

Scientific research and development (R&D) and your business

Understanding the difference between Research and Development

Scientific research aims to provide an improved understanding of fundamental processes and, consequently, can give rise to new or improved product, process or technology concepts.

Scientific development attempts to convert a product, process or technology concept into something that is specific, tangible and commercially viable.

Research tends to be a divergent process, whereas development is distinctly convergent. Research and development need to be managed differently, for example, successful academic scientists know how to manage research to get results, but generally they are not experienced at managing development.

The need for scientific R&D in growing your organic business

The commercial production of crops and livestock in an environmentally sustainable way, and the processing of primary produce into safe and nutritious food for human consumption, encompass a diverse set of 'systems', each involving very complex interactions. Therefore, approaching problem solving or product/process improvement in a 'reactive', ad hoc or purely trial-and-error manner will not be particularly effective.

In addition to providing timely and robust solutions, scientific approaches can also provide powerful diagnostic and prognostic information to enable substantiation, effective monitoring and more reliable prediction of outcomes, thus providing significant benefits for marketing, business planning and decision making. Consequently, commercial risk can be reduced and greater commercial potential realised.

An example of fundamental processes investigated through scientific research would be the molecular and cellular changes that occur in disease onset and progression in commercial crops and livestock or in humans. Investigating plant/animal/human

disease or nutrition at the molecular level can provide powerful insights that greatly enhance 'systems' approaches through elucidating complex interactions.

Development, then, might involve taking a known inhibitor of a particular disease, for example, a specific naturally occurring bioactive substance, and working out a specific means of application that gives a statistically relevant improvement in disease prevention or treatment - apply/consume how much, how often and in what form.

Widely used food processing methods can destroy sensitive bioactive substances and so there seems little point in growing highly nutritious produce if subsequent processing greatly reduces the nutritional value. Also, the addition of processing aids is greatly restricted with organic production and so the continued growth of organic food processing demands the discovery and development of alternative methods and inputs.

Considering recent published challenges to the notion of the 'nutritional advantage of organics', and the importance of this issue to the organic industry, it might be timely for the Australian industry to consider becoming familiar with and perhaps being actively involved in the latest scientific research aimed at understanding the molecular basis of human nutrition and its relationship to health (for example the field of nutrigenomics). This type of state-of-the-art, mainstream, scientific research could be of long-term strategic value to the organic industry.

Managing R&D for continuous business growth

In common with other business activities, embarking on an R&D programme without a well-developed 'R&D plan' significantly increases the risk of failure. Furthermore, it is critical that the R&D plan be an integral part of the business plan, for example, the timing of R&D outcomes needs to be synchronised with key business goals.

An R&D plan should clearly specify progress milestones against which the project/programme can be monitored and management decisions made. Frequently, R&D and business processes are not integrated tightly enough, leading to a level

of disconnection sufficient to cause noticeable problems, including reduced business growth.

The outsourcing of R&D to contractors, or the operation of a collaborative R&D alliance, requires a significant amount of effort to be devoted to 'relationship management' to ensure success, particularly when public sector research organisations are involved. In addition, it is highly desirable to put a formal agreement in place before project commencement so that there is a mutually clear understanding of goals, timelines, accountabilities and respective contributions.

Funding R&D

Government grants are one way of substantially increasing your funds available for R&D. For example, the 'Food Innovation Grants' programme operated by the Federal Department of Agriculture, Fisheries and Forestry (<http://www.daff.gov.au/agriculture-food/food/foodinnovation>) or the 'Commercial Ready' programme operated by AusIndustry (www.ausindustry.gov.au/) may be relevant to your particular business. Grants within these programmes can provide up to 50 per cent of eligible project costs. ◀▶

About the author

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