

## Zero Bullshit Company

# From being thrown away to becoming a recycled product - Stuttgart start-up produces healthy snacks

**Throwing away food? The Stuttgart-based start-up Zero Bullshit Company is declaring war on food wastage by making nutrient-rich products largely from food industry leftovers. The three food technologists who created this transparent brand are looking to develop more than just delicious and nutritious products.**

According to the German Federal Ministry of Food and Agriculture (BMEL)<sup>1</sup> figures, 12 million tonnes of food end up in landfills every year instead of in consumers' stomachs; this equates to 150 kg of food per capita. What is not obvious at first glance is that valuable food amounting to as much as 2.2 million tonnes per year is already being thrown away during industrial food processing. Sandra Ebert, a doctoral student at the University of Hohenheim, has long recognised that food processing waste streams are anything but waste: "In food production, around 60 percent of all raw materials destined for human consumption go unused every year. Yet, pomace, the solid remains of fruit and seeds after they are pressed for juice and oil, is extremely rich in valuable nutrients."

## Sustainable nutrient bomb



The founder team of Zero Bullshit Company: Lisa Berger, Sandra Ebert und Pascal Moll.

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While still at university, food technologists Sandra Ebert, Lisa Berger and their fellow student Pascal Moll studied biochemical and analytical methods, as well as processing technologies. As part of a European innovation project in 2018, they were among the students from a number of universities that were selected for the EIT<sup>2</sup> Food Solutions Master Class in Helsinki, Tel Aviv and Madrid. "The focus was on finding solutions to combat food waste, because a third of all food produced worldwide is not consumed and ends up on landfills." The Hohenheim food technologists' idea for recycling pomace is both simple and ingenious: "Pomace is press residue that accumulates, for example, when apples are pressed or vegetable oil is produced from oilseeds such as pumpkin and sunflower seeds. As pomace is high in proteins, antioxidants, vitamins, minerals and fibre, it is a real nutrient bomb, so we decided to use these solid remains for something more valuable." In fact, the resource-saving utilisation of pomace has two major

advantages: it has a nutritional benefit for consumers and is sustainable. EIT Food recognised this potential when it awarded the project an innovation prize.

## Solution found, idea won an award – so what came next?

However, just developing a product was not enough, a business plan had to be written and a marketing strategy developed. "The innovation project gave us the initial impetus, but we then had to pick up the project and run with it," says Ebert, explaining the challenges faced by start-ups. "This is where the Stuttgart Gründermotor Meisterklasse #1 mentor network supported us. As food technologists, we are product-oriented, and knew very little about running a business."

With this support, the three doctoral students were able to flesh out their original idea. Initially, the yield was still small and ways had to be found to increase it. Ebert explains why: "We began by developing recipes for food products involving pumpkin and sunflower seed pomace and apple fibre, and started to bake. This process led to 'zero bullshit', i.e. a product that was



Pomace from side streams of oil and juice production: pumpkin seeds, sunflower seeds and apple fibres are ground and dried before being used as powder in the production process.  
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sustainable, nutritious and healthy. We founded the company in early 2020 and decided to call it 'Zero Bullshit Company'. We produced our first prototype, a kind of triangular nacho, in a bakery in the Black Forest in southern Germany. We kneaded, rolled and baked dough, and achieved a daily yield of 2 kg. This wasn't scalable at all."

Large-scale production came next: the founding team was introduced to a certified process manufacturer in the Lower Main region, for whom the dough was adapted. The ingredients? The ground, dried and thus easily storable pomace makes up over 50 percent of the dough. The pumpkin seed pomace comes from an oil mill in Styria, the sunflower protein from southern Germany, the apple fibre from Baden-Württemberg. The rest is made up of cornmeal which is needed to make the protein- and fibre-rich dough puffy. "Cornmeal, like all the other ingredients, is low in allergens and helps the dough rise during the extrusion process, just like peanut flips." The principle: the basic ingredients are mixed with water, kneaded into a dough, and the dough is forced through a container under pressure and at a high temperature. "The water evaporates as soon as the blank comes out of the nozzle and the pressure is gone. This is how you get a puffy structure and porous surface," Ebert explains. A cutting tool is used to obtain individual pieces; about 200 kg of dough can be processed in an hour. The fact that the company is now producing much higher quantities is also reflected in the machinery, which, together with the drying unit, is almost living-room size.

## Leaping forward: from pomace to 'rescue crisps'

"We are learning something new every day," says Ebert, referring to the challenges, including product development, financing and business strategies, and marketing. The packaging material will also need a logo to show the product is organic. "Organic products are in line with the zeitgeist, and our ingredients are organic." One point to watch out for is that a product cannot display a 'bio' logo if it is not certified. "That's why we've invested money into getting the entire value chain certified, including all raw materials, processors and suppliers, manufacturers, us as entrepreneurs, every single type of product, logistics and the warehouse."

It's worth it: The first product, 'rescue crisps', is already available in the first Rewe stores in southern Germany, as well as on Zero Bullshit Company's own online store. At 200 Kcal, it's an ideal snack to pack for work. Sustainability was also taken into account for the manufacture of the packaging. "Food containing water must be packaged in an air- and light-tight way, and only plastic does the job," says Ebert, explaining the dilemma. "We found that a recycling-optimised film was the best solution for our product. We are also keeping an eye on the biobased plastics market of the future and will always remain solution-oriented."

The manufacturing process also takes into account the environmental aspect: "The energy required for producing



After extrusion under pressure at a high temperature, the dough leaves the container through a nozzle. When the pressure is released, the dough instantly expands, and the escaping water vapour leaves air pockets in the individual crisps, which are made with cutting tools.

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high pressures and temperatures is comparatively low, since the extrusion process generates large quantities of product in a relatively short time. In addition, no solvents or other additives are used. As a high-protein meat substitute, the CO<sub>2</sub> issue is also taken care of as the protein does not originate from animals," says the food technologist.

## Benchmark on the snack market

The rescue crisps will not be the company's only product. Ebert explains Zero Bullshit Company's unique selling point: "With our expertise, we can use many valuable waste streams from various manufacturing processes and return the food products we produce from them to the resource cycle."

Zero Bullshit Company wants to become the brand everybody thinks of when it comes to avoiding food waste. "Whether it's by-products from juice production (every German drinks an annual average of 30 litres of apple juice ), beer production or elsewhere, we want to recycle as many unused resources as possible instead of resorting to more and more raw materials with the well-known adverse consequences. Conceivable products range from muesli to packaging solutions made from waste streams." The crux of the matter is that every new product development costs money. That's why the start-up is initially focusing on selling the rescue crisps in grocery and organic stores. "We would be happy to hear from any company interested in cooperating with us, or other stores, especially regional ones, that would like to sell our rescue crisps," says Ebert. "Continuous funding initiatives and food angels provide a critical push for start-ups. We're not necessarily looking for venture capital, but for expertise and networks, e.g. from distribution partners."

Zero Bullshit Company is also represented at food fairs and cooperates with other companies that are pursuing strategies to avoid food waste - the solution approach is attracting more and more attention. "It's also important to us to raise awareness about nutrition issues," says Ebert, explaining the work she is involved in. "Not just for our products, but about ways to provide healthy and sustainable food."

### References

- 1) German Federal Ministry of Food and Agriculture, <https://www.bmel.de/DE/themen/ernaehrung/lebensmittelverschwendung/studie-lebensmittelabfaelle-deutschland.html>
- 2) European Institute of Innovation and Technology, an independent body of the European Union with the aim of strengthening innovation capacity in Europe through cooperation between the most efficient institutes, universities and industrial research centres. It is an integral part of the EU's Horizon 2020 funding programme.

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### Article

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