

Making Summer Nucs to Overwinter for Spring Use

Purpose: How to produce summer nucleus colonies in preparation for successful overwintering

Goal: The goal of this workshop is to provide knowledge on

- how to create a nucleus (or Nuc) colony
- how to manage the colony throughout the summer
- how to prepare the nuc for overwintering

Overwintered nucleus colonies provide a resource for northern beekeepers in the spring and late summer. These nucleus colonies can be used to help provide beekeepers with early season queens, used to replace dead out colonies, used to increase the number of colonies in the apiary or provide nucs for sale to other beekeepers.

This workshop will discuss how to create a nucleus colony through the step by step process. We will review the bee resources, queens and equipment requirements.

Agenda:

- Splits and Nucs – Definition
- Why Make Nucs
- When to make Nucs
- Equipment Needs
- How to make a Nuc
- Care of a Nuc

Definitions

- A split is the process of separating supers of a colony and providing a queen for the queen-less portion
- A nuc is a fully balanced colony in miniature consisting of two to ten frames. It is suggested to use a standardized five frame nuc box for the queen and nuc production program.
- An increase is simply adding to the number of colonies that you have through a split, swarm capture, nucs, packages, etc

Bee biology helps us make nucs

- Nurse bees/young bees are not aggressive and are loyal to the queen
- Nurse bees have a specific area on a brood frame that they tend to
- Young nurse bees prefer nectar over honey
- Bees have a natural tendency to swarm in the spring
- Queen cells can make excellent queens (provided there are sufficient drones for mating)
- Workers from different colonies do not fight when moved into a new box together. You may take nurse or worker bees from separate colonies and put them together in a new box.
- Nurse bees added to a colony or nuc by shaking will adapt to their new conditions.

Why make nucs?

- To grow your beekeeping business (more hives or cash flow). It is cheaper to create new hives than it is to purchase packages or nucs and selling nucs can be profitable
- Improve/supplement production
- Over wintered nucs allows the beekeeper interested in producing honey to maintain honey production because of their rapid growth in the spring
- Brood from a nuc or nucs may be used to boost a colony just before the honey flow starts, thus making a larger field force to gather honey. It may then be split to make a second nuc after the flow ends.

Making Summer Nucs to Overwinter for Spring Use

- Nucs can be used to make clean drawn comb for comb replacement of full sized hives for comb replacement programs.

A management tool for your beekeeping operation

- To replace winter losses
- To maintain extra queens in the event a queen fails or is lost
- To assist in swarm prevention/control. Making a nuc from a populous hive in the spring will slow down the swarming urge. If you remove the queen from the mother hive and allow that hive to raise a queen or re-queen that hive, you may prevent that colony from swarming, and you will have broken the brood cycle which is important in mite control

For Queen Rearing

- Queen rearing can be done in nuc boxes. Full nuc boxes make excellent mating boxes and allow the beekeeper time to observe the new queens temperament and performance before placing her in a full hive or selling her.

Queen introduction

- A prize queen is more easily introduced into a nuc colony with all nurse bees than it is into a full sized colony.
- To sell to a new beekeepers; or member of the club

When to make splits & nucs

- Early spring Nucs are dependent on queen availability. Generally need to import queens from the southern states or Northern California for early April nucs or splits.
- Late spring/early summer (during flow) is the easiest time to start a nuc.
- Late summer/early fall for overwintering

Some basic "rules"

- It is easiest to make nucs/splits during the middle of a clear and warm day when most of the field bees are out of the hive
- Try to keep the nuc in progress covered; too much sunlight is detrimental to open brood
- Use a minimum amount or no smoke. You might want to have a spray bottle with light sugar water in it to help control the bees if necessary
- All nucs should have reduced entrances

Considerations for creating a nuc:

- Queen availability and sources
- If making your own queens, time your nuc to coincide with your ready to emerge queen cells.
- Consider ordering local, hygienic queens or queen cells

Equipment

- Any sized equipment can be used. Use the equipment that you have on hand.
- bottom board (IPM preferred),
- hive body(s)
- inner cover
- telescoping cover
- entrance reducer
- a bee brush,
- frames of foundation or drawn comb
- a feeder that fits the equipment being used

Making Summer Nucs to Overwinter for Spring Use

- May want to invest in several 5-frame nuc boxes and the necessary bottom boards, inner covers, telescoping covers, and feeders, etc

How to make nucs

- Bring to the bee yard nuc(s), tools, frames of foundation and/or drawn comb, plus an extra super that will hold the transferred frames (medium or deep), bee brush, queen excluder & sugar water in a spray bottle
- From the “mother” hive, select
 - 1 frame of honey or nectar
 - 1 frame of primarily pollen
 - 1 frame of drawn comb
 - 2 frames of brood. (frames with mixed open and sealed brood are fine)
 - 2 frames of uncapped brood

Method 1 – not necessary to find the queen

- Shake and/or brush off all the bees back into the mother hive from the frames selected above.
- Place each “bee free” frames into the extra super (super must match the mother hive i.e. 10 frame or 8 frame - protect the brood from sun or adverse conditions)
- Place the queen excluder on the mother hive’s top super.
- Pick up the newly filled nuc(s) super and place on top of the hive above the queen excluder.
- Come back in a couple of hours or the next day and the nuc super is full of nurse bees. This way you do not have to find the queen.
- Remove the nuc super from the top of the mother hive and place it on its bottom board. Screen to move to an out-yard or set in your home yard, or transfer the 5 frames of honey/nectar, older brood, drawn comb/foundation, & pollen to your nuc body
- Once set up, a queen or queen cell may be introduced immediately or within 24 hours.
- Place a feeder on the nuc. Keep feeding the nuc until it is able to fend for itself. Check in 5-7 days to make sure queen was released or the queen cell hatched.
- Check in another 5-7 days to check whether the released queen is laying eggs. Or, check to see if the newly hatched queen has returned from her mating flight.

Method 2 – Locate the queen or ensure she is not being moved

- As you remove the 5 frames for the nuc one by one, look for the queen.
- Remove frames ensuring the queen is not on any of the frames. Place each frame with bees into the nuc.
- Screen to move to an out yard or set in your home yard.
- Brush bees from two or three open brood frames into the nuc body (watch for queen), and put those frames back in the mother colony. Note: your nuc can be left right where it is in your apiary
- Reassemble the mother hive placing the frames of foundation to the outside of the brood chamber.
- Once set up, a queen or queen cell may be introduced immediately or within 24 hours
- Place a feeder on the nuc. Keep feeding the nuc until it is able to fend for itself. Check in 5-7 days to make sure queen was released or the queen cell hatched.
- Check in another 5-7 days to check whether the released queen is laying eggs. Or, check to see if the newly hatched queen has returned from her mating flight.

Making Summer Nucs to Overwinter for Spring Use

Another option if you have an out yard at least three miles away. To keep the field bees from vacating the newly established nuc you can follow the following steps:

- Screen in your nuc opening and frame storage super
- From the “mother” hive, find a) the frame that the queen is on, b) one frame of honey or nectar, c) one frame of primarily pollen, d) one frame of drawn comb, and two frames of brood. (Frames with both open and sealed are fine).
- Place brood in the center of the nuc box, and surround with the frames of honey and pollen. If you are using full size equipment, you can fill the rest of the box with frames of foundation.
- Go back into the mother hive and select 2-3 frames of open brood. Shake or brush all of the bees from these frames into your nuc, lightly spraying the bees with sugar water to keep them from flying. (You are adding extra bees to the nuc to ensure enough bees to keep the brood warm and fed.)
- Return the frames minus covering bees back in the mother hive.
- Move the remaining frames of brood in the mother hive together. Back-fill with frames of foundation on the outside of the brood cluster not in the middle of the brood cluster.
- Close up your nuc. It can be moved to your out-yard or another location at this time.
- Wait 24 hours before introducing the queen or queen cell.
- Place a feeder on the nuc and keep fed with 1:1 sugar water until they are able to fend for themselves.
- Wait 7-15 days; check for eggs & new brood

Care of a Nuc

- They have all of needs and requirements of a full sized colony, such as pest and disease control
- Nucs different than full-sized colonies in:
 - Size
 - Bee population, Nuc has only 10-25% of the population of a full sized colony
 - Ease of frame manipulation
 - Less difficult to locate queen
 - Colony difficulties are concentrated
 - They develop more rapidly and need to be managed more intensely
 - Need to remove frames of capped honey to provide room, add a second box with frames, or store capped honey for use later
- Can remove frames of drawn wax to store and use at a later date
- Can provide brood to boost weaker colonies
- Can be maintained to produce cut comb and honey for use and extraction,
- Frames of honey, drawn comb, etc. can and should be harvested individually.

All nucs need:

- A reduced entrance to assist in the defense of the hive (max 1 ½ inch opening).
- A method of feeding (internal or Boardman style work well)
- Nucs for overwintering have some special needs—will discuss later

Making Summer Nucs to Overwinter for Spring Use

Differences in Nuc Creation based on time of year:

Spring nuc management

- Usually made during nectar flow
- Recommend 2, not 3 frames of brood (some call this a “weak” nuc). Strong (3 frames of brood) nucs may swarm.
- Spring nucs are ideal for new beekeepers as this is a great way to watch hive development from the start
- Will not usually produce excess honey the first year
- Add 2nd box (foundation is OK) as soon as population warrants
- If not sold, given away, or not needed in your own operation, can be overwintered.
- Reminder that spring nucs present opportunity for replacing old comb

SPRING, EARLY SUMMER NUCS

- It is usually done during a nectar flow.
- It is recommended that they be made small (two frames of brood) to slow down development and prevent swarming.
- If you make a strong nuc, be prepared to install it in a full hive in the near future.
- Can be used to collect honey if put into full equipment with drawn comb.
- Add a second box with foundation as needed.
- Since usually made after the flow, mother colony should be fed 1:1 a week prior to splitting
- Nuc should be made with 3 full frames of older larvae and sealed brood. No eggs or young larvae!
- Feed the new nuc 1:1 to simulate nectar flow.
- Queen more easily introduced. Queen introduction must be handled with caution (The frames should be inspected for queen cells both before and after queen introduction)
- Once queen is accepted and laying, you can add the 2nd box.
- NOTE: Break in brood cycle in a summer nuc assists in managing mites.

Over wintering nuc management, what to look for going into winter

- Overwintering initial setup; 1st box in our area, July 15 thru August 15 is best time to establish nucs for overwintering.
- Start with one box
- Add 2nd box as soon as population warrants. All 5 frames in 2nd box would be drawn comb. A good population can draw out foundation in late summer/fall Need to feed 1:1 early, 2:1 later.
- Going into winter, cluster will normally be located on middle three frames. On warm days, bees should basically cover all 5 top bars on the lower box.
- Going into winter all frames of the top box should be capped honey. Some may be actual honey others may be sugar honey from your feedings.
- Watch winter stores! Feed bee candy/fondant as needed (use candy boards or extra hive body).
- Winter “protection”
 - Nuc entrances should face downwind in the winter. Winter winds are mostly from the North or North West
 - Protection from strong winter winds is necessary.