

New Zealand Exotic Plant Species: The Way Forward®

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INTRODUCTION

New Zealand is a very small and remote country separated from our nearest neighbours by great distance and vast oceans. We have a unique range of native flora with approximately 2,500 species present on both our mainland and numerous off-shore islands. Early Maori brought a few new plants with them for culinary and industrial purposes but it was not until the arrival of European settlers that the number of exotic plant species present in New Zealand increased significantly. The diversity was immense with everything from pasture grasses, stock feeds, fruit, and timber trees to vegetables and ornamental plants introduced especially in the post World War II era. Today botanists acknowledge that some 35,000 to 40,000 exotic species exist here. They have made New Zealand a wealthy country with land-based, primary-industry export receipts earning approximately \$20 billion per annum. One does not have to look too far to see the success of sectors like the kiwi-fruit [*Actinidia deliciosa* (syn. *A. chinensis*)] industry, forestry based on Pine (*Pinus radiata*) and Douglas fir (*Pseudotsuga menziesii*), or the “biggies,” dairy farming and meat production.

PEST OR NOT?

Of these exotic species only 154 are recognized as having become pest plants banned nationally or regionally in New Zealand. One can only cringe at the day early settlers thought that gorse would make a good hedgerow here like it did in Great Britain or that thistles and ragwort would not be a problem if inferior stock feed, contaminated with both, was introduced to economize in times of hardship. A good number of these exotic pests could still be eliminated or significantly reduced with the right funding and a persistent regional-based programme. One could draw the conclusion then that 99.5% of introduced plants have been successfully assimilated here and pose no threat to the natural environment at all and, in fact, enhance or enrich it.

LEGISLATION

In the 1990s, several significant pieces of legislation were passed to identify and regulate known plant species already present in New Zealand and to control further introductions of new species. The 1993 Biosecurity Act set the wheels in motion for the introduction of the 1995 Plant Biosecurity Index (PBI), the brief of which was to focus on “the exclusion, eradication, and effective management of pest and unwanted organisms.” Then came the 1996 Hazardous Substances and New Organisms Act (HSNO) which focused on the management of hazardous substances and new organisms. Substances and organisms referred to everything from chemicals and fertilizers through to microbes, viruses, insects, animals, and, unfortunately, plants as well. Even more unfortunately, at that time, only 27,000 of the up to 40,000 plants botanists estimated were in New Zealand were initially recorded on

the PBI, meaning that up to 40% or more of the exotic species in New Zealand were not officially recognized as being here. Ministry of Agriculture and Forestry (MAF), as recently as April 2008, acknowledged that after 12 years the PBI is but a snapshot of what plant species are actually in New Zealand and is calling for assistance from industry in tackling this daunting task that was initially addressed in such a hasty manner.

NEW PLANT SPECIES

Prior to the HSNO Act, an estimated 500 to 600 new plant species were brought into New Zealand annually, many for tests and trials by our now renamed Department of Scientific and Industrial Research (DSIR) but also by many other learning and research institutes. In addition, many nurserymen were able to offer unique and exciting new releases from American and European suppliers and kept us at the forefront of plant breeding and innovation.

Under the present system of risk analysis the full assessment procedure to enable a new plant species to be grown anywhere in New Zealand has an application fee of \$30,000 with no guarantee that it will result in being approved. It is, therefore, not surprising that no new species of economic significance have been introduced in recent years.

The purpose of the HSNO Act was “to protect the environment and health and safety of people and communities by preventing and managing the adverse effects of hazardous substances and new organisms.” However a new organism was defined as a species of any organism which was not present in New Zealand on the date of the commencement of the Act and it has since been interpreted as a focus on the adverse effects of plants rather than their more important beneficial attributes, a kind of “guilty until proven innocent.”

If we carried that stance through to influence the rest of the way we lead our lives, no-one would be allowed to go swimming in case 1 in 1,000 drowned, males under the age of 27 would not be allowed to drive because statistics show they are most likely to have an accident, no-one should get married because 1 in 3 end in divorce, and no Muslims should be allowed to visit New Zealand because several hundred out of more than one billion worldwide might be terrorists. Risk is an intrinsic part of both human and business growth where calculated chances are made based on experience and information to hand.

Kings Seeds has previously applied for a number of plant species from its range to be entered on the PBI and has met with mixed success despite the documentation supplied being fairly consistent. A viola [*Viola* × *wittrockiana* (syn. *V.* × *williamsii*)] was accepted as being already present in New Zealand. A dianthus hybrid (*Dianthus* ‘Rainbow Loveliness’) was approved as a species to be added but took over 6 years to be listed in the Index and two others, a pepper (*Capsicum baccatum*) and a basil (*Ocimum americanum*), were rejected for lack of proof despite catalogues, text books, and plant samples being supplied.

THE TASK AHEAD

It can be concluded that MAF, and Environmental Risk Management Authority (ERMA) as its partner, face a daunting task to successfully list all exotic plant species already in New Zealand and to free up the restrictive mechanisms that have been put in place. They need to evolve their interpretation of the HSNO Act and

provide a more economical framework of assessment procedures for the introduction of new plant species. This would not only energize the horticulture and agriculture sectors with innovation and new opportunities but also support government policy of encouraging business investment and growth. At present the number of exotic plants in New Zealand represents less than 10% of the estimated world's 420,000 species and we are missing out on an immense library of plant species.

DR. JIM DOUGLAS

In 2005, Dr. Jim Douglas, New Zealand Order of Merit, addressed this assembly, and I would like to take this opportunity to quote him as what he said back then is just as relevant today and I quote:

“Beneficial plant characteristics are now being identified at the molecular level with modern plant breeding methods they can be used to enhance the economic potential of unrelated species. New plant species and their targeted development for specific end uses will be needed for new market opportunities, environmental adaptation to climate change, and resource issues such as bioenergy production. The increasing importance of identifying and understanding the constituents of plants emphasizes the need to safeguard the world biodiversity of plants for possible future use. This requires an active global policy to protect threatened and endangered species. New Zealand has a role to play in providing a safe haven for species not listed on the Biosecurity Index. This need and all the opportunities and benefits that new species bring require a constant flow of new plant material into New Zealand and for this to happen there need to be minimal barriers to new plant introductions.

“The Biosecurity and HSNO regulations introduced in the 1990s have stopped the entry of new germplasm for evaluation, selection, or breeding within New Zealand for the last 7 years. For a country dependent on exotic species for its wealth this amounts to a national disaster. Exotic plants are the backbone of the New Zealand economy and there is a requirement for the continual flow of new plants entering New Zealand to develop new products for new market opportunities. Unless the regulations are changed the lack of new plant material coming into New Zealand is likely to have serious long-term consequences for the economy. The regulatory emphasis on the adverse environmental threat of new exotic plants is totally misplaced compared to the benefits that new plant material can bring. Plant import regulations should focus on keeping unwanted plants out of New Zealand and allow the free entry of all other plants provided they meet disease and pest health standards” (Douglas, 2005).

A WAY FORWARD

It is to no-one's benefit to sit back and say the onus of responsibility lies solely with the Ministry and their policy makers and that they should be given a jolly good shake up and that everything that is wrong with the system is all their fault.

I believe that the stakeholders in the industry need to work more closely together to establish exactly what in the plant world we have here and what it is that we need to provide a structure around for future plant health regulations. Perhaps a census, if you like, could be carried out with funding being derived from the Sustainable Agriculture Fund currently administered by MAF. Kings Seeds has recently donated \$26,000 towards the administration of this fund. Specialist plant groups such as the camellia, rhododendron, lily, cacti, and bromeliad societies, the

Royal Horticulture Society, Crown Research Institutes such as Crop and Food Research, our own esteemed plant breeders and acknowledged plant experts, and seed and plant company representatives could be given an opportunity to partner MAF. Graduate students (Ph.D.) could be assigned to provide research as part of their theses and a select panel of respected “elders” of the industry could be used to filter and verify information before it is presented to ERMA for rubber stamping.

It requires ERMA to be more flexible and proactive in their review of information that is received and to look at how they can approve rather than deny an application under their statutory advice notification. A determination on a “new” existing species can be made by ERMA providing there is overwhelming evidence in support of it in the form of import documentation, sales catalogues, scientific journals, or statements from authoritative experts.

The RMA can also make a Statutory Determination (Section 26) on the presence of a species present in New Zealand for which they charge a fee of \$1,125. I believe the level of this fee is excessive and should be scrapped. Whilst it was probably put in place to limit frivolous applications, it has also stymied genuine ones being made.

CONCLUSION

In regard to the introduction of plant species into New Zealand, a lesson needs to be learnt from the past and accept that 99.5% of exotic plants already here are doing just fine and that the potential pest plants from around the world are nearly all duly noted both here and overseas. Plants need to be removed from under the umbrella of the HSNO Act and addressed as a separate entity with the focus moving to the much more important beneficial attributes of most plants and place the biosecurity focus on plants with undesirable qualities, in much the same way as the Permitted Plants List is done by Australia. With the closer economic relationship growth we are experiencing with them, this would be an ideal opportunity to also have compatible regulations.

It would also return plants to their previous status of free entry into New Zealand provided they met health standards and were not considered undesirable. Developing a Biosecurity Index of undesirable plant species seems a much more sensible approach to minimize environmental risk rather than examining all new plants coming into New Zealand when the vast majority of them (remember 99.5%) offer no environmental threat at all.

LITERATURE CITED

Douglas, J. 2005. Regulatory barriers to introducing new plants need to be minimized to grow the New Zealand economy. *Comb. Proc. Intl. Plant Prop. Soc.* 55:155–160.