AGRICULTURE 4.0
Australia as a global hub for agtech and foodtech innovation

Karen Caston
Senior Investment Specialist, Agribusiness and Food

- AUSTRADE’S ROLE
- AUSTRADE’S AUSTRALIA FOR AGRICULTURE 4.0 INITIATIVE
- MARKET LANDSCAPE FOR ALTERNATIVE PROTEINS
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- MARKET LANDSCAPE FOR ALTERNATIVE PROTEINS
For Australian businesses:
- Advice on doing business overseas
- Information and insights on international trends and new business opportunities
- Introductions to networks of key decision makers, customers and contacts

For international companies:
- Provide insight on Australian capabilities
- Identify potential investment projects and strategic alliance partners
- Identify and contact Australian suppliers.

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AGRICULTURE 4.0

AGRICULTURAL LIFE CYCLE

Agriculture 1.0
Transition from hunting & gathering to settled agriculture (aka Neolithic Revolution)

Agriculture 2.0
Mechanisation
Application of scientific principles to cultivation, animal husbandry & grazing. Birth of modern farming practices in Great Britain

Agriculture 3.0
Explosion in agricultural production, especially in the developing world. The “Green Revolution”

Agriculture 4.0
The era of Agtech: data, robotics, automation, drones, satellites, science. Birth of “SMARTFARM”

Production/Output/Value 4.0

10,000 BC 17th-19th century 1950s-1960s 2018-

DRIVERS OF AGRICULTURE 4.0

Food for Health & Wellness

Provenance, Authentication & Traceability

Convenience

Extended Shelf Life

Food Safety

Real-Time & Transparent Transactions

Ethical Eating & Production

Alternative Food Sources

Creating Enhanced Value

Maximising Yields

Sustainable Value Chains

Demand

Supp

Distribution
CURRENT STATE OF PLAY

AUSTRALIA FOR AGRICULTURE 4.0

- Launched by Minister Birmingham on 19 February 2019 at evokeAG.
WHY AUSTRALIA FOR AGRICULTURE 4.0

Collaborative Innovation Ecosystem

- Strong government support for R&D
- World-leading producer
- Addressing global trends and challenges
- An ideal test market
- Research excellence
- Thriving agtech & foodtech sector
- Track record of innovation

WHAT AUSTRADE IS DELIVERING: EVOKEAG MISSION
WHAT AUSTRALIA IS DELIVERING: NEW ASSETS AND SOCIAL ADVOCACY

Brochure, case studies and insight pieces
Agriculture 4.0 website
Social media toolkit & asset library
ibrand.Austrade.com

AUSTRALIA FOR AGRICULTURE 4.0 SOCIAL ADVOCACY TOOLKIT
#ausag40

AUSTRALIA: SHAPING THE FUTURE OF FOOD AND AGRICULTURE

From robotics and remote sensors to bioscience and advanced food manufacturing solutions
- AUSTRADE’S ROLE
- AUSTRADE’S AUSTRALIA FOR AGRICULTURE 4.0 INITIATIVE
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GLOBAL PROTEIN MARKET

• Global protein ingredients market valued at AU$50.8 billion (US$36.1 billion) in 2017.
• Plant-based proteins market valued at AU$12.4 billion (US$8.8 billion) in 2017.
• Animal and plant-based proteins are expected to grow to reach AU$71.9 billion (US$51 billion) by 2022 and AU$16.7 billion (US$11.9 billion) for plant-based proteins.

MARKET DRIVERS AND OPPORTUNITIES FOR PLANT-BASED PROTEINS

Drivers and opportunities

- Increasing awareness of health and wellness – higher nutritional properties of plant-based proteins
- Increasing desire for sustainability and food security
- Changing demographic with younger populations not as ‘brand loyal’
- Rise in acceptance of plant-based milk and meat analogs
- Increased availability and knowledge of plant species
- Advancement in extraction and taste-masking technologies and novel ingredients
- Increased veganism and lactose intolerance

AUSTRALIAN CASE STUDIES

- **UTS’s Deep Green Biotech Hub**
  Microalgae in a range of alternative food products

- **Edible Bug Shop**
  Breeding insects for human consumption

- **Life Health Foods**
  Largest manufacturer of analogues in Australia

“By 2020, Australia’s packaged vegan food market will be worth $215 million”

“2.25 million Australians aged 18 and over live a meat-free life”

“Australia is the third fastest growing market in the world for vegan foods”
GLOBAL PLANT PROTEIN INVESTMENTS

<table>
<thead>
<tr>
<th>Company</th>
<th>Market Activity Type</th>
<th>Year</th>
<th>Protein Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roquette</td>
<td>Expansion</td>
<td>2017</td>
<td>Pea Protein</td>
<td>The company is constructing a giant pea facility in Canada and the production is expected to begin in 2019 with a production capacity of 120,000 tons per year. Production of other plant-based proteins is also anticipated to add to the lines at a later stage in the coming years.</td>
</tr>
<tr>
<td>DuPont Nutrition</td>
<td>Product Launch</td>
<td>2017</td>
<td>Soy Protein</td>
<td>The company launched SUPORE XT55 Isolated Soy Protein that addressed functional limitations of previous technologies and offering product manufacturers direct cost savings.</td>
</tr>
<tr>
<td>ADM</td>
<td>Product Launch</td>
<td>2017</td>
<td>Wheat Protein</td>
<td>Launched a range of wheat protein concentrates, Nutrice. The hydrolyzed wheat-sourced protein concentrate delivers 85% protein content, high glutamine content, and is expected to be used in formulation of cakes, biscuits, bars, and beverages.</td>
</tr>
<tr>
<td>Tate &amp; Lyle</td>
<td>Expansion</td>
<td>2017</td>
<td>All plant protein</td>
<td>The company unveiled its global innovation center in Germany, which aims to expand its customer-facing facilities. The facility now has dedicated areas of prototype production for dairy, convenience, bakery and meat preparation. The center will also hold innovation workshops, seminars, and on-site technical training.</td>
</tr>
<tr>
<td>Zivo Bioscience</td>
<td>Partnership</td>
<td>2017</td>
<td>Algae protein</td>
<td>The company partnered with feed additive producer NutriQuest to jointly develop and test animal nutrition products using Zivo's algae strain. The company also partnered with Algaltek based in Spain. This is a cultivation partnership to produce its proprietary algae strain in photobioreactors.</td>
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</tbody>
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START-UPS AND FUNDING IN PROTEIN MARKET*

<table>
<thead>
<tr>
<th>Company</th>
<th>Product Category Focus</th>
<th>Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soylent</td>
<td>Sports nutrition and meal replacements category. Offers products in the form of powder, beverages – free from animal protein, lactose and nuts.</td>
<td>$50 million Series B</td>
</tr>
<tr>
<td>Bell Baby Brands</td>
<td>Infant formula. Peanut-based products that allow kids’ immune system to be prepared for any kind of food allergies. The products are a combination of peanut, egg, milk, fish, shellfish, tree nuts, soy, wheat, sesame, and vitamin D.</td>
<td>$35 million Series B round</td>
</tr>
<tr>
<td>Doral Health Technologies</td>
<td>The company excels in twins and quadruplets in natural extracts.</td>
<td>$35 million in a late-stage round</td>
</tr>
<tr>
<td>Mazuma</td>
<td>Nutrionese shake for women health</td>
<td>Undisclosed</td>
</tr>
<tr>
<td>Nutriada</td>
<td>An innovative nutrition &amp; health startup that makes ingredients for specific customer groups</td>
<td>Undisclosed – series A</td>
</tr>
<tr>
<td>Nutrall</td>
<td>Focused on developing new plant-based ingredient alternatives</td>
<td>$8 million Series A</td>
</tr>
<tr>
<td>Finless Foods</td>
<td>Cultured meat and fish – The category involves growing meat or fish in a laboratory by applying methods of tissue engineering.</td>
<td>Undisclosed</td>
</tr>
<tr>
<td>Memphis Meats</td>
<td>Cultured meat and fish</td>
<td>$17 million Series A</td>
</tr>
<tr>
<td>Mykika’s Kitchen</td>
<td>Plant-based protein: dairy alternatives such as cheese using cashew nuts, rice and plant-derived oils</td>
<td>$6 million Series B</td>
</tr>
<tr>
<td>Impossible Foods</td>
<td>Plant-based ingredients</td>
<td>$257 million</td>
</tr>
<tr>
<td>Capacity and Bioculture China</td>
<td>Insect-based foods</td>
<td>Undisclosed</td>
</tr>
<tr>
<td>Myco Technology</td>
<td>Sugar replacement category</td>
<td>$35 million Series B</td>
</tr>
<tr>
<td>DuosMatik</td>
<td>An Israeli-based sugar replacement product category company</td>
<td>$8.1m in a Series A</td>
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*Amounts are in USD and proteins include animal and plant-based products.
Get in touch!
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