PLAN
SELECTION
KEY

About the key

The Plant Selection Key is a practical tool developed to guide you in choosing plants suitable for use in a garden in a high bushfire risk area.

The key comprises a series of questions and information about plant characteristics and their relative flammability. The key provides:

- an overall flammability rating
- a firewise rating
- advice about maintenance
- advice about whether the plant is appropriate for a garden.

An interactive version of this key is available online at [cfa.vic.gov.au/plants](http://cfa.vic.gov.au/plants)
USING THE KEY: A THREE STEP PROCESS

1. Make a list of plants to be used in the garden
   As a starting point, make an initial list of plants you want to plant in a garden. In doing this, it is important to:
   - Choose plants that are suited to the local growing conditions.
   - Check with your local council about legislative controls that may apply to your property. These may influence what and where you can plant.
   - Check for characteristics that influence flammability. These are outlined in Section 5.
   - Identify the plant species, including both the common name and the scientific name. This is important as even closely related plants in the same genus can vary greatly in their flammability.
   - Take note of the size and form of the plant at maturity. Plant labels often focus on plant size within five to ten years of planting and may not be reliable for this assessment.
   - Note how the plant will look in summer and whether it is susceptible to disease, insects or pests. This information can be obtained from plant websites, books, the local nursery or council.

2. Work through the key
   - Begin at 1. What type of plant is it? and follow the prompts to the next number.
   - Record how many ‘Less Firewise’ or ‘Not Firewise’ results the plant receives in the record sheet on page 62 at the end of the key.
   - Collate the results in the record sheet.

3. Rate each plant for its suitability in the garden
   The table on page 45 outlines four firewise ratings – Not Firewise, At-Risk Firewise, Moderately Firewise and Firewise – and a corresponding flammability rating. The flammability rating of individual plants depends on the number of ‘Less’ or ‘Not Firewise’ results you record.
   Once you have established the firewise and flammability rating for each plant, you can determine the plant’s suitability for use within a garden, where it should be planted (presuming it is suitable) as well as maintenance requirements.
FIREWISE AND FLAMMABILITY RATINGS

NOT FIREWISE
If you record any NOT FIREWISE results, regardless of any LESS FIREWISE results, then that plant is NOT FIREWISE.
▶ Flammability = Extreme
▶ Where to plant: These plants should not be planted in a garden or used when landscaping for bushfire.

AT-RISK FIREWISE
If you recorded three or more LESS FIREWISE results, then that plant is AT-RISK FIREWISE.
▶ Flammability = High
▶ Where to plant: Avoid using these plants in a garden. If you are on a large property, they may be planted outside the defendable space.

MODERATELY FIREWISE
If you recorded one or two LESS FIREWISE results, then that plant is MODERATELY FIREWISE.
▶ Flammability = Moderate
▶ Where to plant: These plants can be used in a garden but they need regular maintenance to keep them in a less flammable condition.

FIREWISE
If after finishing the key you had no LESS FIREWISE results, then that plant is FIREWISE.
▶ Flammability = Low
▶ Where to plant: These plants can be used in a garden as they are not known to be particularly flammable.
# PLANT SELECTION KEY

1. What type of plant is it?

<table>
<thead>
<tr>
<th>Tree</th>
<th>Go to 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has single or multiple woody trunks and grows from 5-30 metres or over at maturity.</td>
<td></td>
</tr>
<tr>
<td>Single-stem trees typically branch well above the ground, while multiple-stemmed trees typically branch close to the ground.</td>
<td></td>
</tr>
<tr>
<td>Foliage is concentrated in the canopy allowing other vegetation to grow underneath.</td>
<td></td>
</tr>
<tr>
<td>Has highly variable leaf and bark types.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Palm or palm-like</th>
<th>Go to 9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vary greatly in height.</td>
<td></td>
</tr>
<tr>
<td>Generally have a single woody trunk topped by fronds.</td>
<td></td>
</tr>
<tr>
<td>Many species retain dead fronds which can be flammable.</td>
<td></td>
</tr>
<tr>
<td>Australian palm-like plants include tree-ferns, screw-palms, cycads and grass-trees. They can grow several metres tall and also have a ‘skirt’ of dead fronds or leaves close to the ground. This is an important flammability characteristic as it can act as a ladder fuel.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Shrubs</th>
<th>Go to 13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are shorter and generally more compact than trees, typically 3-4 metres in height with branching close to the ground.</td>
<td></td>
</tr>
<tr>
<td>Have dense, bushy foliage and woody stems.</td>
<td></td>
</tr>
<tr>
<td>Because of this structure, shrubs can carry fire from the ground to the tree canopy.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Vines and climbers</th>
<th>Go to 17</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have soft or woody stems and are climbing or scrambling plants. Are often grown over fences, pergolas or trellises and can grow over other plants.</td>
<td></td>
</tr>
<tr>
<td>Can be deciduous or evergreen. Some accumulate large amounts of dead leaves.</td>
<td></td>
</tr>
<tr>
<td>Can act as ladder fuel and carry flames up into shrubs, trees or supporting structures.</td>
<td></td>
</tr>
<tr>
<td>Examples include grapes, Virginia Creeper, Coral pea, Running Postman or Happy Wanderer.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Herbaceous plants</th>
<th>Go to 18</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have soft and fleshy leaves with non-woody stems.</td>
<td></td>
</tr>
<tr>
<td>Are low-growing, often less than 50 centimetres tall.</td>
<td></td>
</tr>
<tr>
<td>Include most smaller flowering plants grown in gardens. Can look ‘shrubby’, form clumps or grow as groundcovers.</td>
<td></td>
</tr>
<tr>
<td>Moisture content is usually higher than most woody shrubs. Often droop when dry.</td>
<td></td>
</tr>
<tr>
<td>Examples include violets and pansies.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Groundcovers</th>
<th>Go to 18</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are woody or herbaceous. Woody groundcovers spread without climbing.</td>
<td></td>
</tr>
<tr>
<td>Are generally less than 50 centimetres tall.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Grasses or grass-like</th>
<th>Go to 18</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leaves are usually long, fine or strappy.</td>
<td></td>
</tr>
<tr>
<td>Vary from a few centimetres to over 2 metres tall. Clump size can be up to 1 metre in diameter.</td>
<td></td>
</tr>
<tr>
<td>Most grasses grown in gardens are perennial rather than annual. Many of these form clumps called tussocks. Examples include Wallaby Grass and Canary Grass.</td>
<td></td>
</tr>
<tr>
<td>Perennial tussock grasses accumulate dead material mixed with the living leaves and are quite flammable, although they usually only burn for a short time.</td>
<td></td>
</tr>
<tr>
<td>Other grasses grow as a continuous mat, such as lawn grasses.</td>
<td></td>
</tr>
<tr>
<td>Leaves of grass-like plants are often coarse and thick and may accumulate dead leaves in the living clump. Examples include Mat rush, New Zealand Flax, Iris and Gladioli.</td>
<td></td>
</tr>
</tbody>
</table>
2. What type of tree is it?

**Eucalypts**
- Can have woolly fibrous bark (stringy bark), deeply corrugated and dense bark (iron bark), ‘chippy’ or platy bark (box bark) or smooth (gum bark).
- All flower and have leaves that hang vertically.
- Their bark can be extremely flammable.
- Examples include trees from the genera *Eucalyptus*, *Corymbia* (includes Flowering Gums) and *Angophora* (includes Smooth Barked Apple and Dwarf Apple that are similar in appearance to smooth barked gums).

Go to 3

**Conifer or conifer-like**
- Develop woody cones and have needle-like or scale-like leaves.
- Examples include pines, hemlocks, spruces, junipers, cedars and cypress.
- Native Australian examples include Cypress Pine, Cherry Ballart and she-oaks.

Go to 7

**Other tree types**
- This category contains all trees that are not eucalypts, conifers or conifer-like.
- Leaf type can vary greatly. For example:
  - the small leaves and phyllodes (lea-like structures) of wattles such as Blackwood and Silver Wattle
  - the medium-sized leaves of Lilly Pilly and Southern Sassafras
  - the deeply lobed leaves of Silky Oak
  - the wider, broad leaves of Kurrajong and non-native species such as maples, oaks and elms.

Go to 11
3. What type of bark does the tree have?

Stringy bark eucalypt with coarse, loose fibrous bark
- Examples include Messmate and Red Stringybark. 

Sheds large ribbons or sheets of bark annually
- Strips or ribbons of bark are caught and held in the tree.
- Examples include many smooth or gum-barked eucalypts such as Manna Gum and Mountain Grey Gum.

Does not have stringy bark or ribbons of bark
- Examples include iron bark, some gum-bark species, box bark and peppermint bark eucalypts.

4. NOT FIREWISE

- Trees with this type of bark are extremely flammable.
- This type of bark acts as a ladder carrying fire into the canopy of the tree and produces masses of embers.

For more information, see Section 3: Rules for vegetation clearance around existing houses or Section 5: Choosing suitable plants.

Go to 29 (END)
5. **What is the height of the lowest branch?**

- **Low** Branches are less than 2 metres above the ground.
  
  Go to 6

- **Good separation** At least 2 metres between ground and branches.
  
  Go to 20

6. **LESS FIREWISE**

- Trees must be under-pruned up to 2 metres if possible and dead branches and fronds removed to ensure a more firewise characteristic.
  
  Go to 11
7. Does it shed large amounts of leaves or needles?

**Yes** The conifer sheds large amounts of leaves or needles. For example, Monterey Pine.  
Go to 8

**No** The conifer or conifer-like tree does not shed large quantities of leaves or needles. Examples may include native Cypress Pine, she-oak and Cherry Ballart.  
Go to 9

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8. LESS FIREWISE

- Pine needles need to be periodically removed from roofs, other plants and the ground near structures.
- Eucalypt bark and foliage should also be routinely removed from the tree and the ground.

Go to 9
9. What is the height of the lowest branch or frond?

Low Branches or fronds are less than 2 metres above the ground. Go to 10

Good separation At least 2 metres between ground and branches. Go to 11

10. LESS FIREWISE

- Trees must be under-pruned to a height of 2 metres if possible and dead branches and fronds removed to ensure a more firewise characteristic. Go to 11

LANDSCAPING FOR BUSHFIRE
11. Does it have papery or loose bark?

Yes  Trunk has papery bark or loose fibrous bark. For example tea-trees and most paper barks.

Go to 12

No  Trunk does not have papery bark or loose fibrous bark.

Go to 20

12. LESS FIREWISE

- Papery bark and fibres may act as ladder fuels.
- Requires appropriate placement in your garden.

Go to 20
13. What is the plant’s texture?

**Fine texture**
- Texture is used to describe the overall appearance of the plant from a distance.
- From a distance of about 3 metres it is not easy to distinguish individual leaves or branches on plants with a fine texture.
- Examples include diosma and some paper barks with thin, narrow leaves. The fineness of foliage (the surface area-to-volume-ratio) is a very important determinant of flammability.

**Medium texture**
- This category includes many azalea and holly species as well as the natives Sarsaparilla and Hairpin Banksia.

**Coarse texture**
- It is easy to distinguish each individual leaf or branch from a distance of about 3 metres.
- Examples include hydrangea, cotoneaster, hazel pomaderris and blanket leaf.

14. LESS FIREWISE

- Plants with a fine texture have a higher surface-area-to-volume ratio and tend to dry out more readily than medium- and coarse-textured plants. This makes them generally more flammable.
- Require appropriate placement and routine pruning.
15. How dense is the plant?

**Very dense**
- So dense that it is very difficult to place a hand in the plant and touch the main stem. These plants have dense branches.
- Examples include shrubby grevilleas and junipers.

Go to 16

**Moderately dense**
- Sufficiently dense to not be able to see through the plant, but reasonably easy to place a hand into the plant and touch the main stem.
- Examples include some lavenders, rosemary and some correas.

Go to 20

**Sparsely dense**
- May have open branching patterns, making it easy to see through the plant.
- Examples include many wattles, rhododendrons and some hydrangeas.

Go to 20

16. LESS FIREWISE

- Dense plants have a larger amount of fuel packed closely together, which encourages the spread of flames within the plant.
- Require appropriate placement and routine pruning.

Go to 20
17. NOT FIREWISE

- Vines are extremely flammable as they typically add fuel directly to a structure. As such, they act as ladder fuels bridging gaps between surface fuels and canopy fuels.

For more information, see Section 3: Rules for vegetation clearance around existing houses or Section 5: Choosing suitable plants.

Go to 29 (END)

18. Is it a grass greater than 30 centimetres tall?

Yes Grass is greater than 30 centimetres tall (for example grass in the Family Poaceae or Gramineae).

Go to 19

No Short grasses and all other herbaceous plants or grass-like plants.

Go to 20

19. NOT FIREWISE

- Regardless of how many LESS FIREWISE results you may get, tall grasses are extremely flammable because they readily dry out and rapidly carry fire.

For more information, see Section 3: Rules for vegetation clearance around existing houses or Section 5: Choosing suitable plants.

Go to 29 (END)
20. Does the plant retain dead leaves or twigs?

Yes Plant retains dead leaves or twigs mixed with the living leaves.
- Retention of dead leaves or twigs increases the flammability of a plant. Fine fuels readily dry out and increase the fuel available within the plant for fire.

Go to 21

No Plant does not usually retain dead leaves or twigs, except when shedding leaves.

Go to 22

21. NOT FIREWISE

- Regardless of how many LESS FIREWISE results you receive for this plant, plants that retain dead foliage throughout the year are extremely flammable.
- Dead foliage has very low leaf moisture content and is therefore highly susceptible to ignition.

For more information: see Section 3: Rules for vegetation clearance around existing houses or Section 5: Choosing suitable plants.

Go to 29 (END)
22. Are the leaves waxy or oily?

Yes Leaves have a waxy coating or numerous oil glands dotted on the leaves.
- The leaves of plants containing significant amounts of oils and waxes will often have a strong scent when crushed. The presence of these chemicals often contributes to plant flammability.
- Plants with waxy leaves are often grey, silver or whitish and the waxy ‘bloom’ can be scraped off the leaf with a fingernail. For example, Wax Myrtle and gallberry.
- Plants in the families Myrtaceae, Rutaceae, Lamiaceae and Pinaceae are examples of plants with numerous oil glands.

No Leaves do not have a waxy coating or numerous oil glands.

Go to 23

23. LESS FIREWISE

- Plants with large amounts of oils and waxes are more flammable than those without these chemicals.
- Require appropriate placement and routine pruning.

Go to 24
24. Is the species seriously susceptible to disease, insects or pests?

**Yes** Species is known to be seriously susceptible to disease or insect pests.
- Plants seriously susceptible to disease are likely to become stressed and have less vigorous growth.
- When this happens, there is a lower foliage moisture content and a greater number of dead leaves are retained. This in turn makes the plant more flammable. For example, elm trees.  
  
  **Go to 25**

**No** Species is not known to be particularly susceptible to disease or insect pests.  

**Go to 26**

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25. **LESS FIREWISE**

- Routine monitoring and appropriate treatment for the disease or pest is recommended.

**Go to 26**
26. Is the plant deciduous or evergreen?

Deciduous Plants drop all leaves once a year and the new leaves usually have higher moisture content than evergreen plants. Go to 29

Evergreen Plants retain leaves for several years. Go to 27

27. Are the leaves soft, thick or fleshy?

Yes Plant leaves are soft, thick, succulent or fleshy.
• These types of leaves often have a higher moisture content than hard, thin and needle-like leaves, making them less flammable.
• Moisture can often be seen on the exposed edge of torn leaves. Examples include cactus, agave, some myoporum such as Creeping Myoporum, many Lilies, some saltbush species and geraniums. Go to 29

No Plant leaves are not obviously succulent; they may have various shapes and vary in thickness. Go to 28

28. LESS FIREWISE

• Require appropriate placement and routine pruning. Go to 29
### 29. END

<table>
<thead>
<tr>
<th>How many <strong>LESS FIREWISE</strong> ratings did your plant score?</th>
<th>Then your plant is:</th>
<th>What does this mean?</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td><strong>FIREWISE</strong></td>
<td>- Flammability = Low</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Where to plant: These plants can be used in a garden as they are not known to be particularly flammable.</td>
</tr>
<tr>
<td>✗ or ✗</td>
<td><strong>MODERATELY FIREWISE</strong></td>
<td>- Flammability = Moderate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Where to plant: These plants can be used in a garden but they need regular maintenance to keep them in a less flammable condition.</td>
</tr>
<tr>
<td>✗ ✗ ✗ or more</td>
<td><strong>AT-RISK FIREWISE</strong></td>
<td>- Flammability = High</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Where to plant: Avoid using these plants in a garden. If you are on a large property, they may be planted outside the defendable space.</td>
</tr>
</tbody>
</table>

**Was your plant NOT FIREWISE?**

| **NOT FIREWISE** | - Flammability = Extreme |
|                 | - Where to plant: These plants should not be planted in a garden or used when landscaping for bushfire. |

### WHAT TO DO NEXT

- It is important to consider the role that plant selection plays in enhancing defendable space.

- If the plant is ‘Firewise’ or ‘Moderately Firewise’, locate it according to the design principles as outlined in Section 4. Remember, the location and arrangement of plants has a significant effect on reducing the bushfire risk within your garden, but during summer as soil dries out, the moisture content of plants will decrease and their flammability will increase.

- If the plant is ‘At Risk’ or ‘Not Firewise’ it should not be planted within the defendable space. For further information, see Section 3: Rules for vegetation clearance around existing homes or Section 5: Choosing suitable plants.

- You can also book a free Home Bushfire Advice Service visit where a member of CFA will assess your property and provide a range of options to assist you to develop your Bushfire Survival Plan. Go to [cfa.vic.gov.au/hbas](http://cfa.vic.gov.au/hbas) for information and bookings.
### RECORD SHEET

Use this sheet to record the plant name and how many ‘Less Firewise’ or ‘Not Firewise’ results the plant receives as you work through the Plant Selection Key.

<table>
<thead>
<tr>
<th>Plant name</th>
<th>NOT FIREWISE</th>
<th>LESS FIREWISE</th>
<th>Firewise Rating</th>
<th>Flammability</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Circle the questions that had a Not Firewise outcome</td>
<td>Circle the questions that had a Less Firewise outcome</td>
<td><strong>NOT FIREWISE</strong>&lt;br&gt;(any Not Firewise results)</td>
<td>Extreme</td>
</tr>
<tr>
<td></td>
<td><strong>AT-RISK FIREWISE</strong>&lt;br&gt;(3 or more Less Firewise results)</td>
<td></td>
<td><strong>Mild FIREWISE</strong>&lt;br&gt;(1 or 2 Less Firewise results)</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td><strong>MODERATELY FIREWISE</strong>&lt;br&gt;(no Less Firewise results)</td>
<td></td>
<td><strong>FIREWISE</strong></td>
<td>Low</td>
</tr>
</tbody>
</table>

FURTHER RESOURCES

CFA

cfa.vic.gov.au

Fire Ready Kit

On the Land: Agricultural Fire Management Guidelines
A guide to retrofit your home for better protection from a bushfire

Fire Service Guidelines:

• Land Use Planning 0002: Requirements for Water Supply and Access in a Bushfire Management Overlay
• Land Use Planning 0003: Assessing Vegetation in a Bushfire Management Overlay

OTHER
dpcd.vic.gov.au/planning/bushfire

Fact Sheet: Planning and Building for Bushfire Protection
Advisory Note 39: Amendment VC83 Bushfire Protection Vegetation Exemptions
Advisory Note 40: Amendment VC83 Bushfire Protection Bushfire Planning Provisions
Practice Note 64: Local Planning for Bushfire Protection
Practice Note 65: Bushfire Management Overlay and Bushfire Protection: Planning Requirements

planningschemes.dpcd.vic.gov.au

Clause 13.05 Bushfire
Clause 44.06 Bushfire Management Overlay
Clause 52.17 Native vegetation
Clause 52.43 Interim Measures for Bushfire Protection
Clause 52.47 Bushfire Protection: Planning Requirements
Clause 52.48 Bushfire Protection: Exemptions
Planning for Bushfire in Victoria (CFA and DPCD, forthcoming)

Department of Sustainability and Environment
dse.vic.gov.au
land.vic.gov.au

Department of Primary Industries
dpi.vic.gov.au

Municipal Association of Victoria
Council details can be found at mav.asn.au/about-local-government/council-details


Standards Australia AS 3959-2009: Construction of Buildings in Bushfire-prone Areas