

Hiruzen's Dirt Foundations

A lot about life in Hiruzen comes down to the dirt.

Much of the earth in this region is a type of black volcanic soil known as andosol—*kuroboko* in the local dialect. Andosols are dark in color and highly porous, originating from volcanic ejecta such as ash, tuff, and pumice. They also have a high aluminum content that renders their existing phosphate insoluble. As many gardeners know, phosphate is one of the key minerals that plants need to grow. The insolubility of natural phosphate in andosol means crops are unable to absorb enough phosphate from the soil. Because of this, Hiruzen's soil was long considered poor for farming.

During the period of food shortages following World War II, however, there was a nationwide push to utilize more land for farming. As a result, phosphate fertilizers entered widespread production. Andosols naturally have good breathability and excellent water retention. They are also soft, making for easy tilling. Once the issue of phosphate uptake was resolved by targeted fertilizing, the soil in Hiruzen became ideal for farming.

The *kuroboko* soil in Hiruzen is particularly suitable for daikon, a mild-flavored radish popular across Japan. Between 10 and 15 centimeters in girth and up to 60 centimeters in length, these “huge roots” (the literal meaning of the Japanese name) dig deeply into the ground. Hiruzen's soft soil allows the daikon root to grow straight, while the soil's mineral composition and moisture retention result in radishes that are juicy as well as highly nutritious. In Japan, where the appearance of produce is often as important as its taste, the “Hiruzen Daikon” brand is gaining in popularity. In Maniwa they can be bought at Kaze no Ie, part of the nationwide network of *michi no eki* roadside rest stops stocked with local produce and regional goods.

The soil in Hiruzen is also notable for the presence of diatomaceous earth, a layer of silica-rich sediment formed from the fossils of tiny phytoplankton called diatoms. About half a million years ago, a lake formed in the Hiruzen Basin when an avalanche of volcanic debris blocked a river and flooded the area. As diatoms living in the water died, they drifted to the lake bottom and gradually formed a sedimentary layer nearly 100 meters thick.

Diatomaceous earth is characterized by its light weight and porosity—characteristics that make it useful in a variety of applications, including thermal insulation, abrasives in toothpaste, organic insecticides, and filters used in brewing and food production. Silica mined from Hiruzen's diatomaceous earth is used both in Japan and overseas, and it has become a major local industry in itself.

Diatomaceous earth also plays a role in many of Hiruzen's handicrafts and local businesses. For example, artisans in Maniwa make a unique form of lacquerware called *Gōbara shikki*, which requires an abrasive to smooth the wood's surface before applying lacquer. These craftsmen, who take pride in using locally sourced raw materials, opt to use diatomaceous earth instead of sandpaper.

Another industry uniquely “grounded” in Hiruzen’s soil is wine production from locally grown grapes. An endemic species of grape known as *yamabudō* (*Vitis coignetiae*) grows wild in the surrounding mountains, and Hiruzen Winery spent over a decade selecting and cultivating the sweetest vines to yield the *yamabudō* wines, liqueurs, juice, and jams they produce today. The filtration in their fermentation tanks is provided by local diatomaceous earth.

Thanks to the combined forces of geological activity and human ingenuity, the Hiruzen Highlands’ rich soil provides a fertile matrix for a thriving community.