

Bee Annual Work Plan

Updated February 2017

February

- Make sure top entrance does not freeze over – poke it with a nail to chip any ice away. Fluffy frost is ok – solid ice is bad.
- Order bee friendly garden seeds – no hybrids
- **Don't open the hive until you are willing to go outside in a t-shirt. If they aren't flying, don't disturb them.**

Early to mid March when temperatures above 5c

- Start checking the hives in March but don't unwrap them until May
- Do not disturb the brood nest – just peek
- Make sure queen is healthy and laying
- Check for Varroa mites – pull bees off lid as they are on top. Treat if mite levels are above 1%
- If less than 4-6 honey frames, feed sugar syrup or honey frames
- If evidence of Nosema, treat with fumagillin B. (Dysentery does not equal Nosema.)
- If the winter is long and spring is cold, to prevent starvation, add feed directly to the top bars. Can use a mixture of honey, sugar and water mixed to the consistency of crystalized honey then applied like drywall hole fill.
- **March 20th deadline for strip mite treatments (to allow 6 week treatment then 2 week withdrawal period before honey supers are added)**
- **As soon as bees start flying, put out dry pollen supplement, then make it available through to fall, especially during nuc making**

Late Spring (mid-April)

Will notice hive dwindling as old bees die and are replaced with young

- Feed syrup (10kg sugar in 12L pail will do 4 hives – don't give too much as they likely won't take it)
- Treat for American Foulbrood Disease by medicating with oxytetracycline – mix it with icing sugar and sprinkle it on the top bars during spring inspections
- Mark heavy-drone comb hives and position of those frames for later removal. (Limit drone cels to one percent of comb by replacing drone comb with spent honey comb. It will increase the quantity of workers and honey production.)
- **Remove mite strips 2 weeks before honey supers – If March 20th, May 1st.**
- **No honey supers on while syrup is being fed**

Early to Mid May (typically May 1-10th or up to the end of the month when dandelions are in full bloom –

- Remove syrup
- Unwrap colonies (never earlier than this)
- Move hives away from each other, to the limit of the pallet's dimensions. (Reminder Note: for this year set up 2 hives per pallet with walking space behind.)
- Day after unwrapping, reverse hive bodies – use this time to cull old comb and comb with lots of drone comb, scrape, maintain hive equipment and clean bottom boards
- Do first comprehensive inspection of the season
 - Check survival, health, disease
 - Should have 9-11 frames of bees and 5+ frames of brood
 - Classify each hive from weak to strong
- For very strong colonies:
 - Split or make nucs from swarm-mode colonies. Use bees from weakest, queen larvae from best. (Plan to winter over 10-20% more than needed to compensate for winter kill.)
 - Add a 3rd brood box at same time as the reverse. It will be their 3rd brood box until early August. Remove entrance reducers when 3rd brood box is added.
 - If hive becomes overcrowded, remove one or two combs of brood. Use it to start nucs or give to other hives (be sure not to take the queen)
 - Equalize colonies by moving one or two frames of capped brood from strongest to weakest hives
- For weak colonies (1/2 box or less of bees):
 - Knock down to a single box
 - If improves, add a second box later (she may just have been slow)

- If not improved, kill queen then:
 - 5 days later, give frame of eggs from a good hive, or
 - give larvae grafted queen cups – 6 days later, destroy all new queen cells (not those provided – unless the graft didn't work), or
 - use these bees to make nucs (with good queen larvae)
- Change the entries on the hives from top to bottom
- Ensure there is a water source
- Sort culled comb into four piles: honey, pollen, emptyish, discard – for ease of use through the summer.
- **After dandelion bloom, if there is a floral dearth, feed again**
- **Two weeks after mite strips are removed, add queen excluders and honey supers. If strips were removed May 1st, May 15th is the target.**
- **Watch for swarm and supercedure cells – May/June is prime swarm time**

Prevent Pesticide Poisoning

- Let the neighbours know that I have bees so they can warn me if spraying pesticides.
- If they are spraying, early in the day, soak a bed sheet in water and drape it over the hive
- Remove the bed sheet the next morning.
- Or screen the entrances so they cannot fly that day

- **Plant a bee-friendly garden – no hybrids – no bedding plants treated with neonicotinoids**
Nectar: willows and dandelions
 Mid May to Mid June – Colette and Richard away

May-June

- By end of may, brood chambers should be very full of bees and brood
- Check colonies every 10-14 days

May 26 Attending Queen Rearing Class

June 5 Attending Intermediate Beekeeping Class

Requeening

- Add young queens via wintering nucs
- Never requeen a colony that is doing well
- Do requeen if hive is queenless, aggressive or has chalkbrood
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- In May, split or make nucs from swarm-mode colonies
- Mid-July to July – start grafting - do on different days to reduce weather risk – ideally for July mating
- Mid-July – cell-building and nuc making is done

Make nucs to winter over using preferred stock of the right age – to deal with winter kill, go into winter with 10-20% more than is really desired

- Use bees from weakest and queen larvae from the best
- Use frames: several honey, one pollen, open brood, capped brood, enough bees to cover all frames
- Always feed, add pollen patties and entrance reducers
- Move it 2 miles away

- If not already done, remove entrance reducers
- Reverse hives again to reduce congestion
- If brood chambers are filling, add queen excluder and honey supers – when in doubt, give more supers – if see white ridges of wax on upper chamber – add more supers
- Alternate foundation with drawn comb – 6 drawn frames, 3 foundation frames per honey super when new drawn comb is needed
- If nectar and pollen dearth, feed sugar syrup and pollen (no syrup and honey supers on simultaneously)

Late June through July Nectar Flow

Supplies Needed: - lots of spare supers, super-pallets, fume board/solution, bee brush

- Check that brood is healthy and happy
- Monitor weekly and add more honey supers (3 to 5 each)
- Never place a honey super containing only new foundation above the queen excluder.
- Clean frames

Nectar: canola, alfalfa, sweet clover, white clover, red clover, faba bean, gardens and plantings

If making comb honey – ADD MORE TO THIS SECTION AFTER READING COMB HONEY BOOK

Do not use Bee O Packs from Beemaid. Cut comb is easy, Ross Rounds is tricky but nice.

- If cut comb, buy unwired foundation, then cut, drain and pack. Will crystalize around the edges – or put into extracted honey as “chunk honey”.

- If using Ross Rounds, swarming can occur. Stores well in the freezer.

Do it only during hot weather so the bees make the fine wax

Do stimulative feeding to the brood boxes just prior

Works very well with newly caught swarms who are given a brood box of completely new foundation

Swarm Prevention

- If there is a nasty wet spell where the bees can't fly, be extra cautious about swarming
- Install swarm traps in the yard.
- Remove Queen and some brood to a nuc box or dig out queen cells
- Have from three to five supers on each hive by the end of June
- Reverse hive bodies to reduce congestion
- Demaree method – confine queen to one frame of brood in bottom brood chamber with eight empty combs, excluder on top, empty honey super above, rest of brood above. Check about one week later and destroy queen cells.

Orientation Flights vs swarming

- Both are very noisy. Orientations happen late morning to mid afternoon
- During orientation flights, bees climb the face of the hive and hover before flying
- During swarming the airspace fills quickly and the swarm attaches to something nearby where they can be retrieved
- If they are having regular orientations during the spring build up, watch them more closely for potential swarming

Videos:

- <http://www.santacruzbees.com/photos-and-videos/orienting-vs-swarming/>
- <https://www.youtube.com/watch?v=XtH9nG929OU>

Use an Artificial Swarm to Prevent a Natural Swarm (also called shook swarm)

If notice at least one queen cell on the frame, then before 10:00 a.m. or after 2:00 pm.

- Have a single hive ready (top, frames, bottom)
- Old hive – remove frame with queen and keep her safe, move old hive at least 10 feet away from the original location
- New hive – place it where the old hive was, place a bed sheet in front of it from the ground to the entrance
- Old hive – shake 80-90 percent of bees off, put old frames with 10-20 percent of bees back into this old hive
- New hive – place queen into it, place screen over entrances for a couple of days
- Feed syrup to both hives

The new hive will contain Queen, old queen frame, 9 new frames with foundation and 80-90 percent of the bees.

Tip:

- *When bees are hanging on the front of the hive, they are just cooling off. It's called bearding.*

They swarmed!

- One week after, inspect your hive to determine if you have a new queen. Two weeks after, look for eggs
- 1-7 days, the queen cell will open and a virgin queen will emerge
- 3-4 more days, she will mate
- 2 more days before eggs

Swarm Trap

- Attach a bottom to an old hive body and drill a hole into the side
- Place 9 brood comb into it
- Place it about a meter off the ground
- Attach Bee Boost strips to the top bar of one frame and Swarm Catch with Nasonov

Catching a swarm

"A swarm of bees in May is worth a bale of hay. A swarm of bees in June is worth a Silver Spoon. A swarm of bees in July is not worth a fly"

- Place a brood box out. Spill some sugar syrup and honey in and around the brood box

If you see a swarm right away, collect it in a brood box

If it is late in the year: Look for signs of a mated queen – eggs and young larvae

Can shake off bees into existing hives or place with up to five frames of brood with adhering bees

Killing a Swarm

Dump it into a container of soapy water

First week of July through early September

Processing Honey

Honey is acidic with a low moisture content, so it is safer than many foods, but it is still a food and must be handled safely to prevent cross contamination.

Pull Honey when 80% of cells are capped (if not 80% it will be too moist and yeast will grow, then spoil).

- Remove honey supers and stand them on end on pallets beside the hives
- Add empty replacement honey supers immediately so the bees have a place to put more honey
- Place honey supers on honey pallets - ensure that supers are not contaminated with dust, soil or chemicals (never set them on the ground)
- Cover full honey supers with lids so bees don't rob them
- Take notes about how much honey supers/frames are taken from each hive
- Pull regularly so they produce more – likely 2 to 3 times in the summer
- Once supers are pulled from hives, extract immediately and do not let them sit or they become targets for small hive beetles.

Tip

- *Don't get too anxious and pull too early or your honey will be too wet and will easily ferment*

Supplies Needed: deboxing and uncapping station, scraper, extractor, 5 gallon pails, honey gate system, 100 mesh nylon filter cloth, small containers, labels, if creaming then seed honey, paddle/mixer, weight scale, long spatula, wet and dry bulb thermometer, moisture refractometer

- Heat and ventilate frames to to 26-32' to flow honey and reduce humidity (in a hot room or hot box)
- Maintain relative humidity at 58 percent – can blow warm dry air over supers to dry them further
- Scratch all honey cappings on frames
- Run frames through extractor
- Test moisture level so it is 17.4-17.8 percent or less (to avoid fermentation)
- Skim then strain. Honey must be warm enough to strain though the filter cloth
- If creaming, add 1/10 ratio of creamed honey to the extracted honey, stir several times a day – put into jars the next day, let it set for 5-7 days
- Wash, rinse and sterilize jars or soak new plastic tubs in bleach solution and allow to air dry – do not towel dry

- Use honey gate pail to fill small containers and a digital kitchen scale to weigh to ensure accuracy
- Apply labels
- if not packing it all right away
 - can be stored under 10' to delay granulation or freeze
 - will need to be warmed to package at a later date (in a water jacket or heating box)

The honey should not be heated hotter than 100-110 F. Slow and low is best.

Use a good quality food thermometer to check.

Health and Safety

- **keep exceptional records about bees, hives, production, and sales (traceability)**
- **ensure water is clean**
- **bleach everything – floors and working stations**
- **Clean extractor with hot water and only dish soap if necessary (nothing corrosive)**
- **Wear no rings or nail polish**
- **wash hands, wear a hat or hair net, wear disposable gloves, clean non-loose cloths and clean CSA-approved shoes**
- **no human blood, pets, pests, chemicals anywhere**
- **don't eat in the honey processing area**
- **honey cannot be contaminated with anything (dirt, broken glass, hair, insects, etc.)**
- **keep brood comb out of honey house**
- **NEVER uncap brood comb – if found, take it back to the hives**
- **seal honey and wax (do not leave it lying around) and dispose of it so it can't be robbed**

Tips:

- *Use food-grade everything – plastics, and stainless steel, etc.*
- *Exposed wood must be painted with lead-free food grade paints*
- *Keep glass away from processing areas*
- *If your honey is wetter (18.5 or more), cream it and keep it refrigerated – don't sell it*
- *You can sell your honey farm-gate or directly, but not through a third party*
- *To keep packaged honey from crystalizing, it can be frozen*
- *To keep the honey light, save the dark honey frames to extract separately or to feed to the bees later.*
- *Extract honey quickly after pulling to avoid pests*
- *Do not leave empty supers outside as it will encourage robbing behaviour and disease spread*
- *Use a small hand-held vacuum to suck up bees in the honey house*

Mid July

Nuc production tapers off – only 5 frames or more or there won't be enough time to grow large enough to survive winter

August

- May need to remove 3rd brood box

End Aug/very early September

Supplies Needed: Sugar feed, mite shaker jar, winter-grade washer fluid for shaker, medications/preventative treatment, super-pallets

- remove last honey supers
- check and treat for Varroa Mites – if levels 2% or higher, treat
Nectar: sunflower, buckwheat, borage and second blossom alfalfa

Tips:

- *Colonies that are large first thing in the spring or grow very quickly are harder to treat, for example, sometimes at the start of the treatment only two Varroa control strips are necessary and with exceptional growth 42 days later 4 strips may be necessary for adequate control.*
- *If you are wrapping around November 1st, your deadline is mid September.*

Mid September

- Flip cover to top entrance
- More mite testing/treating
- Feed sugar syrup – feed one pail of syrup per hive per week until they stop taking it, they are full and the bees can be wrapped. (Autumn syrup recipe: 2.5 quarts of water and 10 pounds of granulated sugar)
- Add Oxytetracycline to sugar syrup for American Foulbrood prevention – if you have any used bees, comb, supers, do it
- If signs of Nosema, add Fumagilin-b to sugar syrup too

Tips

- *If the weather is cooler and you are unsure if they have taken enough food, lift the hive to determine how heavy it is. You can also place some frames of honey to supplement.*

Each hive gets about 13 litres of syrup or 10 kg of sugar.... 25-30 kg of sugar

First Feed syrup and Oxytetracycline and Fumagillin

Second feed, syrup and oxytetracycline

Third feed, syrup only

Winter Preparation: October 15-30th

Supplies Needed: **Winter wrap, entrance reducers or mouse guards, mouse poison**

- Remove Apivar mite strips 6 weeks after installation (mid October to end of November)
- If didn't apply Apivar, can apply Oxalic acid for mites (after checking) – it is more effective when there is no brood
- Tilt hives so moisture can drain outward
- Add an entrance reducer
- Push 4-packs of hives together – if an odd number, use two empty supers filled with insulation to make a block of 4
- Place mouse poison on top and within the pack
- Attach mouse guard to entrance
- Wrap in an insulated pack – it should be high enough to keep the bottom open so moisture can escape
- Cut holes in the insulated pack for a top entrance – secure with a piece of wood to allow ventilation and carbon dioxide escape
- Can apply a wind deflector at the top entrance
- Secure the pack to the pallet so it doesn't blow off
- Some place a sheet of plywood on top secured to the pallet so water can easily drain off
- Stack honey supers 8 high on a drip pallet for a week or two. Place them on cardboard (so they don't eat any concrete away – honey is acidic with a PH of about 3.9).
- Store empty supers in an unheated space on super-pallets. They must freeze to control disease/pests.
- Wash feeder pails and store them in a pet and pest-free space

Not sure if this would work in Sask - Check??

Slide the upper deep back so that you create a 1/2 inch opening along the entire front lower hive body for ventilation (in beekeepers for dummies – check this)

Winter

- Fully cover hives with snow for extra insulation – cover even the entrances. (Heat from the hives will melt out a little igloo where they can exit and get water.)
- Determine future plans, and if applicable, order more nukes/bees/hives for the spring
- Leave them alone!
- Do not feed them until it is spring or they will start raising brood and likely starve (unless you continue to feed them)
- Store creamed honey intended to be used as seed honey for the next season at about 10'. A cold room or fridge is fine.
- **Seeing dead bees outside the hive is good. Worry that everyone died if you don't see them. Can't do anything about it until March.**

**Integrate this new information after taking spring classes:
Geoff Wilson's Facebook page – Grafting schedule:**

Year 1 / Nuc Year

- Second last or last Thursday May – Graft
- Graft again 2 weeks later
- 1st Sunday June – 10 days after graft – make 6 frame nucs with 2 frames brood with bees, 1 frame feed, cell and empty frames / foundation
- 3rd Sunday June – check queens for mating (how? - just watch for eggs or?), apply Oxalic acid to nucs with accepted queens, add eggs and cell to queenless nucs
- 1st Sunday July – check queens in re-celled nucs, oxalic nucs with new queens, re-organize brood in nucs where appropriate, add supers where appropriate. Remove any equipment that did not accept the queens
- July add supers weekly and extract appropriately.
- 2nd Sun in August - treat with 1 MAQS pad per 6 frame nuc under the queen excluder. Labour Day weekend remove last honey and extract. Check mite levels, Feed small amount immediately if needed, check mite levels, and treat if needed
- 2nd Sat in Sept feed bees
- 3rd Sat in Sept check on feed and feed again if necessary
- Labour Day weekend, winter as 6 frame singles

Year 2 / Colony Year

- Mid-March – treat with strip product (Apivar or Apistan/Bayvarol), feed pollen patty
- Beginning - April - check strips and relocate if needed, check feed stores.
- April end Early May - remove strips, check mite levels, evaluate for winter success weight and population (first q evaluation)
- 2nd Sunday May – unwrap and start putting nucs to singles (scrape frames)
- 3rd Sunday May – complete transfer of nucs to singles (scrape frames)
- 1st Sunday June – reorganize colonies to maximize growth, super where needed
- 2nd Sunday June – reorganize colonies to maximize growth, super where needed
- 3rd Sunday June – Super where needed (undersuper when necessary)
- July – Mid August Super weekly and extract as needed
- 2nd Sat in August – treat with MAQS under the queen excluder
- Labour Day weekend remove last honey and extract. Feed small amount immediately if needed, check mite levels, and treat if needed

- 2nd Sat in Sept feed bees
- 3rd Sat in Sept check on feed and feed again if necessary
- Thanksgiving weekend - winter as 10 frame singles

Year 3 / Split Year

- Mid-March – check mite levels, feed pollen patty, apply treatment if mite levels exceed 1%
- Beginning - April – if used, check strips and relocate if needed, check feed stores.
- April end Early May - if used, remove strips, check mite levels, select breeder queens from previous season's written records, super any if needed.
- Mid May - super if needed
- Late May set up cell builders and graft
- Beginning of June – split colonies into nucs (Restart at nuc year)