BSES DuPont alliance

On November 12, 2009 BSES Limited and DuPont announced a research, development and commercialisation alliance to improve productivity and use of sugarcane varieties.

The agreement brings together DuPont’s plant biotechnology expertise with BSES’s knowledge of sugarcane breeding, cropping systems and milling. The alliance has been formed as a result of the findings made in the SIIF report.

BSES Limited approached the Sugar Industry Investment for the Future (SIIF) panel chaired by John Pollock to assess the international trends in sugarcane Research and Development and to recommend a path forward that would ensure the future profitability, sustainability and competitiveness of the Australian sugarcane industry.

The SIIF report was handed down in October 2009. The key findings of the report were:

• GM sugarcane varieties with key traits will deliver step-wise cost savings and productivity advances;
• Industries that adopt GM varieties first will have large, lasting comparative advantages;
• Brazil is the major market for agribusinesses to deliver their GM traits;
• Australia is unlikely to be able to commercialise GM varieties on its own;
• Australia does have high quality germplasm and R&D capacity;
• The cost of obtaining regulatory approval for GM varieties in Australia will be high at an estimated $A25 million over five years;
• Commercialisation of GM sugarcane could occur by 2016; and,
• A method is required to deliver GM technology to Australian growers and millers.

The panel recommended that:
• The industry, through BSES Limited, partners with an international agribusiness which owns key gene traits and can provide investment capacity, commercial expertise and market access; and,
• The industry supports implementation of Plant Breeder’s Rights (PBR) as a mechanism to fund development of suitable GM varieties.

With the signing of the agreement with DuPont the international agribusiness partner has been found. BSES has identified a number of opportunities that may be realised through this alliance. These include:

• QClones: An improved sugarcane planting technology;
• Genetically Modified sugarcane: Investment in genetically modified (GM) varieties for Australia; and,
• Biomass utilisation: Enhanced Research, Development and Extension (RD&E) in the utilisation of biomass produced in the sugarcane production system.

QClones

What – QClones is an improved planting technology for sugarcane. It moves away from billet planting to the concept of a “sugarcane seed”. This seed will take the form of an encapsulated tissue with in built crop protection – fungicides, insecticides and herbicides.

Benefit – The potential benefits to growers and millers from QClones include:

• New varieties delivered more quickly to growers – better delivery of varieties with smut (and other disease) resistance;
• Greatly improved planting efficiency;
• Significant cost reduction; and,
• Significant productivity increases – with the reduced cost of replant growers will be able to replace non-optimal performing ratoons earlier. This would have the effect of improving farm and industry yield averages.

How – BSES RD&E has developed the biological aspects that form the basis of an improved planting technology for sugarcane. Commercialisation of this technology will come through access to disciplines and intellectual property held by DuPont.

When – The first QClones are expected to be available in Australia from 2013.

Genetically Modified sugarcane

What – The introduction of GM sugarcane varieties into Australia including obtaining regulatory approval to grow the varieties commercially. GM sugarcane is a matter of when, not if.

Benefit – The production of GM varieties will deliver a step change in productivity and profitability. The intention is for Australian growers to have access to GM varieties one or possibly two years ahead of Brazil.

How – The Australian sugarcane industry has high quality germplasm and RD&E capability. DuPont owns the key GM traits. The Australian sugarcane industry is too small to meet the high costs associated with the development of GM sugarcane by itself.

When – The first commercial harvest of GM sugarcane is expected in 2016.

Biomass utilisation

What – The area of biomass utilisation is one where significant public and government interest is focused. Currently the major available source of biomass from sugarcane (bagasse) is utilised for electricity cogeneration on commercial or local scales.

Biomass utilisation will involve the expansion of research into alternate uses including reduction of the industry’s environmental footprint.

Benefit – Commercialisation will be enhanced if second generation biofuels can be developed from cellulose.

How – A three year research program has been developed and appropriately resourced.

When – Unknown at this stage – it is dependent on research results.

Financing the opportunities

The funding solution will be a combination of:

QClones seedlings.
 Implementing a PBR system; and,

• A capital injection.

BSES has listened to industry representatives who agreed that PBR is the most appropriate mechanism for collecting revenue. BSES understands that industry expects some flexibility and regional focus in developing workplans for the provision of BSES services.

In response, BSES will:

• Implement a PBR end-point royalty system of 55 cents per tonne on PBR-protected varieties in 2010. Growers and Millers will determine their shares locally; and,

• Offer the option of a regionally negotiated workplan for BSES services.

A PBR payment system will provide certainty to the alliance partner that variety and production system development costs are recovered and provide for future RD&E investment.

A future capital injection is required due to the level of investment needed to ensure these opportunities get to the Australian sugarcane industry as soon as possible.

The initial two years of the project can be funded from BSES reserves – a capital injection would not be required until early 2012. By this stage the outcomes from the required research and development will be completely tabulated.

The investment will provide Intellectual Property (IP) of real value in commercialising GM varieties, and planting systems outside of Australia.

The first likely market is Brazil. This IP will provide a revenue stream to BSES. BSES would use these dividends in further RD&E on new production technologies for growers and millers.

Drawn in part from BSES – The Way Forward.

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QClones is designed to deliver an improved planting technology to the Australian sugar industry by 2013.