ZESPRI INNOVATION FUND

ANNUAL REPORT

2023/2024

Zespri™ KIWIFRUIT

FOREWORD

“SINCE ITS INCEPTION IN NOVEMBER 2023, ZAG HAS RECEIVED GOOD RESPONSE, WITH OVER 100 APPLICATIONS FROM INNOVATORS ACROSS MORE THAN 15 COUNTRIES.”

KIA ORA

A year ago, we embarked on an exciting journey with the launch of ZAG, the Zespri Innovation Fund. This initiative represents our commitment to building a brighter, more sustainable future through the incredible potential of kiwifruit. Today, it is my privilege to share with you the great progress we’ve made.

Since its inception in November 2023, ZAG has received good response, with over 100 applications from innovators across more than 15 countries. From this impressive pool of ideas, 11 projects have progressed to pilot stages, paving the way for transformative advancements in our industry.

These initiatives span a range of focus areas, from enhancing orchard productivity while reducing emissions, to ensuring our kiwifruit is harvested at its peak quality, and minimising fruit waste during quality checks. At the heart of ZAG lies a clear vision: to unlock the power of collaboration and accelerate sustainable kiwifruit innovation.

We want to take this opportunity to express our heartfelt thanks to everyone who has contributed to ZAG’s success so far. To our Innovation leaders who have fully driven the pilots, the suppliers who have provided invaluable support, and our dedicated team at Zespri—your commitment and collaboration have been instrumental in driving this initiative forward. We are deeply grateful for your efforts and passion.

Looking ahead, these projects represent just the beginning. We continue to invite bold thinkers and passionate innovators to join us on this wonderful journey.

Visit our website at www.zespri.com/zagfund to learn more and explore how you can be part of this exciting initiative. Together, we can grow a more sustainable future, one kiwifruit at a time.

Jiunn Shih ,
Chief Marketing, Innovation & Sustainability Officer, Zespri International

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2024 AT A GLANCE

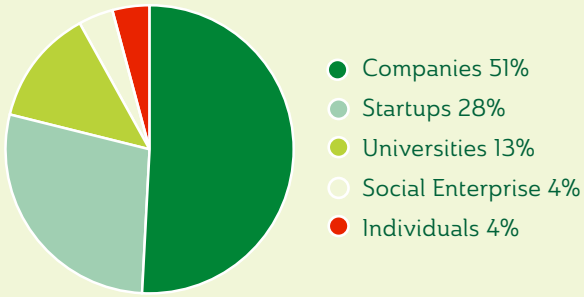
SUBMISSION LOCATIONS

124 TOTAL SUBMISSIONS

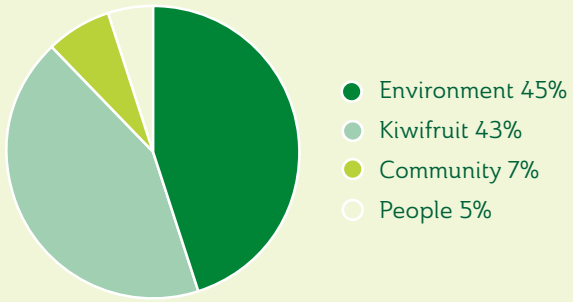
11 PILOTS STARTED

SUBMISSIONS TYPE

ORGANISATION TYPES



CHALLENGE AREAS



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PILOT HIGHLIGHTS

TITLE ENHANCED MATURITY ASSESSMENT BASED ON VOCS

SUPPLIER SCENTIAN BIO, NEW ZEALAND

This project pioneers the use of volatile organic compounds (VOCs) to improve kiwifruit maturity assessments, offering a faster, more precise alternative to traditional methods. VOC-based testing analyses the unique chemical signatures emitted by fruit, enabling accurate predictions of maturity and optimal harvest timing. By replacing labor-intensive and time-consuming methods, this innovation could reduce operational inefficiencies and enhance supply chain planning. Growers could benefit from improved productivity and better decision-making, while customers and consumers receive consistently high-quality fruit delivered at peak ripeness. The project also aligns with Zespri's sustainability goals by potentially reducing post-harvest waste and improving resource efficiency, strengthening the brand's reputation for innovation and quality.

TITLE BIOCHAR FIELD TRIAL 2024

SUPPLIER M.B. HORTICULTURE LTD., NEW ZEALAND

This trial explores the application of biochar as a stable form of carbon storage in kiwifruit orchards, with the potential to enhance soil health and productivity, directly contributing to Zespri's climate-positive goals. Biochar, a carbon-rich material derived from organic waste, has been shown to improve nutrient retention, reduce soil leaching, and enhance productivity in a variety of crops, but has not yet been widely tested in perennial tree or vine crops. This project aims to assess the impact of biochar application in kiwifruit orchards when applied with and without the addition of compost, looking at its effect on soil characteristics and fruit production, as well as the economics of application. The results will give growers increased confidence when trialling this promising product and also reinforce Zespri's leadership in sustainable farming practices.

TITLE MICROWAVE SENSING TECHNOLOGY FOR FRUIT QUALITY

SUPPLIER VERTIGO TECHNOLOGIES B.V., NETHERLANDS

Microwave sensing technology represents a breakthrough in non-destructive testing for kiwifruit quality, helping growers and packhouses to reduce waste, improve inventory management, and enhance fruit quality consistency. By using microwave signals to assess internal properties such as moisture content and firmness, this innovation delivers rapid and precise measurements without damaging the fruit. The project aims to validate the technology's effectiveness in real-world conditions, ensuring compatibility with supply chain requirements. This innovation benefits growers by enabling data-driven decisions to optimise harvest timing and inventory planning, while customers and consumers enjoy superior fruit quality with reduced waste. With its potential to transform kiwifruit quality assessment, microwave sensing supports Zespri's commitment to innovation and operational excellence.

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OUR PILOTS

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TITLE **PREHARVEST RED COLOUR ENHANCEMENT**

SUPPLIER **START AFRESH, NEW ZEALAND**

This pilot investigates red colouring in Red19 kiwifruit. By trialing pre-harvest products and physical stress methods, the study aims to standardize the flesh colour. The project benefits growers and Zespri by ensuring a more visually consistent product for consumers.

5

TITLE **BIN TRACKING PILOT**

SUPPLIER **DMS, NEW ZEALAND**

The Bin Tracking Pilot uses GPS technology to improve inventory management and supply chain traceability, addressing financial and operational inefficiencies caused by lost bins. Scaling the trial to 190 bins improves growers' logistics, biosecurity, and operational efficiency, ensuring a more reliable supply chain.

6

TITLE **ODOUR-BASED ROT DETECTION FOR REPACKING SYSTEMS**

SUPPLIER **START AFRESH LIMITED, NEW ZEALAND, IN COLLABORATION WITH ALS GLOBAL AND RUAKURA RESEARCH CENTRE**

This pilot leverages odour detection technology to identify rotting kiwifruit, streamlining repacking processes. By reducing manual handling, it minimises waste, preserves fruit quality, and optimises supply chain efficiency, benefiting growers, retailers, and consumers.

7

TITLE **ESKO: A CARBON STOCK ESTIMATION TOOL**

SUPPLIER **AGREENMENT AND CREA-AA RESEARCH CENTER, ITALY**

This tool quantifies the ecosystem benefits of sustainable practices, potentially helping and encouraging kiwfruit growers to adopt regenerative methods. By enhancing soil health and and fertility, growers and Zespri align with European sustainability goals, boosting productivity and environmental performance.

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OUR PILOTS

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TITLE BIOACTIVE MOLECULES AS BIOSANITISERS

SUPPLIER MASSEY UNIVERSITY, NEW ZEALAND, IN COLLABORATION WITH AGRESEARCH

This pilot develops eco-friendly biosanitisers to combat any potential bacterial persistence in kiwifruit processing facilities. By reducing chemical dependency, it enhances food safety and aligns with Zespri's sustainability initiatives, benefiting both consumers and the environment.

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TITLE ENHANCING SAFER KIWIFRUIT PROCESSING WITH FUNCTIONALISED BIOPARTICLES

SUPPLIER MASSEY UNIVERSITY, NEW ZEALAND, IN COLLABORATION WITH THE NEW ZEALAND FOOD SAFETY SCIENCE AND RESEARCH CENTRE

This pilot looks at enhancing safer kiwifruit processing by offering a targeted, eco-friendly solution (functionalised bioparticles). It mitigates food safety risks while supporting sustainable practices, benefiting growers and consumers alike.

10

TITLE PAPERWISE: ORCHARD WASTE TO PACKAGING

SUPPLIER PAPERWISE, NETHERLANDS, IN COLLABORATION WITH APOFRUIT ITALIA, ITALY

This initiative explores converting kiwifruit pruning waste into other recyclable paper products. By repurposing agricultural by-products, it reduces environmental impact and reinforces Zespri's commitment to explore eco-friendly practices and sustainability efforts.

11

TITLE AGOVOR: DRIVING CARBON NEUTRAL ORCHARDS WITH SMART AUTOMATION

SUPPLIER LINCOLN AGRITECH LIMITED AND AGOVOR LIMITED, NEW ZEALAND

This pilot project tackles the challenge of reducing fuel emissions in kiwifruit orchards, a critical step toward carbon-neutral orchards. By trialling the AGOVOR electric-powered, autonomous robotic vehicle, the project explores a sustainable alternative to fossil fuel machinery for weed spraying, with a mower attachment now also available. It aims to determine the feasibility, desirability, and financial viability of AGOVOR, which aims to deliver potential environmental benefits such as lower greenhouse gas emissions, decreased labour costs, water use and soil compaction.This initiative supports Zespri's growers by providing insights for sustainable on-orchard practices.

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