

TREES FOR BEES CORNER

STAR PERFORMERS PART 8: CALIFORNIA LILAC

—A SPRING FLOWERING BEAUTY



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Trees for Bees has produced a series of fact sheets showcasing the 'best of the best' bee plants that will maximise nutritional benefits for your bees. In this issue of the journal, the team explains why California lilac is a 'star performer'. For more information, see www.treesforbeesnz.org.

California lilac (*Ceanothus*), in the buckthorn family (*Rhamnaceae*), is a drought-tolerant shrub with brilliant blue flowers that attract bees from a considerable distance.

California lilac shrubs (*Ceanothus sp.*) are star performer bee plants because they are so highly attractive to bees in spring (September to October) and they also can tolerate prolonged severe summer drought and exposure. With their incredible profusion of flowers, they are an ideal bee plant to help cover the October crash pollen dearth problem. We have found *Ceanothus* flowers buzzing with numerous bees all day long in good weather. The most popular species

are those that produce stunning displays of brilliant deep blue flowers. The flowers are densely packed together to cover almost the entire surface of the shrub (Figure 1). Some species have white flowers but these are not as noticeable to us. Bees collect pollen and nectar from both blue and white flower species.

California lilac shrubs have great ornamental value due to the wide range of growth forms, from small prostrate shrubs to large upright shrubs or small treelets and everything in between (Bell, 2009; Jeong et al., 1997). The genus *Ceanothus* has from 50 to 60 species and is native to North America, with the highest diversity in California (Hardig et al., 2000; Jeong et al., 1997).

Ceanothus is well adapted to the Mediterranean climate with rainy winters and dry summers. This makes the species extremely drought tolerant so they do not tolerate summer watering, which is why they can fail to grow well in wetter regions.

Flowers

The flowers are aggregated into tightly packed clusters (Figure 1) and the clusters are crowded together on the branches to make a solid display of flowers. This allows the bees to crawl from flower to flower and across the clusters effortlessly, which increases their foraging efficiency. The large patch of dense flowers makes an eye-catching display that attracts bees from a distance (Robertson, 1889).

Pollen

Although *Ceanothus* flowers are small, the presentation of pollen in the flowers is ideal for bee foraging because of the efficiency of crawling among the flowers (Figure 2). The aggregated flowers are packed into clusters that are crowded together on the branch. These clusters form one massive display, which provides a large landing platform for the bees so that they can easily scramble to the next flower for rapid collection of pollen (Figure 2).

Yet the flowers are somewhat peculiar because when the flower is in the bud stage, just before opening up, each of the five spoon-shaped petals forms a hood-like covering over each stamen which carries the pollen-bearing anther. At first bud opening, the pollen is hidden and inaccessible under the petal hoods. As the flower opens up further, the hood-like petals curve backwards

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Figure 1. Honey bees are highly attracted to *Ceanothus* flowers. We find numerous bees buzzing all over the plant for pollen and nectar throughout the day. Photo: Linda Newstrom-Lloyd © Trees for Bees.





Figure 2. Clusters of *Ceanothus* flowers showing the exposed anthers full of fresh yellow pollen. The flower bud is protected by the five sepals and when it opens, the hood-like petals cover the stamen and then fold back to release the stamens. Meanwhile the sepals remain intruded into the flower to cover and hide the nectary. Photo: Jean-Noel Galliot © Trees for Bees.

and out from the centre of the flower and this releases the stamen to expose the pollen (Robertson, 1889). As the stamens break free from the petals and stand up straight, the bee has easy access to the fresh yellow pollen.

Nectar

The presentation of nectar is also somewhat peculiar because in *Ceanothus* flowers, the sepals create a covering over the nectary (Robertson, 1889). The sepals, which are the same colour as the petals (either blue or white), actually intrude into the centre of the flower in the spaces between the petals.

In most ordinary types of dish-shaped flowers, sepals have a protective function for the entire flower bud and then usually open out and fold down backwards out of the way of the growing petals. In *Ceanothus* flowers, by contrast, the petals gradually grow out beyond the sepals and the sepals remain intruded into the centre of the flower to cover the nectary (Robertson, 1889; Hayden, 2019). In this way, the sepals conceal the disc-like nectary cushion where nectar is exuded.

Plants that hide their nectaries are able to limit the types of flower visitors that can gain access to the nectar. But although the nectary is hidden in *Ceanothus* flowers, the honey bee

tongue (proboscis) can easily probe around into the space between the petals and the sepals to gain access to the rich and plentiful nectar reward.

Planting advice

Trees for Bees have used *Ceanothus* shrubs in a variety of situations, including as

ornamentals (in gardens and on farms), as hedgerows and in shelterbelts. They have been used as ground cover plants for specimen trees on farms and as part of apiary shelter. Their ability to grow on poor soil and fix nitrogen make them a useful plant on tough summer dry sites.

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Figure 3. *Ceanothus papillosus* var. *roweanus*, a large tall shrub two to three metres high, growing at the Kahikatea Farm Nursery in Hawke's Bay. Photo: Linda Newstrom-Lloyd © Trees for Bees.



For *Ceanothus* species, it is important to select the right cultivar for where you wish to plant it. *Ceanothus* can be very quick to grow, and so can overtake other plants established nearby (e.g., in a hedgerow). We have used *Ceanothus papillosus* var. *roweanus* (Figure 3 on page 13), as a hedgerow/shelter species because it grows quite rapidly to about two to three metres in height. Where we have wanted under-planting or ground cover, we have used *Ceanothus griseus* 'Yankee Point' and 'Blue Cushion', both which grow to about one metre in height. Other cultivars have a more spreading habit, which can be useful where you want ground cover.

As noted earlier, some *Ceanothus* cultivars are not very long lived, especially the new cultivars. They are a dry climate plant so do not like excessive summer watering. If they are pruned back too far they will not grow as well. It is best to check with your nursery for particular growing requirements in your area.

Plant spacing depends on the purpose of establishment. As the plants will often grow as wide as they grow high, this is a useful guide for spacing, noting that we want to maximise surface area for flowering. For hedgerows, we can establish plants a little closer to obtain a solid hedgerow. *Ceanothus* can be susceptible to browsing, so stock and browsing pests will need to be excluded.



References

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ENVIRONMENTAL PROTECTION AUTHORITY

EPA CONSULTATION ON HAZARDOUS SUBSTANCES CLASSIFICATION SYSTEM

Environmental Protection Authority

The Environmental Protection Authority is commencing consultation to update the current classification framework for hazardous substances to the Globally Harmonized System of Classification and Labelling of Chemicals (GHS), Revision 7 (2017).

The GHS is an internationally agreed system developed by the United Nations to classify chemicals and communicate their hazards through labels and safety data sheets. If adopted, it will ensure an internationally-aligned classification system for hazardous substances that facilitates trade, increases efficiency in chemicals management, and enhances the effectiveness of the Hazardous Substances and New Organisms Act 1996.

Should the decision to adopt GHS 7 be made, a new EPA Classification Notice will be issued that incorporates the GHS 7 by reference. This Notice would align with the EPA Labelling and Safety Data Sheet Notices, which already require compliance with the GHS. Having the classification system and compliance requirements aligned will reduce complexity for stakeholders.

We see a lot of benefits to adopting GHS, but are also mindful that there are costs and resource implications for others in doing this, and this is one of the areas we are hoping to get stakeholder feedback on. There are also a range of technical proposals we are seeking

input on, for example which particular parts of the GHS we should adopt in New Zealand.

More detail is available on EPA's website:

<https://www.epa.govt.nz/public-consultations/open-consultations/proposal-to-change-the-classification-system-for-hazardous-substances-in-new-zealand/>

A link to the consultation document can be found at: [GHS_Consultation_Document_for_Public_Release.pdf](#)

You can make a submission using our online form: <https://submissions.epa.govt.nz/consultations/implementation-of-the-globally-harmonized-system-of-classification-and-labelling-revision-7/make-a-submission>

Submissions close at 5 pm on 9 January 2020. Apiculture New Zealand will be making a submission on behalf of its members.

Source

Adapted from an e-mail from the Environmental Protection Authority, 14 November 2019.

