Tomorrow's Harvest Impressions _ Rise and Fall Red Delicious
Precision and Prediction Interview__ Quo Vadis, USA? Market Report
Flavor and Variety Portrait _ Love and Craftsmanship Japan


## Welcome

## Dear Readers,

Interpoma is back! And it's packed to the rafters with new themes, new insights, and new ideas. This time at the world's only trade fair dedicated exclusively to the apple we shine the spotlight on resource use, new technologies - and the USA as an apple nation. We take a look at the dynamics in the country, which, as we know from the past, often pioneers global developments. ipoma, the official Interpoma magazine, provides a fascinating deep dive into the issues that matter, not just to trade fair participants, but to the entire apple industry. The articles on the following pages are brimming with insights into the future, the past, and the hot topics of today.

Besides the main themes of the fair, in this issue we also look at the rise and fall of an erstwhile icon: the Red Delicious. Precision agriculture experts Luigi Manfrini and Luca Corelli Gräppadelli discuss artificial intelligence in fruit orchards in a double interview. Walter Guerra, coordinator of the Interpoma Congress 2022, tells us about his eventful career path into research. And we check out the traditions surrounding apple cultivation in Japan and visit Normandy, where apples that are no good to eat become a sparkling surprise when transformed into cider and calvados. Join us on our exciting journey through the world of apples!

Interpoma 2022 takes place from November 17 to 19, 2022. We hope you enjoy reading our magazine!
The ipoma team
Do you have any suggestions, ideas or feedback? Get in touch at interpoma@fieramesse.com


The number of apple-themed images the editors sorted through during their research. 82 made it into the magazine.

The number of apple varieties the editorial team got to sample during production.

$\qquad$ The number of times the word "tree" appears in this issue: 31 times in the singular, 26 times in the plural.

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# With Love and Craftsmanship 

> In Japan, apples are not eaten as a snack but as a delicacy - and are often sold as individual specimens. This peculiarity of Japanese culture has had a significant impact on the cultivation of apples in the island nation and has raised them to the status of a cultural asset.

By Christian Heinrich<br>Photography by Jane Alden Stevens ©2010

Apple growing is like music. It always needs a rhythm - and if a melody is added in, it can turn into art. The rhythm of apple growing is set by nature, the seasons, and the weather; that's no different in Italy than in northern Germany, Japan, or America. But in Japan, apple growers add their own melody to this rhythm. And the instruments that create the melody are craftsmanship and love.

In the northern prefecture of Aomori, for example, on many apple plantations the fruits are double-bagged in early July, about 50 to 60 days after full bloom. In this area, the main reason behind this is to improve the shelf life of the fruit, while in the Nagano prefecture further south, it's all about the fruit color.

> After the Satsuma mandarin (770,000 tons produced and consumed annually), the apple (750,000 tons) is the most popular fruit of the Japanese.

The outer bag is removed 35 days before harvest, and the inner one, which is coated with fungicides, one week before. To protect the apples from sunburn in the final few days, large nets are spread out over the trees to reduce the intensity of the sun's rays. lt's all just as elaborate and painstaking as it sounds: on average, a worker can bag between 100 and about 400 apples per hour, which even on a medium-sized plantation amounts to more than 1,000 labor hours. But Japan is a country tied to tradition. If it is customary to do things in a certain way, then that has a particular significance, and it is usually done patiently and without grumbling.

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The structure of Japanese apple growing also reflects this: the main practitioners of this labor-intensive, hands-on cultivation process with the focus on the highest possible fruit quality tend to be small family farms.

The fact that apple growers in Japan lavish so much time and attention on their fruit also has to do with the high status afforded to the apple. "For us, an apple is something precious. Apples are treasured gifts for the harvest and year-end festivals, we gift them to friends and acquaintances on special occasions, and we give them as get well soon gifts for the sick in hospital," says Professor Hiroo Koike, who has run a research station for apple growing in the Nagano prefecture for several decades and is considered one of Japan's foremost apple-growing experts.

Because of their status, apples are often also bought and sold as individual specimens in Japan. Weighing in at around 300 grams on average, they are usually larger than European apples and will ideally have a deep, uniform color. So rather than being munched on as a snack between meals or as part of a cafeteria lunch, apples tend to be eaten on special occasions and at home. And that's why growers give each individual apple the kid glove treatment in their attempts to get the very best out of their crop.

Before the apples are bagged, the fruits are thinned out on the tree. Selectively removing apples from clusters of several fruits is emblematic of the fact that in Japan, tradition and care are valued over mass production and high yields.

Each apple is cherished and nurtured to achieve the best possible shape and color. Around 20 to 30 days before harvest, red varieties are de-leafed by hand around the fruits to allow the color to develop better, with around one in ten leaves closest to the fruits being removed. "This step of the harvest cycle takes up roughly $20 \%$ of the labor time," Koike says.

The fruits are also rotated to expose the shady side to the sunlight in order to ensure uniform fruit coloring -

Malus sieversii, the Asian wild apple, originally came to Japan from Central Asia, albeit the long way round via Europe and the USA: in 1879, the Japanese government imported many different varieties from North America, giving rise to the birth of apple growing in Japan.
another important factor for customers and buyers down the line. According to Koike, this practice accounts for another $18 \%$ of the labor time. Reflective foils are often used to further optimize the color.

Attention is paid to factors such as size, color, and natural flavor - Japanese consumers have a preference for sweet apples - right from the breeding stage. Apples are grown in around a dozen of Japan's 45 prefectures, with most found in the north of the main island where it is slightly cooler, meaning that rice is harder to grow there - another factor that spoke in favor of establishing apple growing back in the day. Almost every prefecture in which apples are grown has its own breeding program. More than half of the 750,000 tons of apples produced annually in Japan are grown in Aomori, followed by Nagano. But other prefectures such as lwate and Akita are also well-known apple growing areas.

Some Japanese-bred varieties are now found all over the world. The best known Japanese apple is the Fuji, which accounts for $60 \%$ of apple production in Japan. This variety was first introduced in 1939, but several events intervened

# "For us, an apple is something precious: a treasured gift on special occasions or for hospital visits." 

Hiroo Koike, professor and apple growing expert from Nagano



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before the Fuji became a firm favorite the world over: World War 11 brought apple growing as a whole to a standstill; in 1941, early frosts destroyed a large part of the crop; in 1944, a typhoon destroyed stocks; and the price of apples plummeted in 1948. However, the r950s saw a revival in apple growing in Japan, and by 1962, Fuji apples - named not only for the famous mountain but also for the city of Fujisaki, where the variety was developed at an apple cultivation research station - had become a worldwide hit.

In addition to the Fuji, other varieties have also been licensed in growing regions around the world. Shinano Gold, a Nagano-bred variety - Shinano is the old name for Nagano - is now also grown in South Tyrol, for example. The best fruits of this variety grow to $350-400 \mathrm{~g}$ in weight.

Thinning, bagging, leaf removal, rotating towards the sun, netting - a melody of craftsmanship and love that many Japanese apples clearly exude. And that attention to detail can ultimately pay off: in luxury fruit emporia and auctions, comtemples are stuck on the apples on the tree. When the sun shines on the apples, they turn a beautiful, uniform red except under the stencils, where the skin stays yellow, leaving the images clearly visible and immortalizing the melody of Japanese apple farmers in the apple skin.

These practices can, of course, elicit much astonishment and shaking of heads. Why lavish so much time and


#### Abstract

Red Fuji varieties are best grown in apple plantations in which the fruits are not bagged. Their uniform red color can also be achieved without this labor-intensive step, and the higher Brix level this produces makes them more popular with Japan's consumers, whose preference is for sweet apples.


In the Nagano area in particular, newer orchards are being densely planted, inspired especially by the orchards in South Tyrol.
effort on something that is only going to be eaten? That's true, on the one hand, but this practice ties in completely with Japanese culture, which regards transience as part of the cycle of life and sees no reason to be less circumspect because of it - a form of "consciousness of existence", perhaps. And this not only applies to the apple itself - it's also about the apple grower who nurtures the fruit with so much craftsmanship and love. Снн

Stencils are used to create characters for "health" or "happiness" on the skin. In luxury emporia or at auctions, completely flawless apples can sell for as much as several hundred euros - each.
pletely flawless specimens can go for as much as several hundred euros.

Even more effort is lavished on apples for gifting. Paper stencils in the shape of the Japanese or Chinese characters for "happiness" and "health" or with images of dragons or


