

Case Study

Collaborative Research: Multi-Pack Food Packaging System

Key Facts

- The UK wastes an estimated £23 billion worth of food every year.
- Freshly-prepared mixed salads, vegetable packs and fruit packs are sold blending different foods together in a single package.
- The majority of packaged salads have to be eaten within 2 days.
- The School of Chemistry, Food Biosciences & Pharmacy, at University of Reading has been researching food processing sciences for over 18 years.
- SEPOC grant of £9,700 enabled development of the Multi-Pack.
- The Multi-Pack system allows each food compartment to be tailored to the requirements of its contents, therefore offering a larger selection of fruit or vegetable components as well as a longer shelf life.

The Partner

Paragon Flexibles manufacture and supply optimised permeable films and is part of the larger Paragon Print and Packaging Group. With 7 manufacturing sites across the UK Paragon Print and Food Packaging is the fastest growing independent company within its sector in Europe, with a turnover of over £117m in 2007.

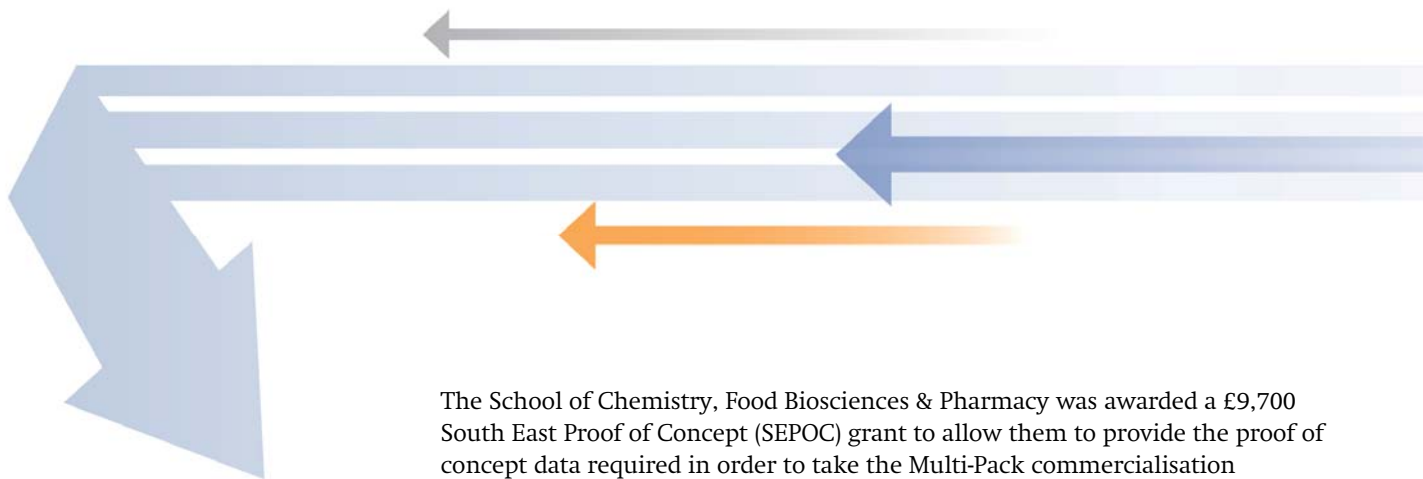
Paragon Flexibles manufacture films for a range of markets from fresh produce to medical supplies and have a food science development centre for the purpose of measuring the respiration rates of different foods and improving shelf life and product quality.

The Challenge

Currently, freshly-prepared mixed salads, vegetable packs and fruit packs, are sold with different ingredients blended together in a single flexible package (bag). Different vegetables, fruits, and salads have different respiration rates and different optimal levels for oxygen, carbon dioxide and ethylene. A single-compartment bag offers a compromise in delivering a packaging atmosphere for adequate shelf life of all of the ingredients packed inside. A multi-compartment pack would contain each salad leaf, fruit, or vegetable in its own “sub-pack” with an atmosphere optimised specifically for the ingredient in that compartment. The main factor limiting commercial exploitation of this concept to date has been the lack of a “proof of concept” study. Such a study could not be undertaken unless sufficient numbers of Multi-Packs could be manufactured, to a reliable standard, to allow testing of the performance of the Multi-Pack concept.

Solution

Professor Niranjan, of the School of Chemistry, Food Biosciences & Pharmacy, at the University of Reading has been researching food processing sciences for the past 18 years. The Multi-Pack concept was developed jointly with Eric Duncan, Chief Food Scientist of Paragon Flexibles, and Jon Staley, an undergraduate student with Professor Niranjan.



The School of Chemistry, Food Biosciences & Pharmacy was awarded a £9,700 South East Proof of Concept (SEPOC) grant to allow them to provide the proof of concept data required in order to take the Multi-Pack commercialisation forward.

An experimental programme was developed to assess suitable films for the Multi-Pack concept. Performance, in terms of keeping quality and shelf life, was compared to current commercial practice. In collaboration with Paragon Flexibles, production strategies were tested to assess the economical viability of producing 1000 packaging pieces at high speed for use in the experimental programme.

Benefits to the Partner

The Intellectual Property has been protected. Proof of the Multi-Pack concept has been established and demonstration prototypes have been created. The technology is ready for presentation to potential licensees.

Potential customers stated that a product which could increase shelf life by 24 - 48 hours would be extremely valuable to them.

Benefits to the University

The SEPOC grant has produced excellent internal PR for enterprise activity within the University, encouraging others to consider commercialising their research.

The project has also provided extensive experience in commercial product development for staff and students.

The reputation of the University and the School of Chemistry, Food Biosciences & Pharmacy has been enhanced.

The University has gained experience in industry activity with an innovative pan-European manufacturer.



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University of Reading

The University of Reading is a world-class research-intensive university covering a broad spectrum of disciplines across the Life and Physical Sciences, Arts and Humanities, Social Sciences and Henley Business School. Areas of particular strength include: Climate Systems Science, Preventative and Therapeutic Health Sciences, Sustainable Construction and Environments and Computational Science and Informatics.

The University works with businesses providing support for research and development, as well as access to expertise and equipment to solve business challenges. To find out how you can access the leading minds at the University of Reading please contact our Knowledge Transfer Centre.