Sugar Research Australia – an evolution in the delivery of RD&E activities to the Australian sugar industry

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Abstract  The research landscape of the Australian sugar industry underwent a significant change with the formation of Sugar Research Australia Limited (SRA) in 2013 that has streamlined and modernised industry research investment. SRA is an industry-owned company and as such, works with industry to build a strong, viable and sustainable research investment platform for grower and miller businesses, and the many regional communities that sugarcane supports. This has led to a large change in the way that RD&E activities are funded and a structural alteration in the way that research outcomes are generated and delivered. These transformations were a component of a drive to improve relationships between the industry and its primary funding body, provide improved alignment and coordinated delivery of R&D to industry needs and to improve the industry return on its R&D investment. SRA is founded on a participatory approach to addressing industry needs. The SRA Strategic Plan has been developed in close consultation with industry, government and the research community. This participatory planning process provided SRA with a thorough understanding of the issues and challenges facing its members and the priority RD&E areas that industry and government require us to focus on in the coming years. Leveraged research investment through the Australian and Queensland governments is critical to supporting the scale of research that underpins the productivity and sustainability of the industry. The Australian sugar industry now enjoys a larger contestable research investment pool than was previously available with an investment of approximately AUD15 million per year through the SRA funding process. SRA functions as the sugar industry’s Research and Development Corporation (RDC), an Australian Government initiative to ensure the long-term RD&E funding of rural industries. This system is unique to Australia and provides for leveraged investment and high level collaboration among industry, research sectors and government.

Keywords  Research and development, investment, management, adoption

INTRODUCTION

The research, development and extension (RD&E) landscape of the Australian sugar industry has recently undergone significant change. The development and formation of Sugar Research Australia Limited (SRA) was undertaken to streamline and modernise the delivery of RD&E outcomes to the Australian sugar industry and demonstrates that our industry is working together to build a strong, viable and sustainable research investment platform for grower and miller businesses, and the many regional communities that the sugar industry supports.

After a broad industry-wide and industry-led review, SRA was formed in 2013 as an Industry-Owned Company (IOC) which invests in and manages a portfolio of RD&E projects that drive productivity, profitability and sustainability for the Australian sugarcane industry. SRA’s main source of funds come from a statutory levy paid by sugarcane growers and millers, with supplementary investments from the Australian and Queensland State governments.

SRA is in essence a merged entity and has inherited the assets and functions of BSES Limited (BSES) and the Sugar Research and Development Corporation (SRDC). This structure is unusual as the new organisation possesses significant research capability, while also having responsibility as a research funder on behalf of the industry to manage the research investment of levy payers and government for industry benefit and wider public good. SRA is the only Research and Development Corporation (RDC) under the Australian Government’s National Primary Industries RD&E Framework that undertakes both a funder and a research provider role. One of the major challenges facing SRA is managing these two roles in an open and transparent manner, despite the two roles appearing to conflict with one another.
The industry review process identified a number of key issues that could be improved through the establishment of SRA. These included:

- A centralised source of industry RD&E investment from within an industry-owned company;
- Cost savings and operating efficiencies from the merger of BSES with SRDC;
- Secured central funding of core industry activities (plant breeding, biosecurity and quarantine);
- An organisation that is both responsive to and has close ties with the industry, improved governance of RD&E investment, and industry-charged responsibility to deliver desired outcomes; and
- Maximising available matching government revenue streams and providing for increased industry RD&E expenditure.

**SUGAR RESEARCH AUSTRALIA**

SRA is an industry-owned company, owned by the sugarcane growers and millers. As such, SRA works with industry to develop an industry-wide vision, research priorities and strives to deliver outcomes of its RD&E investment that are valued by industry, government and the broader communities in which the industry operates. In doing so, the core responsibilities of SRA are to:

- Deliver cost-effective RD&E services to the Australian sugar industry to enhance its viability, competitiveness and sustainability;
- Carry-out, coordinate and provide funding for RD&E activities in relation to the Australian sugar industry (whether they are performed by SRA or by other research providers);
- Facilitate the dissemination, extension, adoption and commercialisation of the results and outcomes of RD&E activities; and
- Support and develop industry research capacity and capability.

In order to deliver upon these responsibilities, SRA is structurally both a research investor and research or technology provider of services to the Australian sugar industry. As an investor, SRA seeks to establish an RD&E portfolio that is responsive to industry and government priorities and delivers valued return on investment. The RD&E priorities, identified in collaboration with industry and government, underpin all aspects of the investment process — from determining the direction of a project call; to forming the primary criteria for investment decision-making; to providing focus areas for measuring SRA’s performance in terms of accountability and delivery of valued RD&E outputs and outcomes.

In addition to facilitating and investing in targeted RD&E that addresses industry priorities, SRA has its own team of researchers who provide research solutions and build the capacity and security of the industry. The technology side of SRA also provides analytical, operational and extension support to our multi-disciplinary teams and collaborative RD&E projects.

SRA’s business model is structured such that the investor functions are appropriately separated from the in-house research provider functions, thereby ensuring transparency and accountability, and preventing any potential conflicts of interest (either intentional or unintentional) in the allocation of investment funds. The investor functions are overseen by an independent skills-based Research Funding Panel, which is a committee of the SRA Board. The Research Funding Panel is supported internally by a Research Funding Unit, which is responsible for contracting and managing the SRA portfolio of project investments and externally by a Milling Research Advisory Committee (MRAC), a Production Research Advisory Committee (PRAC) and an expert peer-review system, all of which provide informed industry and academic feedback and suggestions on research proposals.

**Planning and consultation – Industry direction setting**

In setting industry direction, SRA collaborates with its members, levy payers, industry representative bodies, government, productivity services, extension providers, other industry stakeholders, researchers and international peers and partners.
For the development of SRA’s inaugural Strategic Plan, a large-scale consultation process was undertaken to understand the issues, challenges and opportunities that impact on the industry and define SRA’s medium to long-term RD&E direction. In addition, we worked closely with industry representative bodies and government stakeholders to ensure that the Strategic Plan addressed the principles, strategies and priorities defined in the following policy and priority statements:

- Queensland’s Agriculture Strategy, Department of Agriculture and Fisheries;
- Australian Government Strategic Research Priorities;
- Australian Sugar Industry Alliance Statement on Priorities for Research;
- National Sugarcane Industry RD&E Strategy;
- National Primary Industries RD&E Framework and Guidelines; and
- Australian Government (Department of Agriculture and Water Resources) Rural Research and Development Priorities.

**Revenue**

Figure 1 shows SRA’s main sources of income which support both SRA’s core RD&E activities and RD&E investments. The largest component comes from a statutory levy paid by sugarcane growers and millers which is calculated on the basis of 70 cents per tonne of sugarcane processed and is shared equally between growers and millers (35 cents per tonne each). Revenue is also received from the Australian Government and the Queensland State Government, along with income from research collaboration, royalties for the use of intellectual property and interest from cash reserves.

Together, these revenue sources provided a total investment of approximately AUD 37.4 million in 2015/16. The Australian and Queensland governments play an important role in the provision of significant funding towards RD&E. Their investments – using public funds – help to deliver economic, social and environmental benefits to the general community. In particular, the investment by the Queensland Government provides strong support in areas of research that align with the four ‘Pathways to Growth’ identified within Queensland’s Agriculture Strategy that has a vision to double agricultural production by 2040.

**Research investment**

SRA’s primary long-term objective is to facilitate and deliver innovative technology and best-practice solutions to the sugar industry through a disciplined and outcome-focussed RD&E investment program. However, this research program must translate outcomes into practice change through effective adoption processes. The SRA research portfolio seeks to balance short, medium and longer-term industry priorities, focus on industry benefit and the adoption of outcomes, increase industry participation in RD&E and be selected on best-practice competitive and unbiased assessment processes.

The abovementioned participatory planning process provided SRA with a thorough understanding of the issues and challenges facing our members and the priority RD&E areas that industry and government wanted SRA to focus on in the coming years. All SRA RD&E investment is framed against 8 Key Focus Areas (KFAs) that were developed after this
industry consultation process and form the central component of the SRA Strategic Plan. The KFAs and their Objectives are described in Table 1.

Table 1. SRA Key Focus Areas and Objectives.

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<tr>
<th>Key Focus Area</th>
<th>Objectives</th>
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<tr>
<td>1. Optimally-adapted varieties, plant breeding and release</td>
<td>• World-class variety development.</td>
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<td></td>
<td>• Enhanced variety breeding, selection and release.</td>
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<td>• Collaborative, interdisciplinary and systems approach to RD&amp;E.</td>
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<td>2. Soil health and nutrient management</td>
<td>• Understood and improved soil health issues.</td>
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<td>• Understood impacts of on-farm practices on water quality.</td>
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<td>• Improved methods and tools to enable, or improve, cane production on poor performing or marginal soils.</td>
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<td>3. Pest, disease and weed management</td>
<td>• Enhanced biosecurity capability.</td>
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<td>• Minimised economic and environmental impacts of pests, diseases and weeds through targeted research.</td>
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<td>4. Farming systems and production management</td>
<td>• Research leading to the optimal use of inputs on-farm.</td>
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<td>• Research on planting technologies, rationality, break-crop and fallow practices to optimise yields.</td>
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<td>• Practical application of the value chain model to enhance grower, harvester and miller interfaces and improved adoption of harvesting best-practices.</td>
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<td>5. Milling efficiency and technology</td>
<td>• Review of logistics management to reduce operational costs and improve mill capacity utilisation.</td>
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<td>• New or improved processes, technology and/or infrastructure to increase mill processing efficiency.</td>
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<td>• Possible solutions to address quality issues.</td>
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<td>6. Product diversification and value addition</td>
<td>• Ongoing research to identify and/or develop alternative products or uses for sugarcane and determine the basic requirements for adoption.</td>
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<td>• Economic feasibility studies of identified industry by-products, their use and likely market viability.</td>
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<td>7. Knowledge and technology transfer and adoption</td>
<td>• Coordinated extension that optimises innovation and adoption at the farm level and encourages research that meets the needs of the industry.</td>
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<td>• Inclusion of extension mechanisms in research proposals.</td>
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<td>• Enhanced communication and transfer tools to disseminate research findings to end-users and facilitate their uptake by growers and millers.</td>
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<td>• Assessment of the uptake of developed technologies and evaluate the effectiveness of technology transfer tools.</td>
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<td>8. Capability development, attraction and retention</td>
<td>• Review of current and future RD&amp;E skills and capacity needs for the sugarcane industry.</td>
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<td>• Development and retention of current industry participants, as well as attraction of new participants to the sugarcane industry.</td>
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<td>• Fostered collaboration for cross-industry and cross-sectoral skill development, innovation and networks.</td>
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While these KFAs are basically differentiated by scientific discipline, they are not intended to hinder collaborative opportunities. There are many opportunities for cross-pollination of research activities across multiple KFAs. For example, research investments designed to improve sugarcane farming systems must also take into account significant aspects of soil health, pests, disease, nutrient and water management.

Another example of this can be found in the field of extension activities. While formal projects that focused primarily on extension would be categorised within KFA7, the SRA philosophy is to embed extension and adoption activities within research projects where possible in order to better drive industry uptake of the outputs of R&D projects.

In addition to aligning SRA’s projects and investments against these KFAs, even day-to-day activities such as staff allocations and individual performance criteria are aligned with KFAs to ensure that they are at the heart of all that SRA delivers. As mentioned above for research investments, many SRA staff have activities spanning more than one KFA due to the inter-relationships that exist between them. More information on these KFAs can be found within the SRA Strategic Plan and Annual Reports.

More recently, the SRA Board has also defined four Impact Areas where SRA is taking a leading role to address significant industry issues. The impact areas are:

- Yellow Canopy Syndrome;
- Harvesting efficiency;
- Plant breeding (both GM and conventional); and
Enhancing the adoption of research outcomes.

These Impact Areas are clearly larger, broad initiatives that are well beyond the scope of single research project investment. They can also cross the boundaries of a number of KFAs as specific industry issues that SRA seeks to address. The intent is to manage these Impact Areas on a program basis rather than as a series of individual investments.

The formation of SRA has led to changes in the way that the extension and adoption activities are conducted and delivered. Adoption is an identified Impact Area but is being addressed differently than under previous industry arrangements within BSES. SRA adoption activities focus on providing credible information based on best practice and high quality R&D as well as empowering growers and other service/support agencies to trial, evaluate and adopt appropriate options. These actions are underpinned by efforts to provide training and updates, build industry capacity and capability, focus on demonstrating the relevance and value of research and measure the impact of adoption through practice change and subsequent productivity and profitability outcomes.

The SRA research investment is currently framed against these KFAs and Impact Areas, recognising that SRA must deliver on a medium to long term strategy but also consider current industry issues. Figure 2 shows the SRA research investment across all KFAs as a percentage of total investment, with by far the majority of research investment targeted against improving sugarcane varieties which has been identified by the industry as the highest research priority. It is important to set the relative investment level across KFAs to achieve industry defined outcomes and this allocation will be regularly reviewed through industry consultation.

Fig. 2. SRA expenditure in 2015/16 across Key Focus Areas (% of total organisational expenditure).

SRA AS A CONTRIBUTOR TOWARDS AUSTRALIAN RURAL INDUSTRY RESEARCH

Agricultural research and development is Australia is funded through various sources and by a mixture of public and private investments. Generally speaking, the objectives of project funding reflect the objectives of the funding provider (and not necessarily the industry that the project intends to support or improve). Research and development can be delivered by many different Australian institutions and these have different structures, ownership, objectives and sources of revenue. Examples include State and Territory government departments and/or agencies, universities, Cooperative Research Centres, Rural Research and Development Corporations, CSIRO and private companies. Despite these options, it is important to realise that the development of collaborations and partnerships between such organisations remains critical to the ultimate delivery of successful RD&E outcomes.

Australian agricultural research has a strong record in achieving returns for their industries and for the Australian economy. A 2010 evaluation report calculated that for every $1 invested, returns were available of $2.36, $5.56 and $10.51 after 5, 10 and 25 years, respectively (Council of Rural Research and Development Corporations Chairs 2010).
Rural Research Development Corporations and Industry-Owned Companies

The Rural Research and Development Corporation model of joint industry and government funding has been a vital element in the success of Australia’s R&D effort. In the agriculture, fisheries and forestry sector, R&D has helped Australian agriculture double its productivity over the past 25 years (Council of Rural Research and Development Corporations 2015).

There are 15 Rural Research and Development Corporations (RDCs) or Industry Owned Companies (IOCs) covering most of the Australian agricultural industries (Table 2). SRA functions as the IOC responsible for managing the leveraged Government investment for sugar industry RD&E. These organisations are designed to bring industry and the research community together to establish R&D strategic directions and to fund projects that provide their individual industry with modern innovation and productivity tools. The RDCs also provide industry with a focussed R&D structure which minimises the likelihood of fragmented and/or duplicative RD&E efforts and provides opportunities for collaboration and leveraging of resources and knowledge.

Table 2. The 15 Rural R&D Corporations and Industry-Owned Companies servicing Australian rural R&D industries.

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<tr>
<th>Rural R&amp;D Corporations</th>
<th>Industry-Owned Companies</th>
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<td>Cotton Research and Development Corporation</td>
<td>Australian Egg Corporation</td>
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<tr>
<td>Fisheries Research and Development Corporation</td>
<td>Australian Grape and Wine Authority</td>
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<tr>
<td>Grains Research and Development Corporation</td>
<td>Australian Livestock Export Corporation</td>
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<tr>
<td>Rural Industries Research and Development Corporation</td>
<td>Australian Meat Processor Corporation</td>
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<td>Australian Pork</td>
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<td>Australian Wool Innovation</td>
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<td>Dairy Australia</td>
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<td>Forest and Wood Products Australia</td>
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<td></td>
<td>Horticulture Innovation Australia</td>
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<td>Meat and Livestock Australia</td>
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<td>Sugar Research Australia</td>
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The rural RDCs are a unique partnership between the Australian Government and the rural industries that they serve. They form the Australian Government’s primary vehicle for investment in rural innovation, with the Government providing dollar for dollar contributions matching industry R&D investment up to a ceiling limit (or ‘cap’) based on industry gross value of production. With annual investments of approximately AUD580 million in RD&E projects (2014/15 figures), they foster close collaborations between industry, government and science agencies. Considering that the level of national rural RD&E expenditure has been estimated at AUD1.2 billion, the RDC collective has substantial influence on the direction and progress of rural industry research. Collectively, the RDCs are Australia’s largest productivity-driven, innovation program.

The Australian RDC model is also unique in that no other country has adopted a similar system that channels substantial contributions from rural growers and producers into structures that combine industry, academic and applied research communities with financial leverage provided by state and national governments as partners. All parties are encouraged to collaborate together in determining research plans and funding the execution and delivery of those plans.

By definition, the RDC focus is on expanding Australia’s rural R&D effort, improving industry effectiveness and efficiency by investing in high priority areas, and encouraging uptake of research results to improve competitiveness, productivity, profitability and sustainability. Government financial contributions require that the RDC investments must not only address the needs of its industry, but also align with Australian Government Rural RD&E priorities and the national Science and Research Priorities.

The RDC model has evolved since its inception over two decades ago and today is a mix of statutory and industry-owned companies. The model has proven flexible and adaptable in the face of change with the important partnership between industry and government remaining strong. The IOCs (such as Sugar Research Australia) are independent corporate entities with industry relevant skills based boards. They are usually formed due to an industry desire to exhibit increased control and flexibility over RD&E direction, industry representation and to ensure that R&D undertaken will be relevant and widely adopted.

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The RDC model has a number of key advantages including:

- RDCs engage with a wide variety of industry stakeholders and ultimately develop a shared industry vision which is updated in strategic plans and reinforced within annual operating plans that must be approved at ministerial level while ensuring that a balance is achieved between the respective government and industry priorities.
- RDCs are not research grant agencies; rather they treat RD&E as an investment in economic, environmental and social benefits to their respective industries and to the people of Australia.
- RDC investments are by nature collaborative. Industry levy funds and Government contributions are leveraged to attain external funding from universities, state government, other RDCs and commercial entities. The combined investment pool is brought to bear on industry problems through the best available research providers within a contestable and competitive project evaluation process.
- The RDC model is focused on influencing the full range of interactions along the innovation chain, rather than focusing on generating new knowledge for its own sake. This results in applying significant resources to translating research outputs into practical outcomes and government policies. Further, RDCs are heavily involved in activities to ensure that R&D outcomes are extended and adopted.
- RDCs are fully accountable to their major stakeholders and to the wider community.

In essence RDCs are knowledge providers to their industry. Collaboration among RDCs, industry and government allows RDCs to deliver this knowledge in an efficient and effective manner. Originally, the RDCs were created to focus their investment on their individual industry, therefore, most collaboration currently occurs among individual RDCs, industry and international industry partners. This mode of collaboration is effective in achieving the most favourable outcomes for levy payers where the project concerned is specific to that sector. Increasingly, RDCs are being encouraged by their government masters to collaborate in disciplines and industry areas where impact can be felt across multiple crops and industries. They are an effective vehicle for cross-sectoral research investment with recent examples being the Australian Government Rural R&D for Profit Programme as well as cross-sectoral strategies such as climate change, soils and water use in agriculture which are being tackled collaboratively by multiple RDCs with effective outcomes delivered to multiple rural industries.

The role of the RDCs within a broader framework

Probably the most important attributes that differentiate the RDCs from other rural RD&E organisations or research providers are the close linkages to their industry and the relevant science community. This provides a breadth of background industry experience from producers, scientists, processors and marketers covering the entire commodity supply chain and ensuring a wider perspective on industry development needs. RDCs must conduct robust and detailed consultative activities with their industry and these provide continuous input into research planning and priority setting processes. The ensuing linkages generate significant levels of routine interaction, trust and involvement that provide mutual benefits - they are crucial in maintaining the currency, relevance and short term views of the research priorities and are essential in gaining buy-in for the future adoption of the research outputs. None of the other organisations or providers working within the rural RD&E system has such deep connections to rural industry and the supply chains they service.

CONCLUSIONS

The formation of Sugar Research Australia represents a new evolution in the delivery of RD&E outputs and outcomes for the benefit of the Australian sugar industry. The merger of research and research funding activities creates an interesting set of operating conditions, but ultimately the industry benefits from having a more contemporary and efficient RD&E procurement and delivery system within an industry owned structure that contains mechanisms for feedback and modification.

SRA functions as the sugar industry vehicle within the Rural Research and Development framework for leveraging Government investment. Within the RDC environment, SRA facilitates the collaboration of sugar industry researchers with those from other rural industries to work on larger multi-industry issues designed to ultimately deliver enhanced benefits for all industries involved.

ACKNOWLEDGEMENTS

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Sugar Research Australia – una avance en la ejecución de actividades de la pesquisa y desarrollo y la vulgarización en la industria azucarera australiana

Résumé. En 2013, el paisaje de la pesquisa de la industria azucarera australiana subió un cambio significativo con la creación de la ‘Sugar Research Australia Limited’ (SRA) y cela a racionalizado y modernizado los investissements dans la researche sucrière. La SRA est une compañía appartenant à l’industrie sucrière et à ce titre, elle travaille de concert avec cette derniere pour consolider une plateforme viable et durable des investissements dans la recherche pour les producteurs, usiniers et les nombreuses communautés regionales dependant de l’industrie sucrière. Ceci a contribué à apporter un grand changement dans la méthode de financement des activites de la Researche et Développement y la Vulgarisation et une transformation dans la façon dont les resultados de la researche sont generés et disséminés. Ces transformations forment partie d’un élan pour améliorer les relations entre l’industrie et son principal bailleur de fonds ; de s’assurer que la Researche et Développement répondent aux besoins de l’industrie et que le transfert des résultats de cette researche aux agriculteurs soit mieux coordonné ; et pour permettre à l’industrie de mieux rentabiliser ses investissements dans la Researche et Développement. La SRA est basée sur une approche participative pour répondre aux besoins de l’industrie. Le plan stratégique de la SRA a été conçu en étroite collaboration avec l’industrie, le gouvernement et la recherche. Avec ce processus de planification participative, la SRA a pu mieux comprendre les enjeux et définir confrontés par ses membres et les domaines prioritaires de la Researche et Développement y la Vulgarisation, identifiées par l’industrie et le gouvernement et sur lesquelles elle doit se concentrer dans les années à venir. Des investissements judicieux dans la researche, à travers le gouvernement australien et celui de Queensland, sont essentiels pour accroître la productivité de l’industrie sucrière et consolider sa durabilité. Avec un investissement d’environ AUD15 million annuellement à travers le processus de financement de la SRA, l’industrie sucrière australienne bénéficie désormais d’un plus grand fond d’investissement pour la researche. La SRA fonctionne comme la Corporation de Researche et Développement (RDC) de l’industrie sucrière, une initiative du gouvernement Australien pour assurer à long terme le financement de la Researche et Développement y la Vulgarisation dans les industries rurales. Ce système, propre à l’Australie, prévoit des investissements judicieux et une étroite collaboration entre l’industrie, les secteurs de la recherche et le gouvernement.

Mots-clés: Researche et développement, investissement, gestion et adoption

Sugar Research Australia – evolucion en los resultados de actividades de RD&E para la industria azucarera australiana

Resumen. El paisaje de la investigacion en la industria azucarera australiana fue sometida a un significativo cambio con la formacion de la compania Sugar Research Australia Limited (SRA) en 2013 que ha moldeado y modernizado la inversion en la investigacion en la industria azucarera. SRA es una compania propiedad de la industria azucarera y como tal, traba con la industria para construir una plataforma de inversion en la investigacion fuerte, viable y sustentable para los negocios de cañeros e industriales, y para muchas comunidades regionales que la cana de azucar apoya. Esto ha llevado a un gran cambio en la forma en que las actividades de RD&E estan fundamentadas y a una alteracion estructural en la manera que la investigacion resultante es generada y entregada. Estas transformaciones fueron un componente en la orientacion para mejorar las relaciones entre la industria y su principal organismo de financiamiento, para proveer mejor alineacion y entrega coordinada de R&D a las necesidades de la industria y mejorar el retorno de las inversiones en R&D. SRA esta fundamentada en una vision participativa dirigida a las necesidades de la industria. El plan estrategico de sra ha sido desarrollado en estucha consulta con la industria, el gobierno y la comunidad de investigadores. Este proceso de planeacion participativa proporciono a SRA una comprension precisa de los temas y retos que enfrentan sus miembros y las areas prioritarias de RD&E requeridas por la industria y el gobierno para que nos ocupe en los proximos anos. La inversion en investigacion financiada a traves de los gobiernos de Australia y Queensland es fundamental para apoyar el nivel de investigacion que apuntala la productividad y la sustentabilidad de la industria. Hoy la industria azucarera australiana disfruta de un mayor conjunto de inversiones en investigacion comparado con lo que disponia anteriormente con una inversion actual aproximada de 15 millones de dolares australianos por ano a traves del proceso de financiamiento de SRA. El SRA funge como la corporacion de investigacion y desarrollo (RDC) de la industria azucarera, una iniciativa del gobierno australiano para garantizar el financiamiento a largo plazo de la RD&E en las industrias rurales. Este sistema es unico en Australia y provee inversion garantizada y alto nivel de colaboracion entre industrias, sectores de investigacion y gobierno.

Palabras clave: Investigacion y desarrollo, inversion, administracion, adopcion