

The Plants Biosecurity Index (PBI)

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A brief outline of the regulatory environment – legislation, issues from a regulators perspective

Establishment of the Acts and general background

The two Acts governing the Plants Biosecurity Index (PBI; <http://www1.maf.govt.nz/cgi-bin/bioindex/bioindex.pl>) are the Biosecurity Act (1993) and the Hazardous Substances and New Organisms Act 1996 (HSNO) which replaced the plant restrictions of earlier Acts. When HSNO was under development a working tool was required to designate taxa acceptable for importation, based on plants deemed to be present in New Zealand. This was prepared with information available at the time, incorporating nursery stock importation records, nursery catalogues and Landcare Research records. Prior regulations existed for importing nursery stock, but there were few for seed, other than for major cereal and legume crops. Nursery stock importation was recorded mostly at the genus level. Apart from a prohibited list any ornamental species of seed could be imported.

An editing provision was built into the PBI and this is used by the Plants Imports Group who manage the index. The PBI is a working tool used primarily as an index for the two MAF importation standards: 'Seed for Sowing' (SS) and 'Nursery Stock' (NS). The PBI is not established by statute, but the two import standards are legally binding, being signed by a Chief Technical Officer (CTO) and established under the Biosecurity Act. The PBI is used worldwide by importers and suppliers to New Zealand, many people within MAF Biosecurity New Zealand (MAFBNZ), and others.

Additions to the PBI are made by MAF, as required by importers or repeat arrivals at the border. Some fairly large lists have been added,

via requests through ERMA, with recent examples including cacti lists and further *Trifolium* species. Additions, amendments or other data improvements to the PBI are made only as current problems or requests arise. No other attempt to add or amend data should be made in view of future possible linkage(s) to another database (or databases). It is best that information about presence in New Zealand is captured in other databases and at this stage entries to the PBI be of necessity for importation.

Programming maintenance of the PBI is currently under a contract with an IT company, but there have been no changes to the database structure in recent years.

Plant groups absent from the PBI:

- Species present in New Zealand for which information has not been made available. MAF has not actively sought this information, but if species present in New Zealand are brought to the attention of MAF, a follow up will be made involving ERMA where necessary.
- Species that have naturalised since 1998 with no record of presence before 29 July 1998 (the date on which the HSNO Act came into effect for plants and other new organisms). These are still considered 'new organisms' until assessed under HSNO.
- No lower (non-vascular) plants except the prohibited alga *Caulerpa taxifolia*, to raise the awareness of this invasive marine seaweed.

Present on the PBI:

- Seed plants, ferns and club mosses acceptable for importation.
- Approximately 168 species regarded as new organisms, but specifically listed as prohibited. These have been legally determined as unwanted

organisms (based on their relationships to other serious weeds and international records). Having them in the PBI also acts as a flag to deter potential importers unaware of the background.

Entries in the PBI

Most plant names are in the binomial form (genus and species). In either column (SS or NS) of the PBI, an entry of 'Requires assessment' signifies that no biosecurity status has been assigned and the taxon cannot currently be imported until a specification is developed. A few entries have 'Requires assessment' in both columns, and this generally signifies that the species is not regarded as new (i.e., no further ERMA involvement is required).

Some cultivar and hybrid names are included. A named cultivar or hybrid of a genus may be accepted as present by ERMA even if the full species parentage is not known. In other cases ERMA have approved all named cultivars or hybrids within a genus, e.g., *Hemerocallis* hybrids and some of the orchid genera. Intergeneric and interspecific hybrid names have been prefixed with an 'x' before the genus or the species e.g., x '*Festulolium braunii*' and '*Malus xrobusta*'.

Synonyms. A few synonyms, checked on authoritative databases have been added by MAFBNZ, but many others have resulted from enquiries to ERMA directly and received an acceptance by ERMA to be a synonym, or a 'determination of presence (Section 26)' or a statement of acceptance of presence in New Zealand. For preferred names, MAFBNZ will follow the Landcare Research plant names databases where possible. However, for the purpose of the PBI some names preferred in trade must also be used even if they are not the latest botanically preferred names.

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Not all known synonyms are added to the PBI, but some will be if there are likely to be repeat importations of the same plant under the same synonymy. Only limited synonymy is included in the PBI despite the fact that some plant species have extensive synonymies.

Searching the PBI. The PBI is not case sensitive. Searches can be made on the first character or first few characters of a plant name, or on the SS or NS standards, e.g., see 155.02.05 under *Abies* (www.biosecurity.govt.nz/imports/plants/standards/155-02-05.pdf), or a search for Entry Prohibited.

Prohibited plants. An organism can be made an unwanted organism if a Chief Technical Officer (CTO) believes it is capable or potentially capable of causing unwanted harm to any natural and physical resources or human health. The Unwanted Organism Register (UOR; <http://www1.maf.govt.nz/uor/searchframe.htm>) is the reference point for these organisms and is established pursuant to relevant sections of the Biosecurity Act.

In the PBI, there are about 400 entries with the status "Entry Prohibited". Various prohibited taxa are on one or more of the following: the National Pest Plant Accord (NPPA), the National or Regional Plant Pest Management Strategies (RPMS), unwanted organism register (includes those designated by a DOC CTO) and the 2nd schedule of HSNO. Prohibited entries also exist for plants under control through the Ministry of Health and Misuse of Drugs Act (1975), e.g., *Catha edulis* (khat) which contains an amphetamine-like stimulant.

The situation with contamination in seed lots is governed by international regulations which stipulate that in order for a country to take action against a contaminant seed type, the plant must be under an eradication or total control management strategy or there be another technically justifiable reason. Hence a separate list of about 300 entries for prohibited seed contaminants, known as the regulated weed seed list in the SS standard, is shorter than the total prohibited list, as many plants being monitored only or on the NPPA list are generally not included.

Problems at the border

Seeds

- Packets of seeds with no botanical name (MAF has methods for coping with this problem, and developing a level of confidence/trust in the importer and supplier).
- Non-commercially packed seeds/hand-collected collections (for important collections a permit could be issued prior to entry).
- Seed imported for uses other than sowing, while of lower risk, is most likely to be named with only common names.

Nursery stock

- Applications to import hybrid plants are often a problem when insufficient parentage information is given or unknown.
- The greatest biosecurity risk is with the plants of economic importance, commercial fruit crops and the seeds of the major arable crops. There are many different cultivars and names in this group, with indeterminate or undeclared species parentage, but identity at genus level is often a sufficient taxonomic level for biosecurity purposes.
- Plant identification checks are seldom carried out with nursery stock (that are often imported at an immature stage of growth). However, the biosecurity inspectors of plants in quarantine facilities have a reasonable knowledge of the more commonly imported plant groups. (There may be a possibility of using the quarantine process as a chance to take voucher herbarium specimens and check identifications of plants in some cases.)

With both seed and nursery stock MAF places a reliance on official documentation and commercial labelling. Taxonomic inadequacies of the PBI (e.g., lack of full synonymy and no plant authority names) is a major problem, and can potentially provide loopholes for smuggling, although to what extent this might occur is unknown.

Other problems

The PBI entries are used to determine courses of action with viable seed imported for different purposes (pathways) and viable seed as contaminants in other products.

Decisions have to be made on a day-by-day basis by MAF staff, none of whom are career taxonomists who have built life-time knowledge in that field. Consequently databases are mostly relied on at face value, whatever the state of accuracy.

Importers are encouraged to contact Plant Imports with perceived problems before importation as solutions can sometimes be found (email plantimports@maf.govt.nz and see www.biosecurity.govt.nz for further information and contact details).

The PBI failings:

- No online introductory/explanatory notes.
- No author references.
- No plant families or collection data.
- No other background information or links to other databases. Hence the block to provision of such data assistance adds to the frustrations of plant importation.
- A few other errors and anomalies exist, and these are being picked up gradually.
- Much of the information is outdated.

MAF has always been conscious of the impediment to research and breeding work on developing new plants for new crops, should poor PBI information be involved. A small project was undertaken by MAF policy in 2006 in which consideration was given to assisting the interdepartmental efforts with setting up the New Zealand Organisms Register (NZOR). The use of unique identifiers in the PBI which would relate to specific information in the NZOR was seen as the way forward. The project identified in conclusion that this would be an enormous task requiring interdepartmental resources.

In the meantime MAF continues to support ongoing work by Landcare Research and other organisations to expand existing databases with additions of cultivated plant names and information whenever possible.