PBR Implementation and Compliance in the Australian Sugarcane Industry

Submission to the Australian Council on Intellectual Property Review of the Enforcement of Plant Breeders Rights

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1. Development of sugarcane varieties in Australia

The development of sugarcane varieties in Australia is undertaken through an unincorporated joint venture that commenced in 2003 between BSES Limited (BSES, formerly the Bureau of Sugar Experiment Stations) and CSIRO Plant Industry. Their annual investment in sugarcane breeding and biotechnology is approximately $8 m.

Prior to 2003, BSES and CSIRO conducted separate breeding programs. The CSIRO program was conducted by CSR Sugar for many decades until it passed control of the majority of the program's assets and resources to CSIRO in the mid 1990s.

2. Organization background and capability

BSES was a statutory corporation of the Queensland State Government until 2003 when the authority was corporatised and its assets were transferred to BSES Limited. BSES is now an industry owned company, owned jointly by growers and millers. Management of the company is accountable to a Board comprising eight Directors including two Directors elected by growers, two elected by millers, three independents elected by the growers and millers, and the CEO.

BSES operates seven sugarcane experiment stations, which serve as the principal base for the development of new sugarcane varieties. This is augmented by extensive testing on growers' properties.

BSES employs four sugarcane breeders. The company also has a significant capability in sugarcane biotechnology with eight professional staff engaged on a range of R&D projects that support the capability and functions of the breeding program.

The CSIRO sugarcane breeding capability is funded by Federal government appropriations, by BSES as part of the joint venture arrangements, and through competitive R&D contracts.

CSIRO employs one plant breeder and five biotechnologies. The breeder is located in Townsville at the CSIRO Davies Laboratories, while the biotechnologists operate from world-class facilities in Brisbane.

3. PBR on sugarcane varieties

Since 1996, all except one of the sugarcane varieties released by BSES, CSIRO or the BSES-CSIRO Sugarcane Breeding Joint Venture, have been protected by PBR. Thus, the series of sugarcane varieties Q163$^{\phi}$, and Q165$^{\phi}$ to Q231$^{\phi}$ all have PBR protection. Under the BSES-CSIRO Sugarcane Breeding Joint Venture agreement, the Plant Breeders Rights are held exclusively by BSES.

In 2006, 58% of the Australian sugarcane crop was planted to varieties protected by PBR. We predict that by 2010 more than 90% of the crop will be planted to PBR-protected varieties.

4. Commercial arrangements

Until 2000, BSES raised revenue through a levy on growers and millers until the Queensland Government discovered that arrangement was unconstitutional. The levy was replaced by a voluntary service fee. BSES also raises revenue from research contracts, consultancies, investments and sale of sugarcane.

From 1992 to 2003, the levy (later service fee) was $0.08 per tonne of cane. In recent years, the fee has been $0.06 (2004), $0.10 (2005), $0.15 (2006) and $0.20 (2007). Those growers who have a service agreement with BSES and voluntarily pay the service fee obtain a royalty-free licence to grow PBR protected varieties. Service-fee paying growers also obtain the right to access a range of other BSES services including access to farming systems research innovations and BSES publications.

More than 98% of growers pay the voluntary service fee, and as a result there is a very high degree of PBR compliance.

Growers can choose not to pay the service fee and instead pay a PBR fee on the portion of their production grown from PBR protected varieties. From 2000 to 2006, this fee was $0.55 per tonne. In 2007, the fee was set at $1.00 per tonne. This fee is applicable to an estimated 150 growers only. Because of the small number of growers involved, and the cost relative to the revenue, BSES has not collected this fee. It will be collected for the first time on the 2007 crop.

BSES has marketed these arrangements as being for the overall beneficial of the industry. In particular, growers have been made aware that they are legally obliged to have a licence to grow PBR-protected varieties, even if that licence is royalty free. All promotions of varieties feature the use of the PBR symbol, ⓟ, to highlight the rights that have been granted. This proactive program has been conducted to avoid the likelihood of growers claiming innocent infringement.

5. Management of service agreements and PBR compliance

BSES maintains a grower database that records the identity of growers and their contractual relationships with BSES. In particular, the database records whether a grower has a service agreement with BSES or has elected to pay the PBR fee.

Revenue collection is streamlined because of the fact that all growers must supply cane to sugar mills for processing, except for the very small proportion of the crop that is used for purposes other than producing raw sugar. Payments to BSES are made by automatic deduction from the cane payments made by mills to the growers.

Because the service fee is collected on all cane that is delivered (both PBR-protected and public varieties), there is no requirement to declare varieties at the point of delivery. However, under the cane supply agreements between growers and mills, these data are held by the mills. In fact, sugarcane mills arguably have the most comprehensive databases of any agricultural industry

in Australia regarding who is growing what, where, and in what quantities. These data are owned by the mill, but the information is attached to the identity of growers and is, therefore, subject to the provisions of the Privacy Act.

In some cases, mills are including in their cane supply agreements provisions for these data to be accessed by BSES for research purposes. BSES has received legal advice that the Privacy Act cannot be used to obstruct gathering information about compliance with PBR. Therefore, accessibility of the data held by mills and streamlined processing of that information will do much for maintaining a high degree of PBR compliance in the sugarcane industry.

To this end, BSES has commissioned the development of a software tool known as Spider that can interrogate mill databases to produce maps detailing a range of information concerning variety production. Use of the tool is subject to the agreement of mills and growers for this purpose.

Revenue collection from those growers who do not have a service agreement and either elect to pay the PBR fee or who do not have any agreement at all with BSES relies on identifying these growers, identifying which varieties they are growing and in what quantities, and invoicing them for the amount due.

6. PBR and the right of use by other breeders

PBR is a relatively weak form of intellectual property protection. Specifically the inclusion in the PBR Act of the obligation to make PBR-protected varieties available for further research, development and commercialization provides significant opportunities for competitors to exploit the investments made by the breeder of new varieties. We note particularly the contrast between Brazil and Australia where the Brazilians were successful winning rights to restrain the use of PBR protected varieties for further RD&E purposes. This enhances the attractiveness of Brazil for investment in plant breeding relative to Australia. This is important because it is in Australia's interests to provide attractive opportunities for investment, whereas the existing legislation has the opposite effect.

7. Specific responses to questions raised in the Enforcement of PBR Issues Paper

7.1. Essentially Derived Varieties (Question 4).

BSES made a submission to the Expert Panel on Breeding in 2002 with regard to EDV. The following considerations are an adaptation of our previous response.

A. In our 2002 submissions, BSES did not favour extending the rights of the first breeder to all derived varieties. We acknowledge the work required by the second breeder and do not regard it as 'plagiarism'. Amendment of the section 16 provisions to strengthen the rights of the breeder regarding how PBR protected material can be used would do much to redress this. In particular, we argue that a contradictory arrangement exists where the intellectual property of the breeder must be made freely available (Section

16) versus the monopoly right granted under the Patent Act for a specific piece of technology that relies entirely for its delivery on the performance and inherent intellectual property of a commercial variety, deserves close reconsideration.

B. BSES acknowledges that 'considerable effort and resources and risk' are involved in gene technology. However, transformation technology is developing rapidly and, once a gene has been identified and isolated, it is becoming relatively easy to insert it into an 'adapted' variety. Currently in sugarcane, transformation success rate is high and relatively little 'collateral' damage is observed.

C. Once a gene has been identified and isolated, it can be inserted using transformation into all major adapted varieties. This is a major difference from conventional breeding, where breeders 'start from scratch' each time even when they use 'adapted' varieties in crossing.

D. The comment 'a transformed plant is typically less than adequate and needs to be backcrossed with a well-adapted variety' does not apply in sugarcane. As mentioned above, we would argue that transformed plants are not necessarily 'less than adequate' (and anyway, it not difficult to conceive that this part of the technology will undergo rapid improvement). Further, 'backcrossing with a well-adapted variety' is not an option in sugarcane or a number of other crops. In sugarcane, the process is simple - choose the best adapted variety and insert the gene of choice into it.

7.2. Federal Magistrates Service and PBR (Questions 5, 6, 7)

There would be benefit to the sugarcane industry and its capacity to enforce the grant of PBR if hearings were possible in the Federal Magistrates Court.

7.3. Evidence collection (Questions 8, 9)

It is unlikely that Anton Pillar orders would be issued in the Australian sugarcane industry because sugarcane is a perennial crop and is ploughed out once every 5-6 years. Therefore, sugarcane is unlikely to satisfy a requirement for granting an Anton Pillar order that evidence will be destroyed. There is a need to strengthen the rights of breeders granted PBR such as the right to go onto farms to collect evidence. Such provisions exist, for example, in the enforcement of the Plant Protection Act 1989 (Qld).

7.4. Burden of proof (Questions 10, 11)

Changes to the burden of proof provisions would dramatically alter the capacity to enforce PBR in the Australian sugarcane industry. It is generally known within the industry who is growing PBR-protected varieties without a licence. The information is held anecdotally by other growers, and specifically by mills in the context of their production databases. Given that such information is available, it is possible to make a *prima facie* case that a PBR infringement is occurring. However, under the current arrangements this is

insufficient to mount a challenge to illegal production of a PBR-protected variety.

7.5. Exemplary Damages (Question 13)

BSES Limited strongly supports the introduction of exemplary damages provisions. Without such provisions, cost recovery of any infringement is not possible.

7.6. Alternative Dispute Resolution (Question 15)

The suggested ADR proposals, and specifically the procedures negotiated by the Seed Industry Association and the Commercial Disputes Resolution Centre, have merit in the context of PBR enforcement in the sugarcane industry. BSES is an industry owned organization. It is in the company's interests to maximize participation through service agreements. A less confrontational approach to resolving disputes concerning the production of PBR-protected varieties will assist this objective.

7.7. Varietal Identification and End Point Royalties (Questions 18, 19, 20)

BSES has been using DNA fingerprinting using SSRs, as part of a variety auditing procedure for a number of years. Currently, all clones and varieties can be discriminated uniquely. BSES Limited contracts its DNA fingerprinting to AGRF in Adelaide.

We would support a PBR system that uses DNA evidence to describe and confirm variety identification. Other methods of varietal identification at a field level, such as satellite imaging using hyperspectral imaging techniques, have been shown to have potential for variety identification. It may also be possible to implement a near infra-red spectroscopy solution at mills as a rapid, low-cost, non-destruction method of variety identification. We have also shown that archival / forensic quality DNA samples from sugarcane varieties can be stored on Whatman FDA paper.

The sugarcane industry has perhaps a unique opportunity in Australian agriculture to manage PBR because of the comprehensive sugarcane production databases managed by sugar mills. Clarification of matters concerning PBR enforcement versus the provisions of the Privacy Act would assist breeders to achieve a higher level of PBR compliance.

7.8. Central information and collective peak body (Questions 21, 22)

BSES would be supportive of a peak body but does not see this requirement as essential to achieving a high level of compliance.

8. Conclusions

BSES concludes that the following steps represent key requirements for strengthening PBR enforcement in Australia

8.1. Essential

- Introduction of exemplary damages provisions.
- Amendment of the section 16 provisions regarding the use of PBR-protected varieties for further breeding.
- Amendment of the burden of proof requirements, including harmonization with provisions of the Privacy Act.
- Clarification of evidence collection provisions.

8.2. Desirable

- Development of alternative dispute resolution processes.
- Provision for matters to be settled in the Federal Magistrates Court.
- Remove the innocent infringement provisions.
- Adopt the use of molecular markers as a complimentary technology for establishing the uniqueness and distinctness of new varieties.

9. Contacts

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