

23 December 2010

Rural Research and Development Corporations  
Productivity Commission  
Locked Bag 2 Collins Street East  
Melbourne VIC 8003  
*Sent by email:* [rural-research@pc.gov.au](mailto:rural-research@pc.gov.au)

Dear Commissioner

CANEGROWERS is the peak national body representing the interests of Australian sugarcane producers and the Australian Sugar Milling Council is the peak national body representing raw sugar mill owners. Together they are the founding members of the Australian Sugar Industry Alliance, a body that represents the combined interests of the Australian sugar industry supply chain.

As acknowledged in your draft report, the Australian sugar industry has been a pioneer in the development of robust rural industry research and development (R&D) structures. World class, leading edge R&D has enabled the industry to maintain its international competitiveness. The structures have been used as an exemplar for other Australian rural industries.

The longstanding structures are no longer robust. The industry's core R&D provider, BSES Ltd, is in financial crisis. Without substantial reform, the industry's R&D structures risk collapse and the Australian sugar industry's ability to keep pace with the rapid technological advances occurring in Brazil and in the development of genetically modified sugarcane varieties will falter.

The industry recognizes this problem. The Australian Sugar Milling Council and CANEGROWERS are working together and through the Australian Sugar Industry Alliance (ASA) to address the issues confronting sugar industry R&D and resolve the problem. Our challenge is to execute the necessary reform quickly and carefully. Our principal interest and concern with the Productivity Commission's draft report is that the proposed changes to research funding will make the task more difficult.

A key issue being faced is the squeezing of funding to BSES Ltd. With the introduction of the PIERD act, and with it the promise of a commonwealth government contribution in support of rural industry R&D, the industry agreed to the establishment of the Sugar Research and Development Corporation (SRDC) and the diversion of funds from BSES to SRDC to attract the commonwealth contribution. Initially one third of the industry funds provided to BSES were diverted to SRDC along with additional industry money to be matched by federal funding. SRDC committed

to return the funds to BSES in untied grants and add to these funds that BSES won through SRDC's competitive tendering process.

By 2003, SRDC had unilaterally changed these funding arrangements and had switched priorities from:

- development of new varieties, crop management and protection

to:

- value chain integration, human resource development and change management.

A key driver of SRDC research priorities became the national research priorities; sugar industry priorities appeared to be given less significance. The industry recognizes there are both private and public benefits from R&D. Both are valued and the two can not be easily disentangled. Improved varieties, farm management practices, fertilizer and chemical use and improved factory performance deliver significant environmental benefits as well as the obvious private gains.

An area of significant investment going forward is the development of GM sugarcane varieties. GM sugar beet is a reality. Our competitors are investing heavily in GM cane R&D. Australia can not be left behind.

The industry is rising to meet the challenges, as we have always done. Part of the solution is the restructuring of R&D. Existing structures are broken. It is essential that structures, priorities and funding are aligned. By getting it right the industry will contribute effectively to national R&D priorities and make a significant contribution to both the economic and social fabric of regional Australia, particularly coastal Queensland and Northern NSW.

The challenge for government and the Productivity Commission is to recognize the integrated nature of private and public benefits from rural industry R&D, the different requirements of different industries, the work that is underway developing structures for the future - and to develop recommendations that will facilitate change, not stifle it.

Attached is a response to specific areas of the draft report. Thank you for the opportunity to provide comments.

Yours faithfully

Dominic Nolan  
Chief Executive  
ASMC

Bernard Milford  
Senior Manager - Policy  
CANEGROWERS

## **Attachment**

# **The case for government funding of R&D in the sugar industry**

## **INTRODUCTION**

Australia needs a clear vision for its agricultural sector as it faces the challenges of the twenty-first century. Agricultural R&D needs to have a prominent position in underpinning any national production and resource management strategy.

Internationally, Australian agricultural R&D is regarded highly. Given its unique agricultural production systems, it is important Australia maintains its position as a world leader in developing technology to cope with the increasingly difficult challenges that will flow from global warming, climate change, degradation of resources, and declining availability of key inputs such as petroleum resources. The co-investment model in which industry and government jointly fund the cost of rural R&D has worked well in Australia and should be maintained.

The Australian sugar industry is unique among the world's major sugar producers. Sugarcane is a crop traditionally grown cheaply using labour-intensive methods in low-wage countries. In contrast, in Australia sugarcane is produced mainly on small family-owned farms, using mechanisation at all stages of production rather than human labour and animal power, and around 80 per cent of production is exported to a world market that has been widely acknowledged as one of the most volatile as well as being disrupted by government intervention in both developed and developing countries. Sugarcane producers have had to deal with the long-term decline in real sugar prices while costs for farm inputs have continued to rise. ABARE estimates that an annual three per cent increase in productivity is needed to offset this long term decline in their terms of trade. Productivity gains achieved through research are needed to offset this adverse trend. Past economic gains have been obtained through improved varieties, adoption of latest techniques and technologies on the farm and in the factory, industry deregulation, restructuring, farm amalgamation, factory closures and achievement of scale economies. Potential exists for further gains in these areas and for product diversification at the margins. Whatever the future industry structures, a sustained R&D effort will be required to ensure the long term sustainability and development of the industry.

The industry is aware of and takes account of the needs of its sensitive operating environment and works within an ever changing government regulatory environment. The case for continuing government support of research for an industry that operates under these conditions is strong. There are a host of market failure reasons why producers in the sugar industry would under-invest in research without government support. Government support in this case includes both the legislative support that provides the mechanism to collect levies from all participants in the sugar industry to fund research activities as well as the direct investment by government on behalf of all Australian citizens who benefit from the research investment.

We urge the PC to take a broad view in its review of agricultural research. Treasury secretary Ken Henry noted recently that Australia cannot generate higher national income without first expanding the nation's supply capacity and nominated population, participation, and productivity as key elements (Ken Henry, cited by economist Chris Richardson in Australian Financial Review article, 17 November 2010, p70). Population and participation are variables outside the ambit of the sugar industry but improvement in productivity is within the scope of the industry, and the government. The industry does not have access to the resources necessary to expand: harvested area, farm numbers, and labour force are all steady or declining, so productivity is the key element in the industry's continued growth. Without solid research foundations, the sugar industry will not maintain its contribution to regional economic activity and export income. This will be to the detriment of the whole community.

The second aspect that requires a broad view is that government programs supporting rural and regional communities need to be considered holistically. These programs should be evaluated as rigorously as support for rural research has been scrutinised before cuts in government funding for rural R&D are considered.

#### **THE SUGARCANE INDUSTRY PARTICIPANTS**

CANEGROWERS, the Australian Sugar Milling Council, BSES Limited (which conducts research into the sugar industry) and Queensland Sugar Ltd (which markets the majority of Queensland's sugar), are the main players comprising the Queensland

Sugar Industry. About 95 per cent of Australia's sugarcane is produced in Queensland with the remainder produced in three mill areas in northern New South Wales.

#### **CANEGROWERS > Growers peak group**

CANEGROWERS is the peak representative body for Australian sugarcane growers. Established in 1926, around 80% of sugarcane growers are members of the highly successful lobby, representation and services group.. CANEGROWERS exists to provide strong leadership for cane growers within a viable sugar industry, deliver effective representation and valuable services to cane growers and ensure cane grower strength and influence at local, district, and state/national/international levels through unity and shared common values.

#### **AUSTRALIAN SUGAR MILLING COUNCIL (ASMC) > Millers peak group**

The Australian Sugar Milling Council is a voluntary organisation, established in 1987 to represent Australian raw sugar mill owners. As the peak body for sugar millers, ASMC seeks to influence those who can impact the business environment - particularly through the fostering of relationships with Governments, media, other industry groups, and the broader community. The Milling Council provides an information and advocacy hub for members and facilitates a forum for pre-competitive collaboration across the membership.

#### **BSES Limited**

Thorough research, creative development, and effective extension of new knowledge and technology are vital to every agricultural industry. BSES is the principal provider of research, development and extension services to the Australian sugar industry. BSES employs scientists, engineers, field staff, extension officers and administrative staff who work together to ensure that Australian sugarcane remains a valuable, viable commodity. BSES is responsible for the development of new cane varieties in Australia and has several other major programs of work in crop agronomy, plant protection, and machinery evaluation which it conducts from experiment stations, centres, and laboratories located in 17 cane growing areas throughout Queensland and northern New South Wales. BSES Limited has a strong history of achievements, employs skilled staff, encourages innovative thinking, rewards achievements, and has a strong commercial services team supporting its strategic direction.

## **AUSTRALIAN SUGAR INDUSTRY RESPONSE TO DRAFT PC REPORT**

The PC has constructed its thesis on the desirability of government funding for research from basic economic principles arguing that, if growers will benefit from the outcome of research, they should be willing to pay for it up front. Emphasis is given to the “spill over” argument and little attention paid to the extent of market failure in the provision of research services. There are strong economic arguments that demonstrate there will be under-investment in research if left solely to producers.

### **Market failure**

The main reason for market failure in research investment is the relatively small scale of the producers’ businesses. It is impractical for growers individually to invest in the research necessary to solve their own or their industry’s problems.

Individual producers in the sugar industry cannot provide the resources required to undertake the research that is needed unless they act collectively, and they have done so for over 100 years. The transaction costs of acting individually are prohibitive. The uncertainty of R&D outcomes and the long lead times before returns are realised add weight to the market failure argument. In the case of sugar, the millers also share in the benefits of research and have been prepared to contribute with growers to finance industry R&D.

Even the large companies engaged in sugar milling (Sucrogen, formerly CSR Limited Sugar Division, and Bundaberg Sugar Limited), where research was once a significant part of their corporate activity, have long ago integrated their major research approach with whole-of-industry efforts. It cannot be argued that this activity was dropped because government stepped in; those decisions were taken long before the federal government contributed to sugar industry research funding. CSR closed and sold its David North Plant Physiology Laboratory at Indooroopilly to BSES in about 1980, almost a decade before the Sugar Research and Development Corporation (SRDC) was set up and provided significant financial support from the Australian Government to the industry. Those research facilities achieved world acclaim by demonstrating that sugarcane had a superior photosynthetic pathway to many other plants; the facilities were closed or transferred to industry control for practical, economic reasons. The return from such investment, even when it generated world-class research results, was long-term. The benefits were not private and not

captured solely by the company. They were either distributed across industry participants or of a public nature, benefiting the environment or the community at large. Unable to capture commercial returns, CSR (a large public company) could not justify its ongoing individual investment. Acknowledging that the Australian industry was too small to support a company funded program in addition to the industry supported program operated by BSES, CSR closed its cane breeding program.

Biotechnology is the next major science-based advance for the sugarcane industry. Australia's key competitors around the world have been expanding and developing new technologies that will increase productivity, decrease production costs, boosting their sustainability and profitability.

Major multinational public biotechnology companies are now willing to invest in some lines of agricultural research which they believe will be profitable. Monsanto, Dow, Bayer, and Syngenta have all taken positions in the Brazilian sugar industry to profit from advanced plant breeding techniques. In a similar initiative in 2009, BSES and international agribusiness company DuPont signed a Strategic Alliance to develop Genetically Modified (GM) sugarcane varieties and improved planting technologies. This Alliance aims to provide the Australian industry with access and commercialisation capacity for these technologies although GM varieties are not expected to be available until late this decade, such is the long-term nature of the program. The existing BSES cane breeding program will continue to release conventional varieties. Individual growers will eventually be able to choose whether they wish to grow GM varieties based on both the benefits that may be available, the cost for accessing the varieties and marketplace acceptance of products from the new varieties.

R&D investment in Australian sugar therefore needs to improve focus and efficiency and potentially increase in magnitude if these challenges are to be met. The industry has recently agreed to boost funding to BSES while efforts to refocus and reform RD&E are undertaken. It is important to note that the initial investment in basic technology that allowed genetic modification techniques to be developed for sugarcane, which private companies are now willing to investigate for potentially profitable outcomes, was provided from research in CSIRO, and the University of Queensland, public institutions.

## **Public benefits of research**

There appears to be some misunderstanding by the PC about the nature of public benefits that arise from research. There are two significant elements to consider: firstly the benefits that flow from the solution of public problems such as industry and environmental issues which producers have little individual incentive or capacity to pay to solve; and secondly from the benefits that consumers gain through lower-priced or better quality goods produced as a result of research.

All research achieves a balance of public and private benefits: little is either exclusively public or exclusively private.

The most legitimate way to establish the benefits from agricultural research is through the construction of "equilibrium displacement models" which enable the evaluation of producer and consumer surplus. Some of the earliest literature on the evaluation of agricultural research, such as Lindner and Jarrett (1978) or Jarrett and Lindner (1977) considers the distribution of benefits from research but seems to have been forgotten. In the latter paper, the authors note that various previous contributors had explained how the distribution of research benefits between producers and consumers depended on the nature of the shift in the supply curve caused by the innovation, and on the elasticity of demand for the commodity produced. Duncan and Tisdell (1971) showed diagrammatically that when demand is inelastic, for example, returns from research to producers will be negative if research reduces the cost of marginal production more than for inframarginal production.

The change in consumer surplus from an innovation is often as great, if not greater, than the change in producer surplus when the impact of an agricultural innovation is assessed. It is not correct to assume that all benefits from production research accrue solely or largely to producers and therefore they should pay for it. The government, on behalf of consumers, has an obligation to make a significant contribution. This is the other way of viewing the free-rider problem. While the PC has been concerned about free-rider problems among producers, there should be equal concern given to the free-rider problem as it relates to consumers. Australian consumers and the community more widely benefit substantially from research in ways that include low-cost, safe food and fibre production, a sustained contribution to export income, improved environmental amenity and a wider range of services.



Demand for improved environmental amenity and services has increased significantly as community attitudes have changed. The sugar industry has spent considerable research dollars improving management practices both on the farm and in the factory.

While it may be argued that operating within tightening environmental constraints is only one of the obligations on producers, and part of their licence to operate, it is clear that the operating environment has become more restrictive as a result of changing community attitudes. Increasing public demands mean producers operating in an increasingly constrained business environment. As the source of the increasing demand there is an obligation on the community who demand these higher standards, through the public sector, to assist funding the research necessary to enable an industry response.

#### **BSES MODEL - AN EXAMPLE FOR FUNDING RURAL R&D**

The sugar industry has a long history of contributing to its own research. The concept of industry funding was incorporated when the Sugar Experiment Stations Act was first passed by the Queensland Parliament in 1900 to set up the organisation with equal contributions from growers and millers. Until a more substantial contribution was made in the early 1970s, the annual contribution from the Queensland Government was capped at \$14 000 and all of the research funding was provided by the industry. That experience showed the inability of the industry to fund vitally needed infrastructure, namely mechanical harvesters for each of the sugar experiment stations, to keep the industry's research in step with commercial practice. There was no economic justification to equip each experiment station with its own mechanical harvesters to harvest small quantities of trial cane but the results of cane breeding trials would be problematic for the industry if hand harvesting continued. Thus the Queensland Government was convinced of the benefits that would flow from their contributing increased funding to BSES. Later, that funding was provided in return for the bio-security work that BSES did within the industry in lieu of the government.

In 1989, the Sugar Research Council was formed and an industry levy introduced under Commonwealth provisions partly replaced the BSES contribution. In 2000, with the acceptance that only the Australian Government could levy producers, the BSES contribution became voluntary as a payment for service but the ethos of payment to

the industry's principal research provider continued. Many in the industry still refer to the payment to BSES as a "levy", although as a member-based organisation it is a service fee and not compulsory. Still, about 98 per cent of cane growers are willing to pay their membership fees (currently 20c/tonne), no doubt encouraged by the \$0.55 per tonne end-point royalty chargeable under Australian Plant Breeders Rights system that non-members have to pay when their cane is milled.

The principle of co-funding research, more or less equally by growers and millers, has been well established in the sugar industry and led to almost total elimination of the free-rider problem. Grower participation in BSES is still very strong as pointed out previously; growers contribute, on average, approximately 20 cents per tonne, and millers, on average, approximately 17 cents per tonne, towards BSES. This has also been supplemented for the 2010 and 2011 seasons with provision made for some short-term emergency funding.

### **Proposed changes to sugar R&D arrangements**

Several issues that built up over recent years forced a major review of the research system in the sugar industry in 2010. BSES Limited recognised the need to ramp up investment in molecular plant breeding to match the effort of major competitor Brazil where Monsanto, Dow, Bayer, and Syngenta had built various alliances and made substantial investments. A joint venture with DuPont was negotiated in 2009 to provide the advantages of genetically modified sugarcane varieties to the Australian industry.

Over the 2000 decade, cane production in Australia declined from around 40 million tonnes to 30 million tonnes per year and the 2010 crop of 27.4 million tonnes is the smallest in the past 20 years. For much of the decade, world sugar prices were very poor with the result that contributions from the industry for research could not be increased. The CRC for Sugar Industry Innovation through Biotechnology which provided substantial funds for research in genetic engineering and product diversification closed in June 2010 after seven years operation, creating another funding gap for the industry. After deficit budgets since 2008, BSES finances had reached crisis point in 2010 and the industry agreed an emergency funding package. As a temporary measure, the industry has agreed to a one-off contribution of around

\$10 million to BSES, made up of a 20 c/tonne contribution from growers in 2011 and a 5c/tonne contribution from millers in each of the 2010 and 2011 seasons.

This short-term emergency funding will allow BSES to continue operating in the short term. In the longer term, action will depend on the outcome of a comprehensive review of sugar industry R&D jointly funded by growers (through Canegrowers) and millers (through Australian Sugar Milling Council). Port Jackson Partners (PJP) were engaged to conduct a far reaching review of the industry's research activities to develop a more effective, responsive and sustainable model for this essential area of industry endeavours. All major stakeholders including DEEDI and SRDC in Queensland and DAFF in Canberra have been consulted along with industry participants.

The outcome of these investigations will be considered by the industry in early 2011. It is essential the industry's research capability and capacity continues to keep pace with our international competitors through a focussed research sector responsive to industry needs. PJP has recommended amalgamation of BSES, SRL and SRDC to achieve common direction in research priorities and objectives and to reduce administrative overheads. It is believed that implementation of the Research Review recommendations will ultimately lead to better priority setting, greater coordination of research projects and improve governance over industry spending on R&D.

In spite of difficulties that currently face the sugar industry, there is confidence in the industry that adequate funding will be provided for agreed priority programs. Nevertheless, many hurdles exist to define priorities and areas to be funded. Funding should be shared appropriately between the industry (growers and millers) and the Queensland and Australian Governments.

In summary, the BSES model has many advantages. Nonetheless it is clear that the industry is unable to maintain the necessary rate of contributions for research during periods of economic hardship and increasing demand by government for R&D into environmental and other public issues. Government funding is a vital component of the system, leveraging considerably more funding from the industry. In the case of sugar, only 10 per cent of the total research budget is contributed by the Australian Government while consumers enjoy a much greater proportion of the benefits from that research.

The current R&D funding model, with industry and government contributions, works well in sugar. Both millers and growers are concerned about the viability of cane production and both are willing to support research. The sugar industry's R&D activities have delivered significant benefits, both private and public. For more than a century the industry has contributed to north-eastern Australia's economic and social infrastructure, underpinning the economic development and social fabric of many coastal communities. With strong public benefits flowing from sugar industry R&D, it is important that government support for this important activity continues.