

## Project Milestones



Outcome	Output	Milestone	Milestone Delivery Date	Is Active	Achieved
1. Increased and more environmentally sustainable sugarcane production underpinning a profitable sugar industry.	1.1. Gene technologies and breeding tools for enhanced sugar concentration and sugar yield from sugarcane	1.1.8. Generation of sugarcane genotypes with enhanced sucrose accumulation and sugar yield through application of above technologies for use in sugarcane improvement program.	30 Jun 2010	Yes	Yes
<p><b>DETAILS/REASON:</b> As reported in the previous milestone none of the specific sugar accumulation traits studies has proved appropriate for further development. The novel IP created in the conduct of the work has been re-evaluated and deemed inappropriate for IP protection at this time. The program has increased considerably the understanding of some of the genetics of the sugar accumulation controls. As reported in the previous milestone none of the specific sugar accumulation traits studies has proved appropriate for further development. The novel IP created in the conduct of the work has been re-evaluated and deemed inappropriate for IP protection at this time. The program has increased considerably the understanding of some of the genetics of the sugar accumulation controls.</p>					
	1.2. A sustainable sugarcane production system using gene technologies.	1.2.7. Biotechnologies for reduced environmental impact in sugarcane farming systems developed and tested and transferred to industry.	30 Jun 2010	Yes	Yes
<p><b>DETAILS/REASON:</b> The traits considered under this commercial-in-confidence project have now provided information for consideration of an IP position. This position will be considered by the CRC follow-up IP company (Sacron Innovations).</p>					
	1.3 An enhanced sugarcane breeding program producing superior sugarcane varieties through the application of biotechnology.	1.3.7. Breeding program has integrated marker technology with measurable improvements in genetic gain.	30 Jun 2010	Yes	Yes
<p><b>DETAILS/REASON:</b> The key outcome of the significant CRC investment in markers for sugarcane breeding has been the initiation of the use of these molecular markers to improve the value of the parents used in the Australian sugarcane breeding program. The CRC DArTs technology commercialised in 2008 now provides the basis for this technology. Data from the investment has also identified a specific group of markers which identify the majority of the sought after commercial value sought by the current breeding program. These markers are being developed onto an amended DArTs chip for subsequent commercialisation.</p>					
2. A combination of co-products, alternative products, and downstream products that double the economic return per hectare of sugarcane within 10-15 years	2.1. IP-protected enabling technologies for: (a) expression of novel and useful genes in desired patterns for sugarcane improvement; (b) stability and activity of introduced gene products in the required cellular and subcellular compartments for metabolic engineering in sugarcane; and (c) extraction and downstream processing of value-added materials from sugarcane	2.1.7. (a) Integration of technologies for optimal value capture from sugarcane grown as a co-production system for multiple biomaterials and precursors for downstream value adding; and (b) platform technologies integrated with relevant product streams.	30 Jun 2010	Yes	Yes
<p><b>DETAILS/REASON:</b> A range of technologies have now been identified and tested for significantly improving the expression of bio-materials in sugarcane. The IP created in the course of the work has also been identified and protected and has been licensed to the commercial partner. The range of bio-materials created will be a function of the current and future marketplace acceptance and demand for this range of products.</p>					

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	2.2. Sugarcane varieties engineering for biosynthesis of high-value products in addition to sucrose, or as alternatives to sucrose.	2.2.6. (a) Improved varieties selected with commercial yields of high-value biomaterials. Pilot scale harvesting, extraction and market development; and (b) commercial partnerships developed for commercial-scale testing of new bio-production system.	30 Jun 2010	Yes	Yes
<b>DETAILS/REASON::</b> Sugarcane genotypes are now available with near commercially acceptable expression levels of the target compound. A range of technologies have now been developed to increase these levels further and the IP position appropriate to the technologies have been identified and protected. Commercial scale extraction processes remain premature to the current status of the work.					
	2.3 New product classes developed for production in the sugarcane biofactory.	2.3.7. Field evaluation, development of extraction technologies.	30 Jun 2010	Yes	Yes
<b>DETAILS/REASON:</b> A range of other biomaterials in the form of bioactives have now been isolated and identified from sugarcane parts. Extraction methodologies have also been identified and will form the basis of ongoing purification and commercialisation of the extracts. A program of work is being developed to continue this work through the IP commercialisation company (Sacron Innovations) and with input from one of the commercial participants.					
	2.4. Processes for conversion of materials from sugarcane into higher-value products through downstream processing in collaboration with the sugarcane industry.	2.4.7. Process design and scale-up in collaboration with partner mills.	30 Jun 2010	Yes	Yes
<b>DETAILS/REASON:</b> No new progress has been made in this aspect of the program pending the decision by the commercial partner to go to the next step in the commercialisation. In the meantime a scale up series of experiments are being designed and planned for the application of Barrecote to paper at an Australian paper mill .					
3. (a) The education of students, staff and industry sector personnel in plant biotechnology to seed new strategic partnerships through which Australia's rural communities will share strongly in the benefits of biotechnology; and (b) assessment of sugar industry stakeholders' awareness and attitude to GMOs and biotechnology.	3.2. Enhanced industry capacity to respond to new opportunities in plant biotechnology and enhanced community awareness of plant biotechnology.	3.2.7. Plans for continued education and communication packages beyond 2010.	30 Jun 2010	Yes	Yes
<b>DETAILS/REASON:</b> A range of teacher and student education packages have now been developed and are ready for release to Australian schools based on CRC SIIB research examples of biotechnology in sugarcane.					
4. A capacity to interact with industry groups (growers, manufacturing sector) in the development and delivery of effective R&D to meet the challenges of commercialising new value-added rural industry products based on sugarcane.	4.1. New knowledge-based, profitable and sustainable rural export industries. Public benefits will also be provided through new regional spin-off industries allowing our rural and regional communities a greater share of the benefits of biotechnology.	4.1.7. Commercial development underway.	30 Jun 2010	Yes	Yes
<b>DETAILS/REASON::</b> Both Barrecote (a bio-based and recyclable waterproofing treatment for paper and GI Wise, a sugarcane extract which significantly lowers the Glycaemic Index value of foods are now in commercial scale development.					
		4.1.8. CRC technologies delivered to end users.	30 Jun 2010	Yes	Yes
<b>DETAILS/REASON:</b> The CRC IP (5 patents, germplasm and trade secrets) will now be passed to Sacron Innovations, as a commercially focussed and participant owned company whose mission is to continue the commercialisation process for the more mature and near to market technologies developed within the CRC program of work.					