Florigene: technology responds to market opportunity

Highlights

- A strategic vision is based on matching a market opportunity with an emerging technology.
- Dogged pursuit of this strategic vision has seen the company progress from a research focus to one with a marketing and management focus.
- Continuing innovation is based on extension of the original idea to meet a variety of market needs.
- Florigene is the world's first successful 'molecular breeder' in the flower industry and is today a world leader in the field.

Florigene, the Australian company which has established international markets for its unique, genetically-contrived flowers, is a classic case of an innovator who saw a market opportunity for an emerging technology and set out to capture it.

To say that is in no way to diminish its scientific achievements or the financial and management challenges the company has had to face along the way. Rather it acknowledges that the company's eventual success owes very little to good luck; it is the fruit of dogged pursuit of a strategic vision.

That determination has now taken the company to a stage where it manages contract growers in North America, Latin America, Europe Africa, Asia and Australia – producing shades of carnations, roses and gerberas for the cut flower market that have never previously been known.

Equally important, these new varieties have enhanced vase lives, giving them added appeal in the global cut-flower market.

Reaching this point has taken almost 15 years, demonstrating, as so many others have done, that having a good idea is only one small step in being an innovator: Having the resourcefulness and tenacity to see it through to gain and hold a market advantage is an even more important quality.

As Florigene has demonstrated, that may require an organisation to undergo several metamorphoses along the way – from a research company, then to a company with a marketing and management focus. Indeed, Florigene had needed to alter both its management structure and its capital structure to meet these changing demands and equip it to compete in the global marketplace.

Background

Florigene had its origins in 1985 when Dr Michael Dalling, then working with the Faculty of Agriculture at Melbourne University, took a sabbatical to The University of California, Davis College. There he saw developments in genetic modification and realised that this new science opened the potential to create new plant strains with characteristics not previously available.

He decided to set up an operation in Australia to pursue this and brought in as partner a US start-up company called Calgene, which had similar ambitions to capitalise on the potential of gene modification. Dalling attracted investment from a number of Australian venture capital companies and in 1985 Calgene Pacific was established. It was agreed that the Australian arm would focus on horticultural and forestry applications of the technology.

Calgene Pacific quickly established itself as the world leader in developing proprietary gene technology for the flower industry. In 1993 this position was further enhanced by the acquisition of the company's major competitor, a Dutch operation called Florigene.

The Australian operation took the name Florigene and made a decision to focus on horticultural opportunities, rather than forestry. The decision was commercially based: The growing cycle of trees dictated far longer lead times to test and prove the benefits of a new strain. Flowers promised a quicker route to commercial return, and the company had identified a critical opportunity, that is, the flower market's constant search for new colours.

The company had known that roses, gerberas, chrysanthemums and carnations made up around 75% of worldwide flower sales. If it could develop unique colours for these species, the potential would be enormous. And so the company's primary goal became to develop new, marketable colours of flowers.

The company also identified that one of the classic gaps in the popular cut-flower species was their inability to express the color blue, due to the lack of gene coding for a critical enzyme in the production of the blue chemical delphinidin. It then decided to focus on applying gene technology to develop flowers in the mauve-blue-violet colour range, which have not been possible through conventional breeding.

Dr Edwina Cornish, a post doctoral fellow at the University of Melbourne, was recruited in 1988 to help with scientific development. The bulk of the research was done in-house and after considerable effort, the breakthrough came in 1991 when the team led by Dr Cornish isolated the blue pigment gene in petunias. This eventually led to the launching in 1994 of the mauve carnation, called Moondust. It was a world first. This was followed by the violet carnation, the Moonshadow.

To this point the company had relied on its equity capital and Federal government R&D grants to fund its research programs. While research needed to continue to develop new strains of flowers with a wider range of colours, and to enhance the vase-life after harvesting, it also became clear that the company now needed a renewed focus on marketing and commercial development.

Combined research and marketing expertise: potent tool for growth

Edwina Cornish had become Joint Managing Director of Florigene with the departure of Dr Dalling, but in recognition of the new marketing focus, David Gaffney, a former ICI executive with a strong marketing background, was appointed as Executive Chairman. Dr Cornish became Director of Research to ensure that the company's scientific edge was maintained.

This combination of the marketing and genetic engineering research expertise had been a potent tool for growth for Florigene. The breakthroughs that have since emerged from the company were in response to needs that have lingered in the floriculture industry, including longer vase life and improved disease resistance.

According to Dr Cornish, in addition to the 'blue gene' technology, Florigene has an active R&D program directed at vase life extension of flowers. This is important technology because many flowers are currently treated with environmentally noxious chemicals to ensure adequate shelf life in transit and in use. Florigene has patented a gene that obviates the need for these chemicals and represents not only a saving in cost for growers and distributors, but also delivers an important environmental benefit.

Although the science behind these world-leading developments is impressive – and largely conducted in-house by Florigene – Edwina Cornish says that the company is market driven, not science drive. The company now has over 30 new carnation varieties in development which will be commercialised over the next two years.

Despite its world-leading technology, she prefers to talk of Florigene as a focused company, not a creative one.

"The innovation was to realise that advances in genetics were leading science towards a capacity to develop new horticultural products. We realised it was possible to identify the genes that determine colour and then systematically applied our science to this end.

The interplay between market and scientific research

"Since then we have worked to put in place the funding, the management, the production – through Australian and international contract growers – and the marketing. Getting these elements right is as essential to success as the science if we want to be a durable, profitable organisation.

"We continue to innovate by introducing new colours and varieties and by adding new qualities, but in essence these are extensions of the same idea. We identify the market need and pursue the research needed to create the products that will meet it.

"We do not set out to do research, we do research to create products for the market opportunity."

Indeed one gets the impression that at times the scientific breakthroughs proved less of a challenge than the task of putting together all the other elements of resourcing and managing the project.

Not least of these is maintaining the financial stability of a start-up company that must rely on its capital and research grants to see it through the product development phase and then raise more capital to develop the international markets and production facilities – for there is no doubt the big markets are in the US, Europe and Japan.

This has required joint ventures in some cases.

Florigene extracts maximum value from its intellectual property by using contract growers to produce flowers, rather than selling the technology. This produces greater demands on management, but in the long run offers greater benefit as Florigene is able to control the supply and marketing channels and achieve premium prices.

These growers need to be efficient and reliable and also well positioned to major markets. Ecuador has proved a very efficient producer for the US and Japanese markets, but Florigene will continue to use Dutch, Spanish and Kenyan growers for the European markets, and local growers for the Australian market.

Management of far-flung international operations is conducted by a wholly-owned Florigene subsidiary in Holland, still a world centre of horticulture.

“We have recruited people there with considerable experience in managing growers in diverse locations, so although there are obvious complexities in dealing with such a widespread group of growers, this has not presented a major problem. We have put the structure in place to manage it.”

While the company has worked hard to create a disciplined research and management structure, it has not, as yet, had to formalise its research into likely market needs. “We talk a lot with the industry and our international operations give us a pretty good feedback on trends and needs in all the major markets.

Having a subsidiary in the world market centre for floriculture, Florigene is able to keep its fingers on the pulse of the market. Its people on the ground are able to catch market trends as they arise, and provide the critical feedback to the Melbourne headquarters.

“So far, that has provided quite enough feedback to focus our research effort. We feel we are pretty well in touch with the market; it is something we work at, even though we do not have a formal market research program.”

With an expanding product range, and a sound program of product development and a growing management and marketing infrastructure, Florigene seems set to capitalise further on its breakthrough technology and to become a formidable force in the international horticulture scene.

Its achievements offer a clear message to other would-be Australian innovators. The opportunities presented by scientific advance may offer the basis of an exciting new business, but they are not in themselves a guarantee of success. They need to be backed by structured management and by focused and disciplined research and marketing programs.