Ministry of Agriculture and Fisheries

Beekeeping Nectar and Pollen Sources

Winter/Spring/ Early Summer

Honey bees obtain all their nutritional requirements from the nectar and pollen of flowers, and in some instances the honeydew of other insects. During periods when these are not available bees must subsist on honey and pollen stored within the hive, or supplementary feed provided by the beekeeper.

Energy, in the form of sugars, is obtained from nectar and honeydew. Pollen provides the remainder of bees' diet — protein, fats, vitamins, and minerals. When supplementary feeding is required sugars (cane sugar or honey) can be provided by the beekeeper. Pollen supplements are more difficult to obtain, and pollen shortages limit beekeeping in some parts of the country.

The critical period of the beekeeping year is spring. At this time bee colonies build up in population, from a low winter level before the main nectar flow beginning mid November to mid December (according to locality).

Early spring nectar and pollen sources such as willows, barberry and hawthorn, may provide a good beginning to this build-up period, if weather is suitable for bee flight. However, in most rural areas there is usually a scarcity of nectar and pollen in October and November. This necessitates supplementary feeding to produce crops of surplus honey. Planting of species which flower during this period is particularly desirable.

In many areas, land development has reduced the diversity of vegetation leading to a shortage of nectar and pollen, particularly during the critical spring period. This requires shifting apiaries to good spring areas or supplementary feeding of bees. However both these measures can be partially offset by planting appropriate nectar and pollen bearing trees.

There is a growing awareness among farmers and orchardists, as well as beekeepers, of the benefit of planting species for bees. Fortunately a number of shelter and erosion control plants have another use as well — that of feeding bees.

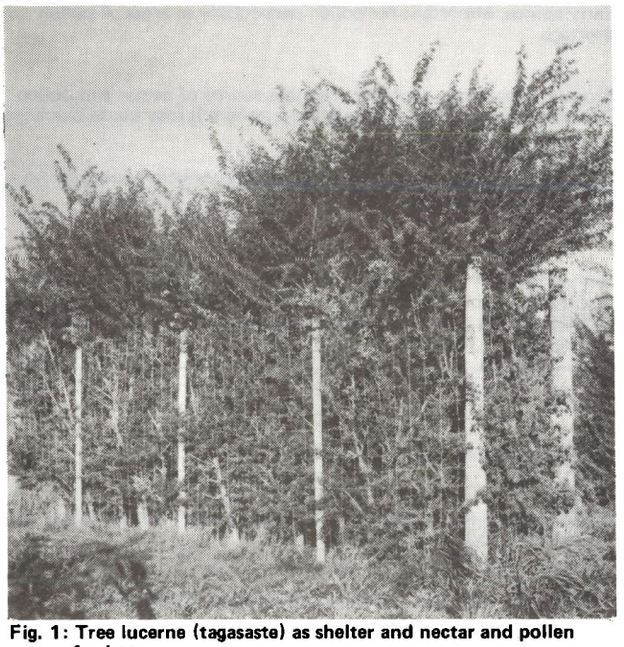

Fig. 1: Tree lucerne (tagasaste) as shelter and nectar and pollen source for bees.

Provision of a year-round supply of nectar and pollen is also important for encouraging the spread of bumble bees and solitary bees. Bumble bees are useful for boosting pollination of some crops, particularly red clover.

All nectar and pollen sources are of use to bumble bees, but particularly suitable ones include ***Fuchsia* spp.,** ornamental apple blossom ***(Weigelia florida),*** ornamental ***Azalea* spp.,** tree lucerne ***(Chamaecytisus palmensis), Rhododendron* spp., *Escallonia*** hedges, flowering currant ***(Ribes sanguinem)*** and horse chesnuts.

Further sources of information

Suitability of plants as nectar and pollen sources

Walsh, R.S. (1967): Nectar and Pollen Sources of New Zealand. National Beekeepers' Association of New Zealand (Inc.), P.O. Box 4048, Wellington. Mentions over 200 species of introduced and native plants.

Pellett, F.C. (1967): American Honey Plants. Fifth edition. Dadant and Sons, Hamilton, Illinois, 467 pp. Lists many plants found in New Zealand.

Crane, E. (ed). (1975): Honey, a Comprehensive Survey. Heinemann, London, 608 pp. Contains a brief section on honey plants.

New Zealand native plants

Poole, A.L.; Adams, N.M. (1963); Trees and Shrubs of New Zealand. Government Printer, Wellington, 250 pp.

Salmon, J.T. (1980): Native trees of New Zealand. Reed, Wellington, 384 pp.

Suitability as shelter

Other AgLinks discuss the general principles of shelter for farming and horticulture, and list suitable species for different regions of the country.

Explanation of Tables

Only a limited number of species can be listed in this AgLink. The tables contain most of the plants that are likely to be significant to bees, in all parts of the country. Also listed are the more important shelter, ornamental and fruit-producing species.

Although many noxious plants are valuable for beekeeping, it is illegal to plant or cultivate them. Noxious plants schedules can vary between counties, so noxious plants officers of local authorities should be contacted for further information.

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Information Services, MAF, Private Bag, Wellington, N.Z.

MAF advisers and commercial nurseries are able to provide further information about suitability of species for particular areas.

The tables indicate:

Growth habit: Tree; Shrub; Herb; Vine. Final height is in metres.

Nectar and pollen: NP, used by bees more as a nectar source than a pollen source; PN, used more as a pollen source than a nectar source; P, pollen source only; N:P, equally valuable for nectar and pollen.

Surplus honey: S, indicates that surplus honey may be produced by bees working this source. Production of surplus honey depends on many factors, such as soil and air temperatures, moisture requirements, etc.

Table 1: Nectar and Pollen Sources — Summer (December–March).

Name	*Final height (m)*	*Nectar and pollen value*	*Surplus honey production*	*Comments*
TREES				
Eucalyptus ficifolia red gum	15	NP	S	Showy ornamental, vivid red flowers late January–February. Surplus honey if sufficient number of trees. Young plants frost tender, older ones relatively hardy.
E. viminalis manna gum	25	NP	S	Heavy flowering in February–April.
E. melliodora yellow box	17	NP	S	Ornamental, good for shelter, timber, firewood. Extremely good nectar source.
Melicytus ramiflorus mahoe	10	N:P	—	Native tree found throughout New Zealand. Yields dark amber nectar and cream pollen November–December.
Metrosideros excelsa pohutukawa	20	NP	S	Coastal native tree, salt-tolerant. Flowers December–January, profuse quantities nectar. Honey white and fast-granulating. Closely related is ***M. kermadecensis*** a common hedge plant.
M. robusta rata	25	NP	S	Native forest tree, throughout North Island and down to about Greymouth. May hybridize with southern rata. Flowering more reliable but less intense than that species.
M. umbellata southern rata	20	NP	S	Found throughout New Zealand but local in the North Island. Common from Greymouth south. Flowers December–April, depending on altitude. Heavy flowerings occur irregularly every few years. Extremely good nectar source. Both rata species produce white honey with a distinctive but delicate flavour.
Gleditsia triacanthos honey locust	5	PN	—	Seed pods useful for stock feed.
Ixerba brexiodes tawari	17	NP	S	Native tree of virgin bush, to 38°S. Magnificent flowering November–January and copious quantities of nectar. Honey white, very mild and sweet in flavour. May be prone to fermentation.
Leptospermum ericoides kanuka	15	NP	S	Light amber honey with flavour and aroma similar to, but more delicate than that from manuka. Partially thixotropic (jelly-like) and rapidly granulating.
L. scoparium manuka	4	NP	S	Pioneer species, especially on infertile soils. Honey amber and strong-flavoured, thixotropic (jelly-like) and difficult to extract from combs.
Ligustrum chinensis Chinese privet	3	NP		Pale, aromatic honey regularly produced.
Schinus molle Peruvian pepper tree	15	NP	—	Ornamental. Half-hardy.
Tilia spp. lime, linden	20	NP	S	Specimen tree in urban parks and streets. Short, intense nectar flow in December. Timber valued for carving and furniture making.
SHRUBS				
Lycium horridum boxthorn	4	NP	S	Good shelter plant, will withstand salt winds. Common in Taranaki. Very thorny, needs trimming. Good late nectar source.
HERBS				
Astelia spp. Astelia	—	NP	S	Mostly epiphytes (perching plants) in native bush. Objectionable honey produced spring–autumn depending on species.
Calluna vulgaris ling heather	—	N:P	S	Confined to central volcanic plateau of North Island. Honey thixotropic (jelly-like) and strong-flavoured. Honey may have high moisture content.

Name	Final height (m)	Nectar and pollen value	Surplus honey production	Comments
Cirsium spp., *Carduus* spp., *Silybum* spp. thistles	–	NP	S	Includes scotch, nodding, winged and Californian thistles. White honey produced December–March depending on species.
Echium vulgare viper's bugloss	1	NP	S	Abundant in drier areas of South Island. Dull white, delicate flavoured slow-granulating honey.
Foeniculum vulgare fennel	2	NP	–	Flowers February–March. Unpleasant honey, but good for winter stores.
Hypochoeris radicata catsear	–	N:P	–	Autumn stores. Also cape weed, hawksbeard, and other related species.
Lotus spp. lotus	–	NP	S	Found in pasture lands and roadside banks, particularly damp areas. All species useful. Honey mild in flavour and yellowish in colour.
Medicago sativa lucerne	–	NP	S	Good nectar source in dry areas such as Marlborough, Canterbury and Otago. Water-white honey similar to that of clover.
Melilotus spp. sweet clover	1	NP	S	Found principally in dry areas such as river flats in the South Island.
Mentha pulegium penny royal	–	NP	S	Creeping weed of pasture and waste land. Flowers January–March, surplus honey produced only in long dry spells. Honey strongly aromatic, may be prone to fermentation.
Trifolium hybridum alsike clover	–	NP	S	More resistant to frosts than white clover, used in oversowing mix in high country. Excellent nectar source, honey similar to that from white clover.
T. repens white clover	–	NP	S	New Zealand's most important honey plant. Yields nectar November–February, depending on location. White, delicately flavoured honey.
T. pratense red clover	–	NP	S	Sensitive to soil conditions, may be erratic in nectar yield. Honey similar to that from white clover.
VINES				
Rubus fruticosus blackberry	–	N:P	S	Flowers November–January. White honey of excellent flavour. Weed species in some areas.

Table 2: Nectar and Pollen Sources – Autumn-Early winter (April–May).

Name	Final height (m)	Nectar and pollen value	Surplus honey production	Comments
TREES				
Eucalyptus delegatensis alpine ash	15	N:P		
E. leucoxylon rosea winter-flowering pink gum	15	N:P	–	Hardy, withstands winds and medium frosts. Ornamental, good nectar source.
E. regnans mountain ash	15	N:P	–	Frost-tender while young.
E. viminalis manna gum	25	NP	–	Heavy flowering in February–April. Good source.
Hoheria populnea lacebark, houhere	11	N:P	–	Native found naturally to 38°S, but now cultivated throughout New Zealand as an ornamental. Profuse flowering.

Table 2: – *continued*

Name	*Final height (m)*	*Nectar and pollen value*	*Surplus honey production*	*Comments*
SHRUBS				
Metrosideros spp. rata vine	–	N:P	S	Good winter stores, or surplus in some years.
CROPS				
Helianthus annuus Sunflower		N:P	S	Mild amber honey and yellow-orange pollen.

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