

Helping food businesses

**REFORMUL**

for a healthier future



## Entering new markets with broccoli crisp reformulation

**“Rather than viewing reformulation as a cost or a waste of money, this is about the longer term.**

**It’s all very well having a great product now, but we need to be working on what consumers want in two years’ time.”**

**Martin Peel  
Managing Director**

Growers Garden is a collective of farmers on a mission to help eliminate food waste and promote sustainable farming practice, by turning over and under-sized fresh vegetables into delicious, healthy, and vegan-friendly snacks. Our broccoli crisps are the first snack of their kind in the world, using fresh vegetables as the number one ingredient, containing no less than 27% broccoli.

**Isn’t broccoli already healthy?**

Our crisps are made from the freshest broccoli with no artificial ingredients, they’re gluten-free and vegan-registered.

As a healthier premium product with an innovative base ingredient - not being potato - it’s important that we’re officially compliant with the UK Government’s legislation on products that are high in fat, sugar and salt (HFSS).

So we were looking at

reducing fat, salt and sugar to achieve a score of less than four (“healthy”) on the UK Government’s Nutrient Profile Score calculator. This would allow us to enter new retail and wholesale markets where the healthy nature of the end product is a true selling point.

The £5,000 we received in the third round of the Reformul8 Challenge Fund went towards the trial process and nutritional analysis.

Food and Drink Federation Scotland’s Reformulation for Health programme offers support to small to medium-sized companies, both FDF members and non-members. For more details, contact [reformulation@fdfscotland.org.uk](mailto:reformulation@fdfscotland.org.uk) or visit [www.fdfscotland.org.uk](http://www.fdfscotland.org.uk)

## CASE STUDY

### What we did

We’d participated in the first round of the Reformul8 Challenge Fund back in 2021, and that had, on average, reduced salt content by 39% and sugar by 31%.

**Growers  
Garden**

*The Farmers Collective*

The uncooked base pellet has very little fat, with potato, pea fibre, spinach, salt and - of course - broccoli. The fat is absorbed during the cooking process.

So we looked at adjusting the base pellet itself.

- We looked at **salt roasting**, which works really well for some vegetables like beetroot that are naturally sweet. But when you salt roast the broccoli pellet, as a brassica it doesn’t taste as nice. And it was the same for baking which meant that for the broccoli crisp we found we still need to fry.
- **Salt reduction:** salt plays a key part in the cooking process. It helps hold the water in the pellet, which as steam helps it expand during cooking and pops up the pellet to give a light crispy texture.

Similarly, there’s salt in the seasoning but you want the flavour and excitement when you eat a premium snack so you can’t take out all the taste.

When we reduced the salt we found we lost some of that expansion in the cooking process, making for a denser crisp.

- **Salt replacement:** so we focused on salt alternatives, replacing sodium chloride with calcium chloride
- **Fat content:** we also looked at reducing fat, by adding more pea fibre, which is water-soluble and keep things green. This also holds some of the water which means you still get a nice expansion but that water isn’t displaced in favour of the cooking oil when you fry it.



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## The findings

In an ideal world, we'd do a straight swap with salt and calcium chloride. But adding too much calcium chloride affected the taste of the cooked crisp so we tested it by including it in 5% increments until we found the right level. It means we've taken more than 40% of the salt out of the base pellet. We found that's the point where you don't impair the taste or texture of the end product.

- We've also had the seasonings reworked to get the salt down so our "original" flavour crisp now has less than 1% fat, compared to 1.5% for an average crisp or 3.5% for poppadoms (a comparable texture to the broccoli crisp).
- And our fat content is sitting at 18% fat, compared to 29% for the average potato crisp, and 38% for other vegetable crisps



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## CASE STUDY

### The benefits and learning points

Broccoli crisps are a genuinely healthier alternative to the savoury snacks that are out there so being able to get it in front of children and into the NHS is important to us.

As a healthy snack, every retailer or wholesaler's first question is whether it's HFSS-compliant.

Due to the success in our reformulation project, we now have a product that's approved for use in schools in Scotland and also in the NHS.

**Having a balanced team** that has both technical skills and commercial knowledge is vital. Whenever we do trials, it takes away from our production, but rather than viewing reformulation as a cost or a waste of money, this was about the longer term.

But the cost of ingredients plays a part. So we now have more pea fibre in our products but it is by far the most expensive ingredient in there. And if you add too much, you affect the end texture so there is an element of balance.

A key learning point from this project is to **consider wider ingredient interactions**. So taking fat as an example, to reduce fat content you maybe don't have to look at that directly but instead think about what it's interacting with, and how it's getting into the product.

What other ingredients you can change? That's how we ended up looking at fibre.

**Wider benefits of innovation:** producers bring out different flavours and different pack sizes and different packaging but they don't really add new base ingredients or excitement into the snacking category.

We're working on building a culture of innovation in Growers Garden and we're now turning our attention to developing cauliflower and beetroot lines.

And now we're developing that culture within the business, it's led on to us forming a KTP (knowledge transfer partnership) with Abertay University.

The future's bright, and it's vegetable crisp-shaped.

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