



The Managed Mentoring Program on getting started in beekeeping.

# Managed Mentoring



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## Protective Gear and Equipment

Lesson | Beekeeper Protection



# What is Covered in this Lesson



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Protective Clothing

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Veils

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Extremity Protection

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Other Protective Measures

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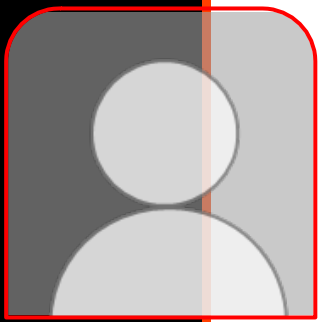
# Protective Gear

## □ Personal Equipment and Practices

- *Personal Equipment is about providing safety and comfort while beekeeping*
  - The span of coverage includes protection against medical emergencies, discomfort, bodily injury, heat emergencies and other facets.
  - This presentation includes suggestions that will aid in preventing common injuries beyond bee stings

## □ Some Equipment

- Protective equipment in the marketplace is designed to cover a wide range of beekeeping experiences
- In certain areas of the US, but not NJ, there are Africanized bees and the level of protection required exceeds what we need here.
- Some offerings are designed for that extreme use and are overkill for what we would encounter.

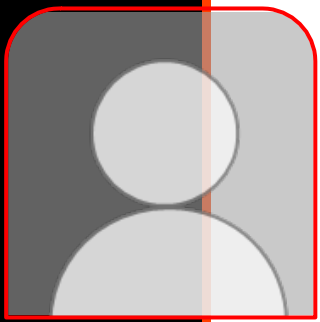


## A short aside about stings

### □ Stings, and the pain they inflict

- *Not all stings are the same – pain wise*

- Different factors come into account for how painful a sting is: Bee Venom, Location of Sting, and Sting Penetration
- Some points to consider here are about location and sting penetration
  - When a bee stings, the stinger penetrates the skin and injects the venom. Sometimes the pain inflicted is a result of how deep the stinger penetrates. A sting that pricks the skin is not as painful as one where the bee was successful in deeply inserting the sting.
  - This plays into account when considering the protective materials. Both its thickness and how it fits the body come into consideration. If the material is thick, it is possible that the sting will not be driven deep (consider the 3-layer mesh).
  - Also, if the suit is too tight, then perhaps the material is held tight against the skin and the stinger has a better chance of getting to the skin. It is also true that stings in some areas are more painful



# Protective Clothing

## □ Clothing Choices Overview

- *Clothing choice is personal preference*
  - It is often chosen with comfort and security in mind
    - Different sizes are available in the marketplace – from children suits to a full array of adult sizes, women's cuts, etc.
  - Some beekeepers simply do not want to be stung and will envelop with multiple layers
  - Others will not be concerned with an occasional sting, and therefore will use less secure options
  - The next few slides will cover a few options and some recommendations

Most beekeeping suits are made from white or light colors.

These are cooler in the heat and bees are averse to dark colored clothes and more prone to sting surfaces that are dark in color.



# Full Envelope

## □ Full Head to Toe Jumpsuit

- *Very Secure, and a proper choice for someone who is averse to being stung*
  - It could be stated here that it is universal that no beekeeping suit is 100% protection against a sting
    - Bees will find a way in too any suit left partially unzipped, a cuff that slides up, etc.
    - They are also very capable of finding ways through stinging through the material when it is held tight against the body during movement.
  - Still, this is likely the most secure option



# Canvas vs. 3-Layer Mesh

## ❑ Cotton Canvas

- *Tightly woven cotton*
  - Hard for a bee to sting through, holds a lot of heat.

## ❑ 3-Layer Mesh

- *Bee stinger cannot reach the skin*
  - The depth of the mesh is so deep that the stinger is not long enough to get to the skin
  - Provides more efficient heat exchange.





# Three Layer Mesh Material

## □ Used for Jumpsuits, Jackets, & Gloves

### ● *In-Lieu of Canvas, 3-Layer Mesh is emerging*

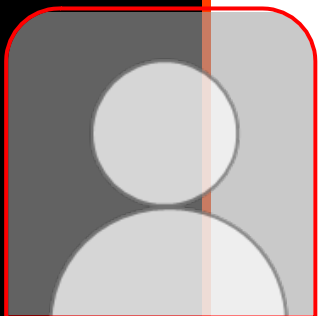
- This material emerged just a few short years ago and is now very common.
- The material is composed of three separate layers of nylon materials
  - **Fine mesh inner – Ribbed mesh center – Fine mesh outer**
- The layers serve to thwart stings as **the bee stinger is not long enough to reach through all three layers** and get to the skin.
- In addition, the open nature of the material allows for air to pass through and when there is a breeze it helps to wick away moisture while allowing for heat to escape.
- The one downside to the design is they are thick and bulky, and some beekeepers do not like how they hang on the body.



# Beekkeeping Jacket w/ Hood

## □ Canvas Beekkeeping Jacket

- *Full coverage from the waist up*
  - Most are built with an attached hood that zips secure to the jacket through a zipper system around the neck.
  - Some supply houses sell jackets that work in tandem with a separate veil and have a high collar that tucks inside the veil.
  - Most opt for the all-in-one jacket that has a zip on hood.
  - It is very typical to wear a hood and jeans.
    - Jeans are hard to sting through, but do not protect from stings.
      - Most bees try to sting the upper torso and the lower torso is at a lower risk of stings – but make not mistake, they will sting the lower torso if alarmed.



# Undershirt & Jeans

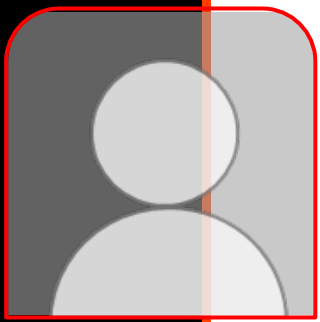
Hi, I am  
some  
random guy  
from the  
web

## ❑ Jeans – Light Blue Color

- *Light in color is better for bees*
  - Bees are averse to dark colors so forgo black or dark blue denim jeans if you can avoid it.

## ❑ Long sleeve white cotton shirt

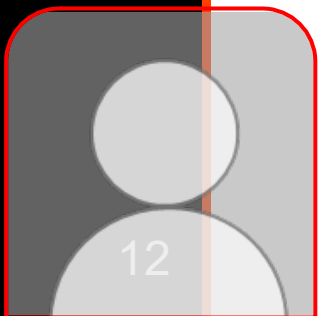
- *An extra layer of protection to consider under a bee jacket*



# Beekkeeping Pants

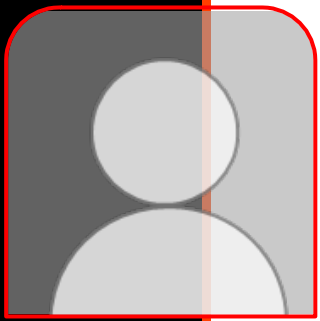
## □ Pants

- *Not very common, as most who buy suits use full jumpsuits if they want the pant protection*
  - They are available for those who want to go this route.
  - They are available in canvas or 3-Layer mesh as depicted.
  - Typically, they are 'standard' lengths for 'typical' people and might require alterations if you have a less than 'typical' body shape.
    - Said differently, it is unlikely that you will find them offered in different sizes and lengths – akin to how you buy jeans



## Clothing Features

- ❑ Designs vary widely
  - *Pockets, tool holders, screen material, and other features abound.*
  - *They vary from manufacturer to manufacturer so shop around*
- ❑ Zip-Off Face Screens
  - *Relatively new feature design that is a great improvement*



# Veil / Veil and Helmet

## □ Veil Designs and protection

- *Veils come in many forms and designs and provide different levels of protection*
  - Some are simply hats made from common materials, and others are substantial cloth and designed for day in and day out industry use.
  - We would encourage you to review more substantial designs.
  - Veils that employ a helmet afford more head protection than ones that only have a cloth covering.

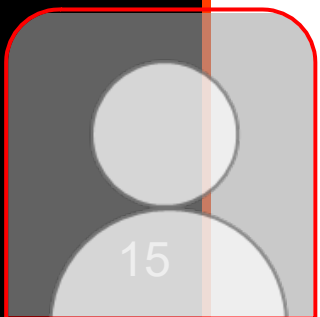
Helmet



# Pullover Veils

## □ Veil with built in Vest

- *These are often meant to go under a heavy long sleeve outer covering*
  - This provides a veil while allowing you to wear your own personal preference for an outer covering.
    - You could wear a heavy button up shirt, sweater or something else that would provide an equivalent coverage of a canvas jacket but be of your choosing.

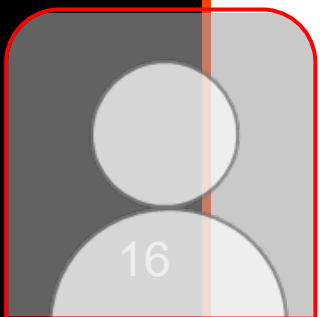


# Sturdy Shoes

## ❑ Foot and Ankle Protection

- *Wear Sturdy Shoes*

- Consider the time to use sturdy shoes that protect your feet and ankles
  - ❑ Bee yards sometimes have uneven ground.
  - ❑ Be conscientious about twisted ankles and stress on ankles when moving heavy objects
  - ❑ Protect your feet from dropped equipment
- Wear shoes that cover your feet and afford protection from stings
  - ❑ Sandals, flip flops, crocs, and other similar forms are not a good choice – even for quick runs out to peek in on the apiary

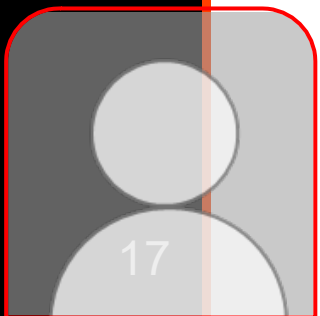




# Canvas or Nylon Leggings

## □ Supplemental leg coverings

- *These serve to protect from bees coming up your pant sleeve*
  - Not very common. Might be something you use if you work bees every day in Africanized bee zones
  - Still, some take a Velcro strap and strap the pant leg of their jeans. This is not a bad practice to consider.
    - This technique also applies to shirt-sleeves



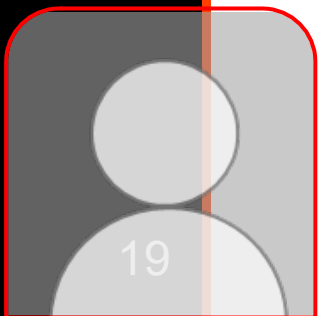
# Glove Designs



# Gloves for Beekeeping

## □ Glove types vary – go by requirement

- *Gloves are worn to protect hands and fingers from stings.*
  - The choice of what to use is widespread. From gloves designed for use in beekeeping to mechanic gloves, to surgical gloves and more.
  - There are a few features that make gloves suitable for the task
    - **Light in color.** Bees do not like dark colors and are prone to sting dark colored gloves
    - **Dexterity:** You will want gloves that provide enough dexterity to handle the hive tool, the frames, and other equipment as you work.
    - **Protection:** Of course you'll want gloves that meet the two requirements above and protect you from stings to the best of their ability
      - It is very rare, if not impossible, to find gloves that bees cannot sting through.



# Suggested Glove Types

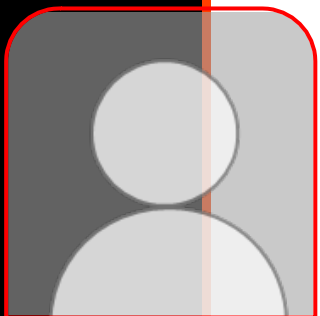
## □ Two types are recommended

### ● *Dedicated beekeeping gloves*

- Most beekeeping catalogs sell gloves that meet the requirements of the previous slide.
  - They afford enough protection that bees generally cannot sting through them, but they offer the dexterity you need (they may require breaking in before this happens).

### ● *Nitrile Gloves*

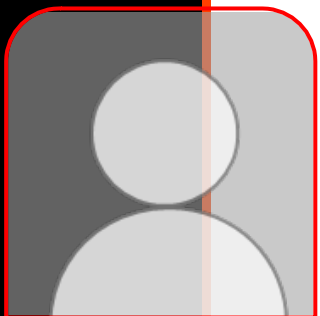
- These are tough thin gloves that resist tears and provide protection.
  - Bees generally do not like to sting through these – but sometimes they do.
  - Your hands keep clean and while being protected. They can be worn under other gloves



# Respirator & Cartridges

## □ Full or half face masks

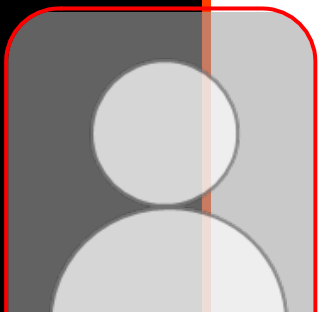
- *Application of specific products require protection*
  - When working with Varroa Treatments; some require protective equipment
  - Proper Masks and Eye Protection are required
    - Using either full face masks or half mask in conjunction with your bee suit will protect you from lung damage and chemical exposure.
      - Products used in treatment programs: such as Formic Pro, Oxalic Acid, etc. will give off harmful vapors or cause issues on contact.
    - Be Sure to source the right Protection for the chemicals being used. Acid cartridges, Vapor cartridges, N95 filters, etc.



# Eye Protection

## □ Protect your eyes from harm

- *Whether in the workshop or working with chemicals, eye protection is a proper safety step*
  - Consider the right design, lenses, and coatings for the application
    - Make sure the eyewear affords splash protection if that is required, impact resistance, and it meets or exceeds the personal protection called for the task at hand.



# Hydration & Cooling

## □ Battling Heat

- *Sometimes beekeeping is tough, especially when considering wearing a suit which is the equivalent of a winter jacket in the heat of the summer.*
  - One really needs to consider approaches to help when dealing with oppressing conditions of summer. Some ideas that should be considered:
    - Cooler with Drinks: Hydration drinks and Water as well as ice in a cooler are suggested
    - Mini Fan / Change of Clothes: something to cool off quickly or get out of wet hot clothes
    - Bandanas – Caps: Something that helps manage sweat running down your eyes and across your face making you hot and uncomfortable



# Other Items

## Other Considerations

- *Medications: Epi-Pen / Benadryl | First Aid Kit | Back Support Straps*
  - This requires a consult with a doctor and a prescription for an Epi-Pen.
  - A basic first-aid kit that has band-aids, tape, bandages. In the kit or nearby
  - Back Support Straps to wear under your clothing to provide support for lifting
- *Hive Stands and Hive Benches*
  - These help get the hives up off of the ground and negate deep bends to pick up pieces that have been set on the ground.
  - Hive benches are useful for setting boxes upon

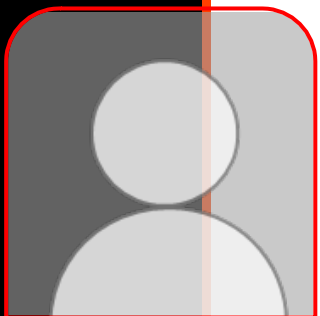




# Basic Protective Envelope

□ These are what we would recommend

- *For a beginner, the most logical choices would be:*
  - A bee suit with attached veil
  - Ventilated three layer gloves
  - A spare Helmet/Veil combination



# Closing Comments

## ■ Customary Close

- Where we stand, where we are going...
  - *This lesson closes out the overview of protective gear.*
  - *Our next topic moves to how to build frames for beehives:*
    - Primer on **Building Frames**
    - Guidance for **Hive Fabrication**
    - **Painting Hives**, Tips and Tricks
    - **Sourcing and Selecting Bees**



## 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](mailto:comments@managedmentoring.com)
    - *Please refer to this video in the subject so we know what the reference is.*

