

FEBRUARY 2022

# Mushroom

**Strategic Investment Plan** 2017-2021

## PERFORMANCE REPORT



## Mushroom SIP performance report

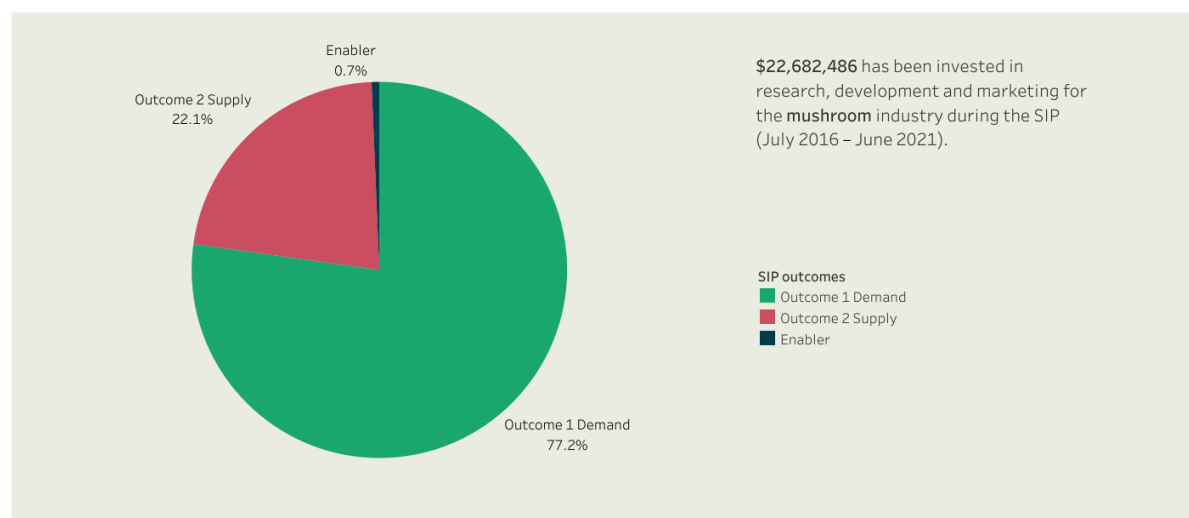
This performance report reviews the performance of levy investments delivered against the mushroom Strategic Investment Plan (SIP), which was active for the 5-year period from 2016/17 to 2020/21. The SIP was developed to strategically guide research and development (R&D) and marketing levy investment in accordance with core industry priorities. The SIP featured two outcome areas, eight strategies and 10 key performance indicators (KPIs), summarised in Table 1. A total of \$22.7 million was invested into the Mushroom Fund over the 5-year period of the SIP. The total investment expenditure allocated against each outcome is provided in Figure 1.

**Table 1: Mushroom SIP outcomes**

Outcome	Description	Expenditure allocation*
1. Demand	Achieve the bold and ambitious target of domestic consumption of 4 kilograms per person of mushrooms by 2021	77.2%
2. Supply	Mushroom growers are profitable and sustainable through increased yields, reduced costs and effective risk management	22.1%

\*Total investment \$22.7 million as of June 2021. Balance of expenditure comprises of enabler investments, which includes expenditure to support the delivery of the SIP including advisory meeting and publication costs.

**Figure 1: Mushroom SIP investment expenditure analysis**



## SIP performance analysis

This performance report reviews the investment achievements delivered within each outcome area that have generated impact for growers. The overall status of each strategic area, informed through an assessment of KPI performance, is also provided. The evaluation status and criteria were:

Strategic area status	Criteria
Achieved	KPIs for this strategic area were met
In progress	Investment delivery remains ongoing
Not achieved	Investment was not prioritised in this strategic area

The results have been informed from evidence compiled through reviewing investment documentation and engagement with project managers. Outcomes generated through the investments are documented and brief case studies of flagship performance and impact for each outcome area are also provided.

## Outcome 1: Demand – Achieve the bold and ambitious target of domestic consumption of 4 kilograms per person of mushrooms by 2021

The mushroom 2017-2021 SIP prioritised growth in domestic consumption of mushrooms, noting that 97% of production is consumed domestically. At the time of the SIP being prepared Australian mushroom consumption per capita was 2.8 kg per year. With reference to higher consumption in Canada (3.5 kg per person per year) and China (10 kg per person per year), an ambitious target of 4 kg per person per year was set for the end of the 5-year period of the SIP.

### Summary of strategic area and achievement status:

The strategies in the SIP that were identified to support mushroom demand are listed below. An achievement status is provided based upon internal evaluation of project performances:

Strategic area	Status
Development of a mushroom annual marketing plan	Achieved
Monitor actual consumption per capita and trends against annual targets	Achieved
Develop and implement a food service marketing and promotion program	Not achieved
Diversification through the identification and establishment of new markets	Not achieved
Review previous investment in to health professionals to promote the consumption of mushroom as a healthy alternative to evaluate its effectiveness and guide future investments in this area	Achieved
Use Industry intelligence to evaluate and monitor the effectiveness of the M&P program with the intent to continually increase demand	Achieved

### KPI callouts:

- The *Australian Horticulture Statistics Handbook* (HA18002) reported the average domestic fresh mushroom supply over the SIP period was 8% higher when compared to levels prior to development of the SIP.
- The outcome KPI for domestic fresh mushroom consumption to reach 4 kg/person/year was not achieved. Total supply per person, as a proxy for consumption per person, averaged 2.82 kg/person/year during the SIP (up 1% on the average prior to development of the SIP) with a peak of 2.92 kg/person/year in 2018/19.
- The outcome also had a KPI to increase the supply of mushroom into the foodservice market. Three years of data were collected over 2019 to 2021 showing a 15% net decrease in volume of fresh mushroom sold through foodservice channels. However, this was largely impacted by the COVID pandemic, which led to volatility in the foodservice sector, with a 24% fall in volume between 2018/19 and 2019/20, before a 19% rise in 2020/21 to volume of 18,400 tonnes.
- Ongoing at the end of the SIP, *Educating healthcare professionals about Australian mushrooms* (MU17002) engaged 1,465 health care professionals (HCPs), with a survey finding an increased understanding of the nutritional properties and health benefits of mushrooms (91.2% able to specify at least one nutritional property, an increase from 72% at baseline), along with increased numbers of HCPs recommending mushrooms to clients (from 31.6% to 46.6%).

### ***Case study: Marketing strategy***

With a key focus on taste, ease and health and keeping mushrooms top of mind on the path to purchase, the marketing program across 2017-2021 adopted an integrated approach, with a full mix of activities, from TV and digital advertising, to high-impact in-store sampling, an ongoing social media campaign, an ambassador strategy and more. In 2021 the new 'Add the Mighty Mushie' campaign was launched, positioning mushrooms as a unique superfood that provided a wealth of specific health benefits and a rich umami flavour – giving clear reasons to consume more mushrooms, more often.

Research conducted by Fiftyfive5 demonstrated:

- Strong campaign recall (prompted) at 32%, higher than previous campaigns
- Positive changes in perception, specifically within the realms of mushrooms being tasty and nutritious
- Strong purchase intent, seven out of 10 respondents said they would be more likely to purchase or use Australian mushrooms, and many would seek out more recipes after being inspired by the campaign.

## Outcome 2: Supply – Mushroom growers are profitable and sustainable through increased yields, reduced costs and effective risk management

The mushroom SIP 2017-2021 recognised that the industry faced a number of supply risks with the potential to impact the sustainability of the industry. These included a loss of access to chemicals and/or methods to control pest and disease, lack of productivity gains, and food safety risks.

### Summary of strategic area and achievement status:

The strategies in the SIP that were identified to support mushroom supply are listed below. An achievement status is provided based upon internal evaluation of project performances:

Strategic area	Status
Improve production by increasing yield and quality	In progress
Undertake research and development to enhance industry risk management and supply contingencies	Achieved

### KPI callouts:

- The *Australian Horticulture Statistics Handbook* (HA18002) reported the 2-year average mushroom yield for 2017/2018 (last data) was up 11% on levels prior to development of the SIP, to 44 kg/m<sup>2</sup>.
- Ongoing at the end of the SIP, the project *Optimising nitrogen transformations in mushroom production* (MU17004) found that 10% of input nitrogen was incorporated into the mushroom crop, and 20% of nitrogen was lost as leachate or nitrogen-containing gases. Additional losses occurred through compost and casing during cropping. The team also isolated specific microorganisms from high temperature composts, enabling the design of potential compost inoculation treatments aimed at optimising the composting process.
- The project *Agri-technology investment opportunities in the mushroom industry* (MU18002) identified 10 technologies that may be most advantageous for Australian growers to lower production costs, increase yields and improve product quality.
- Several investments supported ongoing capacity to manage food safety in the industry, with the project *Food safety for the Australian mushroom industry* (MU16005) serving to improve industry knowledge of mushroom food safety risks that have been incorporated into the Freshcare food safety system. Additional support regarding industry crisis management and brand integrity has been supported by *Australian Mushrooms crisis and risk management* (MU18007), which provides tools, monitoring and guidance across stakeholder groups to respond to crisis impacts.
- The project *New innovations to improve mushroom whiteness shelf life* (MU19005) produced a grower-focused *Best Bets Guide* to outline the most effective technologies, techniques and strategies to improve and maintain mushroom whiteness in line with consumer preferences. Information to improve handling and management through the supply chain was also supplied.

### ***Case study: Mushroom production waste streams – novel approaches to management and value creation (MU17005)***

The key objective of this project was to identify and assess solutions that have the potential to deliver tangible benefits to the Australian mushroom industry and its stakeholders.

The project was delivered through three phases.

In phase 1, through site visits and interviews, the project team developed three opportunity areas to address the project scope: improved efficiency in the production process; repurposing waste; and new commercial opportunities.

Phase 2 included a broad search across industries, academic literature and geographic boundaries culminating in more than 30 concepts. Three broad solution areas were selected for further development: energy and fertilizers, high value foods (HVF), and recycling waste for further production.

Inputs from academics, experts, enterprises and the mushroom industry helped to inform business case development after which four solutions were recommended for further industry R&D: recycling spent mushroom substrate (SMS) back into the production process as either casing or compost; investment in capital equipment for non-thermal dewatering (pelletising) of SMS for on-site energy or off-site sales into energy and fertiliser markets; drying and powderisation of edible mushroom waste into a shelf-stable powder for the HVF market; and an edible coating applied to fresh mushrooms to extend shelf life and reduce costs and spoilage.

In total, these four solutions were assessed to have the capability to generate \$55 million of operational cost savings and/or new revenue to the industry per year, while utilising hundreds of thousands of tonnes of waste. Beyond substantial returns on waste, new technologies, partners and strategies were identified to expedite the industry's movement up the commercial value chain.