

Fire Retardant Plants: Literature review and plant list

Introduction

There are many lists on the internet and in books that suggest plants for fire prone areas. Most are based on opinion, but some are based on plants farmers have used for well over a hundred years as fire breaks, or plantings that have actually helped save peoples homes in bush fires. One study by the CSIRO tested the ignitability of Australian plants.

In recommending which Ozbreed plants are more suitable than others for fire prone areas, we have taken all this information into account. It must be noted that any plant can burn when exposed to enough flames and heat, it is just that some are

less likely to ignite, or may take longer to ignite. For this reason you cannot rely on plant selection alone to stop bush fires, but it makes sense to use plants that generally delay in their ignition.

Information

The CSIRO study is the only scientific study that tested how quickly both dry and moist leaves of certain plants take to ignite. This and plants that farmers have used for years as fire breaks are the most reliable information that is available. So in the first category of plants that are fire retardant, we will list the types that did well in these categories.

List 1. Plants backed by scientific evidence, or overwhelming use as a fire break.

Lomandra longifolia took 38.53 seconds to ignite at 400 degrees using fresh leaves, and 11.13 seconds for oven dried specimens. Compare this to eucalyptus elata that took 11.57 seconds to ignite when fresh, and 3.22 seconds when oven dried, and it is easy to see why Lomandra longifolia is a good choice for fire prone areas. Listed below are results for other plants, with the cultivars available from Ozbreed listed next to the information.

Plant variety	Average ignition delay times of leaves at 400°C	
	Fresh leaves	Oven-dried leaves
Lomandra longifolia	38.53	11.13
Tanika ® Lomandra longifolia 'LM300' (b)		
Nyalla ® Lomandra longifolia 'LM400' (b)		
Lomandra longifolia ' Katrinus Deluxe ' (b)		

Average ignition delay times of leaves at 400°C		
	Fresh leaves	Oven-dried leaves
Anigozanthos (Kangaroo Paw) Based on this data, if kept green, Kangaroo Paws will work well. Avoid allowing their foliage to go dry.	40.05	3.51
Anigozanthos hybrid 'Gold Velvet' (D)		
Anigozanthos hybrid 'Regal Velvet' (D)		
Anigozanthos hybrid 'Amber Velvet' (D)		
Ruby Velvet™ Anigozanthos hybrid		
Casuarina glauca	43.02	10.53
Free Fall™ Casuarina glauca 'CAS01' (D)		

The full CSIRO paper can be found at http://www.aff.org.au/Gill_ignitibility_final.pdf

Sample of other plant data from study:

Average ignition delay times of leaves at 400°C		
Plant Variety	Fresh leaves	Oven-dried leaves
Olearia argophylla	14.73	4.03
Acacia podalyrifolia	16.49	4.35
Callistemon citrinus	22.61	7.46
Eucalyptus sideroxylon	18.10	4.27
Dodonaea viscosa	16.28	3.84
Average of all plants in study	24.34	6.11

Agapanthus were not in the CSIRO trial as they are an exotic plant, but over one hundred years ago, farmers around Australia planted Agapanthus as fire breaks. In the recent bushfires in Victoria, there are some farmers that claim these plants saved them. Agapanthus' have been one of the most popular plant when it comes to fire breaks. Unfortunately, many are concerned that high seed yielding Agapanthus could in certain wetter regions have weed potential. Even

if this is the case in some regions, there are enough varieties available, including Queen Mum, that have very low seed set compared to the high seed yielding, seed grown types. They are safe selections as far as invasion is concerned, yet will provide the same level of fire protection.

Queen Mum™ Agapanthus orientalis 'PMN06' (D) is a safe low seeding variety that has high water content in its leaves, ideal for using as an attractive fire break.

List 2. Ozbreed plants that have the genus and species regularly appear on many lists as fire retardant plants. See bibliography for lists.

Strappy Leaf Plants

Blaze[™] *Dianella tasmanica* 'NPW2' (b)
Breeze[®] *Dianella caerulea* 'DCNC0' (b)
Cassa Blue[®] *Dianella caerulea* 'DBB03' (b)
King Alfred[®] *Dianella caerulea* 'JOHN316' (b)
Little Jess[™] *Dianella caerulea* 'DCMP01' (b)
Little Rev[™] *Dianella revoluta* 'DR5000' (b)
Lucia[™] *Dianella caerulea* 'DC101' (b)
Revelation[®] *Dianella revoluta* 'DRG04' (b)
Silver Streak[™] *Dianella* hybrid
Tasred[®] *Dianella tasmanica* 'TR20' (b)
Wyeena[®] *Dianella tasmanica* 'TAS300' (b)

Foliage First Range

Dianellas

Aranda[™] *Dianella caerulea* 'DC150' (b)
Baby Bliss[®] *Dianella revoluta* 'DTN03' (b)
Destiny[™] *Dianella tasmanica* 'TAS100' (b)
Emerald Arch[®] *Dianella tasmanica* 'DT23' (b)
Prestige *Dianella revoluta* 'REV101' (b)
Rainbow Twist[™] *Dianella prunina* 'DPV308' (b)
Utopia[®] *Dianella revoluta* 'DP303' (b)

Phormiums

Chocomint Mist[™] *Phormium tenax* 'PHOS4' (b)
Flamin'[®] *Phormium tenax* 'PHOS3' (b)

Sweet Mist[®] *Phormium tenax* 'PHOS2' (b)

Liriopes

Amethyst[™] *Liriope muscari* 'LIRTP' (b)
Isabella[®] *Liriope muscari* 'LIRF' (b)
Just Right[®] *Liriope muscari* 'LIRJ' (b)
Pure Blonde[™] *Liriope muscari* 'LIRBLONDE' (b)

Native Shrubs and Ground Covers

Saris[™] *Hakea salicifolia* 'HAL01' (b)
Purple Fusion[™] *Scaevola humilis* 'PFS100' (b)
Yareena[™] *Myoporum parvifolium* 'PARV01' (b)
Aussie Rambler[™] *Carpobrotus glaucescens* 'CAR10' (b pending)

Advanced Trees

Pinnacle[™] *Syzigium australe* 'AATS' (b)
Luscious[®] *Tristaniopsis laurina* 'DOW10' (b)
Red Head *Acmena smithii* 'BWNRED' (b)
Sublime[™] *Acmena smithii* 'DOW30' (b)

Encore Azaleas

Autumn Royalty[™] *Rhododendron* hybrid 'CONLEC' (b)
Autumn Twist[™] *Rhododendron* hybrid 'CONLEP' (b)

Hardy Exotic Range

Cosmic White[™] *Raphiolepis indica* 'RAPH01' (b)
Double Gold[™] *Gazania* hybrid 'GT20' (b)

List 3. These fire retardant plants have been selected based on their appearance in some of the lists, or the fact that they need some extra management criteria.

Plant Name	Extra management criteria
Flirt™ Nandina domestica 'MURASAKI' (D)	If it looks dry, prune back. Usually only required every few years.
Blush™ Nandina domestica 'AKA' (D)	If it looks dry, prune back. Usually only required every few years.
Mundi™ Westringia fruticosa 'WES05' (D) Naringa™ Westringia 'WES01' (D)	Ensure they do not get dry looking foliage. Prune each 1 to 3 years to achieve this, depending on conditions.
Meema™ Hardenbergia violacea 'HB1' (D)	Ensure it does not get dry looking foliage. Prune each 1 to 2 years to achieve this, depending on conditions.

Please Note: In fire prone areas, with any plant, whether it be in category 1, 2 or 3, it is recommended that it be pruned should the foliage go brown.

Discussion

For areas that receive very little care, plants from group 1 and 2 are a better choice. However, they will need pruning in fire hazard times should they brown off, it is just less likely they will. A lush green garden or turf will reduce fire hazard. Any green lawn regardless of type will work well. Keep areas well mown around buildings in fire hazard periods. Low water lawns such as Zoysia will help for these areas, as will their reduced mowing requirements.

Disclaimer: Ozbreed provides this information in good faith, but by using this information you understand Ozbreed or the authors cannot and will not be held liable for damage or loss incurred due to a fire should this advice be used in selecting plants. As stated earlier, any plant can burn given the right conditions.

Bibliography

- NSW Rural Fire Service. *Tree Selection for Fire-Prone Areas*. 1999. NSW Rural Fire Service/County Fire Authority of Victoria/Royal Botanic Gardens, Sydney
- Baer, M & Smith, M. "Recommendations for Planting in Fire Hazard Reduction Areas" *Lake Macquarie Coastal Planting Guide*. Sept 2004. Web <www.lakemac.com.au/page.aspx?pid=109&vid=10&fid=145&ftype=False>
- Rowland, G. *Planting Your Garden For Bushfire Protection*. Web <www.ilda.com.au/page/fire_retardant.html>
- Marriot, N. *Australian Native Plants For Fire Protection*. Web. <www.apsvic.org.au/plant_fire_resistant.html>
- Australian Native Plants Society. Web <anpsa.org.au/fire.html>
- Gosford City Council. *Fire Resistant Plants for Bushfire Prone Areas*. Web. <www.gosford.nsw.gov.au/environment/fire/documents/Fire%20Resistant%20Plants%20for%20BFP%20Areas%206-9-05.pdf>
- Trees in Newcastle. *Fire Retardant Plants*. Web. <<http://www.treesinnewcastle.org.au/page19330/Bush-Regeneration-Guides.aspx>>
- ACT Government. *Fire Retardant Plants for Canberra*. Web <www.tams.act.gov.au/__data/assets/pdf_file/0003/53742/Fire_retardant_plants_for_canberra.pdf>
- Glen Forest Fire Brigade. Web <www.glenforrestfirebrigade.org/garden.php>
- Tasmanian Fire Service. *Fire Retardant Garden Plants for the Urban Fringe and Rural Areas*. Web. <<https://www.fire.tas.gov.au/mysite/publications/1709%20Brochure.pdf>>
- Armstrong Garden Centres. *Fire-Resistant Plant Guide*. Web. <www.armstronggarden.com/page.php?q=node/532>
- Heyne's Garden Centre. *Fact Sheets - Fire Retardants*. Web. <www.heyne.com.au/gardencentre/factsheets/factsheet.php/Fire+Retardants.htm>
- City of Botany Bay. "Landscaped areas adjoining facilities with high fire risk" *Council Agenda 22 March 2006*. Page 16. Web. <www.botanybay.nsw.gov.au/images/stories/pdf/business/2006/March/Council%20Agenda%2022%20March%202006.pdf>
- Nursery & Garden Industry Victoria. *Rebuilding Safer Communities*. Web. <www.ngiv.com.au/Section?Action=View&Section_id=48>
- Ramsay, C & Rudolph, L. *Landscape and Building Design for Bushfire Areas*. 2003. Web <www.publish.csiro.au/samples/landscapebuildingdessample.pdf>
- Maryland Department of Natural Resources. *Firewise Landscaping Plants for Maryland*. Web <www.dnr.state.md.us/forests/fire/firewiseplants.pdf>