

TREES FOR BEES CORNER

BIG TREES TO PLANT FOR SPRING NUTRITION

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Knowing what to plant for spring bee feed is an important part of raising strong colonies for summer pollination and achieving big honey harvests. High-performance colonies come from a strong queen, robust foragers and healthy nurse bees, as well as brood cycles that are not interrupted by pollen dearth. If pollen is scarce, nurse bees will cannibalise larvae for protein in order to keep the colony going.

In 2010, when we started Trees for Bees field research in Canterbury, beekeepers there told us that it was easy to get a good start in spring with abundant gorse and willows blooming but hard to avoid going backwards with population crashes in late spring, usually around October. There just isn't much around after gorse and willows finish until the clover flowers. In spring 2012, Barry Foster invited Trees for Bees to work in the New Zealand National Eastwoodhill Arboretum in Gisborne because of the great diversity of trees. Barry put an apiary in the arboretum and for two spring seasons we collected prolific pollen in October. We found no pollen dearth in surrounding farms because Mr Cook, the founder of the arboretum, had distributed tree seedlings to his neighbours. Further away, farm biodiversity was low and pollen dearth was common.

At Eastwoodhill, we found many northern hemisphere temperate trees famous for their spectacular spring flowering. For example, maple trees have abundant pollen and nectar (pollen protein 22% to 26%; e.g., *Acer*

Mexican oak tree (*Quercus obtusata*): This bee has gigantic pollen loads collected from male oak flowers clustered on an elongated hanging catkin. Each male flower does not have petals so they are basically just clusters of anthers full of pollen. Catkins like this make it easy for bees to collect large pollen loads very rapidly.

Below left: Green ash (*Fraxinus pennsylvanica*): Male and female flowers are on separate trees so to get pollen you need to plant a male tree. Unlike manna ash (*Fraxinus ornus*) with showy white petals, the green ash flowers have no petals. Each flower is just a pair of stamens but they are clustered together which makes gathering pollen easy for bees. Photos: Valentine Tournon.

tartaricum, *A. buergerianum*, *A. negundo*, *A. platanoides*, and most floriferous, *A. coriaceaifolius*). Oak trees deliver quantities of pollen (pollen protein 18% to 22%; e.g., *Quercus candicans*, *Q. salicina*, *Q. robur*, and *Q. palustris*). Ash trees produce ample pollen and nectar; e.g., *Fraxinus ornus* (pollen protein 21%). Late varieties of edible or ornamental apples, crab apples and pears flower profusely with plentiful nectar and pollen (high-pollen protein 23% to 28%).

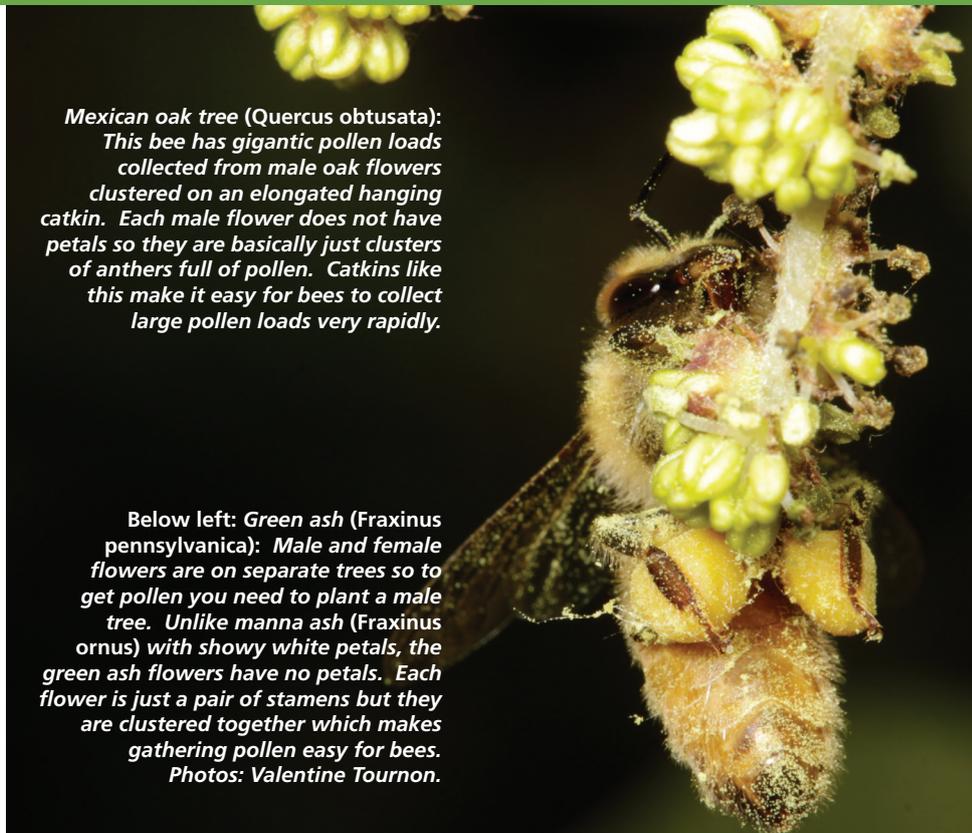
A key advantage of planting large-grade big trees is that, while they cost more per plant, they establish quickly and flower much sooner than smaller-grade trees—often in the first spring after planting. If you don't need a large number of trees for your planting

project, then paying more for a small number of trees will pay off in the long term. A further advantage of big trees is that as they mature and grow taller, the quantity of flowers per area of land planted increases dramatically.

You can plant large trees as individual specimens, or for avenues along driveways or stock laneways. They also make great paddock shade and shelter, and can also be used as shelter around stockyards and apiary sites.

Beekeepers can save significant amounts of money by planting some big trees near their apiaries to cope with pollen dearth in October. Artificial bee feed is a great stopgap, but a big tree producing copious, free pollen year after year is less expensive and less work.

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TREES FOR BEES NEEDS YOUR HELP!

We have just been awarded an opportunity to continue our work after the end of this current grant in June 2016. To win this next MPI Sustainable Farming Fund grant, we have to raise sufficient matching funds. Then we will produce an online catalogue of great bee feed trees, shrubs and herbs with nutritional results, plus an apiary nutrition assessment tool and a key to identifying willows. We will deliver workshops on how to design plantations to meet your goals. Our aim is to ensure that every apiary has plentiful superior nutrition available. Farmers and regional councils are happy to help and we appreciate your kind support over the last six years.

If you can support us for this next grant period with cash donations or in-kind support, please e-mail Dr Linda Newstrom-Lloyd at newstrom.lloyd@gmail.com or text your email address and phone number to Linda's mobile: 021 385 953.



Shantung Maple (Acer truncatum): The greenish yellow petals of maple flowers are not showy so you might not notice them. TOP: In the flower, you can see the glistening nectar at the base of each stamen. The stamens form a ring around the centre of the flower and bear anthers full of pollen at the end of a stalk (filament). BELOW RIGHT: Bee with big pollen loads gathering pollen from the maple flower. BELOW LEFT: Honey bee sipping nectar. Photos: Jules Boileau.

