Australian Government
IP Australia

The Plant Breeder's Rights Ecosystem in 2021/2022

What we heard from you

2022

P TM D PBR

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CONTENTS

INTRODUCTION

Plant breeder's rights are a type of intellectual property (IP) that can be registered with IP Australia (a Government agency). A PBR gives the owner the exclusive commercial rights for new varieties of plants that are distinct, uniform and stable.

In 2021, IP Australia set up a program to explore Australia's plant breeding ecosystem, the role of PBR, and to better understand the current landscape, challenges, and opportunities.

Through our research, we have been asking if the PBR system is fit for purpose and achieving its role supporting plant breeding industries, with an eye towards the future productivity of Australian agricultural industries.

Our research began in October 2021, with 70 interviews with people and businesses directly involved in plant breeding, and each demonstrating different roles across the supply chain.

In parallel, the program team had another 30 targeted conversations with people and organisations, each illustrating different connections and perspectives of the PBR and plant breeding ecosystems.

Our research and engagement also included:

- new economic studies in partnership with Swinburne University of Technology's Centre for Transformative Innovation
- desktop research and analysis of existing data, international comparisons, legal research, and previous reviews.

More information on these findings can be found on our website.

This report provides a snapshot of the feedback and consultation, summarising a wide variety of perspectives and concerns. Readers are encouraged to reflect on our findings.

Our report does not represent IP Australia's views or conclusions, but we end the report with some key themes that have been identified from our research, and document the next steps.

INTERVIEW RESEARCH

Between October 2021 and early January 2022 we conducted 70 interviews with people who have different roles relating to plant breeding, introducing new plant varieties into the Australian market, and plant breeder's rights.

The majority of these interviews were with plant breeders, researchers, or members of the supply chain involved in bringing a plant variety to market (e.g. wholesalers, farmers or growers, label manufacturers, etc.). We heard from different industries, including broadacre crops, fruits, nuts, nurseries, cut flowers, cultivated turf, vegetables, seed producers, the Australian native food and botanical sector, and emerging industries.

We have committed to the privacy of those involved. Interview participants will therefore remain de-identified.

Due to the impacts of COVID-19 at the time, these interviews were held virtually, with the majority on a video chat, and some via phone call. This allowed us to cover significant geographical ground, with all Australian states and territories represented.

All of our conversations were semi-structured with discussion guides, but ultimately led by what people were most interested in sharing. The experiences and attitudes were diverse, but there were some key themes that emerged through the interviews about the state of the ecosystem surrounding plant breeding in 2021/2022, including interactions with PBR.

WHAT WE HEARD

PBR knowledge and awareness amongst Australian plant breeders

"I haven't found an industry source about PBR... I don't know, I'm struggling." (plant breeder)

People told us that people breeding new plant varieties in Australia are generally aware of the PBR system, but there are still some who are completely unaware.

Even when aware of PBR, we were told some individuals are missing practical information to start their first PBR application. This was usually for individuals or small businesses who couldn't find a Qualified Person (QP) to assist with their application, (a requirement for PBR) and weren't sure what to do next.

Individuals providing advice to plant breeders (such as QPs and IP attorneys) said their clients often don't understand the purpose or details of PBR. This includes not knowing what a PBR protects, the role PBR plays in commercialising a variety, and the differences between PBR, patents, and trade marks.

Advisers say Australian plant breeders are often already selling varieties well before they get advice about applying for PBR. This causes a rush to secure protection (noting there is a 12-month period under the Australian law to apply for PBR after a variety has first been sold), or results in the breeder completely missing out on being able to secure PBR.

International: importing varieties bred overseas into Australia

We heard how many Australian industries rely heavily on varieties bred overseas.

There are exceptions to this, such as where overseas-bred varieties do not perform well in Australia or cannot pass quarantine. A major exception is in the grains industry, where the vast majority of varieties grown in Australia are bred domestically for local conditions.

We were told the market size of growers in some industries (for example, some fruits) simply cannot justify the investment into breeding new varieties in Australia. Local growers in these industries rely entirely on access to varieties bred overseas to remain productive and competitive.

People we spoke to emphasised overseas companies tend to place great importance on having registered PBR in Australia, before allowing their varieties to be commercialised here. We heard many varieties which our agricultural industries depend on would not be imported without PBR.

Quarantine and biosecurity costs and delays, or plants not surviving, were frequently raised as challenges for businesses bringing new varieties to Australia from overseas. At the very least, it is something they need to carefully keep in mind when it comes to adhering to PBR timeframes.

Qualified Persons

The Australian PBR system differs from plant variety protection schemes in other countries by requiring all applications to have a nominated Qualified Person (often called a 'QP'). These people are accredited by IP Australia to oversee comparative growing trials (which are examined by IP Australia) as part of the PBR process, and help applicants with their applications.

Some QPs are consultants, providing these services to different clients. Others are in-house within a particular company or breeding program.

IP Australia has an online directory available for those who need to find a QP, and an application process and online training for those who would like to become a QP. Some spoke of the struggles in finding a QP and sense there is a potential shortage of QPs. This was also mentioned by some QPs themselves.

People were generally happy with their QP. However, some shared experiences where the relationship and experience with their QP had not gone well. Some weren't sure what the boundaries or purpose of a QP's role is.

QPs themselves also spoke of their experiences. Being a diverse group, QPs spoke of a variety of different experiences and challenges, often based off their interaction with the PBR system. For example, some in-house QPs only interact with the PBR system every few years and reported that each time they do it's like learning the whole system again from scratch.

Some spoke of a reduced level of satisfaction in their role as a QP, detailing missing the sense of community they previously had. In these previous experiences, more face-to-face workshops and training opportunities existed. This likely has been further amplified in recent years due to COVID-19 travel restrictions.

The PBR process

The PBR process itself is divided into two parts. The Part 1 application involves submitting an online form with information about the applicant and the variety. Part 2 often follows a growing trial being done in Australia to determine if the new variety is distinct, uniform, and stable.

Interviewees across all stakeholder groups and industries provided significant feedback about how and where the PBR process works, or doesn't work for them.

With high commercial pressures in many industries, we heard how delays anywhere in the PBR process can affect businesses on a commercial level. This includes people who believe they have experienced infringement while waiting for their PBR to be examined and granted.

We also heard from some that they will not market their variety until their initial application is accepted, or commercialise it until the PBR is granted. This is despite PBR law in Australia offering provisional protection throughout the application process.

Most interviewees were complimentary about their experiences interacting directly with the PBR team at IP Australia throughout the process, but experienced communication challenges that were more systemic. IT and system interactions throughout the PBR process are captured in a later section.

Part 1 application forms

QPs and legal professionals spoke about the questions asked in the Part 1 application, including that some feel there are unnecessary questions or asked too early at that stage of the process, differences in information required compared with other countries, and that paperwork is repetitive.

Naming a plant variety in the Part 1 application

An applicant is required to give a name for their plant variety in the Part 1 application. There are conditions and rules related to this which people found confusing.

This is a critical part of the PBR process, and some say PBR and trade mark law "clash" with each other. For example, where a proposed plant variety name is a registered trade mark. Members of ornamental plant industries particularly stressed that interactions between registered trade marks and proposed variety names in PBR applications have resulted in outcomes for their industry they do not agree with.

Growing trials in Australia

After progressing through the Part 1 application, an Australian growing trial is often required. The growing trial compares the new variety to other close varieties, and is used to determine if the new variety is distinct, uniform, and stable (often shortened to 'DUS').

"The application process for PBR for a small business, it's pretty onerous. It's a big deal to do the DUS... takes time I may have spent on tree breeding." (plant breeder)

Across most industries, growing trials are seen as a commercial "pain point". They are seen as expensive and time consuming, especially emphasised for those growing trees, vines, vegetables, and some ornamental varieties that take more time to establish and maintain.

QPs also pointed out the practical and commercial barriers to selecting and using the most appropriate varieties for comparison in the growing trials (known as "varieties of common knowledge" or VCK). This included examples where the owners of those varieties wouldn't release plant material for use in a trial, or where the cost of and time associated with importing the plants into Australia for a trial would be significant.

Growing trials done overseas

"No one wants to duplicate trials due to the cost in both countries... you are not likely to bring the plants in, so the Australian growers miss out on new varieties." (IP attorney)

An Australian comparative growing trial may not need to be done if data exists from an overseas trial which meets requirements of Australia's PBR legislation. Australia's willingness to accept testing data from other countries is viewed very favourably.

A consistent message was a desire to not have to perform Australian growing trials where varieties have already been trialled and protected overseas.

This especially included United States plant patent data, which is not routinely accepted by IP Australia due to the differences in testing approaches and data requirements.

Businesses in this position and their advisers strongly stressed to us that the need to do another trial specifically in Australia, at the very least, adds unwanted cost, uncertainty, and complexity.

Beyond that, some said growing trials in Australia delay the commercialisation of new varieties (delaying our growers/farmers access to the new varieties) or were enough for companies to decide not to bring the variety to Australia at all.

Measuring the "invisible" in a growing trial

"There has to be a major paradigm shift in how we manage the determination of a new variety." (QP)

Many (the vast majority who had direct experience going through the PBR process) shared their views on what is measurable and considered relevant in a PBR growing trial to determine if a plant is distinct, uniform, and stable.

Some said that the traits that are measured and considered in a PBR growing trial do not align with traits they breed for, or those with economic significance (e.g. increased yield or disease resistance).

Some said their most commercially valuable varieties would not be considered "new" under PBR testing guidelines because they look identical to other varieties. Some spoke of breeding in traits to their new varieties specifically to create a phenotypic difference, in order to pass the tests under PBR.

Related to the above scenario, but also far more broadly, many interviewees across all industries expressed a strong desire for DNA/genetic markers to be formally considered and included in the PBR process.

Interactions with IT systems

"We have a number of varieties in the [PBR application] process and it's confusing to know what's going on where." (plant breeder)

There was significant feedback about long-held frustrations, challenges, and concerns from those who interact with IP Australia's IT systems which operate around PBR.

People spoke of a lack of confidence filing their Part 1 applications online and detailed their experiences of losing information, or the system not showing enough information about what they have submitted. This has resulted in developing their own strategies, such as keeping their own physical records of everything they submit to IP Australia, or emailing copies of forms directly to examiners.

However, some aspects cannot be worked around, such as having to fill out and upload "flat" PDF forms to file a PBR application. This is different from other IP rights at IP Australia that use more standard fillable online forms.

Another ongoing transactional pain point is how owners of PBRs keep track of and pay renewal fees when they are due.

QPs also raised concerns about the IT system they use while progressing a PBR application and growing trial, the Interactive Variety Description System (IVDS).

Those using our online search and information systems also spoke of challenges. For example, struggling to navigate, use and understand information displayed on the public-facing search database to see information about PBRs applied for and registered in Australia. This included people and businesses trying to understand their freedom to operate, where it is important for them to understand what is protected by others.

Some questioned whether the quarterly online Journal publication could be replaced or produced more regularly to avoid having to wait up to three months for a description to be formally published.

PBR as part of commercialising a new variety

"There's definitely a massive change of perception [about] PBR's role… build a brand rather than [just] trying to breed a better apple." (plant breeder)

The PBR application process is only one part of the story when commercialising a new variety.

Some spoke of broader challenges and struggles bringing new varieties to market and recouping their investment, especially as a smaller business.

On the other hand, several industries gave insights into how they successfully combine PBR with complementary IP and legal protections. Often calling the approach their "toolbox" or "layers" of protection that enable industries to recoup their investment and invest in further breeding activities.

One key example of this is the end point royalty mechanism used in grain industries including wheat, barley, canola and oats. We heard of desires to extend the model to other industries. This layers commercial agreements "on top" of PBR protection, and is a mechanism to collect royalties from those who grow protected varieties. While separate from PBR itself, people said PBR and end point royalties are "intertwined", and that PBR is "absolutely essential" in the model.

Another key example, especially in some fruit and ornamental plant industries, was the combination of PBR and trade mark protection for varieties. The purpose of trade mark protection being that it can "outlive" the PBR protection. On this note, the "Pink Lady" trade mark was often cited as a game-changer and benchmark.

The intersections between PBR and trade marks came up frequently in this context. Some spoke of industry confusion about the boundaries between PBR and trade marks, and questioned how, PBR and trade marks best work together, rather than clash with each other. Some spoke of harsh commercial lessons they had learned not registering a trade mark, but instead putting their intended brand name as the name of their PBR variety.

Views and knowledge across the supply chain

"It's hard to sell the message of what goes into a plant that is PBR protected." (plant breeder)

While growers and others in supply chains are typically very connected to new varieties and their importance, we heard mixed views about how much knowledge, awareness, and appreciation they have of PBR.

Some spoke of very low PBR knowledge in their industry's supply chain, while others spoke of high levels of awareness and an increasing sophistication in this space.

Several people we spoke to (who weren't plant breeders themselves, but part of the supply chain of new plant varieties), said they wanted to learn more about the purpose and benefits of PBR, but weren't sure where to get relevant information.

We heard that many across supply chains including farmers and retailers were not likely to consider PBR as a primary factor when selecting which varieties to buy or grow. We heard these decisions are made based on how varieties are expected to perform and what their customers are demanding, and it is largely incidental to them whether the variety they select has PBR or not. However, some feel frustrated or surprised by the cost of PBR protected varieties – especially when it's time to pay end point royalties.

In contrast, some said they recognise PBR as an attractive element of a new variety – a signal of its exclusivity and uniqueness.

How to label: a practical challenge

"The constraint is working out how to label them in PBR... how do you tag it? That's the biggest issue. I don't have an answer." (plant grower)

A practical challenge raised by members of the ornamentals supply chain was how to label plants in a way that is both practical for the businesses involved, and meets requirements under PBR law.

Labels can be quite a significant expense for smaller businesses and we heard of some smaller nurseries who provide to retailers that don't have any labels or barcodes at all. We also heard it can be a "Herculean effort" to secure and maintain labels throughout the supply chain.

We heard there is a lack of clarity in the industry about what text and information is appropriate to display on the labels, especially while a PBR is still pending. This is a challenge when a PBR is pending for several years and they want to take the plant to market.

Retail market, consumers and branding

Many spoke of PBR not being directly relevant to the decisions consumers are making in a retail context. Some said PBR is not aimed at them and doesn't affect them, and so they don't need to know and it may even be too confusing. They said PBR is primarily about the relationship between the breeder, growers, and wholesalers.

Others lamented that PBR could or should play a greater consumer-facing role as a symbol of a premium product "on the forefront" of innovation, part of the "brand stamp", which is another crossover between the expectations of PBR and trade marks.

Some hoped this could make PBR varieties more appealing to consumers, or help explain the higher prices they may attract.

There are contrasts in retail contexts, for example for different fruits where some are labelled as different varieties to the consumer (e.g. apples) while others are less likely to be (e.g. table grapes).

Some suggested it is becoming more challenging for breeders and nurseries to build brands around their varieties, and that consumers are becoming less aware of differences.

International: exporting varieties bred in Australia

Through our conversations, we heard more about varieties being imported into Australia and not as much about people and businesses attempting to export their varieties to other countries.

Some fruit, nut and ornamental plant breeders shared their difficulties exporting and commercialising varieties overseas on their own, citing challenges like significant costs, quarantine, monitoring, and enforcing. Most concluded they needed to rely on an agent or other support services to do it effectively.

Advisers said the biggest "trip-up" is when plant breeders have started selling without considering an overseas strategy, and the "clock starts ticking". Especially the pain of missing out on United States plant patents, where the grace period is 12 months, and the potential market loss is quite large.

Collecting royalties and challenges enforcing

"PBR is a good system but the enforcement for me is the weak link." (QP)

People who own PBRs told us that non-compliance and infringement, including illegal propagation of plants, or growers avoiding paying royalties, is more common than is formally reported. And when discovered, it is generally too expensive or difficult to pursue, with a strong reluctance to go to court.

Some suggested struggles to enforce are driving behaviour to invest in less breeding, or focus on breeding varieties with inherent biological protection against misappropriation. This is rather than maximising productivity improvements.

When it comes to enforcement, some said the lack of precedent to follow from earlier cases, lack of clarity in parts of the legislation, and difficulties gathering evidence are relevant factors.

Some said this makes them feel uncertain about initiating legal action, even if they could afford it. Some said they experience "lots of little infringements", with this behaviour fragmented across different areas, businesses and individuals, which makes taking effective action more difficult.

"The enforcement at that minor breach level is really challenging and is as good as impossible." (plant breeder)

Some industries are investing significantly in DNA, tracking, surveillance technology, artificial intelligence, and other strategies to deter infringement. This is with the hope to avoid the need to pursue matters in court altogether.

Whether lack of knowledge about PBR is a major factor

"Every infringement I've seen has been a misunderstanding." (nursery)

vs

"There is no illegal propagation that's been done accidentally." (QP)

There were vastly different views on how much infringement and non-compliance is due to a lack of knowledge and awareness of PBR, or an intentional choice people are making.

Freedom to operate

"Freedom to operate… getting more difficult to negotiate." (plant breeder)

Freedom to operate is built into the PBR system, with clear exemptions in the legislation allowing the use of a PBR variety for further breeding.

As mentioned earlier, we heard that many don't just rely on PBR on its own. Some say people are using other protection mechanisms to supplement or completely replace PBR. This can be due to perceived weaknesses in the right from a commercial perspective, or the view that the PBR system may not be sufficiently accommodating varieties emerging from advanced breeding technologies and techniques. Depending on how other protections are used and enforced in industry, some see these flow on effects limiting the freedom to operate in plant breeding.

For example, we have heard that people are relying on strong contracts and commercial agreements around PBR. Some are concerned where these commercial agreements specifically prevent the use of varieties for further breeding, "which may not be in the spirit of the legislation".

We have also heard that patents may become increasingly relevant as well as, or instead of, PBR as technologies advance. In patents, exemptions are narrower and protection is generally broader and stronger. Some raised the question of how this will affect the overall landscape of breeding in the future, as they expect the use of patents to increase in coming years.

Many said they, and their peers, try to stay across what others are protecting under PBR, in order to understand their own freedom to operate. This includes those who grow plants, but do not breed or protect varieties themselves. Some said this is practically difficult to do, takes too much time, or requires a level of computer literacy they do not have.

Some said that more sophisticated businesses can leverage how little others understand PBR to "scare" competitors away. Some also complained about businesses which they believe are intentionally dragging out and leveraging delays in the PBR application process for this purpose.

Future of PBR for different industries

"The system doesn't fit modern breeding… the convention was set up when a time was different." (plant scientist)

Some interviewees gave general commentary about how they perceive the future of PBR.

Some in the ornamentals industry said they saw declining use of PBR because product lifecycles are becoming shorter. There are questions about getting a good enough return on the cost of registering a PBR, and the time it takes to do a growing trial. Some said they are moving away from PBR and towards trade marks more, and only investing in PBR for "exceptional" plants.

Some who work with broadacre crops also spoke of a declining reliance on PBR, saying this is due to enforcement challenges.

Some believe PBR, as it currently exists and functions, does not serve or suit their industry or crops at all – an example scenario raised several times related to varieties where, according to interviewees, the commercially significant differences like yield, disease resistance and seasonality, can only be seen in the genetic markers. These do not have a corresponding phenotype presentation which can be measured in a PBR examination.

Emerging industries like cannabis and seaweed, and those using advanced breeding techniques like gene editing, still consider PBR's future role an open question. Some are questioning whether PBR will be very suitable or relevant for them without significant changes or developments, mostly surrounding the questions around non-visible characteristics and genetic markers.

Native Australian plant material

Some plant breeders are very interested in better understanding their responsibilities and boundaries regarding breeding using native Australian plant material. This includes any future implications of the Nagoya Protocol, which at the time of this research has not been ratified by Australia.

In general some are concerned about what is involved in protecting native plant material, or where they think there is inconsistent and unregulated naming of native plants in commercial nurseries.

Overarching comments about PBR and the legislation

"Pace up the change! We've been making requests to do this for a long time... it's important... this is about future-proofing." (agriculture company)

Some we spoke to who have been involved in PBR and the law for some time, feel that PBR has suffered from a lack of priority and evolution since the current legislation was introduced in 1994.

Those with a legal focus also specifically expressed that PBR legislation is quite vague in language, structure and clarity, and may benefit from some modernisation. This makes it hard to give advice about.

"PBR is the fundamental foundation of plant breeding. And if we don't have it, it doesn't happen." (plant breeder)

Many people strongly emphasised with us how valuable and meaningful PBR is to them and their industries, and the "important" or even "essential" role PBR plays in securing a return on the investment into breeding and introducing new plant varieties.

This helps place into context why challenges or pain points in and around the PBR system matter greatly to those who experience them, and how engaged stakeholders have been, and continue to be, with us in our conversations about PBR in Australia.

NEXT STEPS AND THEMES UNDER EXPLORATION

Common themes have emerged across our research findings and conversations.

These include:

- IT system and correspondence issues that underpin and surround the PBR process
- Practicalities of growing trials and the broader examination process, and how it aligns with commercial realities and the purpose of PBR
- 'Non-visible' characteristics in testing for distinctness in the PBR process
- Role and needs of Qualified Persons as a mandatory element of the PBR process
- Issues within the PBR legislation itself, where people are seeking clarity or modernisation
- Gaps in knowledge and awareness, focusing on particular industry supply chains and problems that can be attributed to a lack of information or understanding about PBR
- Complexity and cost of enforcement, and how to potentially reduce the occurrence of infringement and non-compliance
- Overlaps, conflicts, and crossovers between PBR and other registered IP rights, in particular, trade marks and patents and other protection mechanisms such as varied commercial agreements, end point royalties, etc.
- Collection, relevance and use of PBR data – including what applicants are required to provide at different stages of the PBR process and what information is made publicly available through search and information systems
- Indigenous Knowledge and implications of developments in this space across plant breeding, introducing new varieties, and PBR
- Sources of written information about PBR not meeting the needs of industries who want them

Some of these are captured by or are linked closely to issues already on IP Australia's Policy Register. Some relate to work already underway at IP Australia to uplift and modernise aspects of our services, IT systems, processes, and information.

However a number of these are broader and more complex, and cut across different aspects of the system. Some need further research and more input from stakeholders.

Our work continues to dig deeper into the problems raised. Our aim is to identify solutions which best serve the current and future needs of the industries involved, and PBR's contribution, role and economic impact in Australia.

Our web page dedicated to PBR Reform work at IP Australia is the best place to stay across the developments, including opportunities to be involved in further conversations.

We thank and appreciate all the contributions of stakeholders so far. We encourage anyone interested to stay up to date with our work on IP Australia's website and for future opportunities to stay in touch and be involved.