town Tourism Association, Aridagawa Town Tourism Association, Kainan City Life Research Group Council, Arida Region Life Research Group Liaison Council, Shimotsu Town Agriculture Association, Arida Region Agriculture Association, Kainan City 4-H Council, Arida Region 4-H Liaison Council , Wakayama Prefecture
Responsible ministry (for the Government)	Ministry of Agriculture, Forestry and Fisheries
Location of the site	 <ul style="list-style-type: none"> • Name of the application site: Arida-Shimotsu Region, Wakayama (Citrus Unshiu (<i>Unshu mikan</i>) cultivation area in Arida - City, Yuasa Town, Hirogawa Town, Aridagawa Town (former Kanaya Town, former

	<p>Kibi Town), Kainan City (former Shimotsu Town)</p> <ul style="list-style-type: none"> • Description of the location of the application region Northwestern region of Kii Peninsula in Japan facing the Pacific Ocean • Geographic coordinate (Latitude and longitude) East longitude 135 ° 04' - 135 ° 22', North latitude 33 ° 57' - 34 ° 08'
Accessibility of the site to capital city or major cities	<ul style="list-style-type: none"> • Access from Tokyo International Airport From Tokyo International Airport to Minoshima station: approximately 3 hours 30 minutes *Via domestic flight to Kansai International Airport, followed by a train from Kansai International Airport to Minoshima station • Access from Kansai International Airport From Kansai International Airport to Minoshima station: approximately 1 hour *Via a train to Minoshima station
Area of coverage (Core area and buffer zone areas included)	<p>The Arida-Shimotsu region: 31,862 ha core area (Citrus Unshiu orchard): 4,547 ha buffer zone (Woodland, rice field, ponds, residential area and rivers): 24,380 ha</p>
Agro-Ecological Zones	<p>Sub-tropics, moderately cool; humid</p>
Topographic features	<p>Aligned from north to south are Fujishiro Mountains, the Nagamine Mountains, and the Mt. Shirama Pulse, where the Kamo River flows between the Fujishiro Mountains and the Nagamine Mountains, and the Arida River flows between the Nagamine Mountains and the Mt. Shirama Pulse from east to west, forming the alluvial plain at the downstream area of the Arida River.</p> <p>The coastal area has a ria coastline facing the Kii Channel.</p>
Climate type	<p>Köppen climate classification : Cfa Temperate rainstorms, no dry season, variable rainfall throughout the year Annual average temperature : 16.0 degrees Celsius Annual precipitation : 1,400mm ~ 1,800mm Annual sunshine hours : 1,700 ~ 2,000 hours</p>
Approximate Population	<p>Population : 82,872 people Agricultural worker : 8,183 people Citrus Unshiu cultivation company : 4,411 companies</p>

Indigenous population (if applicable)	-
Main sources of livelihood	Agriculture (Citrus Unshiu and other fruit tree cultivation), Fishery, Food manufacturing industry, Agricultural product, wholesale business, transport industry, tourism

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.

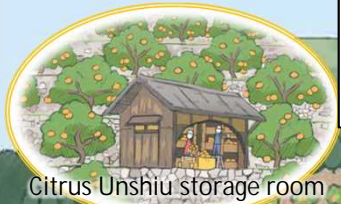
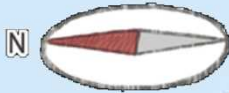
In the clearing of mountains and forests for citrus cultivation, a buffer area of woodlands is left on the ridges to prevent soil erosion and to recharge water resources. The stone terraces situated in the middle of the mountains increase the land's resilience to landslide disasters, improving the safety 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.

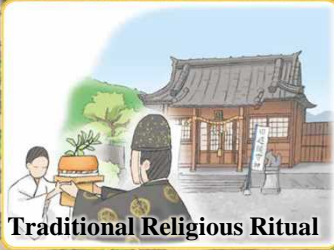
The Stone Terraced Citrus Orchard System of Arida-Shimotsu Region

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 .



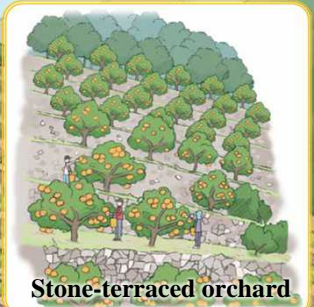
Citrus Unshiu storage room

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

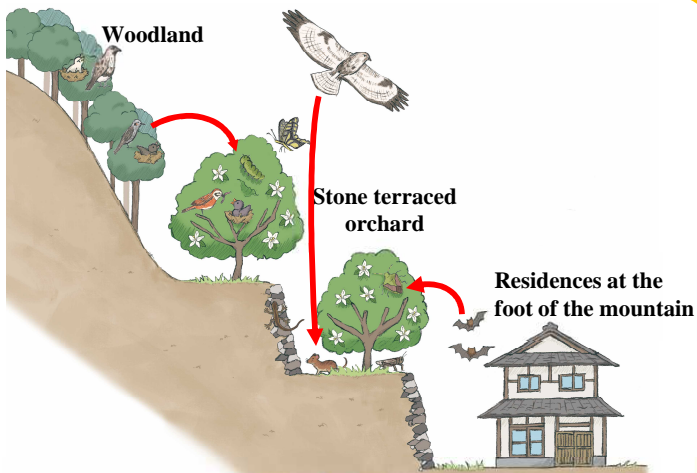


Nursery plant production

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