



The Managed Mentoring Program on getting started in beekeeping.

Managed Mentoring



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Apiary Design

Lesson | Designing the Apiary Space



What is Covered in this Lesson

Anchored Colonies

3-Yards or 3-Miles Concept

Choosing a Permanent Location

Suitable for Humans

Suitable for Bees

Placement Recommendations

Alternative Placement Options

Water Source



Apiary Design

Setting up the space for hosting the bees



Placing Bees Requires Consideration

□ Colonies are anchored to a location

- *Considering Honeybee Orientation before considering apiary location*
 - As bees establish their colony, they orient to the exact spot where their home is located. Exact translates to inches and feet
- *Give consideration when placing bees*
 - You cannot simply relocate a hive to another part of your property because they might look better or be out of the way, if you move them from the side yard to back yard. It does not work that way
 - Bees will always fly back to the exact spot once they have established a location
- *Its 3 yards or 3 miles to move a hive*



Honeybee Orientation

□ Orientation

- *Forager Orientation*

- Forager Bees orient to their home upon first flight.

- *Orientation is done in several steps.*

- They view the world from the hive entrance
- They take a short flight from the entrance and stay within sight of the hive.
- In time they will fly further, reviewing the landscape elements and familiarizing themselves with their surrounding while flying farther from the hive on subsequent days

Visualizing orientations

A bee will leave the entrance and fly in circular motions around the hive.

- They are taking in the location of the sun, the location of hive, and the landscape features.
- They will fly close to the hive down low, up high, and on late mornings or early afternoons you can see bees flying circles around the hives.
- The physical spot, within inches, is imprinted in the forager's memory.

Orientation Video: YouTube [Link](https://youtu.be/WFD5h57IDC8?t=43)
<https://youtu.be/WFD5h57IDC8?t=43>



3-Yards or 3-Miles

□ The adage: Moving bees, move them 3-yards or 3-miles > Why?

- *The 3-yard concept*

- If you move a colony on a hive stand more than three yards, any bees that have oriented to that spot will physically come back to the original spot, even if the hive is nearby.
 - They will fly to the spot, hover above the space, and sometimes they will land and gather together on the ground.
 - Other times they will simply fly away and look for some suitable new home (not necessarily the hive)
- If it is still within 3-yard however, the belief is they will be able to discern their original hive and eventually will fly to it and go inside.



3-Yards or 3-Miles (cont.)

□ The adage: Moving bees, move them 3-yards or 3-miles > Why?

- *The 3 mile concept*

- Normal foragers will fly miles from the original hive for forage if necessary
 - As part of this activity they log landscape features so they can find their way bak,
- If you move less than three miles, you risk that they recognize features
 - If you move them and they are still see things they know, they will likely use those clues to go back to the original location
- More than 3-miles and you should be ok that they realize they have a new home, and they will re-orient to that site and reset



Fooling the Bees

□ Ignore 3-Mile Rule

- *There is a common belief that you do not have to move hives 3 miles*
 - Move the hive to a new location, with an entrance modification
 - The wisdom is that you can move a hive to another location in proximity where it was
 - Simply move the hive and then create some barrier at the entrance that the bees have to deal with
 - The premise came from – what happens when a tree falls in the woods, how do the bee adapt?
 - When the bees deal with the obstruction, they realize things have changed and reorient
 - How does it work?
 - Sometimes it works but, in our experience, often it fails. Follow the 3-mile rule to be trouble free



Scoping out a Permanent Location

□ Analysis

- *Knowing about orientation anchoring a colony, the selection of a site is an important decision.*
 - Selecting a location usually falls into two categories:
 - What is suitable for the beekeepers
 - Consider access to the bees and other facets to make a workable apiary
 - What is suitable for the bees
 - Taking into consideration what the bees need – what is optimal for them.



Access and Landscape Features

□ You need access and the ability to work

- *Access*

- Access by Car is optimal. Access by Cart or equivalent is mandatory

- *Features*

- Dry, Level or slightly sloped ground that has exemplary drainage
- An area that will *never* flood, ever, no matter what nature throws at you.
 - Consider the worse case scenario before choosing a spot
- Away from foot traffic (humans). Not near porches, backyard patios, or other places where people walk through or congregate.



Spacing and Resource Protection

□ Space

- *Enough room to operate. Preferably where you can space the hives out*
 - Spacing allows for you to groom the area and mow around the colonies
 - Spacing is also good for the bees (covered later)
- *Away from property lines and valuable resources*
 - Hives have to be set back from property lines. Do not set against property lines
 - Away from places where bee poop is not going to cause damage
 - Bees fly out front of their hives when doing cleansing flights. Anything in front of the hive (cars, furniture, etc.) are subject to being covered with droppings



Individual Hive Stands

□ Space (continued)

- *Individual Hive Stands*

- Making a pitch for single hive stands
 - Many apiaries provide a 'rail system' that lines up multiple hives on one rail
 - One aside is when you work one hive any movement translates down the rail to the other hives.
 - Rails limit your ability to truly get alongside
 - Opinion: Single Hive Stands are Superior
 - Given your access you can work the hives better – lifting, placing boxes down, placing boxes back on the stack, and **this is better for your back**. Less awkward reaches and twists like a rail system.
 - They let you work all sides. They usually let you space the hives farther away from each other if you want. They also let you face each hive in a different direction.



Seclusion and Work Area

□ Keep hives away from occupied spaces

- *Place them away from gardens, pools, and places where people work or congregate. Pick the quietest suitable area on your property*
 - Occasionally there are times where bees will be defensive if they are protecting their stores and people in proximity could inadvertently be in the colony's patrol area.
 - Guard will keep watch at the entrance and sometimes they patrol an apiary for threats when defending food stores
- *Distance Suggestions*
 - 20-foot out front, 10-foot behind – and more if you can do it



Placement Do's and Don'ts for Bees

□ Recommendations and Suggestions

- *Every situation is unique.*
 - When placing bees, there are many recommendations, and some may or may not apply in your situation.
 - The next set of slides will run through several topics for consideration
 - Some are best practices and others are along the line of suggestions.
 - Keep in mind that bees can be kept on properties that have several acres, on city lots, rooftops, and in other situations
 - If your situation is unique, make an inquiry
 - If your situation is not conducive to host bees, there will be a recommendation



Locating the Apiary

❑ Full Sun Preferred

- *Full Sun, or as much sun as can be supplied*
 - Sun is beneficial for bees. Hotter environments are less conducive for honeybee pests
 - ❑ Bees can be kept on wooded lots. This is not ideal, but it can be done if there is no other recourse. The takeaway is full sun is optimal.

❑ Proximity to Forage

- *Ideally there will be forage preferably within ½ mile and up to 3 flight miles*
 - In NJ this is pretty much a given. Other areas require consideration
 - ❑ Some locations are better than others. If your bees do not do well, other location may have to be considered.



Location Features

❑ Water Source / Feature close by

- *Water is a necessity. Within a 1/4 mile at minimum.*
 - The closer the water source, the better for the bees. Less round-trip time for bees fetching water equals less work and more productivity for the colony
 - You can supply water for the bees, and that will be covered later in this module

❑ Airflow and surface drainage

- *Hives require air exchange in the apiary. Stagnant air is not optimal*
 - Especially avoid low-lying damp areas, and ensure the site has excellent drainage
 - Air flow is desirable. Areas with high wind (not common) are not optimal



Location Features (cont.)

❑ Firm Ground

- *Rocky ground is ideal, Sandy Soil is not*
 - Some pests leave the hive and burrow into the ground below the colony. If they encounter hard rocks, this thwarts their success. They do very well in sandy soil

❑ Snow Melt

- *Choose the area where the snow melts quickly*
 - Avoid any area where the snow melts slowly on your property.
 - Damp and cold conditions are detrimental for bees, especially in winter.



▸ Away from Live Beings

□ Away from Predators and Livestock

- *Away from Predators*

- In Open Space - Away from havens for Predators
 - Keep away from brush piles, and dense brush which provide shelter for predators
 - Keep brush cut back right in the apiary to negate mice, moles, voles, and other pests
- Away from known predator water sources
 - Locate away from known bear territories, or paths that are conducive for bears to travel

- *Away from Livestock*

- Place away from animal holding areas (horses, cows, sheep, chickens, dog coops, etc.)



Orientation

❑ Face the hives toward the morning sun

- *The hives should face south or southeast*
 - Point them as close as possible to where the sun rises in the spring
 - ❑ Morning sun heats the hives and provides light and warmth; bees work earlier. Hives that do not face the morning sun are ok, but they tend to be less productive

❑ Wind Barriers > Prevailing Side of Apiary

- *Review your location and learn prevailing winds patterns*
 - Employ wind breaks or a barrier to prevent gusty winds from blowing through the apiary
 - Do not locate your hive at the base of a hill or places where the dampness collects



Broader Concerns

□ Away from other Beekeepers

- *If there are beekeepers nearby, consider the pressure on the space*
 - It might be prudent not to add to the burden and choose an alternate location
- *Away from Agricultural, Industrial, and Chemical Threats*
 - Do not locate your apiary near a site where the bees will encounter undesirable elements
 - Some farms use pesticides that will kill bees. The same can be true for golf courses.
 - Consider the area and do not locate your operation where there is the possibility of pesticide and pest control exposures; especially if they are there already. It is a recipe for conflict.



Alternative Situations

□ Lack of Space and Proximity Concerns

- *Sometimes you can make this work with some proper adjustments*
 - Bees close to humans – Build a fly barrier
 - If you place a tall fence or barrier next to the hives, the bees will fly up and over them to get to their destination
 - Once a bee is at height they tend to stay up there and you might walk on the other side of a fence where bees are present and not even detect they are there.
 - Proximity to Neighbors
 - Out of sight, out of mind. We encourage good communication with neighbors but sometimes selective screening around an apiary can make the operation a little more discreet.

Remember from the good neighbor module, bad situations rarely get better with bees.

Don't force an issue or expect that masking is an end all solution



Alternative Placements

□ Rooftops

- *Some properties can accommodate hives on rooftops*
 - Bees will do well on rooftops and if you have access and your situation would be aided by putting bees on a rooftop, do not shy away from the prospect
 - Its too unusual to outline here – come consult if this is a consideration

□ Out Yards

- *Sometimes the best answer is > somewhere else*
 - If your property does not work, other options are out there. Farms, other landowners, corporations – if you work at it there are alternatives to place bees



Water – A Key Ingredient

❑ Establish a Water Source

- *Don't impact your neighbors...*
 - Bees are unaware that it is your neighbors pool, birdbath, hummingbird feeder, or kiddy pool. You cannot break them of a selection.
- *Water Feature Advice*
 - Between your bees and your neighbor's pool

❑ Bees cannot survive without water

- *Processing food*
- *Keeping the hive cool*
- *Other activities*



Giving Bees Water

- **Water is critical for bees**
 - If there is no natural nearby water source, provide water
 - *We recommend a bucket with holes and floaties*
 - *Place in 30 yards or so from the hive*
 - Feed water at the entrance
 - *You can provide water at the entrance*
 - *The only good use for a boardman feeder*
 - Early has an added benefit
 - *Do this early and bees will come to your water source, not your neighbors*
 - *Consider some salt or fragrant oils.*
 - Enough salt so that the water has just a touch of salty taste to you.



Closing Comments

- **Customary Close**
 - Where we stand, where we are going...
 - *This lesson closes out guidance for setting up your apiary.*
 - *Our next topic moves to more focused advice and instructions for placing your hives within the apiary design:*
 - Specific guidance on **Hive Placement**
 - Installing Bees – **Package Install** & Installing Bees – **Nuc Transfer** Install
 - Handling bees – **Post Install First Week**
 - Learning how to do proper **Hive Inspections**



Q&A

- **What Questions did we not anticipate?**
 - If you have feedback, you can leave a constructive comment; but be nice.
 - You could also send an email to comments@managedmentoring.com
 - *Please refer to this video in the subject so we know what the reference is.*

