



A Beginner's Guide to Keeping
Bees Thriving in the Boston Area

Beekeepers School

BABA Beekeeper's School 2026



Bee School 2026



Welcome

- Review Tonight's Agenda
- Course Overview
- Introductions
- Housekeeping
- Lesson's Begin



Agenda

Session Cadence

- Typical to start out with some announcements and follow ups
 - Please be prompt as we will kick off right on time each week
- We will review slides in sections – then some Q&A about the topic
 - We will cover a topic, then make sure all questions are addressed
- We will look to cover several topics each night-building as we go
- Slides will be available for reference

Scope of the Content

- **From I want bees to established beekeeper**
 - I want bees to bees in the hive
 - Bees in the hive to colony full grown
 - Colony full grown to winter state
 - Overwinter to Spring
 - Spring through Swarm Season to Honey Harvest
 - Summer Management to Winter Prep

In Between – Important Learnings

- Varroa Mites**
 - Knowing Varroa is to keep bees alive
- Management Practices**
 - Using a Hive tool, Lighting a Smoker, Building up, Inspections, Feeding, Mite Management – all the core skills
- Workers, Queen, and Drones**
 - Basic Biology
 - Their roles and interactions in the hive
 - The role of Honeybees in the world
- Struggle Points**
 - We purposefully illuminate challenges so you can avoid them



Along the way

□ There is a lot to learn

- Saying this again....Access to the slides are available
- We will cover a lot of ground – in short bursts
 - We'll review a topic – then pause for questions and interaction
 - Then we'll move on to the next topic – it builds your understanding as we go
- Resources, References
 - We will provide additional references – resources and recommendations
- We will take periodic breaks where they make sense



Tonight's Agenda

Meet the Team

Langstroth Hives

Purchasing Hive Equipment – Shopping Guidance

Other Equipment – *you will need*

Protective Equipment – *to keep you safe*

Rest of the Course

Val Mayo

Boston Area Beekeepers Association President



Val Mayo is a second-generation beekeeper who has been with BABA since 2021 as Vice President and 2025 as President.

Her Hyde Park apiary includes: Langstroth, Horizontal, Top Bar, and Warre hives.

In 2024 after three years of advocacy she was able to celebrate the passage of the Boston Bee Ordinance which made beekeeping legal in Boston.

Introductions

Introductions

Mark Lewis
Treasurer



Kalina Kinyon,
Secretary/Newsletter Editor



Steven Trieber, Apiary
Director/Mentoring Coordinator



Karen Schiller
IT/Membership Director



Dave Strickler
Founding Member/Advisor



Mark Lewis is a Cornell Master Beekeeper and also President of Classroom Hives.

Classroom hives is an organization that strives to bring the wonder of bees into schools by installing observation hives.

Mark also manages the observation hive at the Museum of Science.

Kalina Kinyon is not only BABA's secretary but also edits the newsletter.

Kalina was the President of the Black Bear Beekeepers at the University of Maine before she moved to Boston.

Recently for several months she handled her duties while studying small mammals across burned and unburned forest plots in Oregon.

Steven Trieber manages the member hives at both the Boston Nature Center and the Fenway Victory Garden. He began beekeeping in 2018 with a single, double deep hive in Hyde Park. He and his wife, Denise, manage Trieber Apiary which is a sustainable apiary with a focus on managing healthy bees, educating the public about the importance of bees and producing natural beekeeping products.

Karen Schiller manages digital systems, communications, and member engagement.

With a background in information technology and a lifelong appreciation for nature, Karen enjoys blending her technical skills with her interest in sustainable practices and environmental health.

Dave Strickler is one of the original founding members of BABA started in 2011.

Although Dave is no longer involved in the day to day operations he stays on as an advisor and IT back-up support.



INTRODUCTION – Kevin Inglin

18-year hobbyist beekeeper - 18 hives

EAS Master Beekeeper

Past President – NWNJBA

Beekeeping Podcaster

Real Work: IT Professional

Ownership, Sponsorship *and the possible* Underwritten Funding Model

Managed Mentoring Branding

- This program provided by Sunshine Hill Farms LLC.
- It is an adjunct to the Managed Mentoring program
- MM is a free program beekeeping program that supports beekeepers as they get started, and after they take an introductory course.
- Much of the material in this program is sourced from the core of that program



Intellectual Capital

Photos, graphics, etc.

- We believe that content should be easy to read, visually appealing, and well designed.
 - As such we have used personally created images and photographs from my collection.
 - Please respect the content in support of the program and refrain from harvesting it for sale or commercial use.
 - There are occasions where we have used images from others because it is not practical to create the reference.
 - We will provide references to the sources of those images.
 - We have done our best to stay with creative commons licensing for these purposes. If an owner wishes to request an image to be removed, we will do so with no discussion.

Course Interactions

- Reminder**
 - We will cover a topic, then make sure all questions are addressed
- Zoom Chat for Questions**
 - We will stop at the end of each topic to address the questions
 - To capture questions; do send them through Zoom as the lessons are proceeding
 - Many times, answers are provided as we move through the content
 - When we finish the topic at hand, I will open the floor for roundtable Q&A
- Course Questions:**

info@bostonbeekeepers.org



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Top to bottom hive setup

Lesson | Introduction to Langstroth Equipment



What is Covered in this Lesson

The Langstroth Hive

Configuration Options

Management Styles

The Parts of a Langstroth Hive

Adjunct Equipment

Hive Bodies

- **Langstroth Hives**
 - Lorenzo Langstroth invented the hive format that features movable comb in the late 1800s.
 - The Langstroth hive form factor is the largest standard hive type in the world.
- **Langstroth Box Parts**
 - There are many variations on hive design, but the most common equipment features three hive body designs:
 - Deep Hive Body
 - Medium Hive Body
 - Shallow Hive Body
 - Shallow hive boxes are not as common these days.



Hive Setups

Note the classification

- **Hive Configurations have 'evolved'**
 - Conventional beekeeping will show a preference for a certain way to house the bees.
 - Traditionally the brood nest is kept in two deep boxes, and medium hive boxes are used on top for honey.
 - Over time different configurations have emerged as acceptable and conventional standards.

The next few slides will review some basic ways to host bees, and it will follow with a recommendation.

Terminology

Brood:

Brood is another way to refer to the bees being raised in the nest.

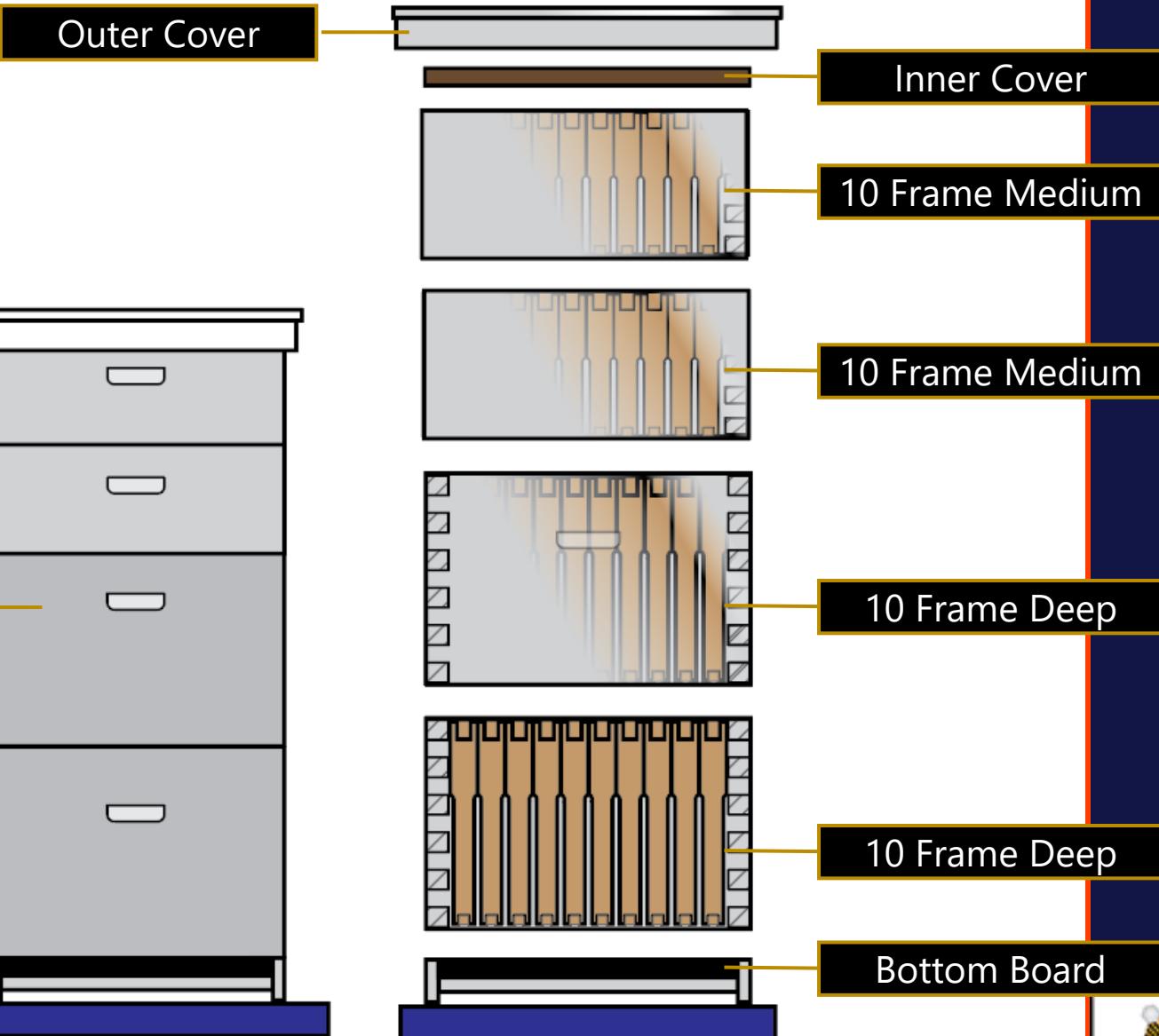
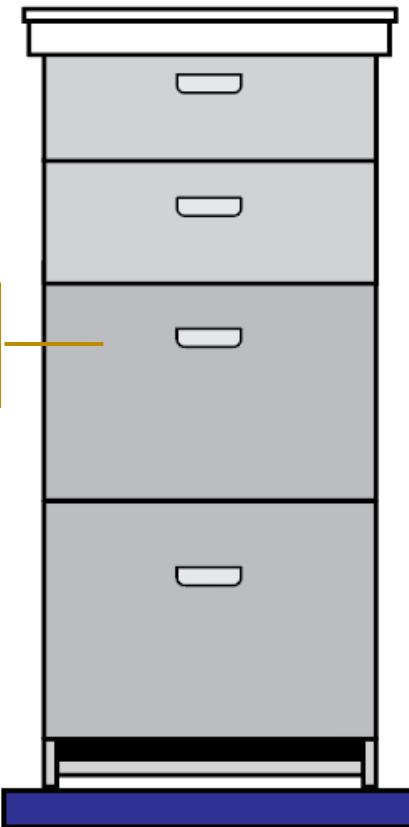
The area of the bees within the hive where new bees are being raised is considered the nest.

Acknowledging Different Configurations

The Conventional Stack

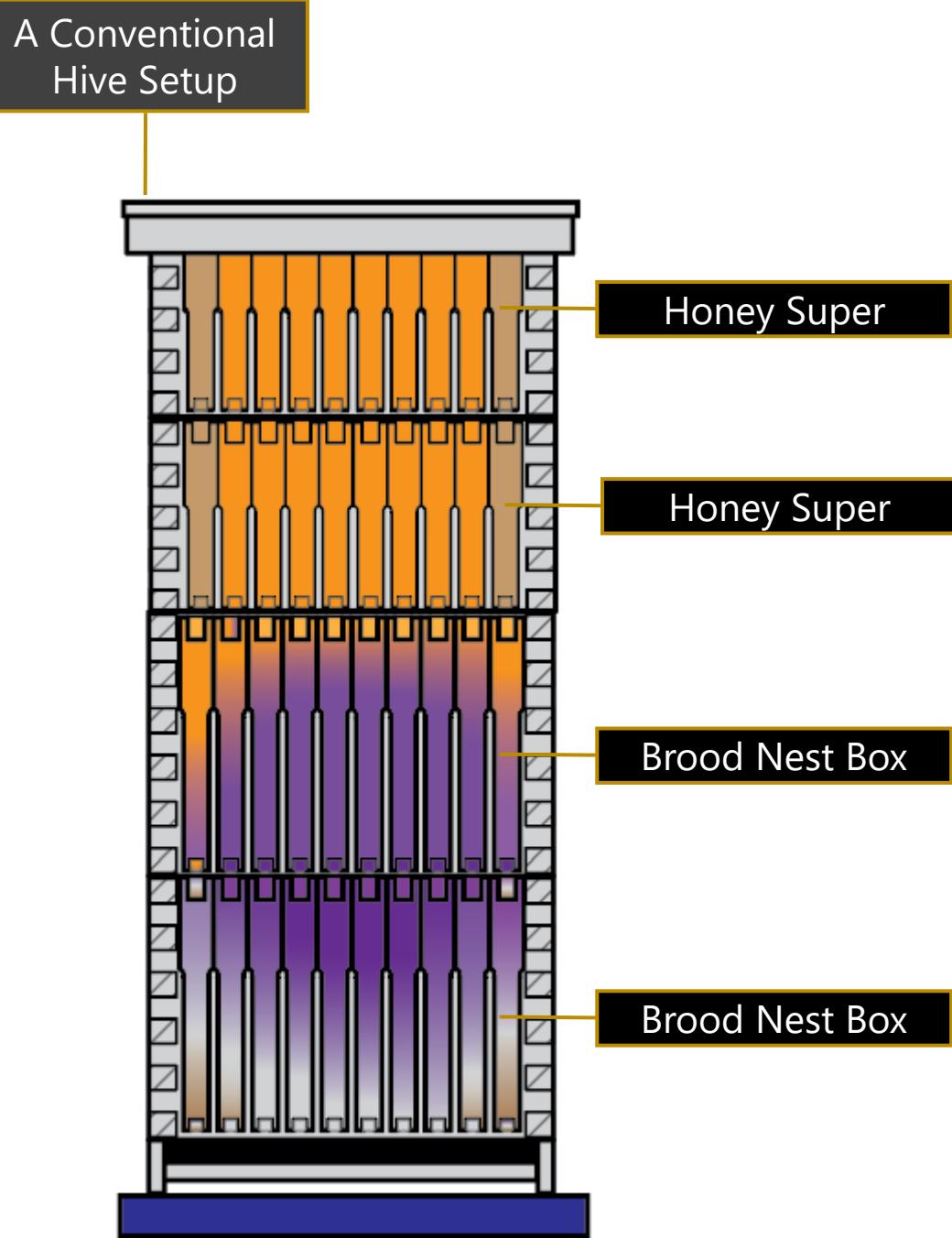
***Two Deeps
Two Mediums***

A Conventional Hive Setup



The Conventional Stack

Purpose of the equipment



Terminology

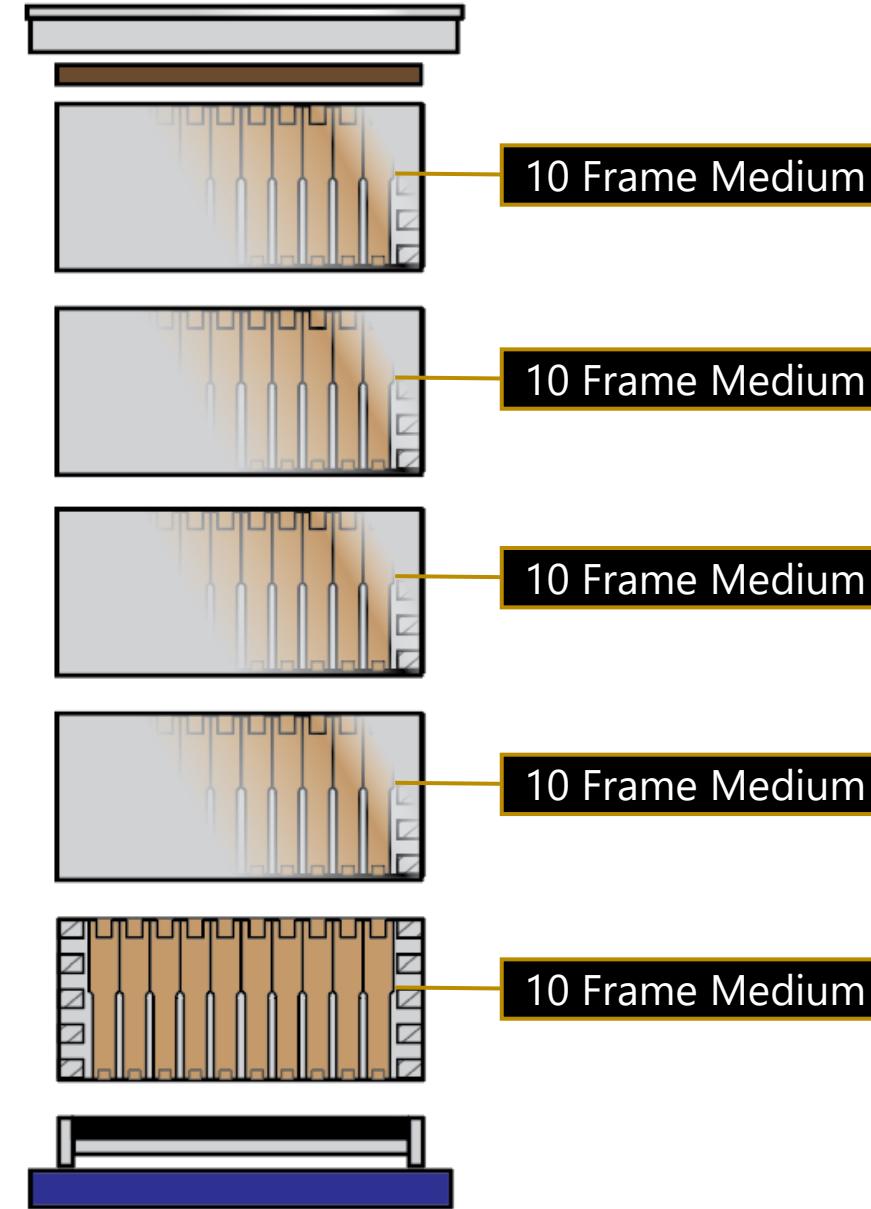
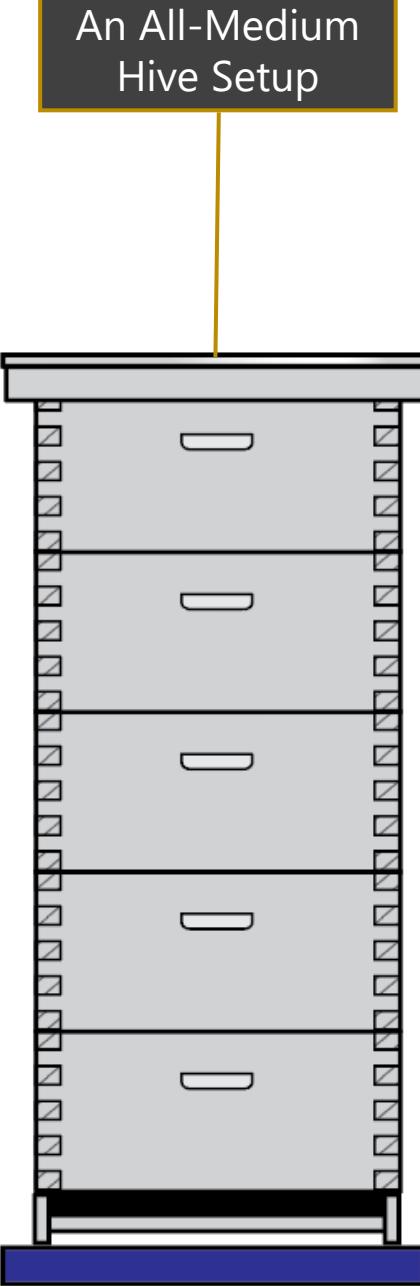
Super: A box that sits above the brood chamber is called a 'super'.

The term is often inferred to derive from superior, or above.

Instead of deeps, medium supers are used to lower the weight of honey boxes

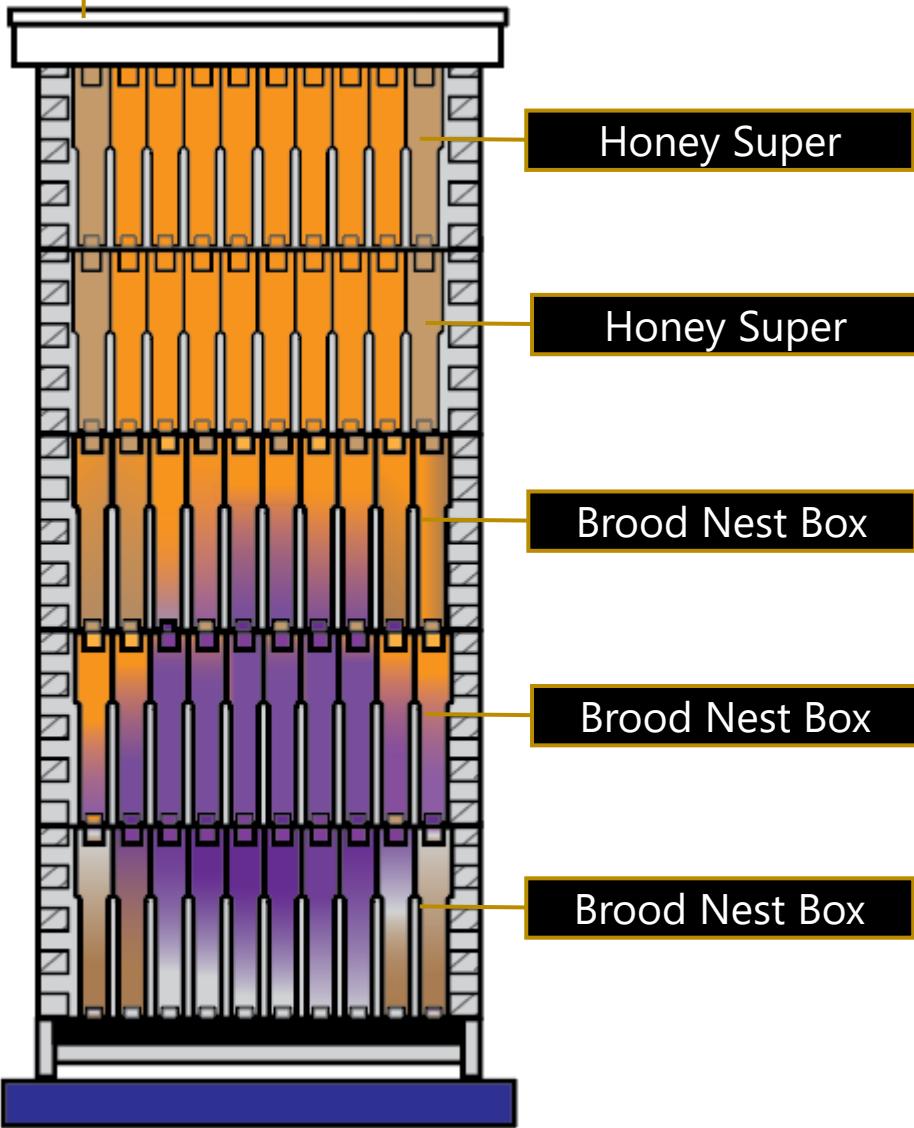
An Alternative Popular Stack

***All Mediums
reduce per box
weight.***



All Medium Build Out

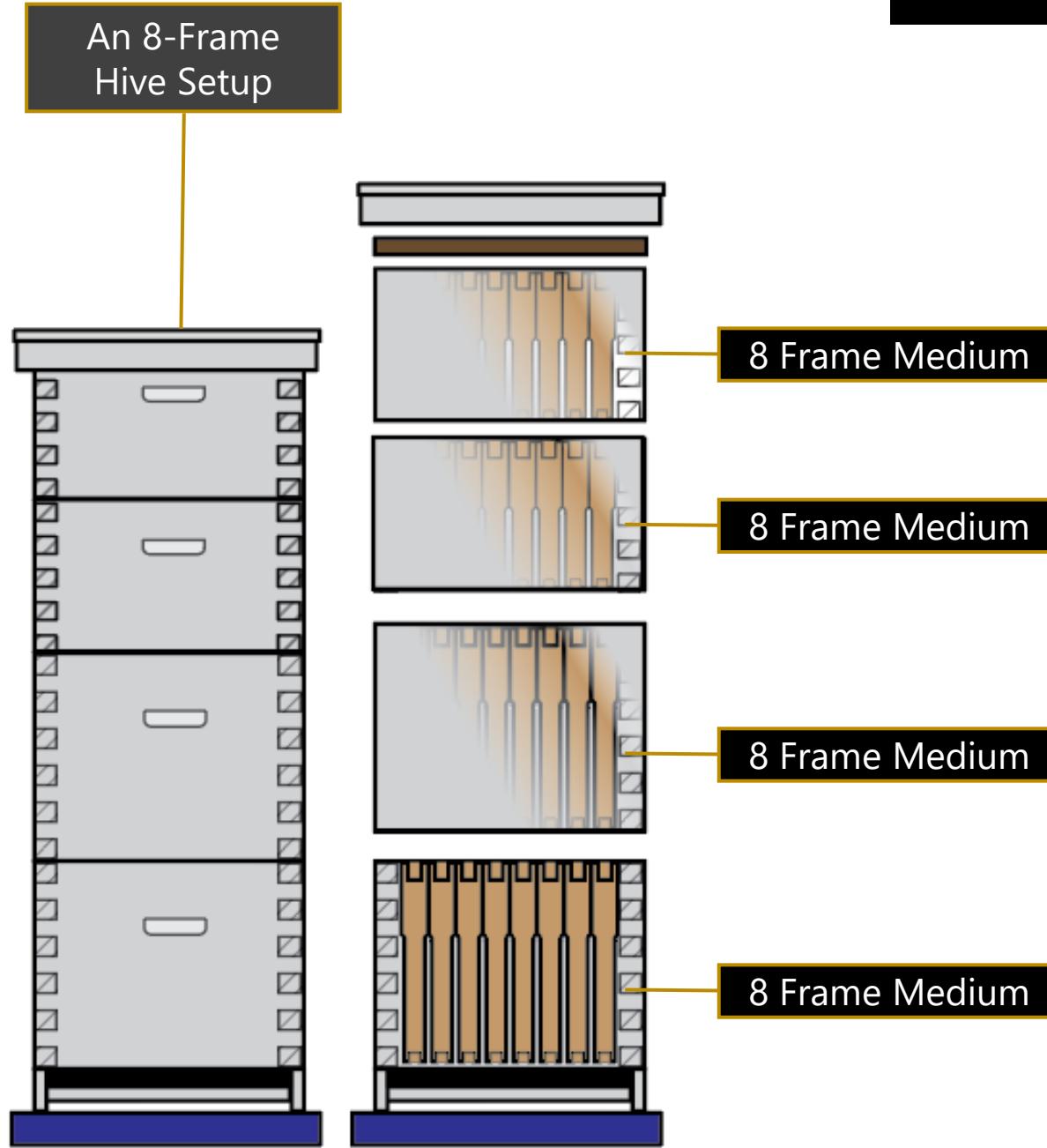
An All-Medium Hive Setup



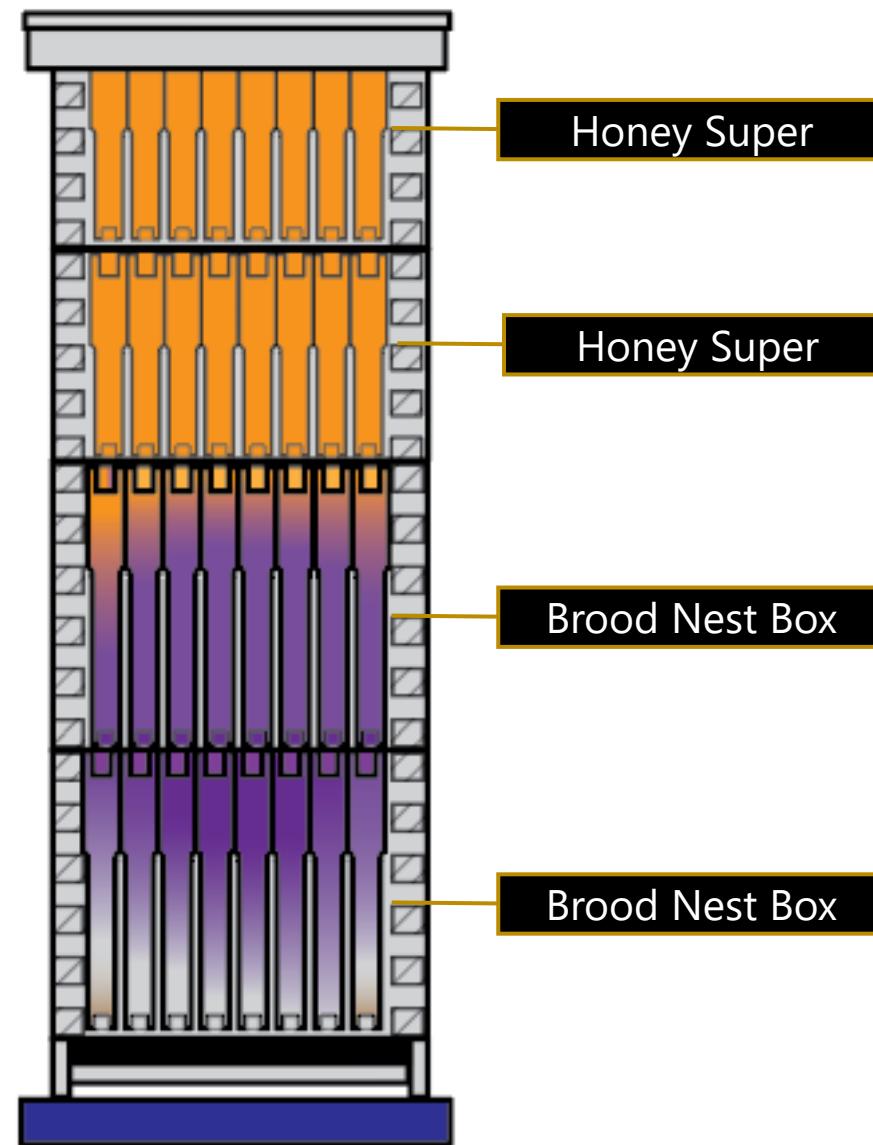
Terminology

All-Medium: A management style that uses only medium sized hive bodies.

8-Frame Hive Setup



8 Frame Build Out



- It's the same as a 10 frame but narrower.

Langstroth Polystyrene Hives

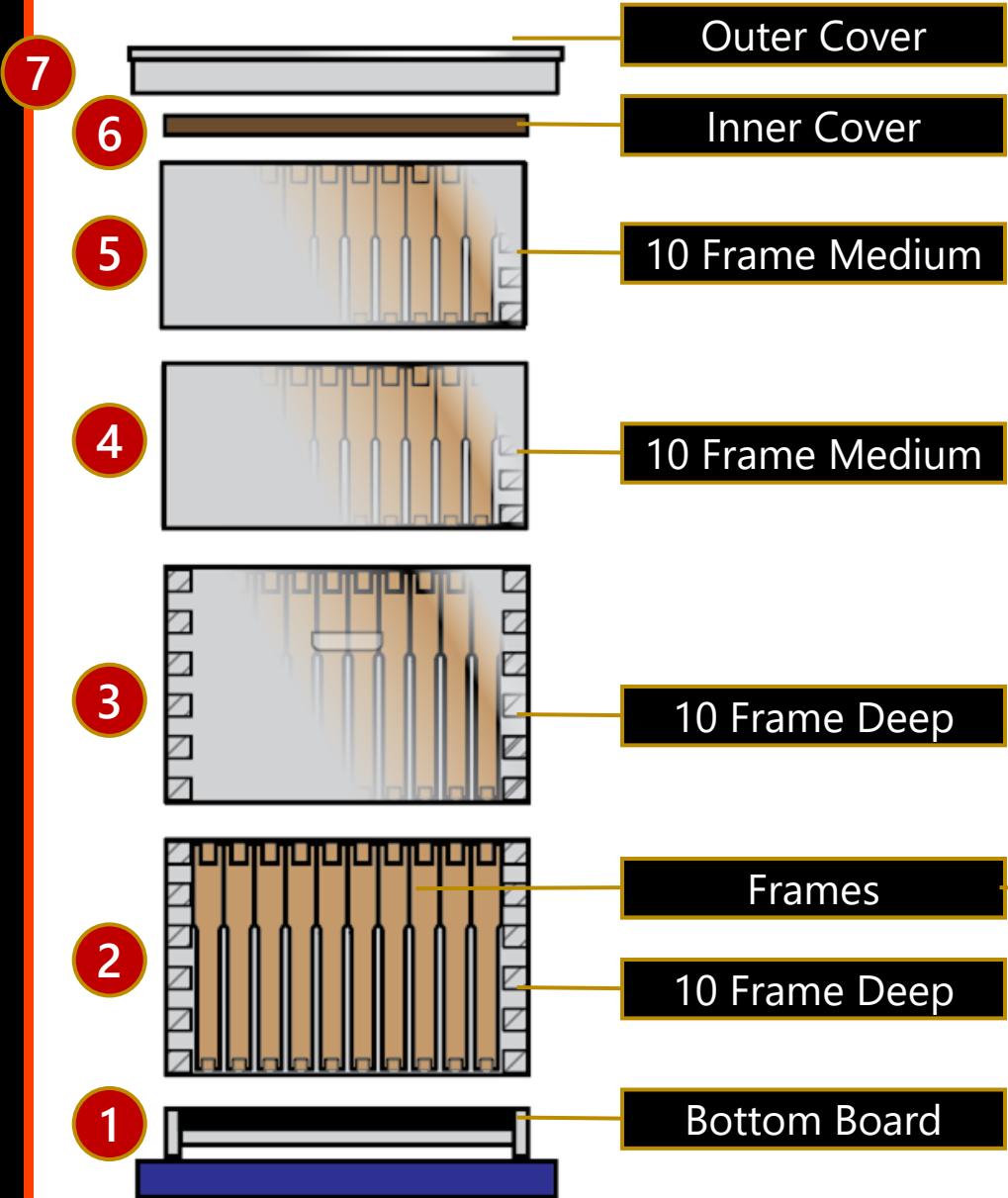
Polystyrene Hives

- **High Density Foam**
 - Employed for their insulative properties
- **Langstroth Dimensions**
 - These use standard Langstroth frames inside.
- **Build Out**
 - This is the same as a two deep hive configuration.
 - It just uses poly equipment.

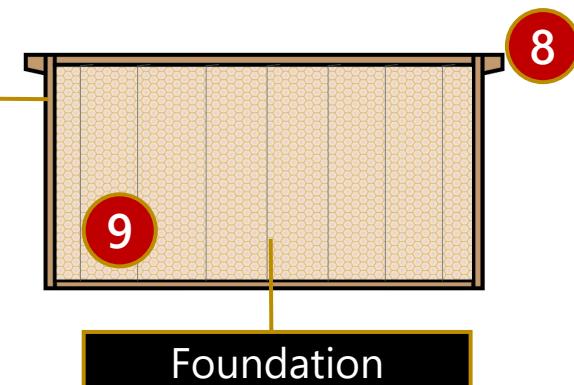


Management Style Methods

Hive Parts



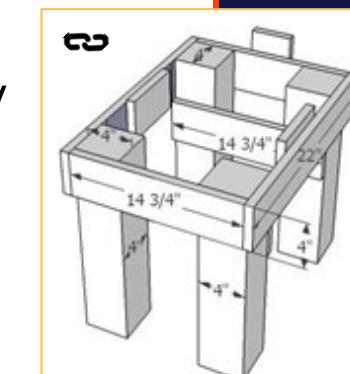
Starting from the bottom board, and working our way to the roof.



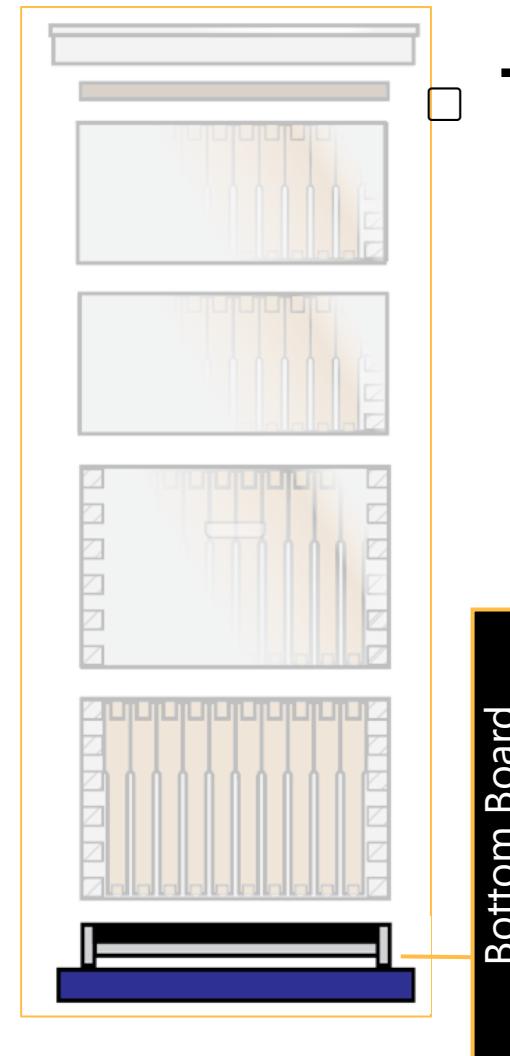
The Hive Stand base...



- **Why no mention of a hive stand base?**
 - Hive stand bases exist but are less common today.
 - They're optional and mostly a matter of beekeeper preference.
 - Their purpose is simply to keep the hive off the ground.
 - We will cover stand recommendations when discussing apiary setup.
 - As to hive stands, many designs exist; we typically prefer four-leg stand-alone styles.



Bottom Boards



Make note of
the insert



- **Two formats are common**

- Solid bottom board
 - More traditional
- Screened bottom board
 - Designed for two purposes:
 - Ventilation
 - Integrated Pest Management (IPM)
 - The screen on the floor allow Varroa mites groomed off by the bees to fall through, thereby lowering the impact to the bees.



Insights: Bottom Boards

- **Solid vs. Screened**
 - It is a beekeeper preference. Many today want the advantage of IPM so they go with screened.
- **Screened bottom boards**
 - They often come with a slide in tray. There are a few uses for the insert:
 - They are used to close off the hive when the weather warrants it.
 - They are also often gridded and can be used as part of a varroa management program. Grids serve the purpose for counting mite drops.

Terminology

Integrated Pest Management:

A management tactic that builds pest management into working practices

A multi-pronged approach to combat pests using a combinations of methods together.

Bottom Boards: “Reversible”

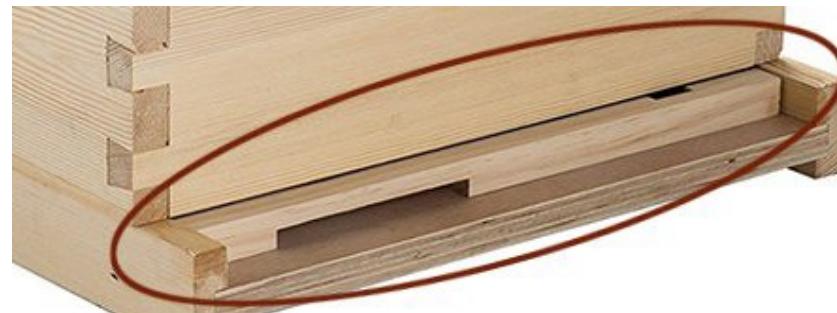
- **Original designed to used in two ways.**
 - Deep in the summer, shallow in the winter.
 - The deep side of the bottom board, when facing up [summer], results in a gap of 3/4".
 - The wider size allows more room for foragers to come and go during nectar flows.
 - This size accommodates a standard 3/4-inch entrance reducer.
 - The shallow side of the bottom board, when facing up [winter], results in a gap of around 3/8ths
 - When run this way in the winter, it allows for bee space, but it too small for mice and other pests.



Bottom Boards: “Reversible”

3/4-inch Side Up All the Time

- Most run 3/4 up and use entrance reducers (pictured below), and do not bother with flipping the board over for winter.
 - It is too much work to take all of the boxes off in order to flip the bottom board over.



One quick preference

Solid wood construction

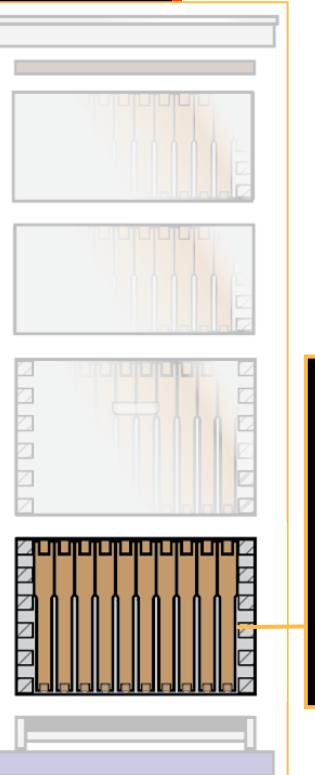
- Bottom boards are exposed to a lot of moisture.
- Sometimes manufacturers make them out of engineered wood (Plywood for example).
- Do consider purchasing this equipment made from solid boards, as shown in these examples. They last longer.
 - In our experience, some plywood boards delaminate because of excess moisture.



(2) Deep Hive Bodies

Deep hive bodies

- Typically made from nominal 3/4" pine.
- Come in standard dimensions and feature
- Typically **sold unassembled**
 - Don't forget the hardware; often sold separately
 - You can buy them assembled from some providers
- Many vendors offer different levels of wood quality.
 - Labels such as **Select**, Commercial grade, Budget, etc.



(2) Medium Hive Bodies

- **Medium hive bodies**

- These are just smaller versions of the deep hive body form factor.

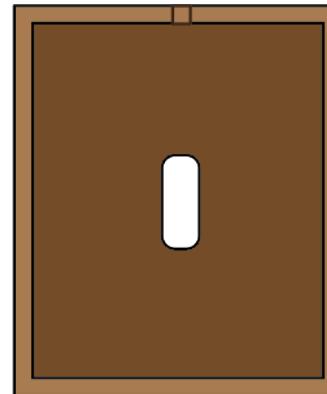
- **Shallow hive bodies (not pictured)**

- It could be noted that there is an offering of another hive body design called a shallow.
 - It is, as its name suggests, even smaller than a medium box.
 - While available, these are not customarily used.



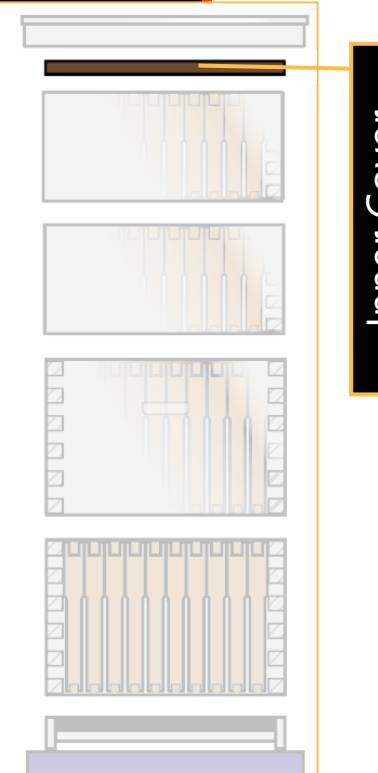
Mediums

Inner Cover



Barrier between the bees and the roof

- The rim of the inner cover sits on the top edge of the hive body.
- The bees often seal this cover using wax and propolis, forming a sealed joint.
 - Using the inner cover allows you to place a telescoping cover over the stack.
 - The telescoping cover envelopes the top of the hive and prevents moisture from getting in.
 - If the telescoping cover were to be placed directly over the hive, the bees would 'glue' it down and it would be complicated to use a hive tool to pull the roof off.

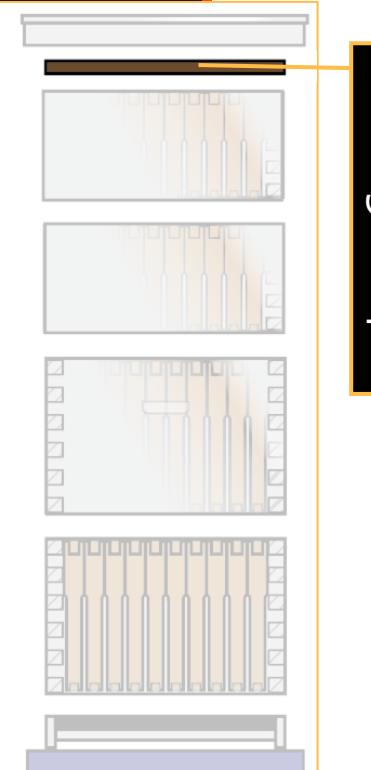




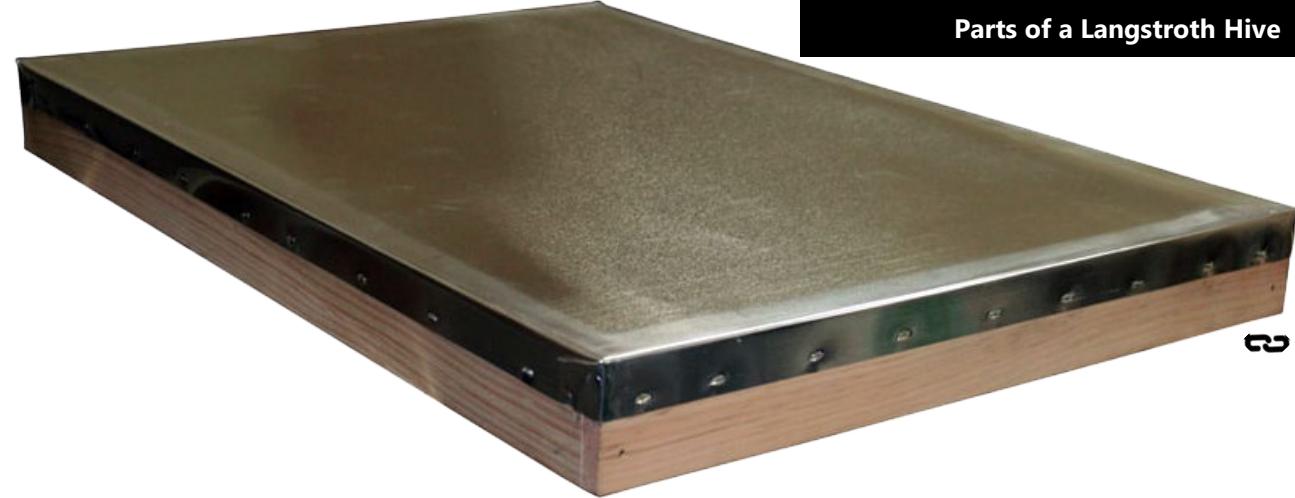
Inner Cover

□ Inner Cover Design

- Typically, a thin sheet of wood; oblong hole in the center, surrounded by a raised rim.
 - The construction should result in a recessed space on both sides
 - The depressions caused by the use of thinner wood for the center is often offset so that it causes the spacing to be deeper on one side, and a shallower on another.
 - In the example, the fabrication is completed with joinery and a staple.
 - It is best to buy a high quality constructed piece due to the nature of how you use a hive tool to pry these off. Poorly constructed ones sometimes do not hold up.
 - The notch is optional, but recommended. Its use will be covered later.

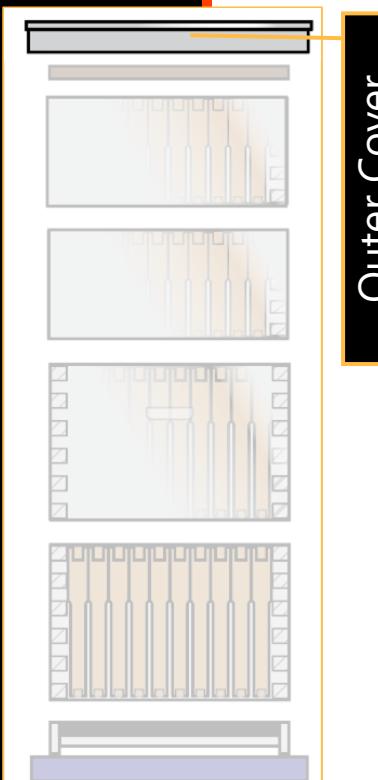


Outer Cover, Roof



Hive Roof

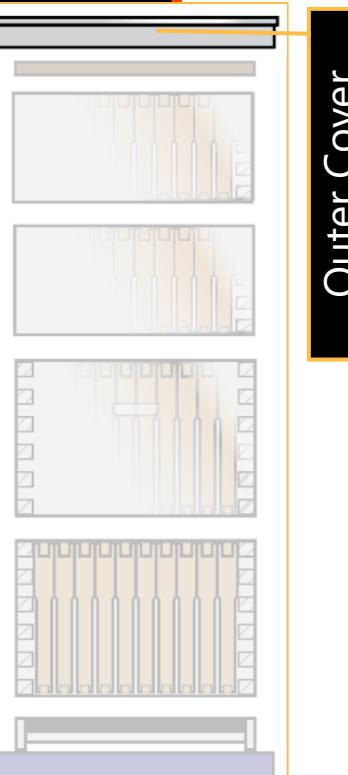
- The hive roof is dimensionally larger than a hive body so that it sets over and envelopes the top box.
 - Because of this function, a hive roof it often referred to as a telescoping cover.
 - They are covered on the top with some form of metal sheet and the seams that descend down the sides are either nailed or stapled in frequent intervals to hold the metal cladding snug.
 - Ideally the sides are designed with enough distances so that they envelop the top of the hive.
 - Manufacturers vary on how deep they make outer covers. We prefer them to be on the more generous side, meaning the depth of the cover avoids being too shallow.



Outer Cover, Garden Style

Garden Design Hive Roof

- These are popular for aesthetic reasons
 - In use they are not that much different from a conventional roof.
 - They do negate some ways to use a customary roof in certain management practices.
 - Like setting a box down on an inverted outer cover
 - Using these are personal preference, but for practicality reasons one should refrain
 - They do not stack well, and other practical considerations are underlying the notion.



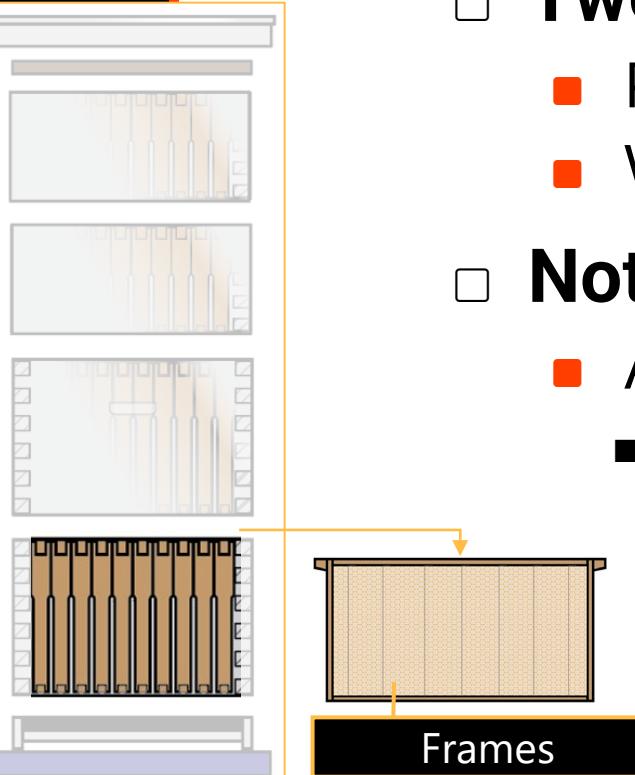


Frames



- **Two more common variations**
 - Plastic Foundation in wooden frame
 - Wax Foundation in a wooden frame
- **Not recommended**
 - All plastic construction frame
 - Do not purchase or use these*

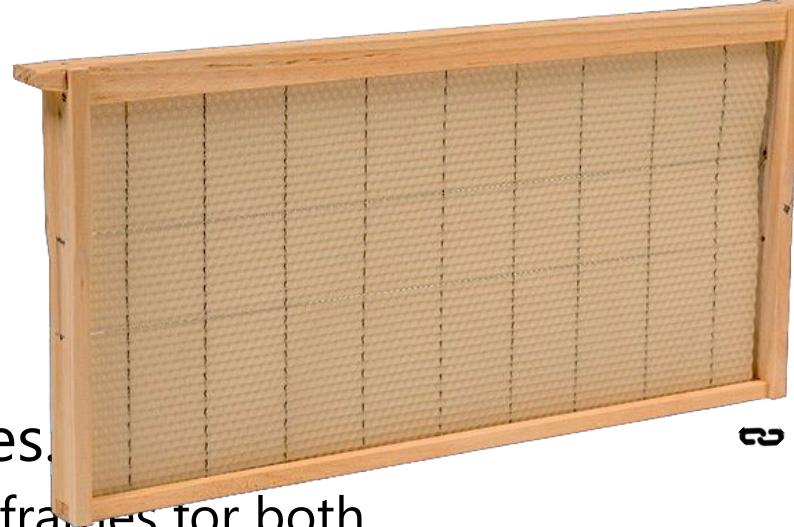
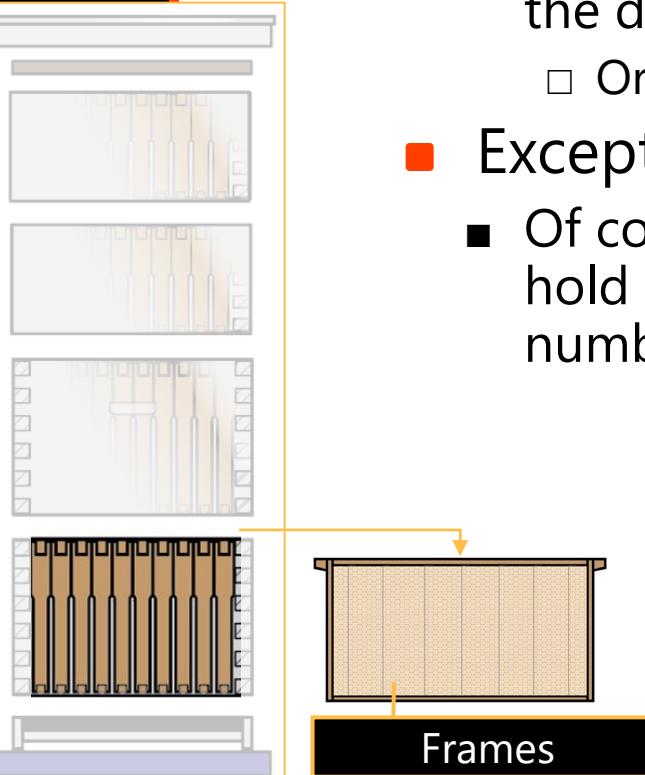
□ * *There are some new forms of all plastic frames coming to the market. This position may change*



Frames & Foundation

□ **Frames (Deep & Medium)**

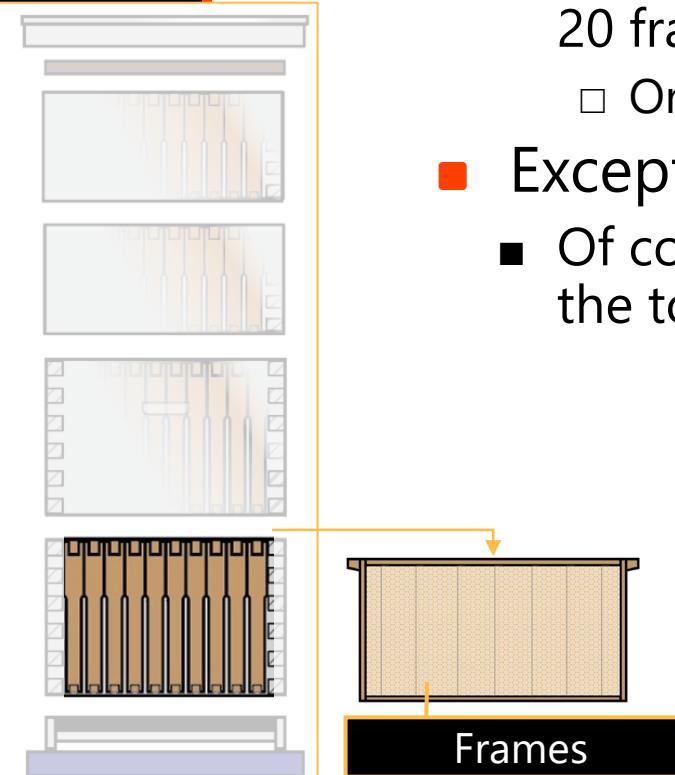
- Each individual box houses 10 frames.
 - This means of course that you'll need 20 frames for both the deep boxes, and the mediums in a conventional setup
 - Or 50 frames for an all-medium hive stack.
- Exception 8-Frame hive stacks.
 - Of course, an 8-frame hive is designed to hold only 8-Frames per box and the total number of frames would be reduced accordingly.



Variations of frame designs will be covered later in the course

Frames & Wax Foundation

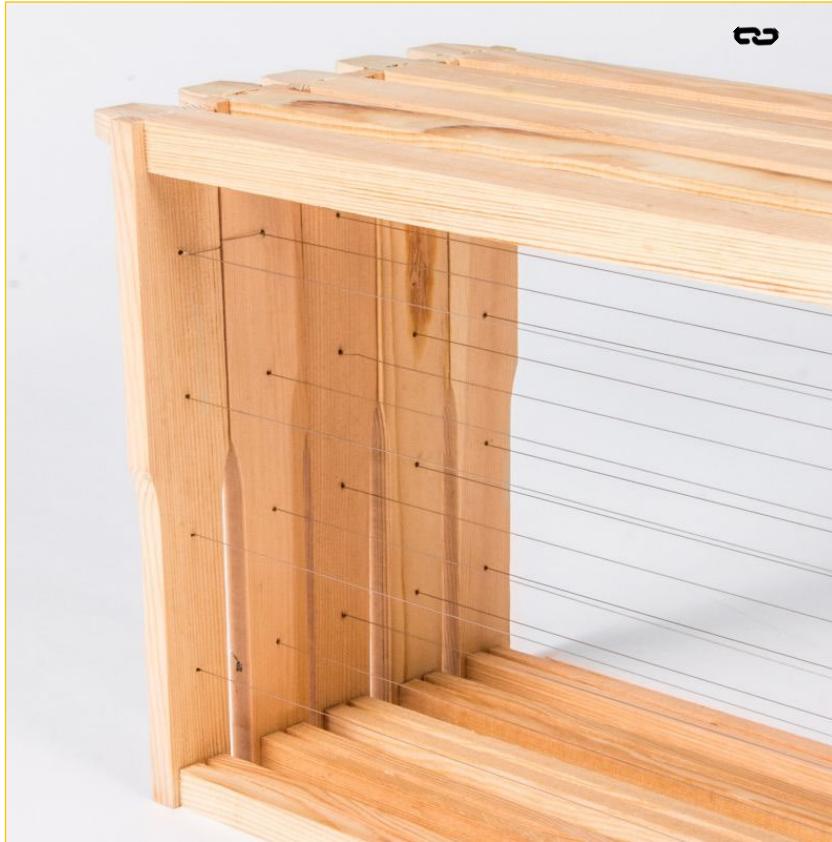
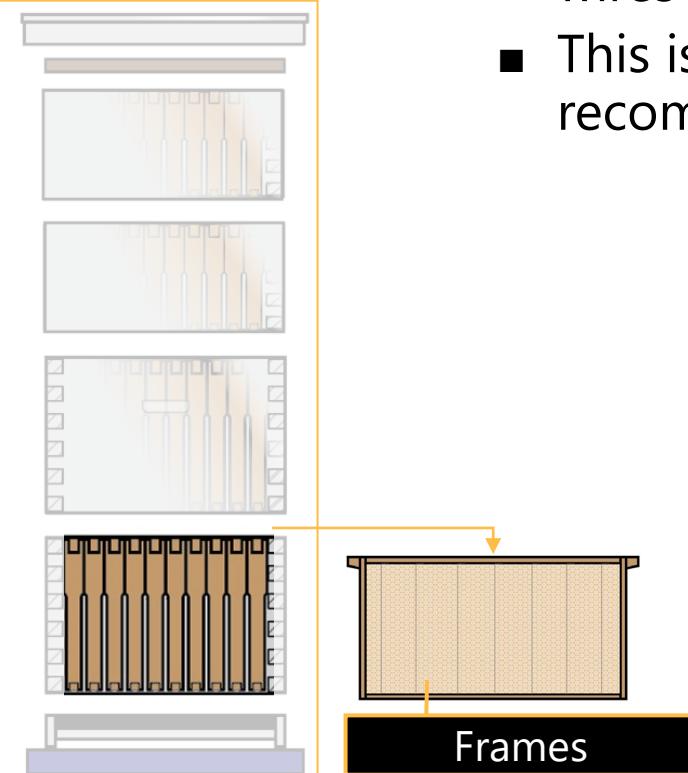
- **Foundation (Deep & Medium)**
 - Each individual box houses 10 frames.
 - This means of course that you'll need 20 frames for the deep boxes, and 20 frames for the mediums for a conventional setup
 - Or 50 frames for an all-medium hive stack.
 - Exception 8-Frame hive stacks.
 - Of course, an 8-frame hive is designed to hold only 8-Frames per box and the total number of frames would be reduced accordingly.



Frames & Wax Foundation

□ Foundation Wiring

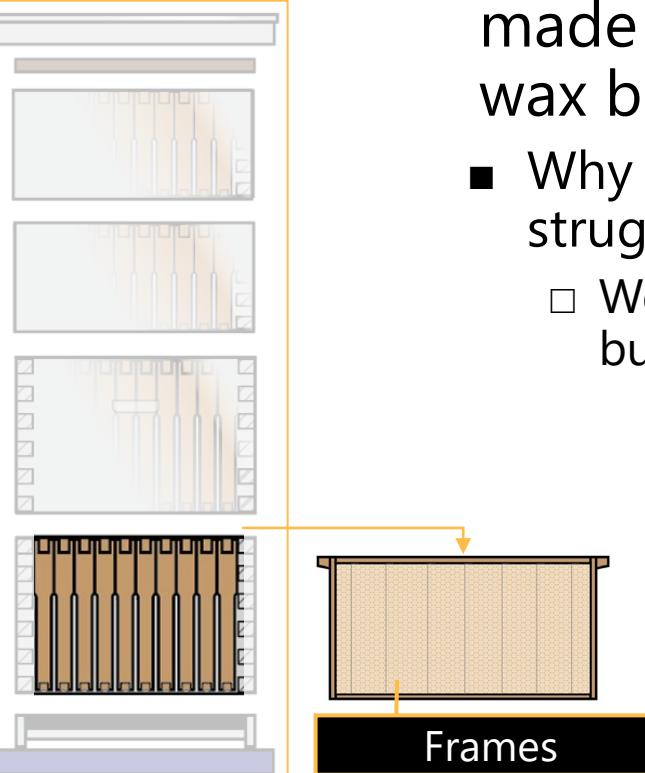
- There is a historical method that employs wiring a frame with support wires to hold the foundation in.
- This is both outmoded and not recommended for new beekeepers.



Plastic Foundation

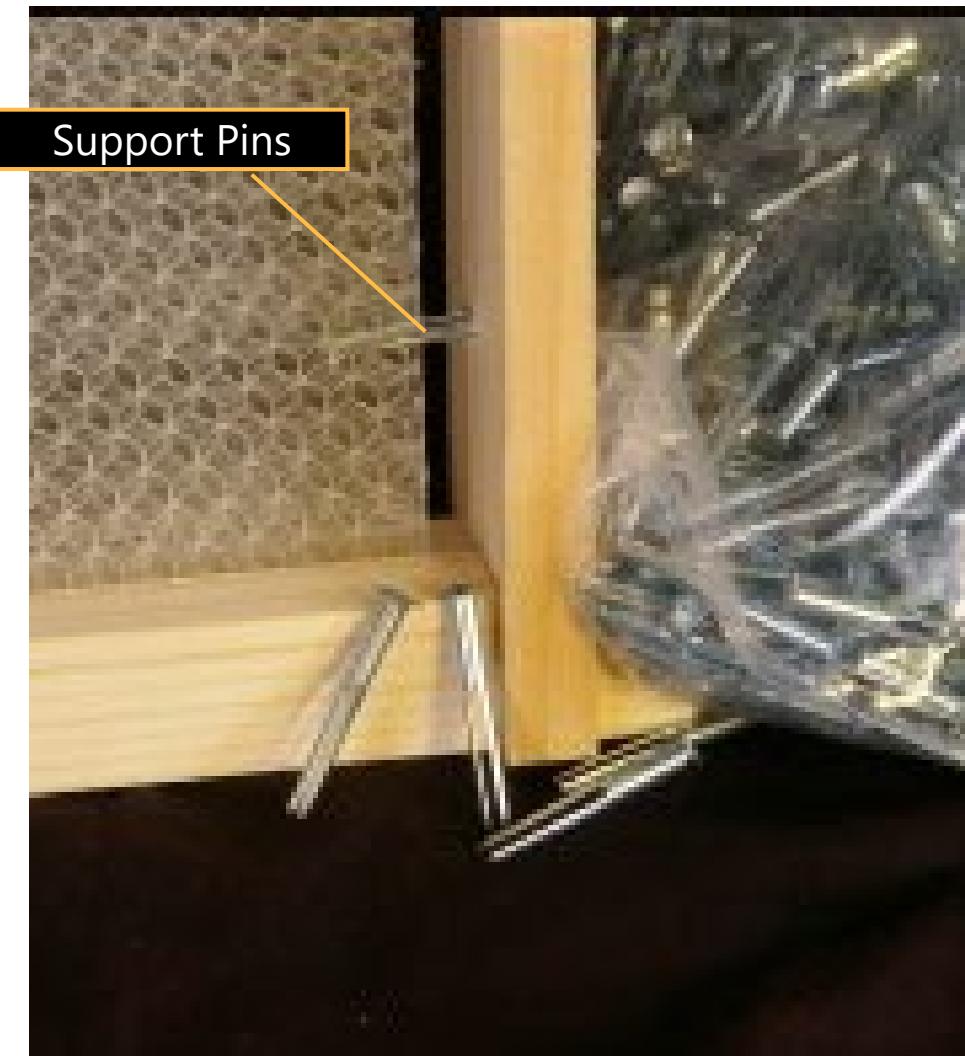
□ Foundation (Deep & Medium)

- Widely used, use is personal preference
- The marketplace offers ready made foundation made from embossed plastic sheets. We prefer wax but these are really the norm in the marketplace
 - Why some reluctance? Our experience has shown that new beekeepers struggle to get bees to build honeycomb out properly on this substrate.
 - We suggest in the MM program that beekeepers to start with wax foundation, but most go with plastic as that is what they were sold



Frame Support Pins

- **Support Pins hold Foundation**
 - Recommend two for each side with wax foundation
 - Not required for plastic
 - Frames sold with pre-drilled holes for this purpose
 - The holes are for either pins or wiring frames.
 - Do check that your frames have holes when sourcing



Frame Rests & Unseen Hardware

Frame Rests

- Frame rests protect woodenware

Unseen Hardware and Materials (not pictured)

- Nails for the Wooden Boxes, Glue

- **Hive boxes do not come with Nails** and fabrication requires an external grade wood glue

- Buy your nails from the equipment manufacturers. They will sell the right sized nails to go with the holes they put in the woodenware.

- Normally any common external grade wood glues work – Titebond, Elmers, etc.

Frame Rests





Is there more?

- **Basic Hive Equipment**
 - Initially keeping things simple...., we are **sticking to the basics and not going wide yet.**
 - This was intended to introduce the **basic** hive components only.
- **What of all the stuff in bee catalogs?**
 - Of course, there are many more equipment options in a catalog...
 - We will be covering other necessary equipment.
 - Additional sessions will delve into other items
 - We will also plan to talk about the fringe things and weigh in on them.
 - For now, we ask that you stay on track with us for simplicity's sake.



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Guidance on what to buy, and how to buy it

Lesson | Purchasing Hive Equipment



What is Covered in this Lesson

Sourcing Equipment - Shopping

Quality Over Price

Individual Pieces vs. Kit Buying

Plastic vs. Wax Foundation

Woodenware Joinery

Vendor Selection

Getting it right

- **Confidence in buying**
 - Engaging into something new runs the risk of being at a disadvantage due to lack of experience.
 - One of the more stressful things for a new beekeeper is that moment of uncertainty when making a purchase.
 - As such, we are going to talk a bit about the landscape of buying equipment before delving into what exactly to buy.
 - Covering the shopping experience
 - And providing guidance on how to be a savvy shopper

What if you bought your stuff already?

- **This will be informative**
 - You might discover some changes to make, and now is a good time for that to happen
- **You do you :-)**
 - Its ok, and you can probably get by with what you have
 - Ask for some guidance on the side if need be
 - If something we said causes concern, then consider your options and decide what you will do or what you will live with.
 - Go through the course a little further to learn more about whether it may cause you problems before you take action.

The shopping experience

- **How Beekeeping equipment is sold**
 - There are three predominant ways to obtain equipment
 - Purchase from a website
 - Purchase through a catalog
 - Purchase from a local provider
 - Each of these methods have pros and cons
 - Today so many things are bought online, that it would seem a no-brainer to surface a website and knock out the task.
 - *There are a few reasons that might not make this the optimal way to go...*

Reviewing wares in the marketplace

□ The humble catalog

- The beekeeping industry is evolving from a paper catalog shopping experience.
 - Beekeeping Equipment providers have a history of distributing print catalogs to advertise their wares.
 - As an aside, early websites were simply electronic versions of print catalogs. Companies have finally taken the steps to build dedicated shopping sites that follow an ecommerce, shopping cart user interface.
 - Catalog Maturity
 - If you browse the paper catalog, you will learn that the descriptions and the photos of the equipment is well done.
 - This makes the catalog a superior way to get acclimated vs. the web experience.

Catalog, then website

Review using catalog(s) first

- Catalogs are free upon request, and contain a wealth of information
 - Large suppliers are more than happy to send you a catalog.
 - With a few catalogs at hand, you can get a sense of how a company does business.
 - As a bonus many of the catalogs have supporting information to help new beekeepers.
 - Using catalogs as a shopping tool
 - We suggest you use the catalogs to research, review, and get familiar with what is offered.
 - Then when you have made your choices, move to the online website to fill your cart and make your purchases.

Shopping Online

Getting Better, but not fulfilling

- Why not simply skip the catalog and go online?
 - In our experience many beekeeping retailer websites are simply not as sophisticated as one would hope.
 - Especially when many of us are accustomed to large retailer sites online like Amazon, Walmart, Target, etc.
 - Over the past few years many of them have been revamped and they are improving.
 - Tip: two-pronged approach
 - One advantage websites do provide is search.
 - Beekeeping catalogs are organized by sections but sometimes you will benefit from a search interface. The web benefits from instantaneous discovery through search.
 - Tactically, consider both a web and catalog approach, using search when it is an advantage.



What of Local Purchases?

Local Store or Vendor Offerings

- The third category
 - Equipment providers could be a local store or individual/small company that sells equipment.
 - Many pros and some cons to going this route
 - A local store is a great place to see and learn about equipment, but most are smaller spaces and keep a limited supply of equipment on hand. They may not have the things you are after.
 - Local/Regional beekeeping supply stores are few and far between.
 - Behind the scene, many are actually dealers or sell bigger outfit goods.
 - They do have an advantage and reputation often of offering amazing customer service.

What of Local Purchases?

Local Store or Vendor Offerings

- Pros and cons going this route
 - A great thing about a local store, especially if it is close to you, is you can purchase locally and save on shipping.
 - It also affords you the ability to see what you are buying and ask questions of a sales person.
 - Most local stores have a good reputation of support for their customers.
 - Unfortunately, there are not a lot of us that have the convenience of a local store so count yourself fortunate if is an option in your area.

Buy Local or not?

- **We are not averse to local**
 - But it is personal preference as to whether you go this way or not.
 - If you are the type that has a sensibility of what you are buying, gauge the situation and proceed accordingly.
 - If you lack confidence, again gauge the situation, and if it works give it a try, or...
 - Risk Averse Approach
 - Simply go with a bigger retailer, with some confidence that they are serving the masses and have well designed programs to serve the beekeeping community.
 - Once you have some acumen, you can always comeback and support the local providers.

What we do

We do both!

- We support our local sellers
 - Over time we have come to know and trust our local providers.
 - We like to see them succeed and as such we support them by making purchase with them when it makes sense.
- Consider a local association for guidance
 - We will say repeatedly that a beekeeper's association is a good way to go.
 - In the case of local providers, there is no better community to get a gauge of that then consulting with some veterans over coffee at a local beekeeping club meeting.
 - You can benefit from the collective wisdom and experience of others.

Reflecting on Quality

- **Hive Equipment is an investment**
 - When it comes to buying equipment, costs can add up quickly. It makes sense to consider quality.
 - Hive equipment generally lasts for many seasons, especially if better quality woodenware is selected up front.
 - Vendors offer select grade wood and other features that may cost more in the beginning but pay for themselves over many seasons of use
 - Frankly, beekeeping can be hard enough without dealing with poor equipment as seasons roll on so if you can plan a bigger initial investment, it is worth the layout.

Reflecting on Quality

The Fabrication Aspect

- **Fabrication and Tolerances Matter**
 - Bigger manufacturers have addressed quality control.
 - As a rule, the woodenware and fabrication structures in larger organizations are quite mature.
 - Some smaller (ie. Local) companies have high quality stuff too
 - Sometimes it can exceed what you get from more prominent vendors.
 - Sometimes however, they have not worked out all of the kinks, and their equipment is a notch below.
 - Go with more established vendors if unsure
 - If you grasp what good fabrication means, and understand tolerances, then shop around.
 - If you do not, stay with the bigger, national, vendors.

National Vendors

An example listing

Caveat

- This is not meant to be an endorsement or a slight to anyone left off.
- The names listed here are established, well known vendors – some of them have been around for literally over 100 years
- A sampling of Large Scale Vendors
 - Mann Lake, Dadant, Betterbee, Glory Bee, Blue Sky, Miller
- Regional Vendors
 - Each area of the United States has very respectable second tier regional vendors.
- Ask your association members
 - Generally local beekeepers know what's out there. Consult with them on marketplace offerings in your area.

Web and/or Chain Store Offerings

What about Hives from Amazon or Box Stores?

- Unless you are an informed buyer, we do not advise going this route
- The national beekeeping supply companies know their product lines and beekeeping. That's what they do.
 - The experience from Amazon will likely not match national stores.
 - It is impossible to know the quality of things that are sold in box stores (for example Tractor Supply)
 - It is reasonable to think that if you have questions – you likely will not see that much service.
 - Both of these sales channels are designed for distribution and not so much sales to beekeepers with guidance.
- A credit to national stores is they really do provide customer service with their wares.

A Warning about Wax on Frames

- **True Beeswax is Expensive**
 - When buying equipment that has a low cost, ***be wary of adulterated wax***
 - Frames from abroad are often found to be coated with substandard wax
 - Non beeswax, tainted beeswax, etc.
 - Constituents in adulterated wax can be harmful to the bees
 - Other times bees will not use the wax; they reject it
 - The tainted wax will also come into contact with your honey
 - Consider buying frames from known resources

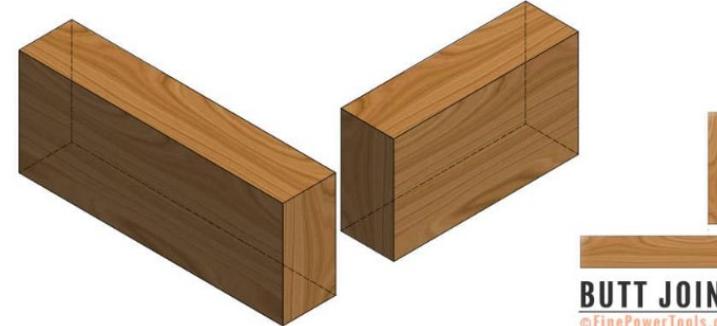
Pre-Configured Hive Stack vs. Individual Pieces

- **Which is a better way to go?**
 - Many vendors offer a 'ready-made' starter kit.
 - When it comes to buying a conventional stack, they are close but not our preference for a few reasons which you can evaluate and then decide.
 - Starter kits are often bundled with gear that **we do not recommend**.
 - For those things will provide alternative guidance shortly.
 - Sometimes these kits are **sold with things you will not need** and that results in an **added expense**.
 - They are often sold with plastic foundation, and we expect that you are using wax foundation
 - It is a little more work, but individually sourcing is what we recommend.

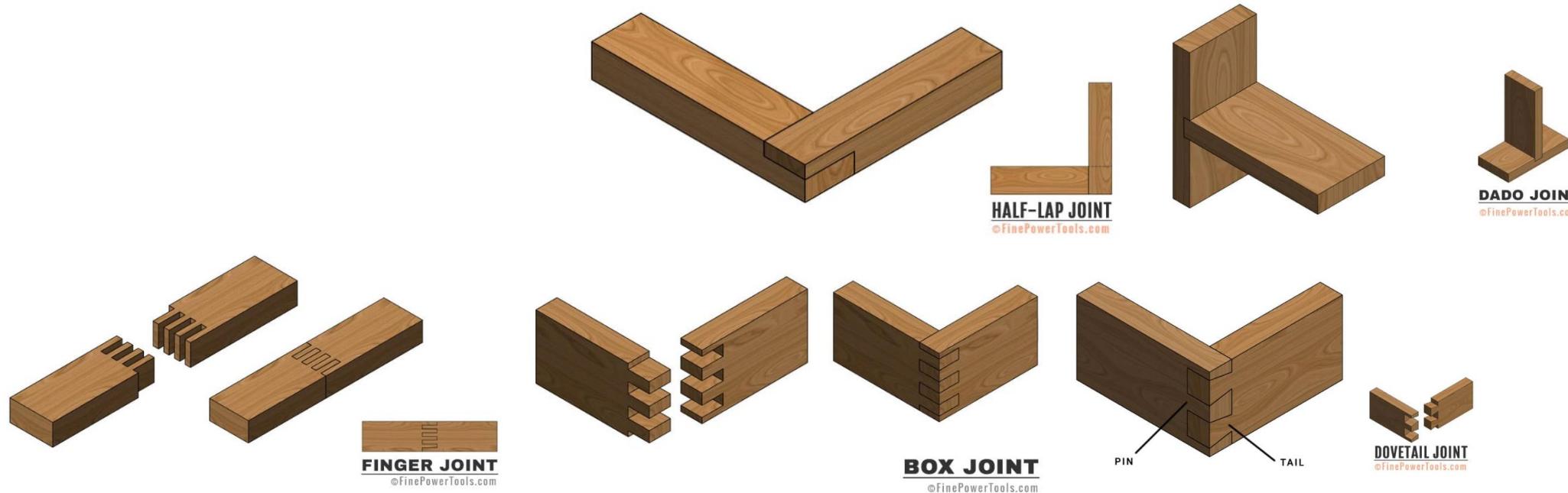


- **Hive Equipment Fundamentals**
 - The following content assumes that you have reviewed the first lesson and have been introduced to the basic functions of the parts of a hive.
 - *If you have not, it might be a good time to pause this module and take the time to review the content of lesson 1.*
 - *Lesson 1 explains some of the rationale for some of the preferences that will be shared as equipment recommendations are made.*
- **Buy TWO(2) Setups**
 - We emphasize that you start with two hives so buy two complete stacks.

Joinery Primer



- **Butt Joint** > two boards set against each other
- **Joinery** > Boards that are fitted in some way



Joinery vs. Butt Joints

□ Joinery is preferred

- We ask a lot of our woodenware hive equipment
 - They are outside 365 days a year, exposed to sun, rain, snow, and so on. The wood materials take a beating.
 - We also exert heavy forces on them in moving, lifting, setting down, piling up, prying, and so on.
- Sometimes Butt Joints are fine, but in many cases the traditional Joinery is preferred
 - Butt Joints are used because they are easier and faster.
 - Taking the extra measures for Joinery, in the various forms improves strength and stability.



Vendor Selections

- **Experience tells us to find a primary vendor**
 - While most hive equipment is said to follow universal standards for size and design, the truth is, in practice they vary.
 - We suggest that when it comes to woodenware, **consider using the same vendor and stay with that vendor for the long term.**
 - While box sizes are universal, the design of the rabbets, frame design and other facets do impact how hive equipment comes together.
 - Mixing and matching equipment sometimes leads to headaches and if you are a beginner, you have the fortune of starting out on the right foot by figuring out what vendor to go with and using their equipment in the operation.

Equipment Purchases

- **Heads Up! This covered 'Wooden Ware'**
 - Our next lesson is about **other** beekeeping equipment needed for your starter kit:
 - **Other Beekeeping Equipment** you will need (smokers, hive tools, etc). We will get to this next
 - **Sourcing Protective Equipment** for the Beekeeper follows that



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Guidance on what other equipment to consider

Lesson | Other Beekeeping Equipment



What is Covered in this Lesson

Essential Equipment

Optional Equipment

Kit Recommendations

Not Recommended

Equipment Purchases – Beyond Hive Kits

□ Equipment Requirements

- Essential and Recommended
 - Some are essential, some are required, and others are recommended
- Adjunct Equipment
 - Beside the hive equipment that houses the bees there are a number of things that you will need to support the bees
- Optional and Eventual
 - There are of course many things that are optional and are personal preference – and some that will be needed in time to support the operation

In the next set of slides, we will cover essential and recommended equipment



Show, not tell....yet

A quick note...

For brevity we will focus on what equipment to source for now. Do know that we promise to give more detail of *how to use it* at a later time.

Introduction, not usage

- Some of the equipment being discussed will require some understanding of what it is, how to use it, etc.
 - When we get to management practices, the details of how to use some of these will be covered.
 - Just know for now that we will have more in-depth discussion about the equipment and its use; but know that:
 - If we are covering it as mandatory – you should source them.
 - If we are saying recommended – you should source them if you can
 - If we are saying optional, we will leave that to your discretion, but we use this stuff...

Smoker

Note the classification

□ Smoker Sizes

- They come in different shapes and sizes. What you buy is personal preference. Typically, **a mid-sized** one is a good choice to start.
- Small ones can burn through the fuel before you are finished with a session
- Big smokers are sometimes awkward to work with, especially if you have not developed the dexterity to work with one through experience.



Hive Tool

□ Hive Tools

- Hive tools come in many shapes, designs, sizes, and colors.
 - We recommend you have at least one or two common brightly colored hive tools in your kit.
 - Start with the basic design first, until you get the sense of how to use it.
 - There are some unique and useful designs. Given a hive tool is something that is very personal (it is akin to how you touch and work a hive) do consider trying out other variations in time to see what works best for you.



Basic Design



Varroa Easy Check

Varroa Mite Sampling Tool

- We request you get one of these for your kit.
 - When you place your next order, do purchase this specific device > Varroa Easy Check – by Veto Pharma
 - Every catalog sells these now.
- We will provide instructions later this season on how to use it to monitor for varroa mite infestations
 - The instructions we provide specifically call for this exact device.





Feeders

Feeder Formats

- Honeybee Feeders come in several form factors and are used to deliver either solid or liquid foods. More commonly feeders are purchased to deliver liquids.
- Three types are the most common, but there are *many* other designs
 - Interior Frame Feeder
 - Top Feeder
 - "Boardman Style" Entrance Feeder

Feeders

- **Inner “Division Board” Feeder**
 - One inner feeder for each hive recommended
 - These deliver food in proximity to the bees.
 - They are useful in cooler weather as sometimes the warmth of the bees keeps the liquid warm enough to consume.
 - They do require opening the hive to refill.
 - Buy ones with internal ‘ladders’ or textures channels so that the bees have something to grip too
 - If the inner tunnels are smooth, bees fall in and drown.



Feeders

□ Top Feeder

- One Top feeder for each hive recommended
- These deliver large volumes
- They sit under the top cover and seal the hive closed from above when in use.
- As such bees do not escape and you can feed without having to open the hive.



Veil

The full complement of personal protective equipment options will be covered in the next module

□ **Helmet Style Veil**

- We consider this particular piece of equipment as a required addition to a beekeeping kit.
 - There are dozens of styles of veils on the marketplace.
 - We recommend the helmet style veil for beginners as it affords more protection than a cloth-based cap.
 - Whenever in the apiary, it is recommended that a veil, or some form of bee suit, be used for head protection, and especially eye protection.



Bee Brush

Bee Brush

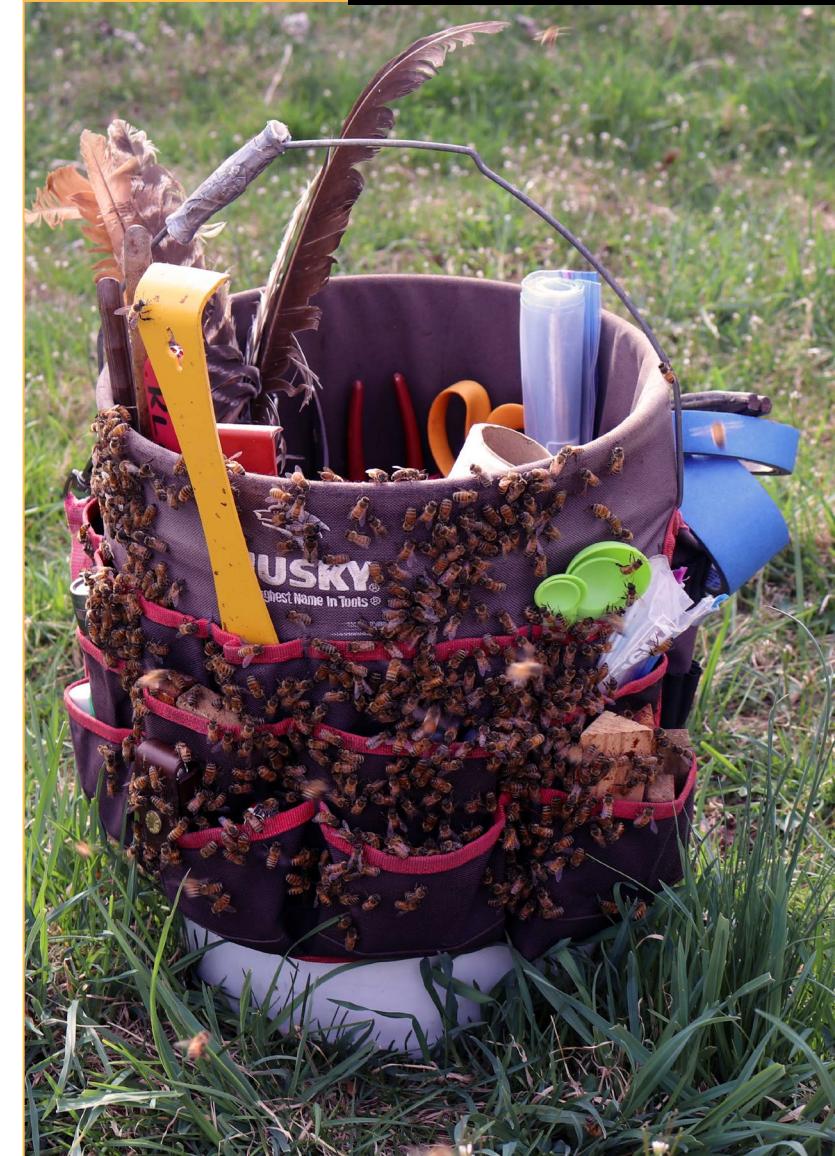
- Commonly used tool to 'flick' bees off a frame
- Sold in bee supply catalogs, they come in many shapes and sizes.
- Some premium one indicate they have softer bristles and such.
 - Buy what suits you. In our experience, even the moderate cost ones are usually suitable for the job.



Toolbox – Equipment Holder

Be Organized

- This is very much a personal preference
 - There are many ways to hold your beekeeping tools and equipment.
 - Buckets, toolboxes, trays, bags, whatever keeps things at hand and keeps you organized.
- Yard Cart
 - This is often paired with a yard cart or wagon of some type to move things in and out of the apiary.





Bear Fence (Situational)

Bear Fence Barriers

- Bears are possible
- It is not unreasonable for anyone in the state to consider a plan to implement, or deploy in rapid fashion, a bear fence solution

Google Says...

Yes

Yes, there are bears in Boston, Massachusetts ¹ ². The only bear species that makes its home in Massachusetts is the black bear (*Ursus americanus*) ¹. They are the largest meat-eating mammal in New England and have excellent eyesight, hearing, and sense of smell ¹. Since the 1970s, bear populations have increased across the state ¹. Black bears are common in western and central Massachusetts and are expanding their range eastward ².

The information is raised here, but the guidance for a fence system, and how to maintain it is beyond the scope of this session. Ask on the side for guidance



Entrance Reducers/Mouse Guards

- **Wooden or Metal Entrance Guards**
 - These serve two purposes
 - Keep mice out in the colder months, and close the entrance off to prevent drafts from creating too much air exchange during cold weather
 - Which you choose is personal preference
 - Wooden is more conventional
 - Metal can be left on all year
 - Consider buying one of each and try one on one hive and the other on the second hive.



How to use them will be discussed in later modules

Stick Lighter and Smoker Fuel

- **Each kit requires fuel for the smoker**
 - One of the most common smoker fuel is pine needles
 - Other options include wood pellets, cardboard rolls, burlap cloth and others
 - What you are looking for
 - No toxicity when burned (for the beekeeper or the bees)
 - Readily Available
 - Produces a cool white smoke and will remain lit when burned



Frame Hanger (aka Frame Perch)

- **Used to hold one or more frames**
 - When doing hive inspections, the first frame is set on this device
 - The frame hanger is designed to hang on the side of a Langstroth box
 - During inspect you pull one frame to create a gap and this is better than placing the frame somewhere on the ground.



Frame Jig

□ Building Frames with Efficiency

- A Frame Jig allows assembly of 10-Frames at a time
 - This is a tremendous time saver
 - It also helps you to build frames that are square and true
- Construction
 - Frame sides are loaded and glued. Tops are set and nailed.
 - Device is turned over and bottoms are glued and nailed
 - Frames are removed and you finish each frame with the side/set nail



A Nucleus Kit

Nuc Box with Frames

- Have one on hand; painted and ready to go
- There are so many reasons to have a Nuc setup or two in reserve
 - They can be used for splitting hives into smaller hives for swarm prevention
 - They can be used for hosting captured swarms
 - They can be used for a place to put frames during inspections (a technique sometimes called a quiet box [more on this at another time])
 - Used for colony transport and/or purchase



Respirator (PPE)

Face Respirator

- These are required when applying some mite treatments
 - This is here to say, protect your health
 - Read the product labels and follow the protective equipment recommendation
 - Several beekeeping treatment products require a respirator and eye protection when in use



Queen Marking Kit

Queen Marking

- In Beekeeping Queens can be marked with paint
 - Paint colors are used to represent queen age
 - Certain colors represent certain years
 - White (0,5) | Yellow (1,6) | Red (2,7) | Green (3,8) | Blue (4,9)
 - The year 2022 ends in 2 > Red,
 - The year 2023 ends in 3 > Green
 - Painted queens are easier to spot
 - Lack of a Painted queens are telltale if you had one and find one that is not... that the queen has been replaced by the colony



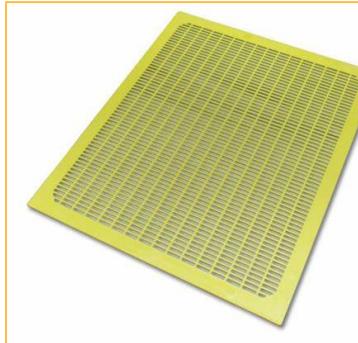
Yard Cart

- **Tools and Hive Transport**
 - Some type of cart to convey equipment in and out of the apiary
 - Preferably it would be sturdy and big enough to carry hive equipment
 - Yard Carts, and large wheel wagons make good choices



Queen Excluder

- **Plastic or Metal Queen Excluder**
 - These are used to isolate queens to some part of the hive
 - Traditionally they are used over the brood chamber to keep the queen from coming up into the honey storage area above.
 - Use of the excluder keeps the queen from laying eggs in frames you want to harvest
 - More conventionally, beekeepers use the device to isolate the queen for management practices
 - Finding a queen is a lot easier if she is isolated to one box



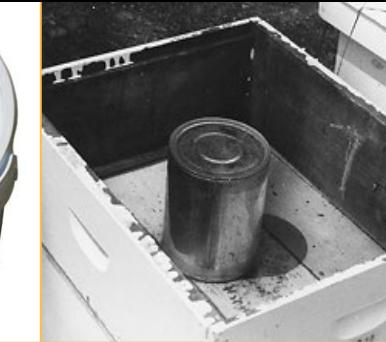
Drone Brood Frames

- **Used as part of an IPM approach**

- Integrated Pest Management is a concept that combines a multi-pronged approach to Varroa Management
 - Varroa mites prefer (biologically) developing drones
 - The way this frame is used is you allow the bees to cap all the drones, and before the mites emerge with the bees you pull the frame and cull the developing bees, thereby negating the mites entering the population.
 - It does mean sacrificing the drones; which has been deemed as not overly detrimental to the colony
 - Typically, you would buy a pair for each hive. When you pull one, you replace it with the other.



Other Kind of Feeders



Feeders are Personal Preference

- We recommend you start out with internal feeders and top feeders.
- There are, as mentioned, many ways to feed bees.
- Optionally, you might want to explore other methods and use what suits you.

Other types include:



Blue Painters Tape

- **Blue (and/or other colors) Tape**
 - There are a 1001 uses for blue tape in your kit
 - Do buy the high-quality stuff
 - The glues of cheap brands will pull your paint off if it is left to sit for any appreciable time in the weather
 - This is generally not true for 3M Scotch Brand high quality tape glues





Isopropyl Alcohol & Hand Sanitizer

Isopropyl Alcohol

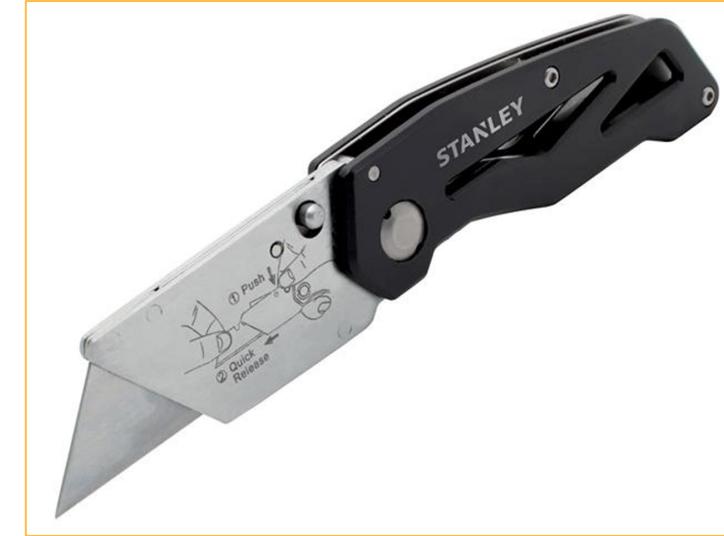
- Used for a number of purposes in beekeeping
 - Cleaning hive tools and equipment / Sterilizing
 - Use 70% or stronger
- Hand cleaner (With Ethanol)
 - This is quite effective for cleaning propolis from your hands and tools, which is hard to do sometimes



Miscellaneous Tools

□ Typical Toolbox Add-ins

- Medium sized Flathead and Phillips head screwdriver
- Box Knife
- Sharpie Marker – Pen, Pencil



Frame Grip (Grabbers)

- **Used to pull frames**
 - Grasping the handle pinches the top bars and you can pull to release the frame
 - These are awkward to use, and not very effective



Feeder not to use



Front Entrance Feeder

- These are **NOT RECOMMENDED**
- They incite attacks at the entrance of the hive by drawing robber bees from other colonies to the front entrance.
- Can be used for water, but do not feed with them
- Shared here because these are inexpensive and often included in bee catalog kit bundles. If they came with your kit, we recommend you do not use them for feeding.



EVEN MORE Equipment

- **That's enough for now, but...**
 - In time you will need some additional equipment
 - *We will present as a different topic in an upcoming session*
 - *What's missing?*
 - *We did not talk about extraction equipment, insulation, swarm boxes, and other pieces of equipment that will likely be a part of a regular operation over time.*
 - *Our next module speaks of Protective Equipment – which you will need right away.*



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Course Preview

Lesson | Course Content Preview

Program Review – Night One Recap

- **Before we finish the night**
 - We covered
 - Langstroth Hives | Shopping Advice | Other Equipment Needs | Protective Gear
 - Let's look at what is to come
 - Local Considerations, Bees, Building Equipment, and so on
 - We can spend just a moment to talk about 'what we are going to talk about'!

Week Two

- Beekeeping Styles
- Hive Fabrication
- Building Frames
- Painting Equipment
- Beekeeping Is Local

Week Three

- Meet the Colony: Queen, Workers, and Drones**
- Sourcing & Selecting Bees**
- Intro to Packages and Nucs**
- Apiary Design**

Week Four

- Regulations, Be a Good Neighboar**
- Installing Bees – Packages**
- Installing Bees – Nucs**
- Hive Inspections**



Week Five

- Lighting a Smoker, Hive Tool Use**
- Introduction to Varroa Mites**
- Mite Monitoring**
- Mite Treatment Options**
- Varroa Mites**



Week Six

- Queen Failures in Summer**
- Critical Summer Management**
- Other Beekeeping Equipment**
- Things you will see (inside the hive)**

Week Seven

- Honey Harvesting & Production**
- Feeding Bees**
- Small Hive Beetles**
- From One Box to Two**

Week Eight

- Hive Maladies and Disease**
- Two Boxes to three, or more**
- Swarm Management**
- Swarm Triggers and Indicators**
- Course Close – Further Assistance**

Beyond the Course

- Hive Build Up - Dealing with Wonky Comb**
- Fall Management and Winterization**
- Fall Robbing**
- Nucleus Colonies**
- Waxmoth Management**