NZPBRA
NEW ZEALAND PLANT BREEDING AND RESEARCH ASSOCIATION

SUBMISSION

TO THE

MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT

ON THE

PLANT VARIETY RIGHTS ACT 1987 REVIEW - ISSUES PAPER

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Prepared by the
New Zealand Plant Breeding & Research Association
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RESPONSE TO THE ISSUES PAPER

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SUBMISSION ON THE PLANT VARIETY RIGHTS ACT 1987 REVIEW - ISSUES PAPER

About the submitter

The NZ plant breeding industry; represented by the New Zealand Plant Breeding & Research Association (NZPBRA) has a keen interest in following and contributing to the MBIE review of the Plant Variety Rights (PVR) Act.

The Association represents a group of seed and research companies engaged in the development and marketing of plant intellectual property for the New Zealand arable (cropping) and pastoral sectors (mainly dairy, beef and sheep farming).

Submission preface

It is vital that the products of plant breeding innovation, that underpins the success of NZs pastoral, arable and horticultural farmers and NZ Inc. economically, has fit for purpose legislation that is in alignment with our main trading partners and with the globally agreed International Union for the Protection of New Varieties of Plants (UPOV91) convention. Any other approach less than this intent will not work for plant breeders, both in terms of protecting them from illegal activities and incentivising them to develop and release better seed varieties for NZ farmers and end users.

The UPOV91 convention includes a right to authorise propagation of a protected variety with farm saved seed exceptions and includes the ability to charge a royalty on farm saved seed to enable breeders to recoup some of the R&D investment while also providing an incentive to fund new R&D. Regulating these activities is crucial to preserving a supply of new seeds and varieties as well as support farmers' livelihoods.

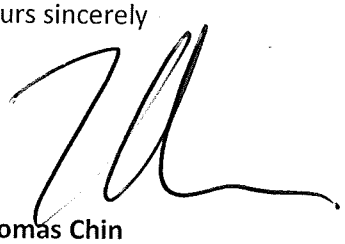
Plant breeders, including our Crown Research Institutes (which carry out important scientific research for the benefit of New Zealand), public Universities (i.e. Lincoln and Massey), private and overseas seed companies, are investing in genetics and varietal development on a range of crop types including onions, peas, wheat, barley, clover and ryegrass, (the latter is the basis for the country's pasture-based farming which earned for the country $23billion in export revenue), with an aim of developing certain desirable traits such as improved yield, disease and pest resistance – qualities which provide an important competitive edge for farmers. In terms of positive outcomes for farmers and food and beverage companies - e.g. flour mills, bakers, brewers and food processors, there are clear productivity and sustainability gains. NZ consumers also benefit from plentiful, high quality, safe, and cost-effective products on store shelves.

Moreover, NZs compliance with UPOV91 is consistent with the Government's goal of doubling agriculture and agri-food exports by 2025 and it also sends a clear signal to the world that NZ, a first world country, is open for business and operates in line with the most current international standards. Additionally, NZs compliance with UPOV91 is a requirement under the Comprehensive

and Progressive Agreement for Trans-Pacific Partnership (CPTPP) free trade agreement and other bilateral trade agreements.

Finally, the Association's position in this phase of the review of the PVR Act is to support the case for compliance with UPOV91, strengthened intellectual property right protections and an enforcement and punishment regime that is practical and fit for purpose in NZ for the future.

Yours sincerely



Thomas Chin
General Manager

NZPBRA SUBMISSION

The following submission provides comment on some selected questions within MBIE's question set and on those issues which are important to the Association.

Appendix A is provided to help clear up some common myths and misinformation about strengthening aspects of our plant variety rights law.

Appendix B outlines a proposed seed royalty collection system.

Objectives of the PVR Act

1) *Do you think the objectives correctly state what the purpose of the PVR regime should be? Why / why not?*

The Association sees the objective being primarily to offer legal certainty and better protection for breeders and their intellectual property.

2) *Do you think the PVR regime is meeting these objectives? Why / why not?*

The current regime is not meeting the needs of breeders or IP developers.

The current policy on farm saved seed does not provide for payment of royalties on protected varieties to the seed breeder.

Neither does the current regime offer sufficient or effective protection to owners of protected cultivars when breeders' rights are infringed.

3) *What are the costs and benefits of New Zealand's PVR regime not being consistent with UPOV91?* What is the size of these costs/benefits? What are the flow on effects of these costs/benefits? Please provide supporting evidence where possible

There is zero benefit in NZ's PVR regime not being consistent with UPOV91.

Moreover, it sends a poor signal to the rest of the world that NZ doesn't care about IPR and thumbs its nose at internationally agreed conventions.

Failing to ratify UPOV91 disadvantages farmers, food and beverage producers e.g. millers, bakers and brewers, not to mention NZ as a whole, both competitively and technologically.

Breeders not convinced their IP is sufficiently protected will not allow their new and most innovative seed varieties to enter the NZ marketplace and become available to NZ farmers, thereby curtailing their benefits and choice.

The Association predicts compliance with UPOV91 would encourage overseas seed developers to bring their new varieties to NZ. Following Canada's ratification of UPOV91 requirements, it is worth noting its plant breeder rights office experienced a big spike in new agricultural variety applications.

Similarly NZ is expected to benefit from higher levels of long-term investment and formation of new partnerships in plant-breeding groups within the country when UPOV91 is implemented here.

When breeders and IP owners are uncertain of securing an adequate return on investment through royalties on protected varieties that may be saved by farmers they will not make available their very best and innovative seed technology.

The converse of the above is that some NZ IP owners do not send their proprietary cultivars to overseas markets where IP protections are weak or problematic in that jurisdiction. This also means less export sales and royalties coming into New Zealand.

Rightly, some overseas jurisdictions could question why they should facilitate protection of NZ varieties when NZ doesn't adequately protect their varieties in the same manner.

4) *Do you think there would be a material difference between implementing a sui generis regime that gives effect to UPOV 1991 (as permitted under the CPTPP) and actually becoming a party to UPOV91? If so, what would the costs/benefits be?*

NZ compliance with UPOV91 provides international certainty for all rights holders and is totally consistent with our main trading partners (and others) who have adopted UPOV91.

Moreover, developing our own national *sui generis* system from scratch is a very resource-consuming task compared to adopting a globally accepted standard and system.

Paragraph 118 of the Issues Paper carries several erroneous assertions and misinformation about strengthened rights for PVR owners and these are discussed in **Appendix A**.

Farm-saved seed

5) *Are there important features of the current situation regarding farm-saved seed that we have not mentioned?*

Yes, there needs to be more reference to the importance of breeders being able achieve a return on their investment, and to have a mechanism to ensure this even from farm saved seed. Current legislation means plant breeders lose significant revenue each year.

In addition there is concern from breeders regarding the maintenance of the genetic integrity of the variety as a result of our current unmanaged farmer saved seed legislation.

The seed industry and Federated Farmers Arable representatives support the UPOV91 principles regarding retention of farm-saved seed.

The seed industry (and many farmers and farmer groups) recognise that without protection of intellectual property, plant breeders have little incentive to invest in creating improved plant varieties. Federated Farmers Arable is generally supportive of a royalty payment on protected varieties of farm saved seed, subject to finalising details on royalty rates and a suitable collection mechanism.

6) *Can you provide any additional evidence/information that would assist us to understand this issue? For example, the nature and extent of royalties that are currently paid in different sectors, and the proportion of crops planted each year using farm-saved seed*

Plant breeders in other sectors derive income from their protected varieties through a range of different royalty models. By way of two examples, we note:

- The licensing arrangements for some branded apples, in which the breeder's share of commercialisation revenues is calculated as a percentage of the fruit sale price, and
- The licensing arrangement for a protected raspberry variety, in which the breeder's share of benefit comes from an annual area based licence fee payable by each grower that applies for the life of the planting, plus a one-off royalty per plant.

7) Do you think there are problems with the current farm-saved seed arrangements? What are they? What is the size of these problems? What are the consequences of these problems?

As discussed above, breeders are not earning a return on their substantial investment in developing new cultivars. Feed wheat and ryegrass are the main seed categories affected. Farmers save a high percentage of seed of protected varieties of these species, by harvesting their own crops and replanting seed the following season. Seed industry analysis estimates breeders lose approximately $2 million in royalties every year under this current system (calculated on the basis of an average wholesale seed value per hectare multiplied by the area under cultivation).

Further, seed industry sources estimate that at least 2000 farmers are saving seed each year. As this takes place outside of official channels statistical data confirming the practice does not exist. Additionally, farmers are reluctant to and are not required to provide this information.

Again the maintenance of the genetic integrity of the variety is of critical importance to the breeder as well as some of the key end users eg maltsters, flour millers and specific feed manufacturers. Currently there is no ability to manage any aspect of this and the adoption of UPOV91 would provide the opportunity for the collective industry to work closer together on this matter.

8) Do you think there are benefits of the farm-saved seed arrangements? What are they? What is the size of these benefits? What are the consequences of these benefits?

The Association acknowledges saving seed for use on one's farm is a long-held traditional and outdated practice should not be prohibited. However, owners of protected varieties remain very concerned that some farmers are multiplying and transacting the saved seed.

There are several problems with this scenario, the first being protected seed is illegally sold. Second, PVR holders receive no compensation from the farmers' transaction. Third, taxes are avoided and the Government forgoes annual revenue, from income tax, company tax and GST. Fourth, there is an illegal black market for seed.

The Association can live with the traditional practice of some arable and pastoral farmers saving seed for their own use on their own farm provided the original seed was legally purchased; a royalty is paid on any protected seed that is saved and saved seed is not transacted in any other way or to another party.

The size and nature of a farmer's holding is a relevant consideration regarding farm saved seed. The continued and increasing growth of farm syndications and numerous large scale corporate farming operations means a large percentage of the NZ farming industry may be avoiding paying for the development costs of its seeds. Accordingly, there might be a case for limiting the saving of seed to farms of sole family ownership and/or farms of a maximum size/hectare.

Some commentators argue there are benefits of farm saved seed and at the same time they assert a range of other arguments critical of plant breeders and their new and improved seed technology; **Appendix A** explores some of the common arguments.

9) *Do PVR owners use mechanisms outside the PVR regime to control farmers' use or saving of the seeds of their protected varieties? What are these?*

Some exclusive legal contracts signed between the farmer and the PVR owner/agent at the time of purchase ensure proprietary seed is not saved. But this is the exception rather than the rule and is generally seen as a last resort option for PVR owners. National regulations are preferred to ensure consistency and standardisation. It would be best to have regulations to bring about some consistency and standardisation.

In addition, there is rarely any problem with a company's breeder's contract for seed production domestically, nor are there problems with specialist seed that is multiplied and destined for export markets. The real issue is with local pastoral farmers. Contractual arrangements, i.e. farmers signing a contract promising they will not save seed do not work, especially when farmers can obtain black market seed from general retail or other sources.

The current legislation which covers varieties imported into NZ which have IP protection and are produced for multiplication and re-export which states that it is illegal for the farmer to retain any produced seed-this current legislation should be retained and incorporated into any new legislation.

10) *Do you think farmers should have to get permission from the PVR owner before sowing the farm-saved seed of a protected variety? Why / why not?*

No. This would be unnecessary and time consuming for farmers to have to do this.

So long as the royalty is paid on the farm saved seed we do not think it necessary for farmers to get permission from the PVR owner before sowing farm saved seed.

11) *What do you think the costs and benefits of a mandatory royalty scheme would be? What could such a scheme look like (e.g. should it cover all, or only some, varieties)?*

The immediate benefits of a mandatory royalty scheme is that breeders would secure a return on development of new, improved seed varieties.

The royalty model needs to be flexible enough to deal with the many and different species (currently more than 40 ryegrasses, clovers, cereals etc). As to where the royalty would be collected – possibly as a component of the initial selling price or at the end point - this should be left to the industry to determine. This is the logical and common practice in other sectors such as fruit crops.

There is no need to prescribe a particular royalty collection point in the value chain or place limits on the collection point for the seed sector when there are no limitations placed on other crop sectors. The current flexibility with royalty collection points for different crop types works well and should be maintained.

A proposed seed royalty collection system is outlined at **Appendix B**.

Rights over similar varieties

22) *Do you think there are problems with not having an EDV regime? What are they? What is the size of these problems? What are the consequences of these problems?*

Yes, there are problems, because as new technologies are developed in plant breeding plant breeders need to ensure any benefits that other breeders use or access are recognised.

23) Do you think there are benefits of not having an EDV regime? What are they? What is the size of these benefits? What are the consequences of these benefits?

There are NO benefits for not having an EDV regime. NZ needs to be part of UPOV91 and adopt an aligned EDV approach.

24) How might technological change affect the problems/benefits of not having an EDV regime that you have identified?

As reduced cost and increased access allows new molecular technologies to become the norm in international breeding programmes, the definition and regulation of EDVs will need ongoing scrutiny and continuing review. It will be critical that NZ establishes and maintains an EDV system that will enable continued access to elite international genotypes for commercial development in our environment.

Enforcement: infringements and offences

28) Are there important features of the current situation regarding infringements and offences that we have not mentioned?

More legal clarity is needed regarding royalty payments. When clear infringements take place against breeders, meaningful and dissuasive monetary fines should be applied. In this, there should be consistency of a penalty regime with other key pieces of IPR law in NZ.

29) Have you been involved in a dispute relating to the infringement of a PVR? How was it resolved?

Member companies have advised the NZPBRA of recent cases of significant breaches of the PVR Act and that resolution was by way of time consuming and costly legal proceedings. This can be seen in two court cases.

Case 1: *WINCHESTER INTERNATIONAL (NZ) LIMITED & WINCHESTER V CROPMARK SEEDS LIMITED*
In September 2004 the Timaru High Court found that a party guilty of inducing others to arrange the deliberate and unauthorised sales of a protected variety which infringed on the official NZ licensee of the barley.

Case 2: In August 2017 there was a case Invercargill-based Southland Grain & Seed admitted to the High Court that it breached the Plant Variety Rights Act by selling uncertified barley without the authority to do so.

There are also multiple disputes relating to infringements where settlement is negotiated without legal interventions. Information on these can be provided to MBIE on a confidential basis.

The Association believes dispute resolution and enforcement should be easier, speedier and cheaper. It needs to be financially feasible for small breeders.

30) How prevalent are PVR infringements and offences?

The Association is aware of typical illegal seed practices such as fraudulent labelling of seed varieties and the misuse of farm saved seed that are proprietary brands which are transacted by farmers. In the former, the offenders are generally competing companies.

Infringements exist because they are relatively easy to organise, there is perceived low risk (as it is not the main focus of law enforcement) and penalties are not dissuasive, e.g. $1,000 fine.

31) Do you think there are problems with the infringement provisions in the PVR Act? What are they? What is the size of these problems? What are the consequences of these problems?

Because the enforcement system is weak and there is no meaningful penalty regime, parties are not deterred from breaching the PVR Act. There have been cases of PVR infringements including NZ farmers who illegally sell or attempt to sell seed varieties protected by plant variety rights. However, most infringements are hard to detect.

Generally speaking, it is very difficult and costly for the rights holder to initiate legal proceedings for example to halt the unauthorised sale, marketing, importation or propagation of a protected variety.

Actions such as identifying the infringer (sometimes involving the use of private detectives), collating a chain of evidence (which sometimes conveniently disappears or is destroyed), testing samples, and formally requesting the courts to determine the matter are complicated and time and resource intensive. For example, obtaining an Anton Piller order (search warrant) of an offenders premises, granted by a High Court judge, is very onerous and not easy to achieve.

Hence some affected businesses are reluctant to go to court, to seek protection of their rights.

Current maximum fines are around $1000. The penalty is weak and does not offer act as a deterrent.

To enable the better enforcement of IP rights the law should provide for a simplification of the administrative processes and procedures by the support of a special intellectual property rights inspector or inspectorate body (possibly part of the PVRO or IPONZ or alternatively attached to a tribunal such as the Copyright Tribunal).

Some positive features of an inspectorate include:

- Practical and technical plant variety rights expertise
- Can speed up internal processes and sort our disputes quickly at less cost
- Is a meaningful example of taking enforcement seriously
- Can be up and running immediately
- Less formal than a court but still have procedural fairness and justice

Some commentators have suggested that other and existing consumer laws could be used instead to provide protections for plant breeders. However, this not really adequate given the very specialised and complex nature of plant breeding issues.

In the case of seed grains produced in Australia which operates under UPOV 91 and has clear royalty collection mechanisms for farm saved seed .There is an interesting development recently. This relates to having a DNA marker technique that can define the variety of seed grain being delivered by the farmer at the point of delivery. This has been initiated due to the lack of integrity by farmers

regarding stating the specific variety being supplied. Farmers have been using this as a way of avoiding farm saved seed royalties at the collection point by stating the variety is one which does not have end point royalties stated.

This new technique developed by the industry is also ensuring the genetic integrity of the variety and providing a new benchmark in terms of customer expectation.

32) Do you think there are problems with the offence provisions in the PVR Act? What are they? What is the size of these problems? What are the consequences of these problems?

Yes, there are problems - as already outlined above the penalties are poor.

For example, an infringement of the Act incurs a maximum penalty of $1000.

We note fines of this size are treated by some parties as 'a cost of doing business' or 'gaming' the system. This is akin to some garden shops trading on Easter Sunday and therefore offending against the Shop Trading Act which imposes a fine, 'not exceeding $1,000'.

Accordingly, a modern penalty regime encompassing provisions for damages[i], aligned with other IP rights would be an effective deterrent because wilful or blatant infringements can cost breeders and rights holders lost sales and profit on the average cost of $1 million to develop a new cultivar.

Additional issues

42) Do you have any comments on these additional issues, or wish to raise any other issues not covered either in this section, or elsewhere in this paper?

Export of propagating material

The Association fully endorses the UPOV91 position, making it illegal for the export of propagating material without the permission of the PVR owner.

The Association notes the recent case[1] involving a kiwifruit grower who allegedly sent protected varieties to China and the inability of the PVR owner to initiate proceedings because the Act does not cover this scenario.

Eligibility for PVR Protection

The Association believes NZ should follow the Australia precedent and provide PVR protection for algae.

Term of grant

The Association supports the current term of 20 years.

Use of a protected variety for non-commercial purposes

The Association believes everyone should pay a royalty and acknowledge that the IP has been developed and if used then paid for.

Access to propagating material for DUS Testing

[1] https://www.stuff.co.nz/business/farming/96591303/no-criminal-action-open-to-zespri-against-person-who-sent-kiwifruit-plants-to-china. Zespri seeking damages of around $30 million for infringements of its intellectual property rights under the Plant Varieties Rights Act

The Association believes access to propagating material from the breeder for PVR trial comparison etc should be a requirement.

Issues Paper Para 132: How do other countries address farm-saved seed in their PVR regime? Annex 2: Farm saved seed in other jurisdictions (Page 83-84 of the Issues Paper)

The Issues Paper includes an interesting selection of countries. The information is technically correct however the Association is concerned that the narrative used for five of the six jurisdictions might give readers the improper interpretation that farmers around the world can sow seed of a protected variety without making a payment to the PVR owner.

Regrettably, the Issues Paper omits any background or contextual information such as footnotes or other references to show how farm saved seed works in those countries.

It would be more helpful to readers of the Issues Paper to know for example that few United States farmers save their seed. And the explanation is that breeders have been able to mostly eliminate or limit farm save seed practices on most crops with:

- hybrid seed (meaning they can't be replanted);
- patent protection (most plants are protected by this method) and many varieties are bred by genetic modification also protected by patents and
- grower contracts (that restricts the use of the seed)

It should also be noted that other major crops such as wheat are publicly-bred varieties which are royalty-free.

And in the forage grass area, without royalties on farm saved seed to help cover the cost of breeding new varieties, a lot of varieties are being lost.

For Australia, Canada and the US – all major cereal producing countries, it is also important for Issues Paper readers to know that the three countries all have very successful and efficient end point royalty collection systems at receival points for industrialised broad-acre species and therefore already collect good proportions of overall royalties.

Australian legislation specifically allows owners to apply an end point royalty (EPR) to grain produced from nominated protected varieties in order to collect revenue for further research and development. Due to the implementation of an EPR, it is almost impossible for farmers to avoid paying a royalty on farm saved seed. It is also important to note is that EPR has been long enshrined in these countries and it is not evident that farmers are penalised in any way. Furthermore, it is interesting to note that breeders who operate in the Australian market are increasing their investments into the broadacre sector because of their strong legislative status regarding farm saved seed and royalty collections[2].

In some Canadian provinces growers are required to plant certified seed in order to get crop insurance. It's almost as though there hasn't been a need to protect varieties using their plant breeders' legislation, because crop insurance is doing the job. Meantime a farm saved seed royalty scheme is pending[3] (under the country's updated and UPOV91 compliant plant breeders' rights legislation).

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[2] "End point royalty system to drive gains in wheat breeding", Farm online National 8/8/17
https://www.farmonline.com.au/story/4840513/epr-system-to-drive-wheat-productivity-gains/

[3] "Ottawa to consult on seed royalty proposal", The Western Producer, 11/10/18
https://www.producer.com/2018/10/ottawa-to-consult-on-seed-royalty-proposal/

It is acknowledged that China is a key trading partner for this country however it should be noted that they are considered a developing country with a large peasant farmer agricultural base; two factors that are not directly comparable with NZ. Considering China is a non-signatory to UPOV91, when the other example jurisdictions are all first world and UPOV91 compliant, is not a helpful example. Overall, China's legal protections are generally weak and international breeders are mostly NOT keen to work with them in terms of supplying new germplasm.

In the case of Japan the country is not a notable agricultural or arable nation. The Issues Paper fails to make the distinction that the overwhelming majority of farmers are recognised as "household farmers" (2 to 3 hectares) compared with "industrial farmers". Japanese law does not allow industrial farmers to harvest protected plant varieties[4]. [For comparative purposes, a typical arable farm in NZ's South Island is 250-350 hectares in size]. Japan is heavily dependent on foreign cereal and grass germplasm for food security (neither of which are traditional field crops), but farm saved seed is not widely used and therefore royalty payment and collection is not a significant issue.

More useful comparisons for the NZ context would have been for the Issues Paper to reference countries such as the UK, France, Germany, the Czech Republic, Sweden and Mexico (the latter a CPTPP signatory party) where royalty payments on farm saved seed are an established norm and private agencies set up by the industry have been left to organise the collection of royalties based on agreements with farmers' organisations[5].

[**POSTSCRIPT**]. It is noteworthy that the new trade agreement between the USA, Mexico and Canada (USMC Agreement)[6] – replacing the North American Free Trade Agreement provides strong intellectual property protections, including the adoption of UPOV91 requirements (which was missing from the agreement which came into effect in 1994). Mexico will have to accede to UPOV91.

Concluding comments
In conclusion, the Association believes that:

- Strengthened breeder protections will foster a positive business environment for investing in plant breeding in NZ;
- Strengthened breeder protection and consistency at an international level will encourage foreign breeders to release new and improved varieties into NZ;
- Strengthened breeder protections will result in increased choice for farmers in sourcing the best varieties with desirable characteristics;
- Strengthened protection ensures breeders can be fairly compensated for their development, and curtails infringement;
- There are NO negative impacts on farmers who have obtained seed legitimately;
- Farmers saving seed for their own use on their own farm is a long held tradition and should not change so long as royalties are payable on protected varieties that are saved;
- Modernising of our PVR Act under UPOV91 rules means NZ becomes a more attractive place for companies to invest and to complement the research and development work that's also done locally. Moreover, it's important to view the modernisation as bringing positive

[4] Agricultural law in Japan: overview
https://uk.practicallaw.thomsonreuters.com/3-604-8985?transitionType=Default&contextData=(sc.Default)&firstPage=true&comp=pluk&bhcp=1
[5] International Seed Federation, Collection systems for royalties in wheat an international study
http://www.worldseed.org/wp-content/uploads/2015/10/Royalty_Collection_Breeders_Remuneration_Study.pdf
[6] Office of the US Trade Representative, USMC Agreement was announced on 30 September 2018. Signed on 29 November.

economic benefits to the wider production and supply chains, people who eat and NZ Inc rather than viewing it as a penalty or a disincentive; and

- Retaining the current situation where there is flexibility to collect royalties at either the seed or end point is vital for breeders.

Yours sincerely

Thomas Chin
General Manager

APPENDIX A: COMMON ARGUMENTS

There is much misinformation about various aspects of strengthened plant variety rights laws. The following is a snapshot of some common arguments used by commentators.

ARGUMENT 1: *"Farmers can't save seed to plant the next year."*

As previously noted, the Association accepts the long standing, common farmer practice of retaining seed from the current harvest for planting on his/her own property for the next, and subsequent planting seasons, so long as farmers have not signed an agreement not to save seed and the seed is not sold or transacted to another party.

Retention of protected farm-saved seed does result in less seed being sold by seed companies. For example, a high percentage of annual plantings of feed wheat, barley, oats and ryegrass take place with retained seed.

Industry concerns relate to the trading of that saved seed between neighbouring farmers or to other entities such as large corporate farming operations. This practice is illegal and should remain so under any reform of the primary legislation.

Moreover, purchasing farmers themselves should be concerned with the possibility of buying counterfeit seeds or seed usually not tested for germination, purity, or weed seed contamination.

ARGUMENT 2: *"Plant breeders want exclusive control over any harvested material."*

The current legislation provides some exclusivity of control over harvested material for seed from overseas being multiplied.

UPOV91 provisions basically require users of seed to respect the intellectual property of the companies who are the official agents, developers or breeders of the seed; and that there are sanctions for selling or transacting or propagating a protected variety of seed for which they were not entitled to.

Farmers will continue to be able to save protected varieties of seeds if they pay a small royalty to the owner of the IP.

The Breeder also wants to ensure the variety they have specifically bred retains its genetic integrity hence their ongoing interest in any harvested material.

ARGUMENT 3: *"Farmers' hard work has delivered the productivity increases, not seed."*

Some farming practices can assist in the delivery of better crop yields and performance.

However, identifying and incorporating quality genetics into cultivars through specialist plant breeding (with an annual investment of around $30m in 2013/14[7]) over the past 100 years has vastly improved the yield, quality and performance of pastoral and arable crops in NZ year on year, for decades. In some cases plant breeding has also helped reduce the amount of chemicals utilised on farms as such nitrogen, pesticides and fungicides.

In the case of cereals for example, NZ breeding has delivered for farmers valuable niche varieties with high yield and earlier maturity.

[7] NZPBRA correspondence

Breeders are also working to better control various diseases and pests in the field. Currently work is being done to breed wheat better able to resist common diseases such as Fusarium head blight and Septoria which can drastically reduce yields and impact bread making quality. Breeders are also working on barley varieties that can better resist Ramularia, a fungal pathogen which can cause yield losses of up to 30 to 40%.

The two main barley varieties which have served NZ well, *Jimpy* and *Fairview*, have been both developed by a NZ breeder specifically for their better resilience to wet local conditions and for the very demanding malting industry[8]. Through local investment in cultivar development and genomic selection, these and many other varieties have led to significantly improved farm yields e.g. 9.5t in 2000 to nearly 11t in 2015[9].

As food and beverage processing industries have become more sophisticated, they are demanding from breeders cultivar types with quality specifications for various different uses such as higher protein levels and consistent falling number for the flour milling baking sector.

On the vegetable seed front, a local onion breeding program is already yielding significant results for onion growers in New Zealand, Australia and further abroad with new hybrids with root disease resistance and storability improvements. New field pea varieties are being developed locally for the emerging pea ingredients market.

In NZs critical pastoral sector work by plant breeders has seen up to a 0.7% year-on-year gain in dry matter yield in ryegrass and a consistent 1% gain per year in white clover[10]. Breakthrough ryegrasses that have been bred with novel endophyte[11] which protects the plant from insect pests such as black beetle and Argentine stem weevil to help enhance the yield and persistence of the pasture.

Significant gains in on-farm productivity, disease and insect pest control have come from the hard work and expertise of plant breeders and crop scientists.

ARGUMENT 4: *"Farmers will be forced to buy new and more expensive seed."*

NZ is a fully competitive market and farmers are not at any time compelled to buy and use the latest and most innovative varieties of proprietary seed. Farmers purchase seed only when they perceive some benefit from using it. Farmers always have the choice of purchasing seed varieties from different authorised retailers, at various price points and have the option to use lesser quality and or older generation seed that is in the public domain.

As an illustration of market choice and price points there are over 30 different wheat cultivars and over 100 different ryegrass species available for farmers to choose from, some of them dating back decades.

The downside with older varieties is that their genetic potential is lower and the seeds will not have top productivity or improved disease or pest resistance traits found in more recently developed cultivars. Most farmers choose varieties with quality traits.

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[8] Brewers' malt requires a very narrow specification for the barley in terms of protein content

[9] Foundation for Arable Research

[10] Woodfield, D.R. 1999. Genetic improvements in New Zealand forage cultivars. Proceedings of the New Zealand Grassland Association 61: 3-7

[11] It is estimated that the total value of the AR37 endophyte to the NZ economy is at least $3.6 billion over the lifetime of its 20-year patent
https://farmersweekly.co.nz/section/agribusiness/view/grassroots-scientists-get-reward

Using a smartphone analogy, it is never compulsory for users to buy Apple's cutting edge iPhone X model when older and superseded generations and cheaper alternative brands are widely available.

Some farmers often choose a more expensive seed, because it performs better for them from a productivity and profitability perspective.

ARGUMENT 5: *"Seed prices will go up."*

Basic supply and demand economics determines that prices do not go up unless there is demand and value to be had from a product. Price levels influence supply of new and better varieties and more competition usually leads to lower prices, not higher prices. At the end of the day there is not a lot of room to raise prices on the farm, because farmers simply cannot afford an increase in price.

In respect of farmers using farm saved seed to save costs: whilst that may appear true on the surface, it may not be the case if all factors are considered. Farm saved seed requires a huge effort to clean, and usually has lower germination rates, which requires increased seeding rates to obtain the same strike rate. Even then, seed vigour is often lower, resulting in weaker seedlings. It also may be infected with seed-borne diseases eg Ramularia in barley, in addition to weed seeds.

Farm saved seed might be useful for one season however if seed is used from subsequent years the genetics will become increasingly weakened and the variety traits may not be preserved. This may not be a good option for farmers who are expecting top yields and profitability and needing to meet the quality demands of the market. Let alone considering the genetic integrity of the farm saved seed.

Overall, seed costs for a farmer are very low at 6%[12] of total costs.

It is true that profits are generated with the sales of seeds, but farmers would not buy them if the seed were not a top money earner for them.

ARGUMENT 6: *"Being compliant with the UPOV91 convention means NZ cedes its sovereignty to seed companies."*

The UPOV 1991 convention is a global agreement that protects the intellectual property of plant breeders as they develop new varieties for the benefit of society. The NZ Government has already agreed to the Convention.

UPOV has 74 members, 3 in 4 are part of the 1991 agreement. NZs main trading partners such as USA, Australia, Canada, Japan and the European Union, South Korea, Singapore have legislation meeting the requirements of UPOV91. There is no evidence that these countries have ceded sovereign control to seed companies.

The other side of the coin is of course that owners of NZ plant intellectual property look to UPOV91 protections giving them comfort in their key international markets as part of their growth opportunities.

Moreover, UPOV91 compliance shows the international community that NZ takes plant intellectual property protection very seriously.

NZ is also and already compliant with a number of other globally agreed IPR conventions or international treaties none of which reduces the country's national sovereignty.

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[12] "Wheat cost breakdown", Country-Wide November 2017

ARGUMENT 7: *"Updating the PVR Act gives power to large companies on the backs of farmers."*
Updated and stronger plant breeders' rights legislation will result in more farmer and community benefits, irrespective of the size of a company or the company's country of domicile.

Farmers will see new and quality seed varieties introduced into the NZ marketplace that can, for example assist with improve yield, sustainability and profitability. But this is all conditional on having NZ's plant breeders' rights up to speed with the rest of the developed world.

A revised PVR Act, aligned with the UPOV91 convention, could attract new varieties to NZ and see more varieties developed in NZ, for NZ. Moreover, there will be a more competitive market in choice and pricing. This is truly a win-win situation for both farmers and breeders and in turn end users of crops and ultimately NZ consumers.

ARGUMENT 8: *"The owners of the seed varieties are multinationals."*
The owners of seed varieties are diverse. They are not exclusively multinationals although varieties are sourced from all over the world as well as locally, to be available for NZ farmers.

Sometimes it is lost on lobby groups that the owners of seed innovations are in fact our leading Crown Research Institutes (i.e. Plant Food Research and AgResearch who carry out scientific research for the benefit of New Zealand). Such organisations are the biggest users of PVR, followed by a range of local small and medium privately owned companies, universities and overseas companies.

The Plant Variety Rights Office (PVRO) report on Agriculture, Vegetable, & Fungi Testing Activities for July 2017 to June 2018 notes that of the 38 PVR applications received half were for varieties (including pasture and cereals), bred in New Zealand.

Regular top yielding biscuit wheats and milling wheat cultivars have been bred in NZ by the Crown's Plant Food Research.

ARGUMENT 9: *"UPOV91 will not result in more new varieties for NZ farmers."*
Plant breeders develop new varieties that are specific to NZ conditions. Varieties maybe initially developed from a worldwide network of breeding stations however they need to be adapted to suit local conditions.

Case study
NZ sometimes does not have access to the state-of-the-art generation of seed genetics or specialised seed varieties that for example have the latest disease resistance packages nor greatest yield potential which in turn makes NZ less competitive.

Malting barley is an example of this with many new varieties being developed for growers and maltsters but, unless breeders can secure their IP, they simply won't release the very latest varieties to market. The very latest generation of malting barleys, delivering higher yields and improved quality, as used in Europe, currently is not used in NZ.

For NZ there is a need to have constant access to world class genetic material; to avoid dependence on one or two varieties – which is a disaster waiting to happen.

Two issues remain: maintaining a viable domestic plant breeding program which specifically develops cultivars for different regions of the country and ensuring continuity of international supply of better seed technology.

This is where having the enforcement protections as agreed in the UPOV91 is advantageous, as it gives breeders confidence that their varieties will be strongly protected in NZ against those parties who might infringe on their rights.

ARGUMENT 10: *"Farmers are unfairly punished."*

Farmers who buy protected seed, save it for their own use and never sell the seed or trade it with neighbours – those in other words who adhere to existing PVR legislation - will not be impacted by NZ adopting UPOV91.

APPENDIX B: PROPOSED FARM SAVED SEED ROYALTY COLLECTION AGENCY

Plant breeders want the legislative ability to enable a royalty on varieties covered by plant variety rights and saved by farmer, at any stage of production, as remuneration for efforts made during the breeding of new varieties.

The structure of the NZ plant breeding industry means there are already a multitude of well-established practices and procedures for royalty collection. Likewise the charging of royalties is not a new concept for farmers.

NZ's arable sector encompasses some 40 different crop types and logic suggests there should be a flexible collection system that can be implemented at any point along the value chain.

For cereal crops, such as wheat, the industry currently uses a system known as End Point Royalties (eg $x per tonne of production) which can effectively track seed of a protected variety after the first sale. However, this structure does not work well for crops such as feed barley and ryegrass as it is impossible to know the harvest yields and the application of a royalty amount. In this instance, a royalty based on seed point (i.e. a small rate incorporated into the selling price of the seed) is more appropriate.

The key point to recognise is each different crop type needs to have its own flexible royalty collection structure. Equally, royalties collected at end point would be impractical for grass seed.

It is important that an effective and efficient royalty collection system is flexible enough to accommodate the different characteristics of different crop types.

Farmer Saved Seed Royalty Collection Agency

Plant breeders and Federated Farmers Arable representatives have begun discussing the creation of a privately-run royalty collection and management agency. The Royalty Collection Agency aims to collect royalties on farmer saved seed varieties which are protected under the PVR Act.

The Royalty Collection Agency is proposed to have representatives from Breeders, Industry and Farmers on its Governance Board.

The collection agency would be a non-profit body to administer the royalties collected on the various crop types. Annual royalty rates payable, struck at a fair level, would be agreed each year involving plant breeders and arable farmers. The collection agency would process confidential and voluntary annual declarations from farmers on the amount of saved seed stored and sown and perform annual audits for compliance. The collection agency, with agreement from breeders and farmers deduct a percentage of the royalty collected to cover administrative and operational costs.

Plant breeders favour a flexible royalty collection point for the different types of seed varieties or crops. Specifically, continuing with an end-point royalty system for cereals e.g. wheat and barley (used for the human food and beverage sectors and animal feed sectors) and a seed-point system which appropriately and better matches forage species such as ryegrass, peas, brassicas, triticale and ryecorn.

As an illustration of the ability to be flexible in a collection system, it is noted that arable farmers are currently required to pay an Arable Commodity Levy[13] (administered by the Foundation for Arable

[13] https://www.far.org.nz/about/levy

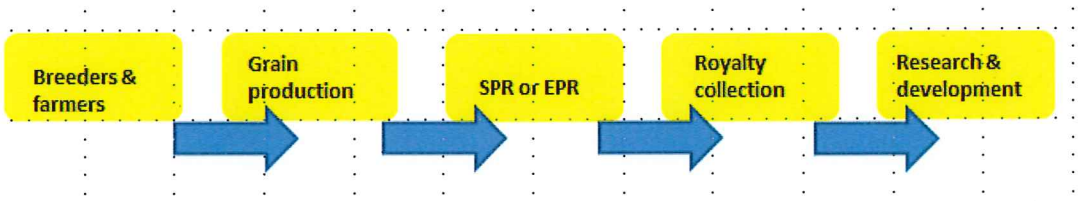
Research). This is collected at the first point of sale for all grain and seed, with the exception of maize which is collected on the seed purchased. Current levy rates are:

- Maize: $1 per 10,000 seed purchased
- Herbage and amenity seed: 0.9% of sale value
- All other grain & seed crops (cereals, pulses, etc) 0.9% of sale value
- Cereal silage: $10/hectare
- Open pollinated vegetable seed crops: 0.9% of sale value
- Hybrid vegetable seed crops: 0.6% of sale value

Details around the collection agency are still being worked out by the plant breeders and arable farmer group representatives.

As a flexible royalty system for horticultural and ornamental plant species has long been established and operates successfully a similar flexible system for arable and pastoral seed crops should also operate.

Royalty collection model (indicative)



Supplementary explanation

What is a Seed Point Royalty (SPR)?

A royalty collected at the point of seed sale as part of the seed cost. A SPR is paid up-front regardless of success or failure of crop. SPR is the most practical for crops used as forage and hay (for animal consumption) as it is near impossible for the rights owner to determine how much harvest has been produced.

What is an End Point Royalty (EPR)?

A royalty calculated on the grain eg wheat and barley produced by the farmer and paid at the point of delivery.

What is the advantage of an EPR?

EPRs are calculated only on what the farmer actually produces and the breeder's return is dependent on the performance of the crop.

A system to collect EPRs has long been established and currently operates very successfully with a reasonable market share and low administration cost.

Newly bred varieties producing higher yields will increase the breeder's reward due to the increased return received by the grower. Conversely, poor seasonal conditions or lower yielding varieties will reduce the royalty received by the breeder due to lower farmer returns.

What would happen if EPRs were converted to SPR?

Conversion of current EPR's to SPR's would more than double existing highest SPR rate. There would be an unsustainable increase in seed costs. This is crop related and for many crops a SPR is the best mechanism to capture the royalty. It is cereals mostly where EPR is required and specifically wheat.

What about Federated Farmers' concern that EPR "*can penalise for the capability of the individual farmer*"?[14]
As EPR is a performance-based royalty system farmers and breeders share the risk of crop performance.

Farmers actually pay in proportion per tonne of material that they're selling. So if they grow 100 tonnes, they will pay the royalty on 100 tonnes; if they grow 1,000 tonnes, they will pay on that. If they have a poor crop that year, they'll not be paying much royalty. If it's a big crop, they'll pay more total royalty that year, but they have earned more revenue to do it with.

Where is EPR used?
EPR is used worldwide and in major cereal (i.e. wheat) growing countries such as Australia Canada, USA, France, Argentina, and Uruguay.

[14] https://www.nzherald.co.nz/the-country/news/article.cfm?c_id=16&objectid=12147937