ATTTA
Atlantic Tech Transfer Team
for Apiculture

Creating a Bee Yard

Bee yards or apiaries are areas that provide food and shelter to honey bee hives. Plants intended to provide nectar and pollen for honey bees should be nutritious and have flowers which are attractive and accessible to bees. If an ideal bee yard is not available, consider creating one.

There are many native and naturalized plants in Atlantic Canada that offer good food resources to bees. By identifying and maintaining these valuable plants in bee yards, a greater diversity of plants is available to bees. Such plants include wild roses, willows, brambles, maples, goldenrod and fireweed. During nectar dearths, or critical times in the season when wildflowers are no longer blooming, it can be advantageous to plant flowers to provide a steady stream of foraging resources. Both wildflowers and planted resources are considered in this fact sheet.

Goldenrod visible next to fenced bee yard.

Bee Yard Size and Location

Finding optimal bee yard locations can be difficult, especially if there are many beekeepers in the area. Ideally, bee yards would be separated by at least five km. Bee yard size depends on how many hives will be stored, the size of the operation and availability of bee yards. Ten to thirty hives per yard is common in Atlantic Canada. Hives should be spaced at least one metre apart and face the southeast. To avoid drifting, keep bees in an 'S' shape or another formation, rather than in a straight line. Having multiple bee yards allows hives to be isolated, and this is particularly useful for separating new splits or newly-formed nucs, captured swarms or diseased hives.

Many beekeepers work with farmers to create on-farm bee yards in poor or unused land (e.g. too wet for crops, poor soil, etc.); if you have good communication with farmers, this may be an option. Other locations include cleared woodlands or abandoned farmland. A good access road makes management easier, especially when moving bees in the dark or lifting honey supers. In the bee yard, look for trees to provide windbreaks and shade, along with open areas with full sun. Bees should be placed in partial sun as full sun will make it difficult for bees to regulate the temperature within the hive and full

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shade will make conditions dark and damp. Consider the light requirements of the plants when planting flowers in a bee yard. Certain flowers can tolerate full sun throughout the day, but others cannot.

Soil Conditions

A soil test will provide information on soil pH and fertility, and allows for selection of flowering plants that should thrive in the existing soil conditions. The soil test may indicate that amendments are needed before planting. For best establishment, pH levels between 5.5 and 7 are recommended. In Atlantic Canada, we often deal with lower pH levels, and liming may be needed to optimize bee yard establishment. Soil fertility will also impact yard success; buckwheat can tolerate poor soil conditions and offers attractive flowers for bees, but other plants will need more fertile conditions or fertilizer applied. Consider what plants will grow well based on your conditions; for example, willow trees will tolerate wet conditions and offer early-season pollen to a variety of bees, but other plants, such as alfalfa, will require well-drained soils. Note: If planting legumes, inoculant may be required for the seeds.

Annual buckwheat planted for bees.

Seeding

There are different seeding options. Preparing a seed bed (tillage, removal of debris, etc.) will aid in establishment of new plants, but no-till seeding is also an option. To encourage establishment of newly seeded plants and to minimize weed invasion, consider seeding flowers with grasses (e.g. timothy) that establish quickly and provide ground cover. Flowers can be established in a bee yard at almost any time throughout the season (April-September). Although early-season establishment can provide food sooner for bees, seeding later in the season (June, July or August) can offer less competition from weeds and less risk of frost. A bee pasture fact sheet from the University of Maine further explains seeding equipment and requirements, and is available online (Venturini et al. 2015).

Seed Selection

Seed costs will vary depending upon the plant. To compare the price of seeds, visit the local country or hardware stores as they often package 'bee mixes' or are willing to order seed in bulk. Seed companies have recently started creating their own commercial bee mixes. Be sure to check out the flowers included to determine if they are appropriate for your soil conditions, are attractive to bees and are not invasive. Select a mixture of flowers of different color, bloom period and flower type. A list of bee plants and nectar and/or pollen provision is outlined by Venturini et al. (2015). Honey bees require at least 20% crude protein in pollen for proper larval development, so a variety of flowers is key to optimize nutrition. Legumes, including clovers and alfalfa, provide abundant protein for bees.

Flowering Period

Honey bees require food throughout the season to provision for the colony. While selecting plants for the bee yard, consider varying bloom times so that there are always flowers available for food. Also be aware of the flowering plants already available in the area. For example, early-blooming flowers including dandelions, willows, maples and apples, mid-season flowers such as brambles and fireweed, and late-season flowers including asters and goldenrod (pictured above) may be nearby. To supplement food provision from these flowers, plants such as vetch, clovers, borage (pictured below), phacelia, blanket flower, sunflower, black-eyed susan and coreopsis can also be seeded. By mowing perennial flower portions of the bee yard at different times, flowering can be delayed and new growth encouraged, providing flowers later in the season. Consider annuals (e.g. buckwheat), perennials (e.g. red clover) and biennials (e.g. sweet clover) to supply a constant, diverse flower mixture, mitigate risk of winter kill and failure to establish, and provide varying bloom times.

Fencing

Electric fencing around hives is a good investment, especially if there are bears in the area. There are different examples of fences online (see resources section) and the Nova Scotia Beekeepers' Association as well as the New Brunswick Department of Agriculture, Aquaculture and Fisheries have great articles on bear fencing: http://www.nsbeekeepers.ca/newBeekeepersDetail.php?Bear-Fencing-13 and http://www2.gnb.ca/content/gnb/en/departments/10/agriculture/content/bees/protecting.html. These articles outline the key features of electric fencing including suitable grounds, wire spacing, voltage, posts, entrances, size and more. Access roads to the fenced areas may need to be improved by adding gravel or a space in the field to turn vehicles.

Access to Water

A clean, shallow drinking source in close proximity (ideally within 500 m) to the bee yard is a key element in bee health and success. If a stream or pond is unavailable, consider special bee waterers, especially during hot, dry weather. There are commercial waterers available from bee supply stores, or you can make your own from barrels, buckets or small livestock feeders. Remember to keep the water source clean and to place an object in the water feeder for bees to land on.

Benefits of Creating a Bee Yard

Though creating a bee yard can require input costs and labor, supplying a nutritious yard with adequate food resources can help with colony build-up, minimize the need to feed colonies at certain times of the year, and contribute to a successful honey crop. Nutritious flowering plants also lead to improved bee health. Annual resources will need to be replanted but once perennial flowering resources such as clovers are established, they will remain in the bee yard for years to come. With careful planning, minimal inputs will be required after the initial set up (e.g. once perennial plants, suitable bear fencing and good access are established).

Resources:

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