
LAB low food

Low Food Lab:

# chestnuts

**This edition of the Low Food Lab, supported by WWF-NL and partners, brought together chefs, researchers, food designers and system thinkers to rediscover the sweet chestnut – not as a nostalgic forest snack, but as a resilient, multifunctional ingredient with potential far beyond the plate. From starch to sugar, root to canopy, the chestnut emerged as a symbol of biodiversity and agro-forestry.**

## About Low Food

At Low Food, we believe that taste is the key to a future-proof food system. Through research, education and inspiring events, we demonstrate that good food not only brings joy but also drives meaningful, social and sustainable change. We invite everyone, from chefs to farmers, from policymakers to consumers, to join us in building a balanced system. Together, we are putting Dutch gastronomy on the map as fertile ground for tasty, innovative solutions. We encourage exchanges of knowledge and inspiration throughout the entire food chain and believe that such collaboration makes sustainable choices both easier and more appealing.

Our focus is on high-impact themes: reducing food waste, promoting a more plant-based diet and increasing biodiversity. We want to prove that a career in food can be both flavourful and socially meaningful, which is why we are endeavouring to accelerate the introduction of new culinary developments and innovations to a wider audience. To that end, we regularly collaborate with partners such as Flevo Campus and Stichting SOL, who each bring their unique expertise and networks to the table. Together, we make sure that ideas don't just stay on the drawing board but are brought to life in practical, tangible applications.

The Low Food Lab is where culinary creativity and systemic knowledge meet. In the labs, we bring together chefs, scientists, artists and product developers to explore the potential of new or forgotten ingredients. We tackle challenges such as finding smart ways to upcycle food side streams and making little-known crops accessible to a wider audience. In previous labs, we've explored the possibilities of mycelium, grass protein, feed wheat, chicken by-products and many other ingredients – and always with the same goal: to make sustainable innovation taste great.

**See www.lowfood.nl for more information.**

## About Flevo Campus

Flevo Campus is an innovative knowledge centre dedicated to improving urban food systems. Through research, analysis, interventions and knowledge programmes, Flevo Campus makes an impact on what and how we will eat tomorrow. Guus Nelissen, a project manager at Flevo Campus, explains: "At Flevo Campus, we address a variety of food-chain issues through research, innovation and experimentation. We have an interdisciplinary approach, which means that we link up with a broad range of stakeholders – including government bodies, food entrepreneurs, educational institutions and researchers – to come up with new, creative solutions. We don't leave the research to just the scientists: we also rope in food entrepreneurs and professional chefs. Flevo Campus sees a lot of potential in Low Food Lab's experimental research, which investigates food issues from a gastronomic perspective. In other words: what tastes good; what works and what doesn't? Historically, these questions have been the source of most of today's culinary knowledge and food innovations – all driven by the ambition and willingness of chefs and small-food entrepreneurs to look at food in new ways.

The Lab's alliance with the province of Flevoland is also key: Flevoland is one of the main food-producing provinces in the Netherlands. Food security and improving the sustainability of our food and agricultural system are hot topics at the moment. This region, in particular, is facing a number of challenges in those areas, for which Low Food Labs could provide a solution."

**See www.flevocampus.nl for more information.**

STICHTING ONTWIKKELINGSFONDS LEVENSMIDDELENINDUSTRIE

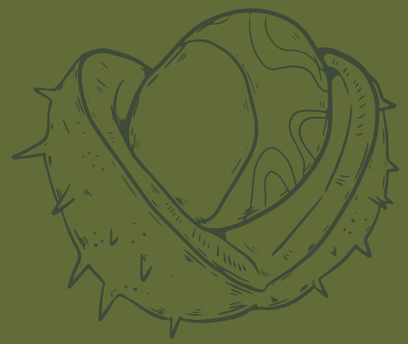
## About SOL

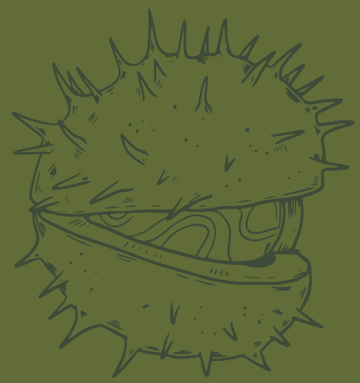
SOL (Stichting Ontwikkelingsfonds Levensmiddelenindustrie) is an education and development fund for the Dutch food industry. For over 35 years, SOL has played a leading role in supporting the growth and development of people working in this vital sector. Governed by both employer and employee organisations, SOL helps future-proof the industry by investing in its most valuable asset: people.

The foundation believes that healthy, skilled and motivated professionals are the basis of a sustainable and innovative food sector. Staying true to its origins as a development fund (since 1989), SOL spurs on the transformation of the food industry by bridging the gap between technical and social innovation. The food sector is undergoing major transitions – from energy and protein shifts to automation and digitalisation – and those changes demand not only new technologies but also a workforce with the right skills and adaptability.

SOL translates strat into action. Working with government, education, the business community and sector partners, the foundation promotes a resilient workforce by means of programmes, funding support and targeted communication, helping the industry attract, develop and retain the talent it needs for the future. The aim is greater job satisfaction, higher productivity and a resilient, forward-looking food industry.

**See www.sol-online.nl for more information.**





*From left to right: Jelger de l'Orme, Kaj de Jager, Jonah Koppe, Kazuya Matsumoto, Splinter Dreesmann, Guus Nelissen, Tessa van der Geer, Filip Otten, Lars Charas, Hanne van Beuningen, Marta Marszal, Noah Oudejans, Elody de Vries.*

# meet the team

# Introduction by Tessa van der Geer, Head of Lab

**WE OFTEN TALK ABOUT WHAT *NOT* TO EAT GOING FORWARD, BUT WHAT INGREDIENTS SHOULD HAVE A LARGER PART IN OUR FUTURE DIETS? THE CHESTNUT – NOT NEW, BUT DEFINITELY FUTURE-PROOF!**

Where previous editions of the Low Food Lab focused on the protein transition and the upcycling of side streams in food, this lab turned its additional attention to biodiversity. Chestnut trees – and other types of nut trees – play a vital role in nature-inclusive agriculture and agroforestry, i.e. systems that nurture biodiversity and reinforce ecological resilience. If we can increase demand for nuts, we can create a promising business model for farmers.

Chestnuts might not immediately strike one as a futuristic ingredient, unlike mycelium or grass proteins that took centre stage in earlier Labs. However, by late September, chestnuts are quite literally low-hanging fruit in Dutch woods. Though many global cuisines feature traditional uses of the chestnut – from marrons glacés to roasted street snacks – it remains surprisingly absent from the local contemporary food culture, despite the fact that chestnut trees have grown in the Netherlands since Roman times. Jan Majoor, R&D chef of restaurant De Nieuwe Winkel, highlighted the versatility of the chestnut during an early exploration:
"Chestnuts were once common in Dutch cooking, but have been unjustly forgotten. Their versatility, from savoury dishes to sweet ferments, shows just how future-proof this ancient ingredient really is."

Perhaps precisely because this ingredient isn't so distant or exotic, it has opened the doors to applications that feel close to the market: a cacao-free chestnut "Nutella", a chestnut-enriched frikandel (a traditional Dutch meat snack), and a chestnut brioche bun, for example. What made this lab exciting was not so much the novelty of the ingredient and its reinvention, but rather how naturally it fit into the future of food.

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# About chestnuts

Let's get wild about the "tame" chestnut!

Chestnuts that grow in the wild are far from exotic features in the Dutch landscape. Our sandy, loamy soil and temperate climate suit them perfectly. The trees grow tall, strong and abundantly. Yet most chestnuts in the Netherlands fall untouched to the ground; only the Mediterranean communities living here seem to gather them and use them. The rest of us walk right past this edible treasure. And that's a shame, because the chestnut could be one of the most future-proof foods we have. It enhances biodiversity, helps stabilise soil, captures $CO_2$, attracts pollinators and it's nutritionally promising too. Chestnuts are unlike other nuts and that's exactly why they deserve a second look. This Low Food Lab explored the big question: how can we make the Dutch go wild for the "tame" chestnut? We invited chefs, bakers, fermenters and food experts to work with Castanea sativa, better known as the sweet chestnut, or "tamme kastanje" ("tame chestnut") as it is called in Dutch. Together, we reimagined its culinary potential, aiming to spark demand, inspire new applications and move the chestnut from its image of forgotten forest food to centre plate.

## Chestnut trees: rooted in history, ready for the future

THERE ARE FOUR MAJOR CHESTNUT SPECIES:

**European chestnut (Castanea sativa), also known as sweet chestnut or Spanish chestnut**

**American chestnut (Castanea dentata)**

**Chinese chestnut (Castanea mollissima)**

**Japanese chestnut (Castanea crenata)**

Castanea sativa is one of the oldest kinds of nut tree that grow wild in Europe. It has grown here for centuries. In fact, the oldest Dutch chestnut trees, which are found near Nijmegen, are over 450 years old and their ancestors probably date back to Roman times. Their roots run deep, both literally and figuratively. Deep root systems prevent erosion and improve soil stability while their fast-composting leaves enrich the ground and their high canopies allow smaller nut trees and fruit trees to thrive below, all of which makes chestnuts an ideal species for food forests and agroforestry systems.

## The qualities of the chestnut

Chestnuts are quite distinctive from other kinds of nuts. They are rich in fibre and complex carbohydrates, but low in fat. Compared to walnuts or hazelnuts, they provide fewer calories per gram, yet the percentage of energy from protein is similar, making chestnuts filling, nutritious and suitable for a wide range of diets. Nuts can contribute to the protein transition, thanks to their plant-based proteins.

Dutch nut consumption is still low compared to other countries, i.e. only 8.6 grams per person per day, while the recommended intake is 25 grams (about a handful a day). To help close that gap, we need to promote the consumption of chestnuts, as well as other locally grown nuts like hazelnuts and walnuts. The chestnut is versatile and can be roasted, boiled or milled into flour for gluten-free breads, pastas and pastries. In other parts of the world, chestnuts are already stars of the national cuisine. In France, they are used for marrons glacés, candied chestnuts. In Italy, they are the main ingredient of Monte Bianco, a dessert of chestnut purée and whipped cream. In Japan, they are prepared in Kuri Gohan, rice cooked with chestnuts. So why not the Netherlands? Although chestnuts were once common in Dutch cuisine, today there is little demand and most remain uneaten. Our hope is that with new food purposes and increased use, demand will rise beyond what wild trees can provide, encouraging farmers to invest in chestnut cultivation.

| | CHESTNUT | WALNUT | HAZELNUT | ALMOND |
|---|---|---|---|---|
| Energy (kcal) | 188 | 675 | 667 | 609 |
| Protein (g) | 4 | 14.4 | 14.2 | 19.6 |
| Protein (% of kcal) | 8.5% | 8.5% | 8.5% | 12.9% |
| Fat (g) | 2 | 62.5 | 62.5 | 52 |
| PUFA* (g) | 0.5 | 44 | 5 | 12 |
| Carbohydrates (g) | 35 | 12.1 | 10.6 | 10.4 |
| Sugars (g) | 6.5 | 2.6 | 8.5 | 3.1 |
| Fibre (g) | 6.5 | 8.0 | 7.5 | 10.6 |

*SOURCE: NEDERLANDS VOEDINGSSTOFFENBESTAND (NEVO) | RIVM*

**Polyunsaturated Fatty Acids*

*Jan Majoor (head of R&D at De Nieuwe Winkel)*

## WWF-NL: From forest to food system

The World Wide Fund for Nature (WWF-NL) supports this lab as part of its broader mission to protect biodiversity, reduce food waste and accelerate dietary shifts toward more plant-based, sustainable eating. In terms of food systems, the WWF champions nature-positive agriculture and smarter resource use, goals that align perfectly with the potential of chestnut trees. In 2019, WWF UK published the Future 50 Foods, a global list of underused plant-based ingredients with plenty of potential. WWF-NL has teamed up with the Louis Bolk Institute to work on a Dutch edition, and chestnuts are already on the long list. By taking part in this Low Food Lab and ensuring access to sufficient local produce, the WWF is helping to bring chestnuts out of the wings and into the spotlight, highlighting their huge potential for ecology, biodiversity and nutrition.

## Food analysis by Jonah Koppe, food-system analyst at Flevo Campus

***Chestnuts & Agroforestry: A Path to Regenerative Food Systems***

Now, as we face climate change, biodiversity loss and soil degradation, it's clear our food system needs to change. One hopeful direction is agroforestry, a strategy that combines productivity with ecological resilience and benefits soil health, carbon storage and biodiversity.

What rates as one of the most promising crops for promoting agroforestry? The chestnut. During this edition of the Low Food Lab, chefs, scientists and innovators explored the chestnut's multifunctional potential, not just as an ingredient, but also as a symbol of a regenerative food system.

Agroforestry is the integration of trees into agricultural landscapes. There are many forms of tree-based food production. Some examples:

- Alley cropping – trees planted in rows between crops
- Silvopasture – livestock grazing among trees
- Riparian buffers – trees planted along waterways
- Food forests – multi-layered, edible ecosystems inspired by natural forests

Chestnuts thrive in all these systems, especially in the poorer, sandy soils of the eastern and southern Netherlands, such as the Veluwe, making them a versatile, climate-resilient crop with both ecological and economic value.

***Chestnuts as a strategic crop***

Chestnuts offer a rare mix of nutrition, adaptability and market appeal.

A familiar, appealing ingredient in both savoury and sweet cuisines, they grow without synthetic fertilizers or pesticides. They produce valuable timber (durable, long-lasting chestnut wood). They improve biodiversity and soil health in agroforestry systems.

Chestnuts are more than a low-impact crop: they embody a different kind of agriculture, i.e. one that restores rather than depletes.

# Splinter Dreesmann

**Splinter Dreesmann is the founder of Fermi Foods, where he explores how fermentation can reconnect flavour and health. With a background in business and hands-on experience in restaurants, bakeries and catering, he found his true passion, fermentation, while working as a baker. Now, as the father of two young children, he is motivated to create food that is both nutritious and delicious, starting with a better alternative to sugary chocolate spreads like Nutella.**

## The study

Splinter had already experimented with fermented chestnuts and was fascinated by the chocolate and caramel-like flavours that developed. Inspired by his Nutella-loving son, he set out to create a chocolate spread with more complexity and fewer sweeteners. His initial idea involved using miso, but the high salt content and long fermentation time didn't suit the product he envisioned. He turned instead to chestnut koji, a quicker method closely related to miso but without added salt, and began combining it with roasting to develop a richer flavour. Perfecting the chestnut cocoa nibs proved tricky. Roasting was new to him, and the uneven size of the chestnut koji grains made it difficult to control the outcome. He explored natural sweeteners, using honey, apple syrup, quince and amazake. Splinter settled on honey, because apple syrup and quince proved too acidic and the amazake lacked sweetness.

## The results

Splinter is happy with the overall flavour but continues to look for the ideal natural sweetener. Throughout the process, he gained interesting insights into how the simplicity of products like Nutella contributes to their broad appeal. His version, with its layered and complex taste, invites a different kind of experience. One of the most eye-opening parts of the project was the roasting itself, which revealed how transformative techniques can be, sometimes even more so than the ingredient. For future development, Splinter sees opportunities in refining the roasting process with more control and consistency, and in the further exploration of natural sweeteners that align with both taste and sustainability goals.

# Kashoko

RECIPE BY SPLINTER DREESMANN

## EQUIPMENT

- oven
- food processor
- spice grinder

## INGREDIENTS

- 1 kg sous vide chestnut
- 300 g hazelnuts
- 100 g hazelnut oil
- 80 g honey
- pinch of salt
- 200 ml water
- aspergillus oryzae

## METHOD

1. Make the chestnut koji by breaking 1,000 g cooked chestnuts into chunks and inoculating them with aspergillus oryzae. Place on a clean, towel-covered tray and cover with another towel. Keep at 30 °C for 24 hours.
2. To make the chestnut cocoa nibs, roast the chestnut koji at 160°C in the oven for 1 hour, frequently moving the nibs around to get an even roast. The end result should look and taste a lot like dark chocolate or cocoa nibs.
3. Roast the hazelnuts in the oven at 170°C for 10 to 15 minutes, moving the nuts around to get an even roast.

4. Purée 300 g of chestnuts to a smooth puree in the food processor.
5. In a clean food processor, grind the roasted hazelnuts until they produce oil and you achieve a smooth texture.
6. Meanwhile, grind 200 g of chestnut cocoa nibs to a fine powder in the spice grinder.
7. Add cocoa powder to hazelnuts, keep the processor running.
8. Add the chestnut puree and honey. The paste will thicken: wait until everything is mixed well and then adjust the emulsion by slowly adding the water.
9. Add salt and then add the oil drop by drop to make a smooth paste.

### JONAH'S ANALYSIS

"This spread replaces palm oil with tree-derived fats and carbohydrates, creating a nutrient-dense, shelf-stable product that serves as a more sustainable alternative to widelyconsumed spreads like Nutella. By leveraging locally sourced nuts, it reduces reliance on deforestation-linked ingredients and global supply chains while offering familiar taste and texture."

# Noah Oudejans

**Noah Oudejans is a fermentation scientist who recently graduated from Wageningen University with a MSc in Food Technology. Over the past seven years, he has specialised in fermentation, combining his scientific background with hands-on experience as a chef de partie in various kitchens. He is particularly interested in adapting global fermentation techniques to local ingredients and saw this lab as the perfect opportunity to put his idea into practice.**

## The study

Noah began the lab with an extensive list of ideas, including chestnut tempeh, koji nuggets, oncom, amazake, a roasted chestnut spread and even chestnut sake. While several concepts showed promise, others, like oncom and pure chestnut tempeh, proved to be less viable. The latter turned out too soggy, prompting him to pivot toward a mixed chestnut tempeh for the final presentation. He finished off the tempeh with a chestnut amazake glaze and developed a side experiment involving chestnut sake. His research was grounded in both historical study and practical experimentation. He gathered fermentation methods from a wide range of sources – some dating back to the 6th century – and consulted his peers during the process. When something didn't work, he adjusted or abandoned it, continuously refining the outcome. One key improvement came when he added a sweet amazake reduction to the mixed tempeh, which gave the final product more depth and balance.

## The results

Noah is pleased with his achievements, especially the chestnut amazake glaze, which delivers a surprising amount of chestnut flavour in addition to its sweetness. He noted that preserving the flavour of the chestnuts is challenging, as it tends to fade during processing. While there wasn't enough time to explore longer fermentations like miso or shoyu, he sees plenty of potential for future work. One idea he hopes to pursue is a blackened chestnut tempeh. A similar preparation using lentils has yielded entirely new flavours and he is curious to see what chestnuts could offer in that same context.

# Chestnut - beluga lentil tempeh

RECIPE BY NOAH OUDEJANS

## EQUIPMENT

- incubator (or at least the ability to monitor and adjust temperatures in 20 to 35°C range)
- digital thermometer
- ethanol spray
- paper towel
- gloves
- vacuum bags
- vacuum machine
- mixing bowl
- knife

## INGREDIENTS

- 250 g chestnuts
- 150 g beluga lentils
- 1 tbsp neutral vinegar
- 3.5 g tempeh spores
- oil
- salt

## METHOD

1. Thaw the chestnuts and blend until the consistency of wet rice.
2. Bring a pan of water to the boil and add the vinegar. Cook the beluga lentils until done but still firm; it should take about 10 minutes.
3. Strain the lentils and leave to cool to 30-35°C.
4. Disinfect the bowl using ethanol and allow to dry.
5. Wearing gloves, mix the chestnuts, the lentils and tempeh spores thoroughly.
6. Put the tempeh mixture into a vacuum bag and vacuum + seal the bag. Make sure you spread the tempeh mixture evenly to about 1 cm thick.
7. Punch holes on both sides of the bag all over the bag, spaced about 2 cm from each other.
8. Set the incubator to 31°C and put the tempeh in the incubator. Stick the thermometer into the thickest part of the tempeh.
9. Leave to ferment for 36 hours, making sure that the temperature of the tempeh is consistently at 31°C (it will be easy the first 12 hours, but afterwards, as the fungus starts to grow, it will start producing a lot of heat. The incubator often needs to be turned off.)
10. Take the tempeh out of the incubator and put it into the refrigerator.
11. Fry the tempeh with just a little oil and salt in a pan.

# Chestnut amazake glaze & sake

RECIPE BY NOAH OUDEJANS

## EQUIPMENT

- incubator (or at least the ability to monitor and adjust temperatures in 20 to 35°C range, and 80% humidity)
- dehydrator
- digital thermometer
- ethanol spray
- clean tea towels
- paper towel
- gloves
- vacuum bags
- vacuum machine
- mixing bowl
- knife
- cheesecloth
- fermentation bucket

## INGREDIENTS

- 250 g pearl barley
- 5 g koji spores (Aspergillus oryzae)
- 500 g chestnuts
- 2 l water, 60°C
- For the glaze: soy sauce to taste
- For the sake: champagne yeast, 50 g sugar

## METHOD

1. Cook the barley until al dente in water with a rolling boil for around 10 minutes.
2. Drain and cool to 30°C.
3. Sterilize a bowl with ethanol and wipe with a paper towel.
4. With gloves, mix koji spores with cooked barley.
5. Wrap the koji mix in the clean tea towel and put it in the incubator set to 32°C and 80% humidity.
6. Leave to ferment for 44 to 48 hours, until the barley becomes a nice mat of fluffy white fungus. Reduce the humidity to about 50 to 60% after 24 hours. If the kernels become too dry, some water can be sprayed on the tea towels to hydrate.
7. Mix 500 g of finished koji with the chestnut and 2 l of water and blend completely.
8. Deposit the mixture into a vacuum bag and seal.
9. Set the dehydrator to 60°C and put the vacuum bag in the dehydrator.
10. Keep the mixture at 60°C for 8 hours; the finished product is amazake.

***Option 1: For amazake glaze:***

- Filter the amazake using a cheesecloth and a strainer.
- Heat it up in a saucepan and reduce until thick, syrupy and a little caramelized.
- Add soy sauce to taste to give an extra umami kick.
- Use as a nice glaze on your chestnut tempeh.

***Option 2: For quick and dirty chestnut sake:***

- Activate 5 g yeast in 100 ml lukewarm water with 25 g sugar until foamy.
- Sterilize the fermentation bucket with ethanol spray.
- Mix the amazake and yeast mixture in the fermentation bucket.
- Leave it to ferment at room temperature until the desired level of alcohol is produced.
- Filter the mixture through a cheesecloth and strainer.
- Bottle in pressure resistant sterilised bottle. For extra bubbles, add a little sugar.

# Mychel Jansen

**Mychel Jansen is an Executive Chef at Vermaat Groep (B2B catering) and has worked in the hospitality industry for over 27 years, many of which have been at the Triodos Bank location, where he has had the opportunity to increase his understanding of food systems and agriculture, fuelling his motivation to drive positive change within the industry.**

## The study

Ayane thought this lab was an interesting Mychel joined the lab following a positive experience with the Low Food Chefs Academy, where he was inspired by its progressive and solution-oriented approach to today's food challenges. He realised there was an opportunity to explore how chestnuts could be used for scalable, accessible recipes suitable for both chefs and non-chefs across various locations within Vermaat's large-scale operations. His approach centred on simplicity, health and local sourcing, ensuring that the ideas could be implemented without needing advanced culinary skills. He developed a dish consisting of a fermented dosa made from chestnut flour and buckwheat, served with "Chummus" (a chestnut-based spread inspired by hummus) and a chestnut pickle.

## The results

He was pleased with the outcome and sees potential for the recipes to be added to Vermaat's company repertoire. He was particularly surprised by the depth of flavour the chestnuts brought to the dishes and believes they could play a greater role in everyday cooking. However, he also noted that price and availability are still limiting factors. Expanding chestnut cultivation, he suggests, could be key to making this ingredient more viable on a larger scale.

# Dosa of fermented batter from chestnut flour and buckwheat with Chummus and pickle

RECIPE BY MYCHEL JANSEN

## EQUIPMENT

- oven
- food processor
- frying pan
- blender
- sterile Weck jar

## INGREDIENTS DOSA

- 250 g chestnut flour
- 100 g buckwheat
- 20 g fenugreek seeds
- 40 g nutritional yeast flakes
- water at 25°C – just enough to cover the dry ingredients
- 100 ml oat milk
- rapeseed oil for frying

## METHOD

1. Place the chestnut flour, buckwheat, fenugreek and nutritional yeast flakes in a sterile jar.
2. Pour in water at 25°C until the solids are just covered.
3. Close the jar tightly and place it somewhere with a stable temperature, preferably at room temperature.
4. Leave it to ferment for 48 hours.
5. Always check your ferment before use.
6. Transfer the fermented mixture to a blender,

add oat milk and blend until smooth to create a batter.
7. Fry the dosa in a lightly oiled pan as you would with pancakes.

## INGREDIENTS CHUMMUS

- 250 g cooked sweet chestnuts
- 150 g cooked lupin beans
- 200 g carrot
- 50 ml lemon juice
- 25 g pumpkin seed miso
- 5 g Wilderland Opkicker tea blend (“dandelion leaf, plantain, fennel, sage, marigold”)

## METHOD

1. Roast the chestnuts for 6 minutes in a preheated oven at 200 °C.
2. Peel the carrots, cut them into cubes and steam until cooked.
3. Drain and rinse the lupin beans.
4. Cut open the tea bags and use the dried herbs in the blending process below.
5. Add all ingredients to a food processor, except the lemon juice.
6. Once the mixture reaches a compact texture, you can add the lemon juice to taste.
7. Blend further until smooth and creamy.

### JONAH’S ANALYSIS:

“Replacing rice and chickpeas with chestnuts in this dosa-hummus hybrid reimagines two staple plant proteins with a view to climate adaptation, revealing the use of chestnuts as both a starch and a spreadable protein. This dish shows how low-input, perennial crops can displace water-intensive annuals.”

# Marta Marszal

**Marta Marszal is the founder of Eat.Nourish. Change. She is an independent food designer, researcher and chef working at the intersection of food, design, research and sustainability. After a long career in innovation and facilitation, she has spent the past 1.5 years exploring regenerative food systems through cooking, recipe and concept development, teaching, event curation and storytelling. She is driven by the question as to how we can shift to diets that are truly sustainable, in other words, that support human health, protect the environment, ensure fair livelihoods and respect animal welfare. She wants to contribute to the systemic change needed to make it a reality.**

## The study

Marta joined the Low Food Lab out of a love for experimentation and learning in a collaborative setting. The lab offered a space to explore both food sustainability and creative practice, and she was especially inspired by its approach to food as both art and enjoyment. Her research began when she discovered that chestnut skins and leaves are rich in tannins, compounds also found in red wine. This led her to the idea of creating a low-alcohol, wine-like kombucha using chestnut materials. She focused on three main variables in her research: the tea base (dried chestnut leaves, roasted skins and later roasted wood), aromatics added during brewing and sweetening methods. In addition to regular sugar, she explored chestnut-derived sweeteners: syrup made through enzymatic starch conversion and amazake made with koji fermentation. These sweeteners were then used to brew 19 kombucha batches, allowing her to compare results and experiment with flavour while keeping a structured approach. Her process combined careful documentation with space for intuitive discovery.

## The results

Marta confirmed that chestnut materials can provide a pleasant, tannic mouthfeel. While the kombuchas made with chestnut syrup and amazake had less flavour depth than expected, the experiments revealed what works and what could be improved. Regular sugar still performed best, but she sees potential in the further refinement of chestnut-based sweeteners. An unexpected highlight was the amazake itself: a delicate, sweet drink with subtle chestnut notes that could work as a product in its own right. The leftover pulp from the process was also flavourful and might be repurposed in future recipes. Looking ahead, Marta sees opportunities in the further exploration of chestnut skins, leaves and wood (particularly from waste streams) as a kombucha base, as well as refining flavour profiles and testing alternative fermentation methods like kefir or kvass. She's especially interested in the future potential of chestnut sugars in fermentation and hopes to deepen this research with more technical expertise.

# Chestnut based botanical drinks

RECIPE BY MARTA MARSZAL

Red Nut

## EQUIPMENT

- oven + oven tray
- 1.5 l pan with a lid
- sieve
- 1.5 l glass jar

## INGREDIENTS

- 300 gr fresh chestnuts
- 1.2 l water
- 115 g sugar
- aromatics:
  - 25 g sour cherries (bio)
  - 7 g hibiscus tea
  - 6 juniper berries (crushed)
  - 1 piece of piment
  - 4 bay leaves
  - 1 tsp black pepper corns
- SCOBY
- raw kombucha 0.1 l

## METHOD

***Component 1: Make roasted chestnut peel tea***

1. Heat the oven to 200°C.
2. With a sharp knife score a cross on each chestnut.
3. Roast the chestnuts in the oven for 30 to 45 min until well roasted.
4. Put chestnuts in a bowl and cover with a lid. Let them cool down.
5. Peel the chestnuts. Try to get as much peel as possible. You should end up with ca. 70 g of roasted chestnut peel.
6. Put the peel in a big glass jar and add 1.2 l of boiling water.
7. Let steep overnight or until completely cooled down.
8. Strain the tea and discard the peels.
9. You should have ~1 l of roasted chestnut peel tea.
10. Use as a base for kombucha.

***Component 2: Make kombucha***

1. Bring the tea base (component 1) to a boil in a pan you have a lid for. Turn off the heat.
2. Add all aromatics and sugar. Stir for sugar to dissolve it.
3. Cover with the lid and let steep overnight or until completely cooled down.
4. Strain the tea and discard the aromatics.
5. Pour the sweet tea into a clean jar.
6. Add your kombucha SCOBY and 100 ml of raw kombucha liquid from a previous batch.
7. Ferment for 4 to 7 days depending on temperature. Taste every day to make sure it doesn't get too acidic.
8. Once the kombucha has achieved an acidity that is almost at the desired level, pour it into a swing-top bottle.
9. Ferment for 1 to 2 more days. Taste every day to make sure it doesn't get too acidic.
10. Once ready, keep in the fridge.

## Citrus Sawdust

### EQUIPMENT

- oven + oven tray
- sieve
- 2.5 l glass jar or other container
- 1 l swing-top bottle

### INGREDIENTS

- 100 g chestnut wood chips
- 1.5 l water
- SCOBY
- 0.3 l raw kombucha
- aromatics:
  - 3 stripes of burned lemon zest
  - 4 raisins
  - 1 bay leaf

### METHOD

***Component 1: Make roasted chestnut wood tea***

1. Heat the oven to 180°C.
2. Arrange the wood chips on a large baking tray.
3. Roast the wood chips for 50 to 60 min. Stir occasionally to allow for equal roasting.
4. The wood will turn darker over time.
5. Remove from the oven and allow to cool down.
6. You should end up with ca. 95 g of roasted chestnut wood.
7. Put the wood in a big glass jar and add 1.5 l of boiling water.
8. Let it steep overnight or until completely cooled down.
9. Strain the tea and discard the wood.
10. You should have about 1 l of roasted chestnut wood tea (the wood chips will absorb some of the water).
11. Use as a base for kombucha.

***Component 2: Make kombucha***

1. Add sugar to the tea base (component 1) and stir until dissolved.
2. Pour the sweet tea into a clean jar.
3. Add your kombucha SCOBY and 150 ml of raw kombucha liquid from a previous batch.
4. Ferment for several days (depending on temperature). Taste every day to make sure it doesn't get too acidic.
   Comment: the fermentation with pure chestnut wood tea was very slow. Along the way I added more raw kombucha to increase the amount of yeast and bacteria and speed up the fermentation process. Eventually it did pick up.
5. Once the kombucha has achieved an acidity that is almost at the desired level, pour it into a swing-top bottle and add all aromatics.
6. Ferment for 1 to 2 more days. Taste every day to make sure it doesn't get too acidic.
7. Once ready, keep in the fridge.


ORANGE 24/4
BATCH 1 / LEAVES
RED 24/4
24-4
#3 2nd FERM 7/5
BATCH 1 | LEAVES + FLAVOR
#4 25/4
BATCH 1
CHESTNUT PEEL 7/5
BATCH 2 | PLAIN
RED #6
BATCH 2 |
FOREST #
BATCH 2 |

# Lars Charas

**Lars Charas is an oil presser and concept developer who works with seeds that are not traditionally used for oil production. From onion seeds to asparagus seeds, he explores their potential and develops new methods for extracting oil, mainly for culinary and cosmetic purposes. His work is driven by curiosity and a desire to find new possibilities in overlooked ingredients.**

## The study

Lars joined the lab out of pure curiosity and enthusiasm for experimentation. He was intrigued by the diversity of what others were doing and wanted to explore new directions himself. His initial idea was to create a vinegar using fermentation, but the process turned out to be too long and complex for practical use. He then shifted his focus to smoking oil and making a mayonnaise, both of which yielded interesting results. In the end, he decided to develop something simple and useful for everyday life: a flavourful spread to use on bread. The aim was to create a product that could realistically be part of daily routines, while still being innovative in its use of ingredients like radish seed oil.

## The results

Lars is satisfied with the results of his work. While the vinegar had a pleasantly sweet-and-sour flavour and the wine from the first fermentation stage was surprisingly good, it proved too impractical for everyday application. The smoked oil and mayonnaise were strong contenders, although he found that the radish seed oil had a distinct cabbage-like note that may not suit every palate. The spread, however, stood out as the most promising direction. With some further refinement, it has real potential as a retail product, something that could realistically find its way onto supermarket shelves. Lars believes that the most exciting opportunities can be found in that direction: turning an experimental idea into something simple, familiar and widely accessible.

# Chestnut spread

RECIPE BY LARS CHARAS

## EQUIPMENT

- heavy duty mixer
- smoker
- mixer

## INGREDIENTS

- 200 g chestnuts
- Chestnut wood
- 5 g cinnamon
- 100 ml onion seed oil (mix white and red onion seeds)
- 5 g red onion powder
- 5 g smoked radish oil (or other smoked oil)
- 1 g garlic
- 20 g apple vinegar
- 5 g yeast flakes
- 4 g lecithin powder
- Pepper and salt to taste

## METHOD

1. Roast the chestnuts in the oven at 170°C for 10 minutes until slightly brown. Mash the chestnuts and smoke them in the smoker with some chestnut wood and cinnamon for an hour.
2. Put the chestnuts in the kitchen machine with all the ingredients except the oil and lecithin and start mixing. Add the lecithin to the onion oil and mix well, then add to the mixture and increase the mixing speed to high. Place in an airtight container or vacuum and put in the fridge for some hours. Mix once more for the finished product. Component 2: chocolate frosting

# Chestnut vinegar

RECIPE BY LARS CHARAS

## EQUIPMENT

- fermentation barrel
- oven
- mixer
- alcohol meter
- pH meter
- sugar meter

## INGREDIENTS

- 1 kg chestnuts
- 2 sticks of cinnamons
- 3 juniper corns
- 3 pepper corns
- 3 litres of water
- 1 g wine yeast
- 300 ml apple vinegar
- 50 g chestnut wood
- 300 g koji fermented grain

## METHOD

1. Roast the chestnuts in the oven at 280°C for 3 minutes. Mash them and mix with the koji fermented grain and store at 25 degrees for 2 to 3 days until a white layer forms on it.
2. Place in the oven for 15 minutes at 180°C and stir every 5 minutes until slightly brown. Clean a container with an anti-bacterial cleaner. Put the chestnuts in a container and add the water. Measure the pH and lower it to pH 3.6 by adding the citric acid. Measure the sugar content and increase by adding sugar to 17 to 20°C. Add the wine yeast, seal with an airlock and store at 25°C for about 6 days. Taste the wine by drawing it from the spigot: do not take off the lid when the air lock stops plopping.
3. Pass the wine through a sieve and add the apple vinegar (needs to be live vinegar). Place the chestnut wood in the oven at 240°C and sprinkle it with some sherry (a few drops), then add this to the vinegar over 2 to 3 days, but not longer because it has a very strong taste. Store without a lock but covered with a cloth for 2 to 4 weeks. Taste regularly. Keep it in a wooden container for a couple of months.

# Radish seed oil smoked with sweet chestnut wood & mayonnaise

RECIPE BY LARS CHARAS

## EQUIPMENT

- oil press
- smoker
- mixer

## INGREDIENTS FOR 1 LITRE

- 5 kg of radish seeds
- 50 g chestnut wood
- 2 g cinnamon
- 2 g star anis
- 2 g fennel seeds
- 1 black pepper seeds
- 2 egg yolks
- 1 tbsp vinegar
- 1 tsp mustard

## METHOD

1. Put the radish seeds in the oil press and let the oil clear for a week, then put it in a fresh container.
2. Grind the spices finely and mix with the chestnut wood. Put in the smoker without the oil becoming too hot. Leave it for an hour.
3. Put to egg yolks in a kitchen machine with the vinegar, mustard and slowly add some of the smoked oil. Keep on adding the oil while the kitchen machine is on high until the mayonnaise is thick. For 2 egg yolks you need approximately 300 ml of oil.

# Kazuya Matsumoto

**Kazuya Matsumoto is a Japanese chef preparing to open his own omakase sushi restaurant in Amsterdam. Formerly executive chef at Sushi Hanabi, he draws on deep roots in Japanese cuisine and traditional techniques. He joined the Low Food Lab after a friend recommended it, seeing it as a chance to explore the qualities of European chestnuts compared to the Japanese ones he had used in desserts back home.**

## The study

Kazuya's initial research focused on chestnut starch. He used it to create familiar Japanese dessert elements such as mochi (chewy rice cake) and anko (sweet chestnut bean paste). As he worked, he discovered a key difference: European chestnuts contain astringent inner skins that must be carefully removed to avoid their bitterness and bring out their natural sweetness, especially when making smooth and flavourful anko. Rather than using chestnut as a single ingredient, Kazuya deconstructed its various qualities and reassembled them in harmony, a technique he describes as "montaging" the goodness of the chestnut. The bitterness of the inner skin was embraced and used to create depth in the sauce. The sweetness of the chestnut was highlighted in the bean paste and the unique texture of the starch contributed to the mochi base. This layering strategy allowed him to create a composite dish that balanced complexity and clarity.

## The results

Kazuya was especially surprised by the chestnut starch, its unique bitterness and texture. Compared to the chestnuts he had used in Japan, the European variety brought unexpected new challenges and flavours to work with.

# Maron mochi oranje

RECIPE BY KAZUYA MATSUMOTO

## EQUIPMENT

- pot
- convection (oven)
- knife
- Montblanc piping tip
- piping bag
- oven sheet
- rubber spatula
- chinois
- bowl
- tapper
- cutting dies
- rolling pin
- masher
- whipper

## INGREDIENTS

***Component 1: Chestnut Anko***

- 300 g chestnuts
- 150 g sugar
- 2 g salt
- 300 g water
- 3 g Goji berries
- 2% of total Madeira wine

***Component 2: Chestnut mochi***

- 50 g shiratamako
- 100 ml water
- 25 g sugar
- 15 g chestnut starch

***Component 3: Marrons glacés***

- 200 g chestnuts
- 500 g sugar
- 300 ml water
- 10 ml Madeira wine

***Component 4: Chestnuts orange sauce***

- 20 g marrons glacés
- 150 ml milk
- 1 piece orange peel
- 13 g chestnut starch
- 1 egg yolk
- 5 g Grand Marnier

***Component 5: Chestnut cream***

- 130 g chestnut anko
- 40 g butter

## METHOD

***Component 1: Chestnut Anko***

1. Place water, salt and chestnuts in a saucepan and bring to a boil on a medium heat.
2. When water comes to a boil, add a little water to lower the temperature to 50°C. Do not let it come to the boil.
3. When it boils again, discard the water, add the water, sugar and goji berries to the pan and bring to a simmer over low heat.
4. Mash the mixture into a paste and heat until smooth.
5. Then add the Madeira wine and strain.

***Component 2: Chestnut mochi***

1. Place all ingredients in a saucepan and stir until well mixed.
2. Cook over medium heat, stirring to prevent lumps, at 90°C for at least 1 minute.
3. Sprinkle potato starch over the finished mochi.

***Component 3: Marrons glacés***

1. Place the chestnuts, 200 g sugar and water in a saucepan and cook on a low heat to 90°C.
2. Turn off the heat and allow to cool.
3. Then add 200 g from the saucepan to the pot and heat on a low heat to 90°C.
4. Leave to cool again, add the remaining sugar and heat to 90°C.
5. Add the Madeira wine and refrigerate for a day.
6. And then chop the marrons glacés, place on a baking sheet and bake dry in the oven at 120°C for 60 minutes.

***Component 4: Chestnuts orange sauce***

1. In a saucepan, bring milk and orange zest to a boil.
2. In a bowl, mix the egg yolks, marron glacé syrup and chestnut starch.
3. Mix into with boiled milk and heat at 85°C for at least 1 minute, add liqueur and strain.
4. Cool in the refrigerator.

***Component 5: Chestnut cream***

Mix butter and red bean paste at room temperature until smooth.

# Kaj de Jager

**Kaj de Jager is the founder of De Predetariër – a company that sources, processes and sells wild game in their web shop, for retail and B2B. De Predetariër is founded on the principle of a diet based on plants and truly wild European game, without any use of farmed animals and consequently banishing the bioindustry. It's a philosophy rooted in minimal ecological impact and maximum culinary integrity.**

## The study

Kaj joined the Low Food Lab with a single, straightforward question: could chestnuts enhance the fatty experience in wild game products that traditionally contain pork fat (bioindustry). Since wild game is naturally lean, he needed a plant-based fat that would bind well. Chestnuts turned out to be low in fat, but rich in starch with a mild savoury taste and a fat-like creamy texture, so more promising than expected. His goal was to create a recognisable "frikandel" the traditional Dutch meat snack, rather than a gourmet version. His challenge was to make a chestnut-based fat that wouldn't break down during deep frying. He cooked chestnuts into a pulp, blended it with oil, salt and stock and got the right mouthfeel, but it didn't

hold. The breakthrough came with psyllium fibre, a natural binder that keeps fats stable at high heat. Combined with red deer meat in an 80/20 ratio, it resulted in a frikandel that is nearly indistinguishable from the original.

## The results

Kaj was surprised by how well psyllium fibre performed and by the unexpected functional value of chestnut starch. The final product was a natural hybrid, 20% plant-based and made with wild red deer, yet it still delivered the familiar experience of a classic frikandel. For Kaj, this isn't about reinventing eating habits, but subtly improving the ones we already have. He sees the greatest opportunities in scaling the recipe and lowering production costs, which would make chestnut-based products accessible to a broader audience.

# Red deer and chestnut hybrid “Frikandel”

RECIPE BY KAJ DE JAGER

## EQUIPMENT

- sous-vide stick
- deep fryer
- strong mixer or meat grinder

## INGREDIENTS

- 1 kg red deer meat
- 200 g cooked chestnuts
- 12 g psyllium fibre
- 30 ml vegetable oil (sunflower)
- 100 ml vegetable stock
- salt
- frikandel spices (salt, pepper, onion, ginger, nutmeg, mace, coriander)

## METHOD

1. Cook the chestnuts until they are really soft and fall apart.
2. Drain the chestnuts and allow them to cool.
3. Put them into a food processor with the stock and some salt. Blend into a paste. When it becomes a paste, slowly add the vegetable oil while mixing.
4. When you have a fat-like substance, add the psyllium fibre and mix well into the paste. It should now get the texture of wall filler.
5. Clean the food processor and put in the red deer meat. Mince it until it is a smooth substance. If you have a meat grinder, mince it twice using the smallest head.
6. Now add the chestnut fat to the food processor and blend together. At the end, add the spices.
7. Set the sous-vide stick to 65°C and heat the deep fryer to 175°C.
8. Shape sausages, weighing about 100 g each, from the meat mixture.
9. Now take some cling film and tightly roll the sausages, making sure that you wrap the edges so it does not get caught in the sous-vide stick.
10. Leave them to stiffen up in the fridge for 30 minutes.
11. Sous vide the sausages for 30 minutes, then drop them in iced water.
12. Now deep fry them for 2 to 3 minutes in the deep fryer.
13. Serve with mayonnaise, curry and thinly sliced white onions.

### JONAH’S ANALYSIS:

“Incorporating chestnuts into a culturally iconic meat snack shows how familiar formats can serve as transitional tools. This hybrid reduces meat content, lowers the environmental impact and introduces a tree crop into mainstream consumption without challenging expectations. If adopted at scale, even partial substitution can ripple through meat supply chains. It also incentivizes diversified agroforestry by creating steady, low-threshold demand for chestnut inclusion.”

# Jelger de l'Orme

**Holy Shit is a creative collective founded by Ana, Jelger and Ronald, who each have backgrounds in product design, ceramics, furniture making, writing and branding. They create playful and thought-provoking objects that challenge conventions and invite reflection. For the Chestnut Lab, they were invited to design a piece using chestnuts both as a material and as a conceptual starting point. Their take was a shared childhood memory of collecting chestnuts and using toothpicks to make small figurines and furniture. This nostalgic association became the emotional foundation for the project.**

## The study

The team started by exploring the spiky outer skin of the chestnut, drawn to its contradictory nature as something visually appealing but physically uncomfortable. Early ideas revolved around objects like ceramic bowls, lamps and small tables inspired by this sharp texture. As the process developed, their attention shifted to the wood itself and to the idea of recreating one of their childhood chestnut-toothpick chairs at full scale. That simple thought became the central concept for their contribution. Their approach was intuitive and open-ended, more about following curiosity than applying a fixed method. They looked into the history and material properties of the chestnut, played with proportions and structure, and let the process guide the outcome. The idea evolved through making, sketching, adjusting and reflecting, staying rooted in emotion as much as in function. The result was the Chestnut Chair, a full-sized, sit-able version of an object once made in miniature and memory.

## The results

The final prototype stayed close to the spirit of the original idea. It had presence, structural clarity and unexpected comfort. Some adaptations were needed, as the proportions from childhood didn't translate exactly to adult scale. Chestnuts and toothpicks are not governed by the same logic when scaled up. Still, the result preserved the humour, texture and simplicity of the original vision. Along the way, they learned that chestnuts are difficult to find out of season, that some varieties are inedible and that ideas often emerge not from planning but from following a hunch. The project reminded them that design can live somewhere between object and story, and that there is always space for more experiments that begin with a strange material and a small, personal memory.

# Chestnut chair

DESIGN BY JELGER DE L'ORME

## Chestnut chair seat

### EQUIPMENT

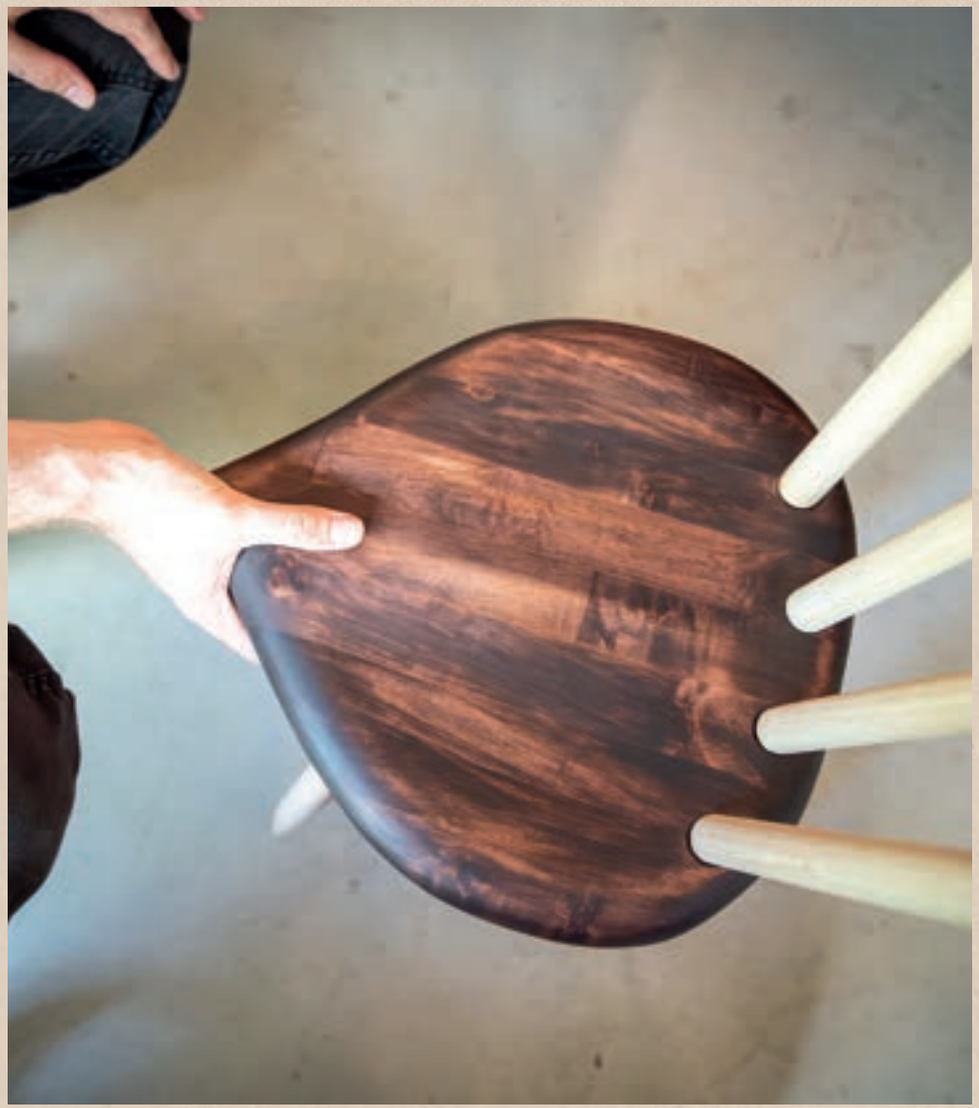
- wood clamps
- planer (hand or machine)
- handsaw
- rasp file
- sandpaper (grit 80, 120, 220, 320)
- drill machine
- 19 mm drill bit
- wood thread cutting/tapping set
- soft brush
- Clean cotton cloth

### INGREDIENTS

- chestnut wood, approx. 200 × 20 × 5 cm
- wood glue
- Rustins wood dye (red mahogany)
- Rustins wood dye (walnut)
- walnut oil
- natural brown pigment (umber)

### METHOD

1. Cut the chestnut wood into 8 pieces of 50 × 10 × 5 cm.
2. Plane the wide surfaces of all pieces.
3. Glue the 8 pieces together into a single block (approx. 50 × 40 × 10 cm).
4. Clamp the block and let dry for 12 hours.
5. Remove the clamps and scrape off any glue residue.
6. Draw your desired chair seat shape on the top of the block.
7. Cut out the shape using a handsaw or bandsaw.
8. Mark and drill holes for the backrest sticks at a 100°C angle (top side).
9. Mark and drill holes for the legs at a 105°C angle (underside).
10. Tap screw threads into all holes using the thread cutting set.
11. Draw guiding lines around the seat to mark smooth, rounded curves.
12. Cut away excess wood using a handsaw and shape with a rasp.
13. Sand all surfaces progressively (grit 80, 120, 220, 320), following the wood grain.
14. Clean off all dust before finishing.
15. Mix Rustins red mahogany and walnut dye in a 1:5 ratio.
16. Apply two coats with a soft brush, allowing each to dry fully.
17. Mix 200 ml walnut oil with 75 g brown pigment (umber).
18. Apply two coats of this oil-pigment mixture and allow to dry.
19. Polish the entire surface with a clean, dry cotton cloth.



## Chestnut chair sticks (legs and backrest)

### EQUIPMENT

- knife
- tapping set
- sandpaper (grit 80, 120, 220, 320)

### INGREDIENTS

- 8 beechwood sticks, 40 cm length, 19 mm diameter

### METHOD

1. If necessary, cut the beechwood sticks to 40 cm lengths.
2. On one end of each stick, use the tapping set to create 5 cm of screw thread.
3. On the opposite end, carve a tip approx. 8 cm long with a slightly rounded point.
4. Sand each stick in stages using 80, 120, 220, and 320 grit sandpaper to ensure a smooth finish.
5. Repeat this process 8 times.

***Assemble method for seat and sticks:***

1. Screw each stick in a hole of the chestnut seat.
2. Make sure the chair is level and doesn't wobble. If so, adjust the height of the legs accordingly.
3. After all this hard work, you can now sit down and take a break on your chestnut chair.

# Hanne van Beuningen

**Hanne van Beuningen is a baker and passionate food enthusiast. She works at Bakkerij Mater in Amsterdam, a small bakery dedicated to sourdough and with close ties to producers. When not working in the bakery, she hosts food forest dinners, creating multi-course meals using only perennial crops from Dutch food forests. Her experience of working with chestnuts in those settings inspired her to join the lab, hoping to combine her baking background with an ingredient that fits naturally into the food forest philosophy.**

## The study

Hanne's original idea was to create a chestnut brioche, possibly filled with cream made from chestnuts or their flowers. When she discovered that chestnuts contain very little fat, she adjusted her approach by combining them with hazelnuts. The chestnuts provided sweetness while hazelnut milk added the richness needed for an enriched dough. Fermentation turned out to be the biggest challenge, as chestnut flour ferments much faster than wheat. Through trial and error and conversations with fellow bakers, she developed a method to better control the process and achieve the desired structure and flavour.

## The results

Hanne was happy with the outcome: a soft and versatile bread that pairs well with chestnut cream and roasted nuts. While not a traditional brioche, the dough was enriched enough (thanks to hazelnut milk) to work in both sweet and savoury applications. She was most surprised by the chestnut's lack of fat, which helped her understand why previous recipes behaved the way they did. It also sparked a deeper interest in the nutritional composition of ingredients. Looking ahead, she sees potential in combining rye and chestnut or incorporating chopped, pre-cooked chestnuts directly into breads. A classic butter-and-egg version of chestnut brioche might be delicious too, but would fall outside the sustainable ethos she aims to follow.

# Rich chestnut bun

RECIPE BY HANNE VAN BEUNINGEN

## EQUIPMENT

- baking tray
- mixing bowl
- small pan
- whisk
- thermometer

## INGREDIENTS

***Component 1: For the hazelnut milk***

- 90 g hazelnuts
- 450 ml water

***Component 2: For the scald***

- 20 g chestnut flour
- 100 ml nut milk

***Component 3: For the dough***

| | |
|---|---|
| 600 g total flour weight | 100% |
| 450 g strong bread flour | 80% |
| 120 g chestnut flour | 20% |
| 360 ml nut milk | 60% |
| 90 g active starter | 15% |
| 12 g salt | 2% |
| 120 g scald | 20% |

## METHOD

***One day before baking***

1. If you want to make your own milk, start one day in advance and soak the hazelnuts after

removing the skin. Make sure all the nuts are submerged.
2. Make sure your sourdough starter is active and not too sour for your taste.

***Day of baking***

3. Strain the hazelnuts but keep the water; blend the hazelnuts with a total of 450 gr water, including the soaking liquid. Strain the mixture through a cheesecloth.
4. Prepare the scald, combine the chestnut flour and the nut milk in a small pot and heat over medium heat while constantly whisking the mixture. Whisk until the mixture becomes thick like a paste. Let the scald cool down to about 30 degrees Celsius.
5. Combine the wheat flour, chestnut flour, milk and scald and mix until combined.
6. Rest the dough for 30 minutes.
7. Add salt and active starter and knead for 10 minutes by hand or half by mixer (depending on the mixture)
8. Rest (ideally at 24°C) with 4 folds every 30 minutes.
9. Divide into 100 g balls and put them into tin lined with parchment paper, leaving enough room for final proofing.
10. Leave to rise for 1 hour before baking.
11. Either refrigerate overnight and bake next morning or bake immediately.
12. Bake at 230°C with steam for the first 10 minutes for around 30 minutes or until golden brown.

### JONAH'S ANALYSIS

"The use of chestnut flour in a standard wheat bread highlights how perennial crops can be subtly integrated into staple foods. This substitution reduces reliance on input-intensive annuals, while maintaining consumer familiarity. Chestnut flour lowers the glycaemic index, adds fibre and micronutrients and requires no new eating habits, making it a low-threshold, high-impact innovation."

low food

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