

# The Health Benefits of Sardines

Sardines contain a wealth of essential fatty acids, such as Eicosapentaenoic Acid (EPA) and Docosahexaenoic Acid (DHA).

EPA and DHA, which are said to function to make the flow of blood smooth, constitute nutrients that are expected to work to prevent vascular disorders such as arteriosclerosis and blood clotting.

EPA also works to reduce neutral fats.

DHA also works to enhance brain and nervous system functions.

Sardines contain rich amounts of calcium for building healthy bones and Vitamin D for assisting with the absorption of calcium. (Reference Materials: "Japanese Food Standard Ingredient Table," MEXT)

## Sardine Dishes

### Nanban Style (Marinated with red pepper and onions)

Fry fresh sardines produced in Hachinohe in oil and marinate them in sweet-and-sour sauce together with the vegetable of your choice to savor the umami of sardines enveloped in a refreshing flavor.



### Stewed in tomato

Fresh sardines produced in Hachinohe go perfectly with the acidity of tomatoes. Savor their freshness and refreshing flavor with this dish.



### Bánh Mì

Season and sauté fresh sardines produced in Hachinohe and enjoy them together with the vegetables and spices of your choice.



### Meunière

After opening up fresh sardines produced in Hachinohe, removing their organs and covering their top with salt and pepper, lightly coat them in flour and sauté them in a pan. Enjoy them with your preferred toppings.



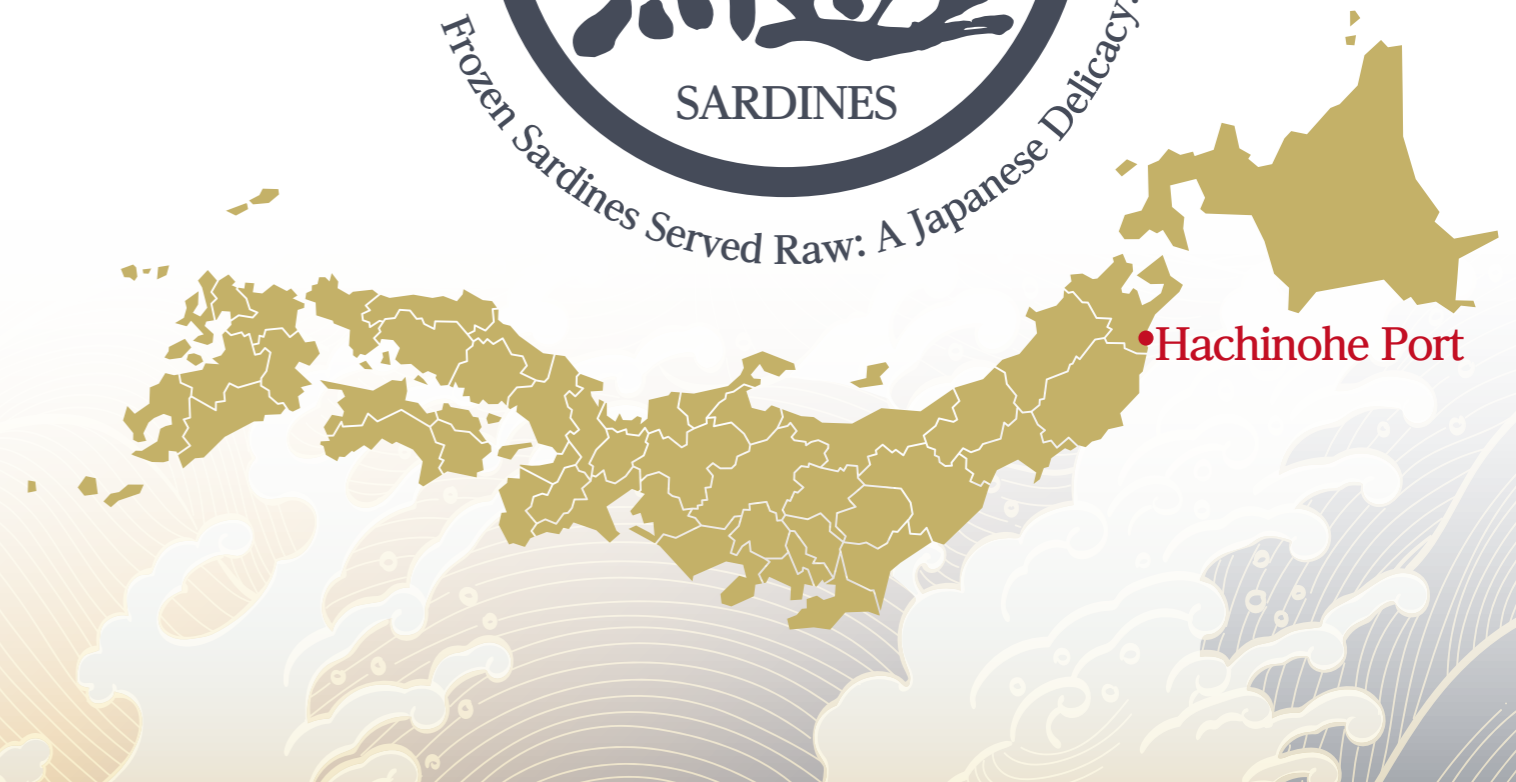
### Fritters

Yet another appealing point of sardines produced in Hachinohe is that they boast both freshness and uniformity in size, making them easy to prepare. Season them in your favorite spice or other seasoning and fry them to savor the juicy flavor of sardines.



### Minced sardine balls & noodles

Because minced fish balls made with fresh sardines produced in Hachinohe are almost completely free of the smell particular to sardines, they offer a different kind of deliciousness compared to the minced fish balls you may have had up to now.



We support Sustainable Development Goals (SDGs).



2020 Project to Promote Cooperation for Expanding Fishery Exports (Fisheries Agency)



# The Blessed Environment of Hachinohe

Aomori Prefecture is blessed with rich nature and fishing grounds. Here, an abundance of high-quality marine products are fished seasonally throughout the year. The food chain in place in Hachinohe includes fishing vessels and a market certified to carry marine food products for export to the EU as well as a HACCP-certified processing plant.



**Takahide Naruko**  
Chairman  
Sardine Popularization Association

We swiftly freeze high-quality sardines, mackerel and other marine products fished out of the waters of Japan's Hachinohe Fishing Port and supply them in a form that can be enjoyed with the same freshness as their freshly-fished state even after they have been thawed.

## What kind of fish are sardines?

Fresh sardines have no peculiar smell and just the right amount of sweetness, and can be eaten raw. For that reason, they are a popular sushi topping. The fish also goes by the name "Seven Stars" due to the seven or so spots found on its body. In recent years, sardines have been the subject of attention as a functional food due to containing rich amounts of essential fatty acids in the form of EPA and DHA, and can be tastily enjoyed using various methods of preparation.

**Sardines** (Scientific name: *Sardinops melanostictus*) delivered from Hachinohe are small fish that swim in schools in waters off of Japan while consuming mainly plankton. In Japan, they are a regular part of people's diet.



## Why are we able to supply high-quality sardines from Hachinohe?

In addition to Hachinohe Fishing Port being close to fishing grounds, sardines fished there can be swiftly processed at a processing plant nearby the market. For that reason, they are frozen while retaining the same high level of freshness. From there, they are loaded onto temperature-controlled container vessels, after which they depart Hachinohe Port. This established cold chain is what enables us to supply sardines that keep their freshness even after they are thawed.



## Process from Being Fished by Fishing Vessels to Leaving Port



**Being fished by fishing vessels**  
Sardines fished out of water are immediately stored in a freezer inside shipping vessels. This ensures that they are transported to the market at Hachinohe Fishing Port with their freshness right after being fished intact.

Photos courtesy of Federation of North Pacific District Purse Seine Fisheries Co-operative Associations of Japan



**Market at Hachinohe Fishing Port**

At the market, catches of sardines are swiftly unloaded, after which they are loaded into a tank or other container capable of preserving their freshness and transported immediately to the processing plant or other destination.

Photos courtesy of Hachinohe Port Logistics Globalization Promotion Council



**Processing plant**

The processing plant is favorably located only 1.6 km from Hachinohe Fishing Port. A new freezing line that was recently introduced makes it possible to box and freeze sardines with tighter sorting and inspection processes than before.

Photos courtesy of Marunushi Co., Ltd.



**Finished products**

Sardines that pass their quality inspection conducted by both a machine and a human inspector are frozen, after which they are subject to the final process of product temperature measurement. Once the sardines have been verified as being completely frozen, they are shipped as finished products.

Photos courtesy of Marunushi Co., Ltd.



**Departure from Hachinohe Port**

The frozen sardines shipped from the processing plant as finished products are swiftly loaded into temperature-controlled containers. From there, they leave Hachinohe Port.

Photos courtesy of Hachinohe Port Logistics Globalization Promotion Council

## Quality Inspection

For the sardines for export that we supply to everyone, we have stringent, proprietary quality standards in place to meet our goal of keeping our sardines' freshness at a level comparable to that when they are just fished out of water even after they are frozen and thawed. In the first step of our inspection process, we have experts judge whether the fished sardines meet our high quality and high freshness standards for export on fishing vessels and at the market. Only those sardines that pass this inspection are transported to the processing plant. Next, in the sorting process at the processing plant, we perform a double quality inspection using a machine and a visual check performed by an inspector. Sardines that meet our inspection criteria proceed to the next process of rapid freezing, after which they are subject to the final process of having their quality temperature measured to verify whether they are completely frozen up to their insides before they are shipped. Furthermore, if necessary, we verify whether those sardines are highly fresh by measuring their K-value\*, a general scientific index for freshness employed in Japan.

\*K-value: Fish muscles contain Adenosine Triphosphate (ATP), a substance that acts as the source of energy for the activity. After fish perish, ATP breaks down in the following manner.  
ATP→Adenosine Diphosphate (ADP)→Adenosine Monophosphate (AMP)→Inosine Monophosphate (IMP)→Inosine (HxR)→Hypoxanthine (Hx)  
The K-value indicates HxR+Hx content in ATP and the full quantity of its decomposition products in the form of a percentage. The smaller this value is, the higher the freshness is.

## Introducing the People who Supply Sardines from Hachinohe to Everyone

We work together to ensure the sardines that reach you are tasty and high in quality!



In charge of fishing vessels:  
**Fumie Oyama**  
Vice-President  
Oyama Suisan Co., Ltd.



In charge of the market:  
**Noriyuki Komatsu**  
Market Department  
Hachinohe Uoichiba Co, Ltd.



In charge of the processing plant:  
**Yuta Jinushi**  
Representative Director  
Marunushi Co., Ltd.



In charge of export:  
**Kazuo Namura**  
Representative Director  
and President  
Bikuresu Limited



In charge of freshness surveying:  
Aomori Prefectural Industrial  
Technology Research Center  
Food Research Institute

## Product & Contact Information

|                        |  |
|------------------------|--|
| Product Name           | Frozen Sardines  |
| Name of Raw Ingredient | Sardines (Produced in Aomori Prefecture)               |
| Product Specifications | 70-100 g   |
| Net Content            | 10 kg  |
| Best-Before Period     | 365 days at frozen temperatures of -18°C or lower      |
| Method of Storage      | Please store at frozen temperatures of -18°C or lower. |

Exported by:  
**Bikuresu Limited**  
2-6356 Kawaguchi-cho, Choshi-shi,  
Chiba 288-0001  
TEL: 0479-24-1246

Manufactured by:  
**Marunushi Co., Ltd.**  
5-1, Shirogane 2-chome,  
Hachinohe-shi, Aomori 031-0821  
TEL: 0178-33-1571

## Form of Packaging



Use this QR code to access the Sardine Popularization Association homepage for more information.

## Recommended Fish Other Than Sardines

In addition to sardines, tasty mackerel and young yellowtail are also fished out of the waters of Hachinohe Fishing Port. We supply these fish to everyone in the same high-quality condition as our sardines.

### Mackerel



### Young yellowtail

