

Making hive increases

By Dana Stahlman

Making Increases in hive numbers

- There are a number of reasons to make hive increases.
 - It has been a long standing practice to make increases to replace winter losses.
 - Many individuals have a desire to have more colonies of bees.
 - Some make increase such as nucleus hives to sell and it becomes a good money making opportunity.

Making Increases in hive numbers

- The question to be asked is what resources are available to make hive increases?
 - How many new hives need to be created?
 - *How much time do you have?*
 - *Create full sized hives or Nucleus hives?*
 - *What hive equipment is available to make increases?*
 - *What bee resources are available?*
 - *One can also use package bees to make increases but that is not going to be discussed in this presentation*

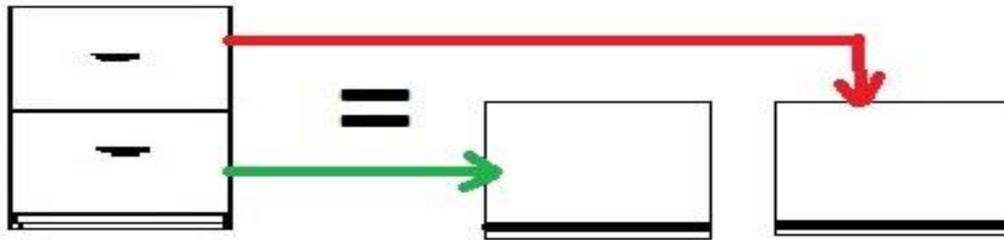
Making hive increase Methods

- How many new hives need to be created?
 - Far too many beekeepers try to make increases without considering many of the factors to be faced!
 - Time: Managing two hives of bees doesn't take much time. Once a new hive is added to the number managed, a certain amount of time must also be increased to care for the extra hive.

Making A hive increase is one method to control swarming “The Lazy Way”

- Most beekeeping books address the way to make splits.
- Most common method used.....
- Make two hives from one strong hive.

If the mother hive is a two deep hive with bees in both upper and lower chamber, a quick dirty split is made easily by placing the top super on a new bottom board and putting top covers on the two hives. The queen will be in one of them.



The box without a queen will raise an emergency queen from larvae present. Must have brood in both boxes.

Works most of the time.

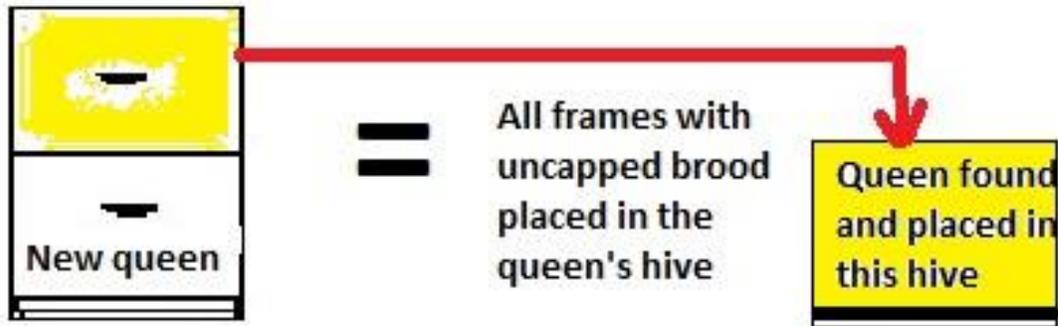
Quick and easy

Not the best of management for a bee hive. One hive will always be stronger than the other!

Another version of about the same thing

- Only real difference is a new queen must be purchased before the split is made. The new queen is placed in the weaker of the two new hives made up and her hive is placed on the original hive location to pick up all field bees.

Another version: Find the queen and place her in the strongest of the hives and place the weakest of the hives on the old hive stand.



New queen placed in original hive box with little brood, and older foraging bees will return to this site. Somewhat like a swarm -- to start over with a new queen.

The advantage of this split is it will have a new queen laying within several days. **In just over three weeks this hive will be adding population to the old bee stock.**

The hive with the old queen can be managed for honey production and this will delay any swarming by her hive.

The new queen and hive will cause a break in brood production which will delay Varroa mite population growth.

you want to grow your apiary and hive numbers.

- The one book that has taught me the most and given me an insight to how I manage bees is Dr. C.C. Miller's *Fifty Years Among the Bees* I re-read it each winter and still continue to find something new to try each year.
- *If you have a collection of old bee magazines, making splits has been written about over and over each and every year from one author to another. The variation and number of methods are numerous. One of the latest has been done by Dr. Joe Latshaw using Polystyrene nucleus hives – starting with one frame of bees and brood and the introduction of a new queen with enough time for the bees to build into strong nucleus hives to overwinter and begin the following year as well populated production hives. The method he used has this advantage: Nucleus colonies will be established after the primary honey flow, giving each new colony a locally produced queen. Fewer resources are needed to establish nucleus colonies later in the season as warmer temperatures reduce the risk of chilling. As with traditional methods, newly established nucleus colonies will require supplemental feeding until they become established. His research paper is available on-line by searching for Overwintered in Polystyrene Boxes.*

The Miller Method of Hive increase

- Dr. Miller's philosophy was to keep all hives strong and productive.
- Most splitting methods leave hives somewhat weak – a colony with a strong population is divided and increases have $\frac{1}{2}$ of the original population or less.
- That was not Dr. Miller's approach. However, it does take a number of hives (at least five or six or more) to use the Miller increase method. *Miller never took bees from a hive to give to another [just brood frames].*

The Miller Method of increase

- To understand the reasoning behind the Miller Method, you will have to understand some basic facts about how honey bees develop.
 - Fact # 1 When young bees begin to fly from a hive they establish a location to return to. This return point is very precise. In most cases, bees that forage never have to worry about a hive being moved. They return to their hive day after day and only on occasion may drift into another hive.
 - Fact # 2 It is commonly believed that bees will not allow another bee from another hive to enter their hive. **That is not entirely correct.** A hive of bees will defend their hive if attacked such as would happen in a robbing situation. But if a bee [a stranger] arrives at the landing board with resources such as nectar or pollen, it will be admitted to the hive. Miller did not move bees so there is no problem with bees fighting.

Miller Method

- Fact # 3 Young bees that have not flown from the hive will remain with a queen or brood. If there is no brood in a hive, the bees will most likely leave/abscond. Only a few very young bees remaining.
- Fact # 4 A queen releases a pheromone that bees can recognize as their own. When a bee returns to a hive and finds that pheromone present, it will make a quick adjustment to what ever change has been made to that colony.
- Fact # 5 If the pheromone is missing the bees will attempt to raise a new queen from larvae present in the hive. This is called the emergency queen response.
- Fact # 6 It takes no more than 12 days for a hive of bees to replace a queen. A bit longer for that queen to begin laying eggs.

The Miller method uses these facts to develop new hives

- In 1899 Miller increased 9 hives of bees into 56 and all colony increases produced a honey crop for him!
- In 1899, one could not buy packages as beekeepers do today and yes, in 1899 bees did die over the winter season and in many cases surviving hives were not strong.
- Miller understood [*the Secret of the 9 day cycle*]
 - Miller's method is based upon hive manipulation every nine day. A queen emerges from a cell raised under the emergency impulse in 11 to 12 days depending on the age of the larvae chosen by the bees. If for example one could not make a hive manipulation based on weather conditions – a one day delay would be okay.

“The Nine Day Cycle”

- To be successful, a beekeeper must stick to a strict schedule. I doubt if many beekeepers would be interested in increasing hive numbers from nine to 56 but it is possible.
- First [the schedule]

It is necessary to prepare a calendar. I chose to start with May because hives at this time should be strong enough to split.

SUN	MON	TUE	WED	THU	FRI	SAT
M A Y 2015		APRIL 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	JUNE 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30			
3	4	5	6	7	8	9
Mother's Day						
10	11	12	13	14	15	16
	Victoria Day (Canada)					
17	18	19	20	21	22	23
	Memorial Day (USA)					
24/31	25	26	27	28	29	30

It doesn't make any difference on what **date you select to begin.**

- But once you begin, you must stick to the schedule. All equipment necessary to carry out the increases must be on hand before the scheduled date of the work to be done.
- First task: Identify the bee resources available to make increase.
 - How many hives are available as a resource for bees? You could begin with as little as three or four. The more you have the faster increases can be made.
 - For demonstration purposes: **I am going to use five hives**

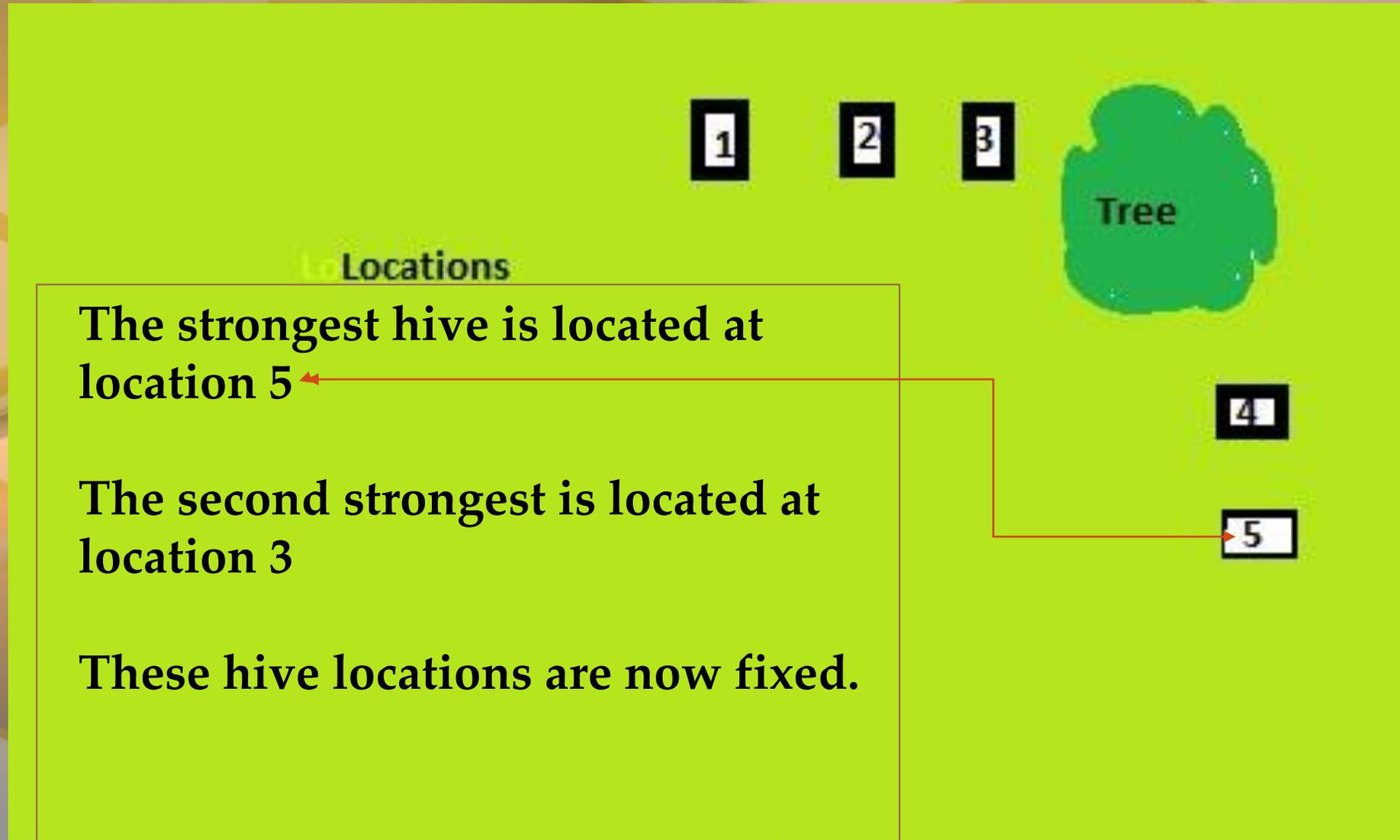
The demonstration using 5 hives to begin

- On day one the job is to:
 - identify the strongest hive with the best queen!
 - identify the hive that is the second strongest!
- Miller worked with single deep hives and built them up over the summer period. Most of you most likely keep your hives in a double hive style. The method can be adapted to almost any hive style you might use. But the most important thing is to keep the location of these two hives exactly where they are: Why: Because the flight bees returning to these locations are what makes all future manipulations possible.

The demonstration bee yard

Hive # 5 The Red Hive

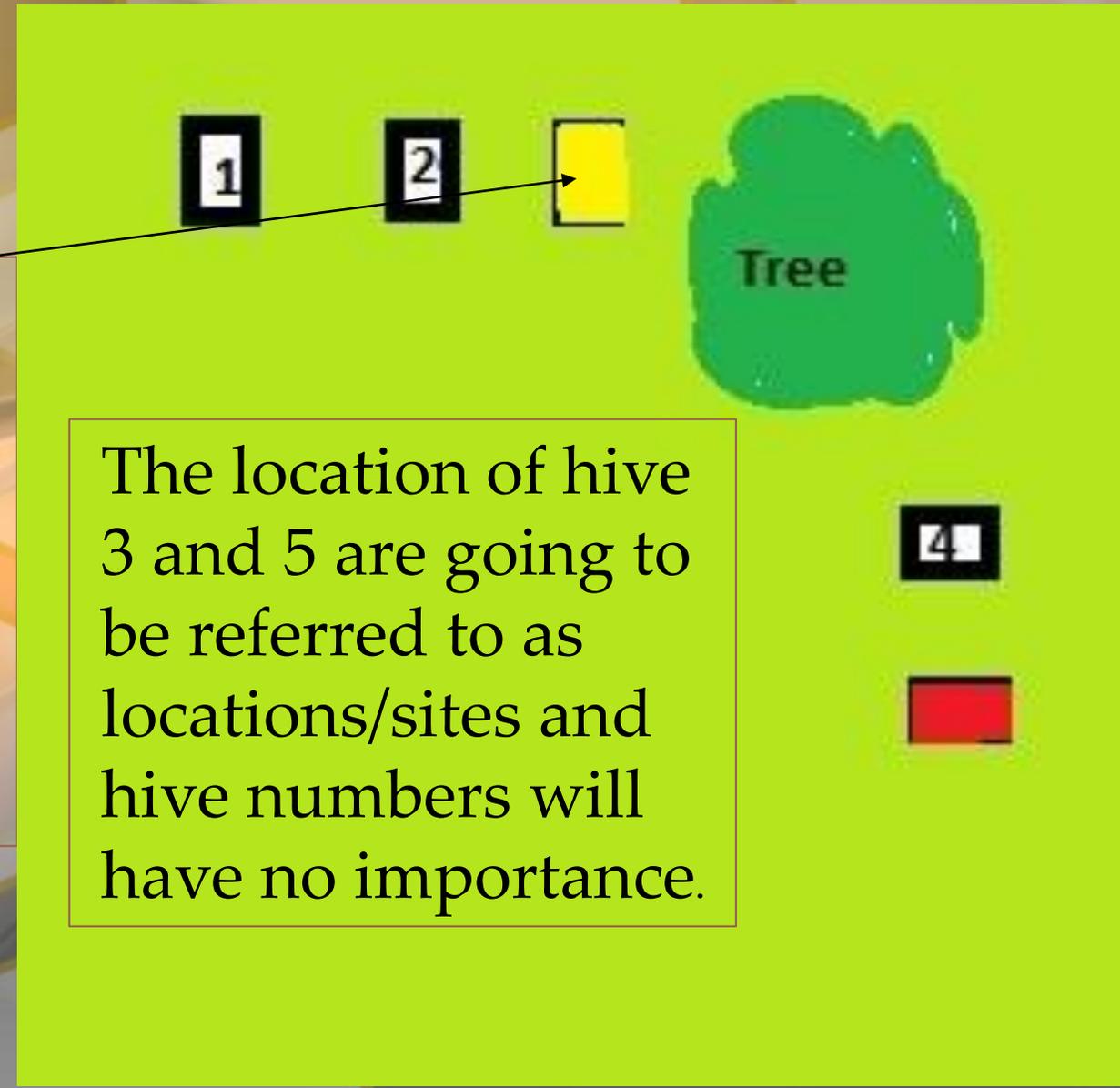
This hive is the strongest hive in the yard. It will contain the queen that is most likely the best available.



The demonstration bee yard

Hive # 3 The Yellow Hive

Hive #3 is now coded yellow. **From this point on the site #3 will designate the hive location not the hive.** It is from this location that all new hives are going to be created.



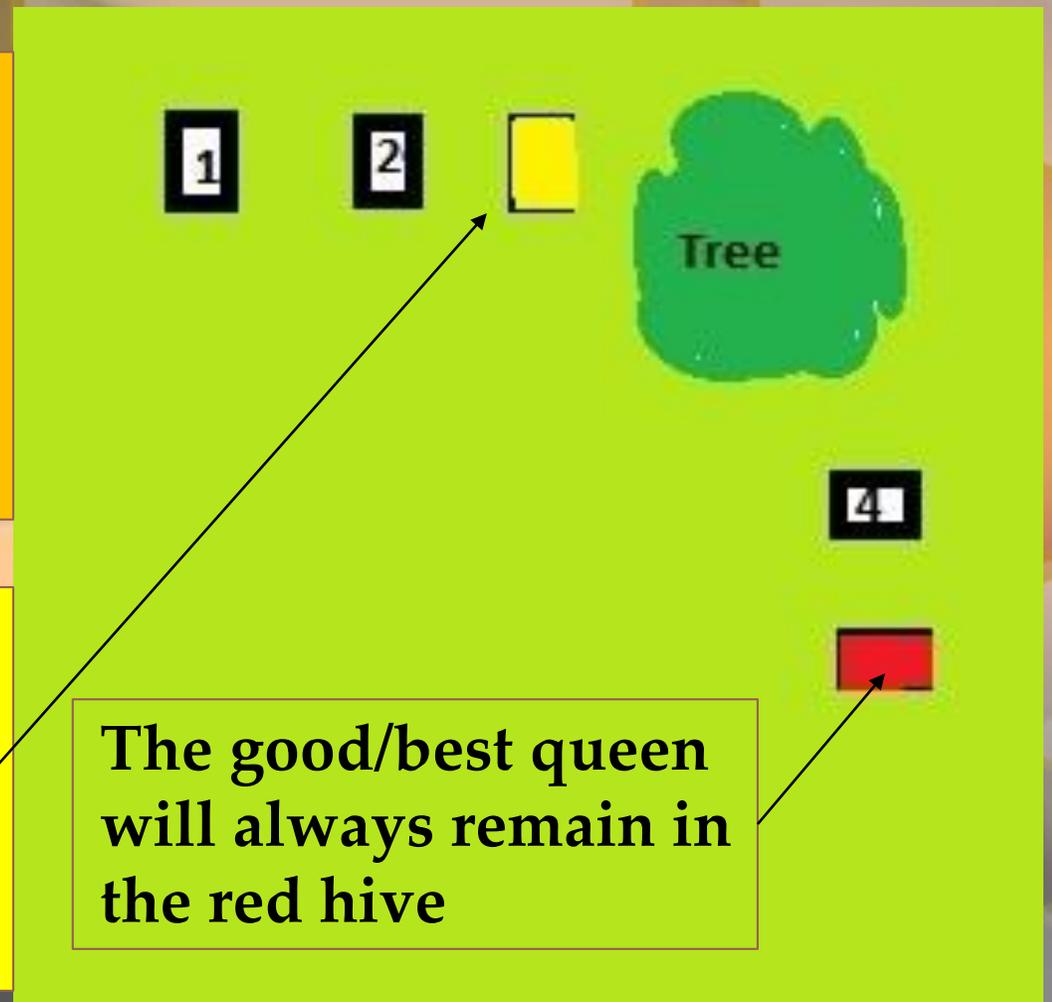
The location of hive 3 and 5 are going to be referred to as locations/sites and hive numbers will have no importance.

The demonstration bee yard

The other hives in the bee yard are going to be feeder hives and will play an important role in this entire process. They will give up frames of brood but no bees to the red hive.

When the first split is made, it will come from the yellow hive location along with the queen from that location.

The good/best queen will always remain in the red hive



Before we move to the first split lets review a few important issues

- The queen mother for all the splits we make will be from the red hive. We will raise all of our own queens.
- The hive at the yellow location will be moved to another location in the bee yard. Thus, this location will collect all the older foraging bees returning to this location. This is an important point.
- If you use a double brood chamber hive system, you will need a new bottom board, inner cover and top cover to complete the second step of this process. If not you will need to provide a hive body with frames in addition to the other hive equipment.

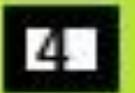
The demonstration bee yard

Hive # 3 will now become a feeder hive. This now makes hives 1, 2, 3, and 4 feeder hives. Some of these hives might be very weak.

Feeder hives are exactly that:
They will provide frames of brood and empty cells for the red hive location but no live bees.
Confused – You will understand after the next step.



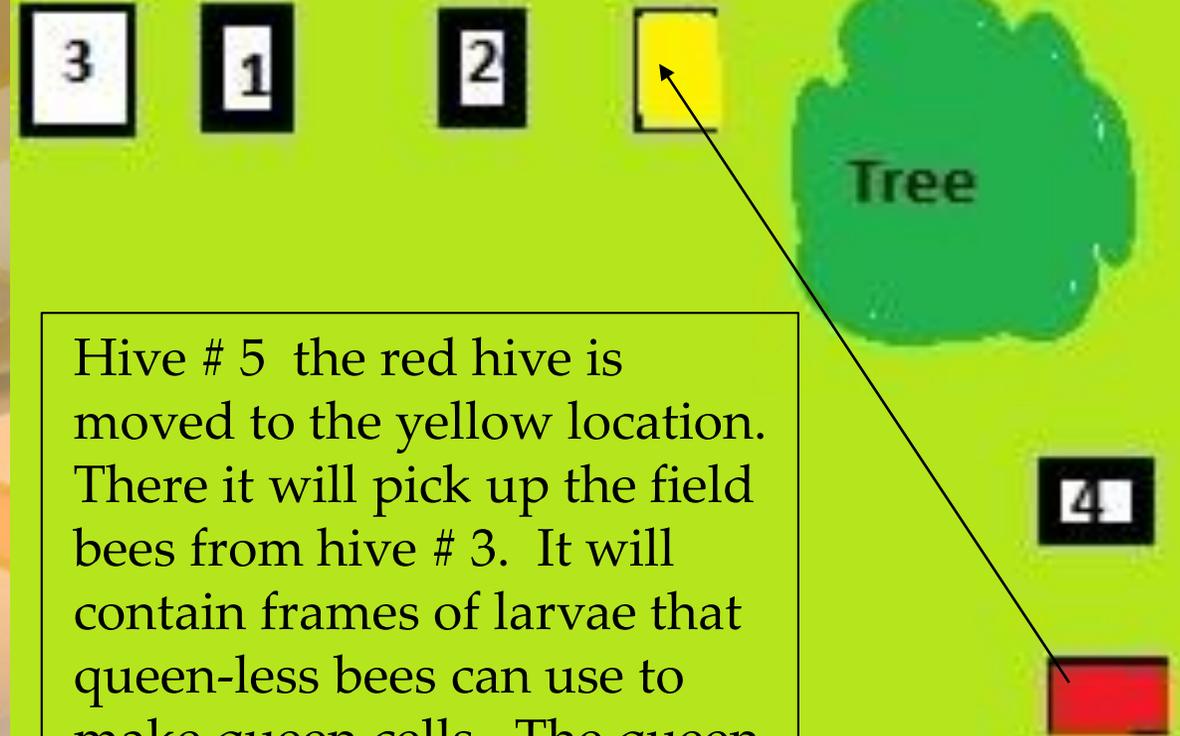
Hive # 3 is moved to a new location. It will still have its queen and retain its brood and young bees. This move will set it back a little bit but it will recover its strength very quickly – a matter of weeks



The demonstration bee yard

The red hive is now moved to the yellow location. It is no longer considered the red hive but becomes the yellow hive.

The yellow hive's role is to produce future splits. The hive is made queen-less by returning the queen back to the red location. The brood including young larvae will be used by the bees to build emergency queen cells. It will have a lot of bees and it will be used every 9 days to take frames of bees and queen cells to build a new or several new hives.



Hive # 5 the red hive is moved to the yellow location. There it will pick up the field bees from hive # 3. It will contain frames of larvae that queen-less bees can use to make queen cells. The queen must be found and returned to her field bees coming back to the red location.

The demonstration bee yard

The Yellow hive will always be queen-less.

Frames from the red hive will always be moved from the red hive location to the yellow hive location with each cycle. But the queen from the red hive will always be moved or kept at the red hive. Nine days later, these frames will have queen cells to help make new splits.

3

1

2

5



4

6

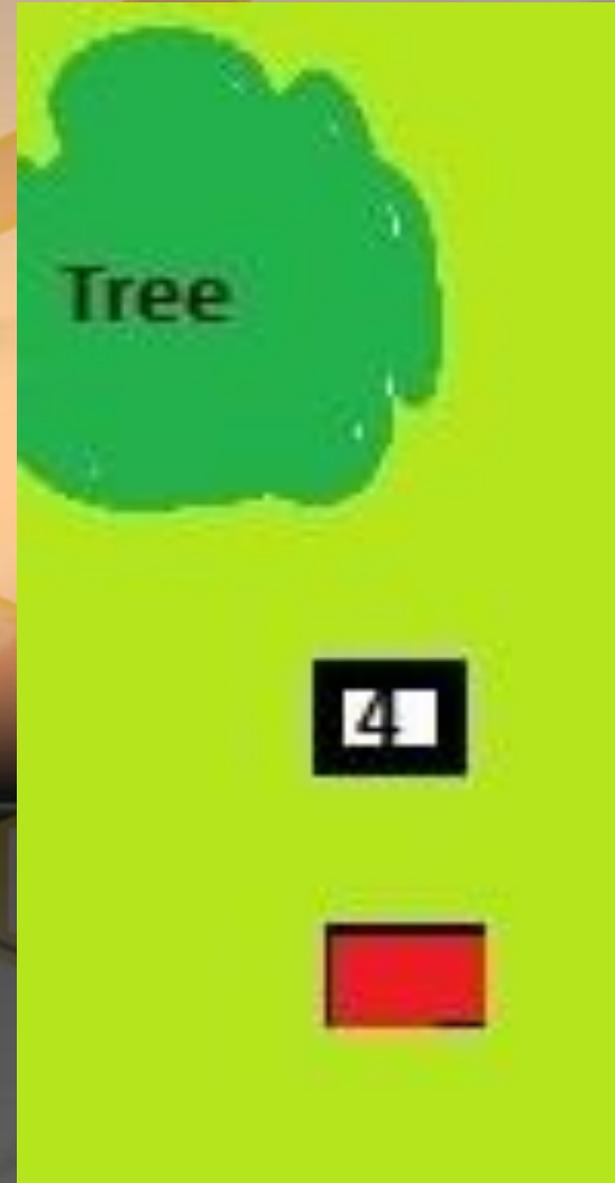
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The demonstration bee yard

The Red hive location

Increases are begun in this hive. This hive location is the place the mother queen is always kept. Since we just started the process it is necessary to understand what is happening at this location. When we moved the hive at this location to the yellow location, all the field bees return to this location.

But there must be a hive at this location to receive the field bees and frames from the feeder hives with brood. The queen will lay eggs and by the time the next cycle is started, some of these eggs will hatch into larvae. It's flying force will continue to increase from the added bees that emerge from the frames of brood moved into it.



The Biology of the Red hive location

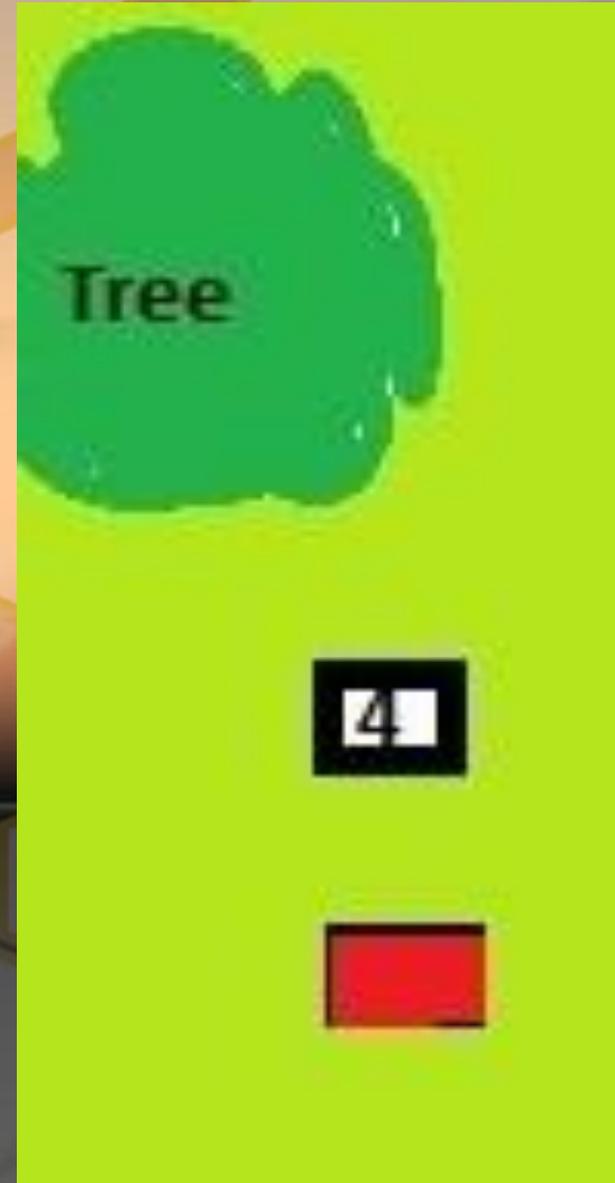
- Once the strong hive is moved to the yellow location, the original force of bees in a strong hive can be a considerable number of bees. Most bees that flew from the red hive location will return to the red hive location.
- The queen returned to this location is their mother and the bees accept her pheromones. There is no introduction problem – the bees accept her without issue.
- If frames of brood without bees are placed in this hive, the brood in those frames when they emerge are accepted immediately. Many of them will be moved in the next stage to the yellow hive but many will also remain at the red hive location.
- Any eggs produced by the queens in the feeder hives will be too old or will be capped over by the time the frame is ready to be moved to the yellow hive.
- When a frame with young larvae is moved to the yellow hive location nine days later, all of those eggs and larvae will have been produced by the red queen,

The demonstration bee yard

The Red hive location

This hive is rebuilt every nine days with frames from the feeder hives. It will have a strong bee population from both the flying bees that oriented to the site as well as some younger bees that emerge from capped cells in the frames moved into it every nine days.

It's queen will have filled many open cells with eggs – some of which will become future queens raised by the queen-less hive (Yellow hive).



So How does it work?

- After the hives are set up and the first cycle begun, the Secret the 9 day cycle begins.
- It is important to mark dates on a calendar! Do not depend on memory. If the cycle is broken – a young queen emerges in the yellow hive, the cycle will have to be started over again.
- Work begins in the bee yard nine days from the last visit. First, all equipment required for new hives must be assembled and be ready to use.

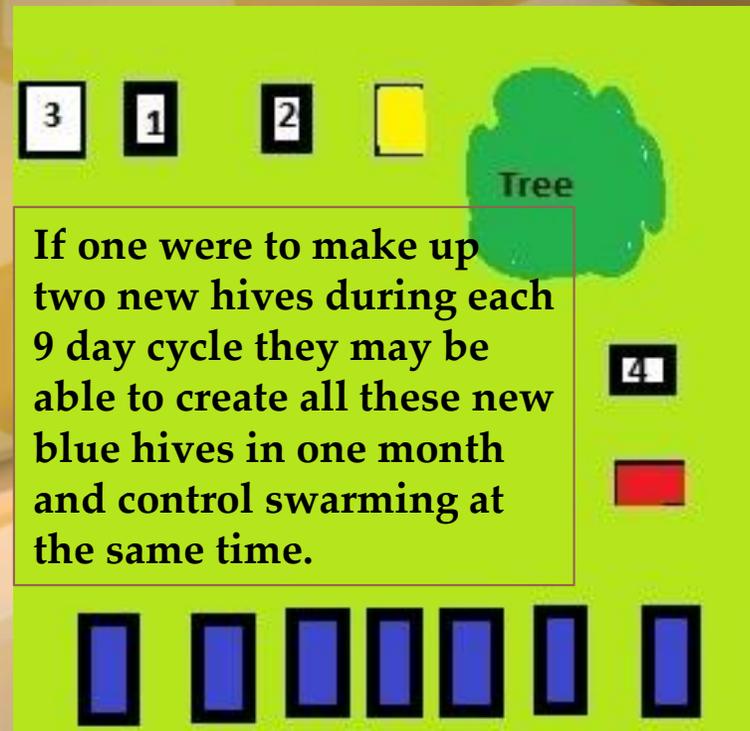
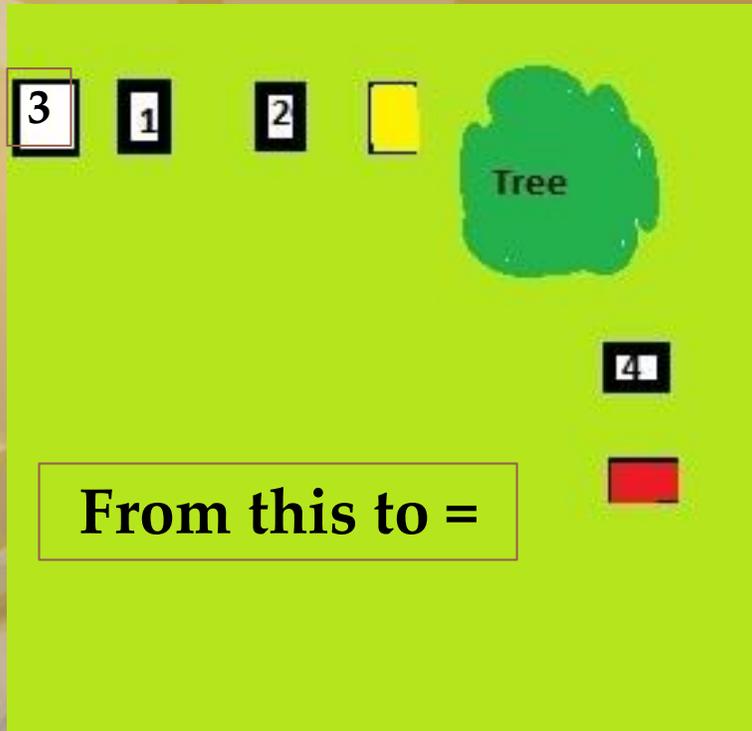
So How does it work?

- The first job is to inspect the yellow hive. Have the bees built queen cells? How many frames are available for a split?
- When this process is first started, each new split might be made up of three frames of bees and brood. Miller preferred to add frames to this nuc once the virgin queens had mated and were laying eggs.
- These frames would come from the feeder hives. The object was to build strong hives. If a feeder hive needed frames, Miller added frames of brood only – no bees and only a frame or so at a time. It was assumed that food would also be available for the bees to gather, but if not the bees would need fed.
- It is a fact that bees moved within this same bee yard would stay with the brood and queen cells in the nuc hives. All flying bees would return to the yellow location – adding more bee population to make more splits in the future.

So How does it work?

- After splits are made up, the job was to move frames of bees and brood from the red hive location to the yellow hive location. Of course, the queen in the red hive had to be found and kept at that location.
- It would also be possible to add supers or more boxes to each of the yellow and red hive locations if needed. They can produce honey just like all the other colonies.
- The job then transfers to the feeder hives. Each cycle requires that enough frames be found with brood to put into the red hive. Thus, frames from hives 1, 2, 3, 4 are taken from these hives making sure that no bees are transferred in the process. When frames are removed from these feeder hives, they can be replaced with either new frames with foundation or drawn comb.

Every nine days, the beekeeper can add at least one new hive to the bee yard and often more.



And if the beekeeper were to continue to take one frame of brood from each of the hives 1, 2, 3, 4 to add to the blue hives created, how soon would the blue hives be ready to help grow the process?

It is surprising how quickly a hive can build up if no bees are removed from a feeder hive to make new increases.

This works well in the warmer part of summer when there is little chance for brood to be chilled with real cold weather. In fact several frames of brood removed from strong hives is a good swarm prevention technique.

These are not welfare hives and should not be!

- A beekeeper managing a yard for increases can also manage it for honey production. If swarming can be controlled and new hives reinforced with brood from feeder hives several things happen:
 - 1. Swarming is reduced. Hives with constricted brood chambers will swarm. By taking frames from the brood chamber to help other hives gain bee populations, the beekeeper will have opened the brood chamber for the egg laying ability of the queen.
 - 2. New hives are added gradually. Time management is scheduled so the beekeeper has time to manage each phase of the process.
 - 3. Larger honey crops can be gathered because all hives are equalized and most hives have genetic stock only from the superior queen.
 - 4. The beekeeper maintains and manages all hives – hopefully with an intelligent plan in place and a schedule to make it possible.