

The Australian Mushroom Growers Association

Submission to

**The Productivity Commission Inquiry into the Australian
Government Research and Development
Corporations Model**

June 2010

Australian Mushroom Growers Association and the RDC

The Australian Mushroom Growers Association (AMGA) was established in 1961 and represents the Australian mushroom industry in general and the interests of 76 of the 77 mushroom growers in the nation. AMGA also has members from amongst the greater supply chain including wholesalers, retailers, processors and suppliers. The industry is primarily focused on supplying the domestic market.

Most mushroom farms are located in peri-urban areas close to capital cities, with 25 per cent of national production in the Hawkesbury district near Sydney and a similar level around the northern fringe of Melbourne. The mushroom industry is very labour intensive with every mushroom being picked by hand. Over 4,000 people are employed directly by the industry. With an economic multiplier factor of 5, mushroom businesses are important employers and economic generators with their local communities, particularly in the lower socio-economic segments. The industry also employs considerable numbers of people of non-English speaking background (NESB), as workers in the industry do not require high level English skills.

The Australian mushroom industry is dominated by the white button mushroom, *Agaricus bisporus* which makes up about 98 per cent of domestic mushroom production. Production has expanded from 6,000 tonnes in the mid 1970s to over 60,000 tonnes today. Annual per capita consumption has increased from 0.6kg to 3.2kg during the same period. In 2008/09, domestic mushroom production was 61,000 tonnes of mushrooms with a farm gate value of \$315 million. Gross Value of Production at first point of sale was \$390 million and retail value was \$700 million. The industry continues to grow significantly on the back of strong consumer demand and has a vision to grow ten-fold by 2025.

Productivity of Australian mushroom growers has about doubled in the last twenty years from average yields of 18kg of mushrooms per square metre to in excess of 35kg for the more efficient growers. Greater productivity has been derived from adoption of new technology, improved management, and more efficient workforces.

The Australian mushroom industry has a strong commitment to research and funds a significant program of research in conjunction with Horticultural Australia Limited (HAL). All *agaricus bisporus* mushroom growers pay a statutory levy on all *Agaricus bisporus* spawn (seed) used to grow mushrooms. 25 per cent of the levy funds research, development and extension, and this is matched with funds from the Commonwealth. The industry also has a statutory marketing and promotions levy (75 per cent of total levy) which is unmatched by Government funds. The statutory levy raises approximately \$600,000 for R&D and \$1,800,000 for marketing and promotions. These funds are collected by the Commonwealth Levy Revenue Service (DAFF) and deposited into separate accounts with HAL.

Independent of the statutory levy system (but collected in the same way), the AMGA also collects a voluntary levy from its 76 grower members. This voluntary levy has been in place since 1967 and up until 2002 was predominantly used to fund the industry's promotion and research activities. The AMGA voluntary levy is partly used to run the organisation and partly used as voluntary contributions in addition to R&D projects funded by HAL. In addition to funds raised from its voluntary levy, the AMGA also collects voluntary contributions from businesses and organisations in the mushroom supply chain to invest in additional R&D projects with HAL. In recent years AMGA has funded an additional \$1.5 million of research projects per annum as a voluntary contributor.

The levy investment program is overseen by the Mushroom Industry Advisory Committee (MIAC). MIAC is charged with recommending to the HAL Board how the mushroom industry levy funds should be invested.

Strategic Plan

AMGA have developed a short and longer term vision for the future and put a strategic plan in place to guide the industry towards reaching its short term vision by 2011. The overriding goal is to create an environment that allows growers to maximise the return on their mushroom industry investments.

The strategic plan sets out how the industry aims to achieve this by:

- developing an environment where there is a strong demand for mushrooms
- providing information to increase efficiencies on farm
- minimising risks to the industry
- supporting the industry's human resources and facilitating a global approach to business

The plan identifies impediments to success, and prioritise these. These then dictate what the R&D programme is.

Terms of Reference

Examine the economic and policy rationale for Commonwealth Government investment in rural R&D;

Economics

Globally, horticulture markets and trade are growing at the equivalent of Australia's entire horticulture output each year. Through increased population and consumption, the Australian domestic market alone is projected to expand by the equivalent of nearly one Melbourne by 2020, while the world market will expand by approximately '600 Melbournes.'

Through this expansion, Australian horticulture has the potential to bring in an extra \$2.45 billion whole-of-chain extra profit per year by 2020. Australia cannot compete on cost alone, either domestically or internationally, with countries where wages and living standards are much lower, or with agricultural subsidies ranging from 17 per cent in the US to 34 per cent in the EU and 71 per cent in Scandinavia. But by continuing to build research capabilities, the Australian horticulture industry can capture some of this global growth and demand via leading-edge products, innovative commercial platforms and by placing more emphasis on consumer satisfaction.

The agricultural industry is more resilient in times of economic downturn than most other industries, because everyone has to eat. In the December 2008, during the height of the GFC, National Accounts figures stated that agriculture was the only positive contributor (0.2%) to GDP in Australia (Australian Industry Group 2009). The continued viability of the sector, via R&D funding, is vital to ensure the ability of Australia to survive any future major financial downturns.

Competitive Advantage

Over the years it has been clearly demonstrated that public investments in particular industries is what provides that nation with a competitive advantage. Examples include the Japanese electronics and car manufacturing industries, and America's space industry. The world leading performance of Australian agriculture is due to the comparative advantages created by past investment in R&D by state and federal governments over many decades.

Viable local economies

Both the Queensland and Victorian State Governments have recently implemented policies aimed at encouraging people to move from the overcrowded metropolitan areas of their respective states to less populated regional areas. This will only be a success if there are viable economies supporting jobs in these regions. Investment in R&D generates considerable economic activity in regional and rural areas and provides employment in a number of areas. Farm sector and farm related industries currently provide, on average, 24.2 per cent of regional employment.

Policy Rationale

Since 2002, the Australian Government has had a number of National Research Priorities. These are:

- An environmentally sustainable Australia – transforming the way we utilize the land, water, mineral and energy resources through a better understanding of human and environmental systems and use of new technology.
- Good health – promoting good health and well being for all Australians
- Frontier technologies – stimulating the growth of world-class industries, using innovative technologies developed from cutting edge research
- Safeguarding Australia – including tackling terrorism, crime, invasive diseases and pests.

The above priorities align very well with activities of the RDCs. AMGA in particular has a very big focus on projects with positive health outcomes. The broader horticulture industry has a big stake in ensuring Australia is protecting from invasive diseases and pests, and in making sure Australia is environmentally sustainable, and R&D funding is regularly directing towards such projects. The use of innovative technologies and cutting edge research has long been a characteristic of rural R&D in Australia, and is something for which our nation has become very well known worldwide.

Health Outcomes

Through AMGA's global linkages and Voluntary Contribution (VC) levies, the industry is making a large contribution to improved community health.

In conjunction with the US mushroom industry and Beckman Research Institute in California, AMGA are involved in a human trial, following on from lab work, which they believe will show the benefits of eating mushrooms to people suffering from lung cancer, breast cancer or prostate cancer.

Through HAL, AMGA is also involved with the Johns Hopkins Schools of Public Health and Medicine in the USA in investigating effectiveness of mushroom substitution for high energy density foods on weight loss and health measures, and with Pennsylvania State University in the post-harvest enrichment of mushrooms with Vitamin D2 which could assist the 1 in 6 Australians who do not receive sufficient quantities of this essential vitamin.

A previous industry funded study by CSIRO investigated whether mushroom products might represent a useful dietary or pharmaceutical means of preventing or retarding the progress of Alzheimer's Disease. The study identified specific mushroom products with neuroprotective bioactivity and the potential for process-mediated enhancement of bioactivity. The research is expected to be published following the peer-review process and will be available as a reference for public communication of neuroprotective properties of mushrooms.

The University of Western Sydney, with its close proximity to the large Hawkesbury mushroom growing region, has been undertaking industry funded projects examining the benefits of mushrooms for Type I Diabetes sufferers, and on immune system function.

Reducing the price of food

Research and Development aimed at improving the efficiency of rural producers results in reducing the price of food to rich and poor alike, and this benefit is realised in a short amount of time.

Other

Among other policy rationale for continued support of Commonwealth Government investment in the RDCs are:

- contributing to food security for Australia, and the Asia-Pacific region, leading to greater political stability and avoiding the food riots that have been seen in recent years in some countries. The world population will double between now and 2050. Therefore food production will need to double in that period, and more than double if we want to reduce the number of people in the world who do not receive enough to eat – currently estimated at 700 million. Research and Development will play a crucial role in determining how to feed more people, while the amount of agricultural land available decreases due to urbanization.
- assistance with adapting to climate change to ensure commodities can still be produced.
- The ability of farmers under this current model to determine the strategic direction and collaborate with other organisations on the projects in which they are investing is what makes the model work.
- The Mushroom industry is able to provide permanent work to people from Non-English Speaking Backgrounds (NESB), as there is no large requirement for high-level English communication skills. This provides employment to migrants on the outskirts of capital cities who would otherwise find it difficult to find a job.

Examine the appropriate level of, and balance between public and private investment in rural R&D;

Examine the appropriateness of current funding levels and arrangements for agricultural research and development, particularly levy arrangements, and Commonwealth matching and other financial contributions to agriculture, fisheries and forestry RDCs;

The current 1:1 funding model is appropriate. The Voluntary Contribution matching of dollars in horticulture is vital to the industry. This assists in attracting industry investment in strategic projects that may not otherwise be funded. This is not a compulsory investment, but allows industry to invest at higher levels in R&D than would be possible if the industry was asked to commit that level of

funding under statutory arrangements. Through the VC system, twice the quantum of the statutory levy is invested.

Consider the effectiveness of the current RDC model in improving competitiveness and productivity in the agriculture, fisheries and forestry industries through research and development;

Australia is a high-cost labour country and horticulture is typically labour intensive. Rather than try to compete solely on cost, Australia needs to be innovative to produce novel, distinctive and quality products over which it has some influence in the market place.

Through the RDCs, research and development leading to distinctive quality products can pay big dividends in huge global markets. Studies have found that quality, convenience, novelty, variety, health, 'clean' and 'green' are very important to consumers and they are often prepared to pay premiums for them. For new function health food products, price premiums of 30 to 500 per cent above comparable conventional foods can be earned. Innovation in food production is needed to meet these demands.

Consider any impediments to the efficient and effective functioning of the RDC model and identify any scope for improvements, including in respect to governance, management and any administrative duplication;

The capacity of industries to provide input required of them for an effective system is somewhat limited, as they do not always have the people to provide quality input. The RDC model is beneficial in that it involves the supply chain, and therefore is likely to have higher adoption rates.

There may be potential savings amongst the RDCs to be made by pooling resources, and having centralised systems, particularly in Canberra. Given the amount of RDC funding spent on administration, we would support an examination of how savings can be made here across the RDCs. But the essential and unique needs of the various industries also need to be taken care of.

Consider the extent to which the agriculture, fisheries and forestry industries differ from other sectors of the economy with regard to research and development; how the current RDC model compares and interacts with other research and development arrangements, including the university sector, cooperative research centres and other providers; and whether there are other models which could address policy objectives more effectively;

The biggest difference of the agricultural industry to other sectors is the status of much of the industry as price takers, caused by the perishability of crops, plus the fact that a crop of any particular commodity tends to all ripen at the same time, causing supply to exceed demand. Demand for produce in Australia is also dominated by a powerful duopoly, with which growers have little to no ability to bargain collectively.

This market dominance and the threat of imports in the short term makes it impossible for farmers to demand higher prices, and many growers are receiving the same price for their produce that they were up to 20 years ago, despite the increased cost of wages, fertiliser and many other inputs.

Yet in the long term, there are projected world food shortages, and without a domestic farming industry, Australia would then be hostage to exorbitant prices being charged by those countries that do produce food.

The average size of an agricultural business is also on quite a small scale and there is a long lead time for any investment in R&D to show returns. It is also quite expensive to meet international requirements. A single new active ingredient can cost up to \$150,000 to register in all the major markets.

The RDC model allows industry to have many service providers, some working collaboratively. As mentioned above, the industry in recent times has worked on, and funded, projects with international research institutions and universities such as the Johns Hopkins Schools of Public Health and Medicine, Beckman Research Institute in California, Pennsylvania State University, Arizona State University, Tufts Research Institute and with CSIRO and UWS in Australia.

examine the extent to which RDCs provide an appropriate balance between projects that provide benefits to specific industries versus broader public interests including examining interactions and potential overlaps across governments and programs, such as mitigating and adapting to climate change; managing the natural resource base; understanding and responding better to markets and consumers; food security, and managing biosecurity threats;

Since 2002, over \$18 million has been invested by HAL - the horticulture RDC - in climate adaptation RD&E for the horticulture industry. Climate change will have a large effect on the rural sector, with the successful growing of many commodities relying on a certain number of 'chilling hours' or cannot withstand too many days above a certain temperature. Research on how growers can adapt to this change is critical.

The Mushroom Industry has been involved in many projects investigating the benefits to public health of eating mushrooms. Current research areas include: Alzheimer's; Type I diabetes; Vitamins D & B12; immune system function; breast, prostate and lung cancer; influenza; obesity and weight loss; and heart health. With obesity/unhealthy eating, diabetes, heart problems and abovementioned cancers contributing to a large amount of severe illness and/or death, this research has the potential for large public benefits in terms of healthier, longer lives for citizens and less strain on the health system.

AMGA and HAL are committed to managing biosecurity threats. The following project have been undertaken in recent years:

2008/09

- \$16,000 from the statutory levy (SL) was committed to pest and disease management Services
- \$35,000 through the VC levy for a R&D project on managing vector transmitted fungal diseases of cultivated mushrooms
- \$130,000 SL and \$120,000 VC for development of disease monitoring system for the Australian mushroom industry

2010

- \$82,000 SL and \$72,000 VC for development of a disease monitoring system for the Australian mushroom industry
- \$20,000 for Pest and Disease Management Service
- \$14,000 for managing vector transmitted fungal diseases of cultivated mushrooms

AMGA and HAL have long been committed to the highest standards in protecting the environment in all ways. The April 2010 publication *Environmental Contributions from Australian Horticulture*, funded by the Caring for Our Country programme and produced by HAL and Horticulture for Tomorrow, provides detailed information on the industry's environmental management and benefits. It can be found at www.horticulture.com.au

examine whether the current levy arrangements address free rider concerns effectively and whether all industry participants are receiving appropriate benefits from their levy contributions.

The current levy arrangements do address free rider concerns. This was the reason there was a move from the voluntary system to statutory levy. Yes, all industry participants are receiving appropriate benefits from their levy contributions, including the broader supply chain.

Other Issues

AMGA is aware of criticisms levelled at some RDCs that politicking has been more prominent in their organisations than 'lab to farm' achievements. AMGA does not believe that HAL has been guilty of this, but certainly supports the focus of RDCs being on the core business of research and development, and avoiding becoming involved in either internal or external politics.

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