



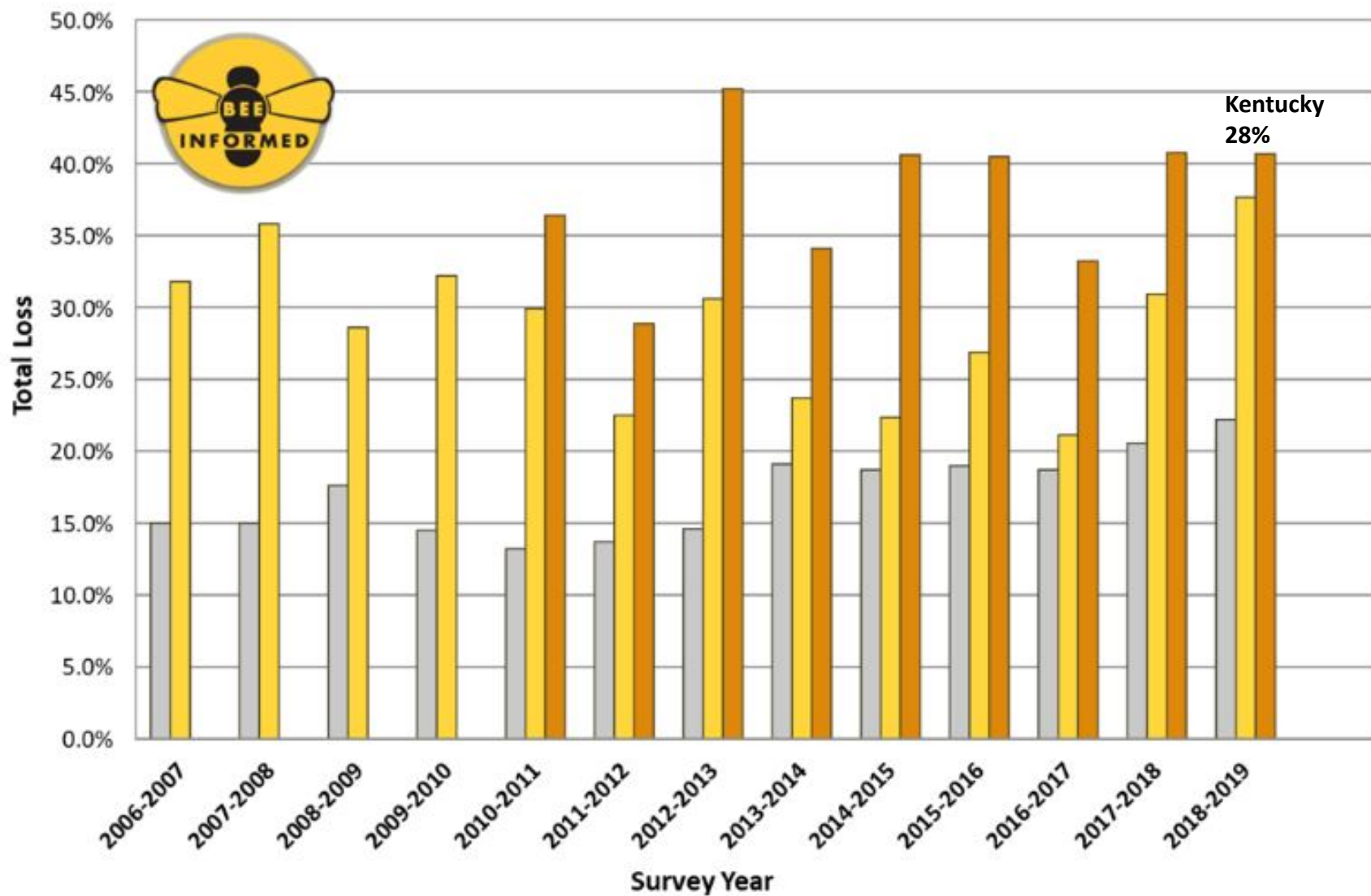
Winter Survival

Winter is not a survival time, just another phase in beekeeping

Louisville Fall Bee School
10-19-19

Total US managed honey bee colonies Loss Estimates

Acceptable Winter Loss Total Winter Loss Total Annual Loss



This is what we want in February



Necessary for Winter survival

- **Strong HEALTHY colonies**
- **Excess of food resources**
- **Young queens**
- **Get colonies ready in the Fall for Winter**

Winter survival will depend on your Fall preparation

- **Take your losses in the Fall, not the winter**
- August thru December are the Winter buildup months
- If you don't have good bees in the Fall, you will not have good bees in Spring for honey flow.
- Must have young and healthy bees and **LOTS** of them
- Keep queen laying into the Fall and Winter
- **Bees you see in October and November are Winter bees**
- January thru March are the survival months
- February thru April are the Spring buildup months
- May thru July are the honey production months

Hive Strength



Super Strong Hive



Strong Hive



Fairly Strong Hive



Weak Hive

- How many bees do you have in the hive?
 - Fully covered brood frame is about 1500 bees per side
 - Deep frame has approximately 3500 available cells
 - Approximately 2450 capped cells per side if 70% capped brood
 - A deep frame has 7000 cells both sides
 - Need 50,000-60,000 plus bees in August
 - Need 40,000-50,000 bees in October
 - Need 30,000-35,000 bees for winter



Frame with
3000 bees
and 5000
capped
brood



Hive has 12
frames
brood
(50,000 plus
baby bees)
with
Approximate
ly 45,000
bees in hive

Fall Feeding

- From August through October we feed 1:1 syrup depending on strength of goldenrod flow
 - Our goal is to keep queens laying heavy to produce large amounts of winter bees
 - This can be modified if supers pulled early or hives that don't have supers.
- Normally we feed 2:1 syrup in November and December if needed once goldenrod is gone
- If you have to feed 2:1 **don't trickle feed**, determine how much that hive needs and feed it in one or two feedings
- Continue to feed sugar/protein patties through December

Fall Feeding Options

- **Fall feeding options:**
 - Sugar water
 - In top feeders, jugs, buckets, jars, Ziploc bags or directly into empty comb
 - 1:1 keeps queen laying but risky in fall, more eggs equal more food needs
 - 2:1 best choice for late fall (November and December)
 - HFCS or granulated sugar
 - No real cost difference in HFCS and sugar water
 - 1 gallon 1:1 syrup equals about 6.5# food
 - **5 gallon 1:1 syrup equals about 32.5# food**
 - 1 gallon 2:1 syrup equals about 9# food
 - **5 gallon 2:1 syrup equals about 45# food**
 - Honey Bee Healthy additive (optional)
 - Amino –B-Booster additive (optional)
 - 20 amino acids
 - Sugar/Protein Cakes
 - Excellent Fall feeding option
 - Bees won't store solid sugar, they consume it
 - 9-3-2 Sugar/protein/1:1 or 2:1 syrup mixture
 - You can also add corn oil to help keep patties moist
 - Started adding a Vitamins & Electrolytes additive this year

Fall Feeding





October:

- **Perform hive inspection first or second week of October**
 - Mite treatments should be completed
 - Apply DFM (Direct Fed Microbial) treatment
 - Boost bees immune system
 - Restores healthy bacteria in bees digestive track
 - Mix 3 parts protein powder or powdered sugar to 1 part DFM powder. Apply ¼ cup per hive
 - Determines how much if any you need to feed in fall
 - You need to have 5-6 frames of food minimum at this time
 - By the end of November you will need 50# honey or syrup and pollen for winter months
 - Italians need the most food reserves and Russians the least
 - Frame food weights
 - Deep frame = 8-9# food
 - Medium frame = 3-4# food
- **Make sure you have a queen and she is still laying (just look for eggs and larva)**
 - Mite treatments will affect queen laying
 - You want to see a good brood pattern, 5-6 frames brood
 - By November – December the queen will really slow down laying, Russians almost stop laying completely
- **Honey or Pollen Bound Hive**
 - In October if feeding or good nectar flow you can quickly get a honey bound hive
 - As bees in brood nest hatch out bees will fill cells with honey leaving little room for queen to lay
 - Can add a frame of empty comb into center of brood nest to give queen laying room
 - If feeding, feed only sugar/protein cakes
 - Bees won't store solid food, they consume it

Brood Frame Becoming Honey or Pollen Bound



Queen Looking For a Place to Lay



- **Bees should be bringing in nectar and pollen from Goldenrod and Asters**
 - Goldenrod has a distinct smell
 - Goldenrod lasts until frost
 - Goldenrod yellow pollen, Asters white pollen
- **If a double hive isn't real strong, cut down to a single box.**
 - If bees can't use and can't protect it, condense them to one box
 - Easier for small hive to survive in a smaller space
 - Protect comb from wax moths and hive beetles
 - Comb is worth its weight in gold, store and preserve it well!!!
- **Reverse hive bodies (you must monitor closely and feed quickly)**
 - I have done this with good success
 - Sometimes in the fall if you have a small population they will completely move up into top box
 - This also depends on nectar flow coming in and if they can fill the top box
 - You should plan to feed 4-5 gallon 2:1 syrup unless you have a good nectar flow
 - 5 gallon of 2:1 syrup can add about 45# feed to a hive
- **Combine weaker hives with stronger hives**
 - Never combine weak hive with another weak hive
 - Newspaper combine method best, make sure to remove queen from the one you are combining

Goldenrod



Asters



Pollen coming in



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- **Reduce or block entrance from wind**
 - Keep wind from blowing directly into hive entrance
 - **Mouse Guards**
 - **Close bottom board off in SBB**
 - Can monitor bee strength by looking at mite board
 - **Prop outer cover open with stick (I do this year round)**
 - **Beetles**
 - Trap them
 - Mash them!!
 - Not much you can do right now, they are not too bad in winter but they will cluster with bees

November:

- **Perform brief hive inspection mid November if weather permits**
 - Determine amount of food supply in the hive for winter
 - Look at outside frames for food
 - If food supply low, feed a lot fast
 - Feed 2:1 syrup or sugar/protein patties or both
 - Make sure you still have a queen
- **Turn top entrance away from wind direction**
- **Top Insulation ½" to 1" foam board above inner cover (on by December 1st)**
 - Help with condensation (warm air hitting cold inner cover)
- **By the end of November you need 50-60# honey or syrup and pollen for winter months**
 - Italians need the most food reserves and Russians the least
 - Feed only 2:1 syrup in November and sugar/protein patties
- **Frame food weights**
 - Deep frame = 8-9# food
 - Medium frame = 3-4# food

Insulation board



Screened top entrances



Reduced entrance and mouse guard



Mite board to view hive strength



December:

- Last Chance to make sure hives have adequate food supply for winter
 - Can still feed 2:1 syrup if weather warm enough (need about 45 degree days)
- Put hard sugar/protein blocks on for winter feed source mid December, no later than Christmas
- Keep protein on the hive, either in patty form or hard sugar blocks with protein mixed in
- Put screen bottom boards in, I leave mine in until May 1st
- Check hive every 2 weeks to make sure they still have food
 - Don't open hive for any type of inspections
 - Keep hive open only minimal time to add food
 - Move food on top of cluster if necessary
- Wrap hives if you choose.
 - I have seen no difference in wrapping and not wrapping in survival rate of strong hives
 - It can help smaller or weaker hives some





Winter Feeding

- Winter is not a survival time, just another phase in beekeeping
- **Winter feeding should never be considered emergency feed**
- In January, February and March I use sugar blocks and sugar/protein blocks on top frames in 3" spacer
 - Place 4-5 on each 10 frame and 2-3 on nuc hives mid to late December
 - Be careful placing too early or bees will move up to them
 - » Make sure bees have clustered a couple times
- Winter patties, or candy boards also good options
- **I am a firm believer of providing protein all winter**
- My sugar/protein blocks contain about 15% protein, most purchased winter patties contain about 4% protein







January:

- Check hive every 2 weeks to make sure they still have food
 - Don't open hive for any type of inspections
 - Keep hive open only minimal time to add food
 - Move food on top of cluster



February:

- February is the month we start building bees up.
- Put 1:1 syrup and protein patties on when daytime temperatures reach 45 degrees.



Spring Feeding



Recipes

- **1:1 Sugar Water:**
- 2 gallon syrup
 - 10 lbs. granulated sugar
 - 5 quarts water
 - Add 6-8 teaspoons of Honey B Healthy and 4 teaspoons Amino-B-Booster per gallon
- 5 gallon syrup
 - 25 lbs. granulated sugar
 - 12.5 quarts water
 - Add 6-8 teaspoons of Honey B Healthy and 4 teaspoons Amino-B-Booster per gallon
 - Add one-two caps full of bleach (helps prevent mold)
- **Protein/Sugar Patties:**
 - 9 cups AP 23 protein powder
 - 3 cups sugar
 - Add enough 1:1 or 2:1 syrup to make consistence of peanut butter and form into patties on wax paper.
 - You can also add corn oil to help keep patties moist, Approximately $\frac{1}{4}$ to $\frac{1}{2}$ cup

Recipes

- **2:1 Sugar Syrup:**
- 1.5 gallon syrup
 - 10 lbs. granulated sugar
 - 2.5 quarts water
 - Add 6-8 teaspoons of Honey B Healthy and 4 teaspoons Amino-B-Booster per gallon
- 5 gallon syrup
 - 25 lbs. granulated sugar
 - 6.25 quarts water
 - Add 6-8 teaspoons of Honey B Healthy and 4 teaspoons Amino-B-Booster per gallon
 - Add one-two caps full of bleach (helps prevent mold)
- **Sugar/Protein Patties:**
 - 3 cups AP 23 protein powder
 - 9 cups sugar
 - Add enough 1:1 or 2:1 syrup to make consistence of peanut butter and form into patties on wax paper.
 - You can also add corn oil to help keep patties moist, Approximately $\frac{1}{4}$ to $\frac{1}{2}$ cup

Recipes

- **Hard Sugar Blocks:**

- 1 quart water
- 12 lb. sugar (24 cups)
- 6-8 teaspoons Honey B Healthy
- Five 7"x7"x1.25" cake pans or five 9" pie pans (makes five 2 lb. pans)
- Heat water to boil, add Honey B Healthy, add sugar and mix, heat to 250 deg. mixing occasionally, remove from heat and let cool to 210 deg., stir quickly and pour into pans, let harden (don't let it get too hard while cooling or you can't pour it)

- **Hard Sugar/Protein Blocks:**

- 1 quart water
- 12 lb. sugar (24 cups)
- 3 cups protein powder (I use AP 23 protein powder from Dadant)
- 6-8 teaspoons Honey B Healthy
- Five 7"x7"x1.25" cake pans or five 9" pie pans (makes five 2 lb. pans)
- Heat water to boil, add Honey B Healthy, add sugar and mix, heat to 250 deg. mixing occasionally, remove from heat add protein powder and mix in quickly. Once mixed, pour into pans, let harden.

Summary

- Bees are livestock
- Nobody has the answers, just opinions
- Feed anytime and every time it is necessary
- Fall bees determine your spring honey crop

Honey Bees survival depends on you, the beekeeper.