Almonds, Blueberries and Cranberries…

Crop pollination in the United States

2018 Australian Bee Conference

The United States is a very large and diverse country with many honey producing regions 3000 miles from east to west and almost 2000 miles from north to south

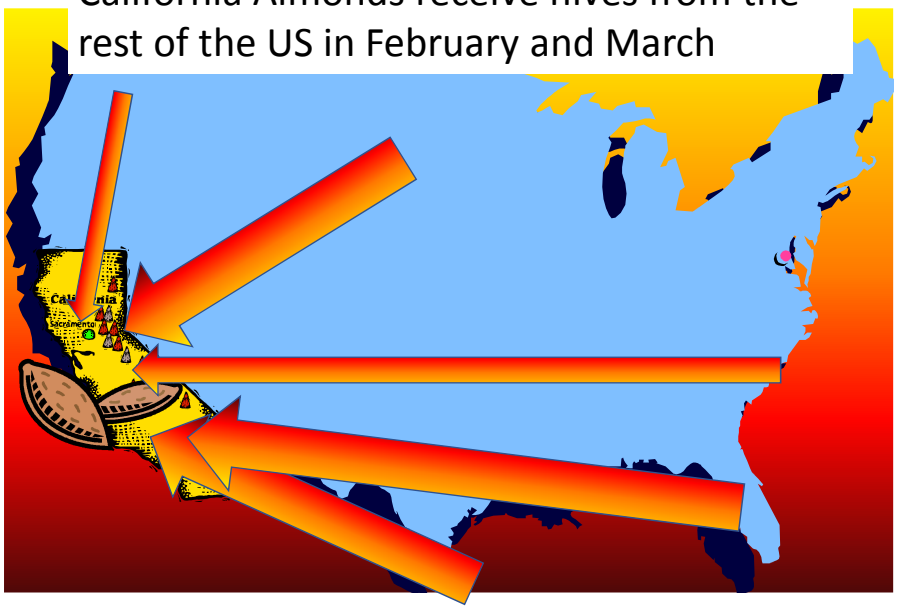
Commercial Beekeeping in the US

- 2.7 million total hives (includes backyard beekeepers with more than 5 hives)
- Almost 2 million needed for almond pollination
- Pollination fees to beekeepers now greater than honey income.

After almond pollination

- Bees spread all over the States
- Estimated 500,000 are California based
- Over a million hives make honey in the upper Midwest.
- 200,000+ travel back to the east coast

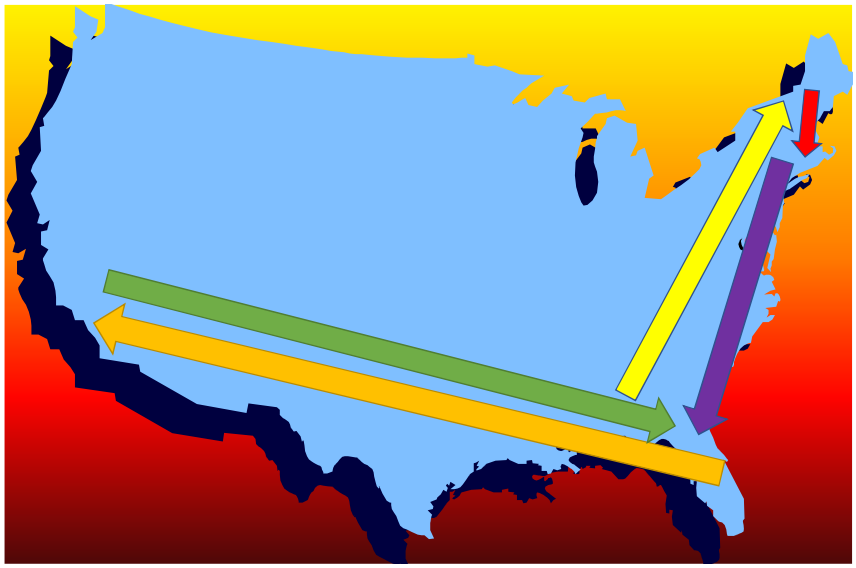
California Almonds receive hives from the rest of the US in February and March



Headwaters Farm Pollination Season

- California almonds bloom February 10 to March 15 (19,000 hives delivered in 2013)
- Maine blueberries bloom from May 10 to June 15 (13,000 hives delivered in 2013)
- Massachusetts cranberries bloom from June 15 to July 15 (8,000 hives delivered in 2013)
- Roughly 6 months of crop pollination (February through July)
- Roughly 6 months of recovery and rebuilding in Florida (August through January)

Pollination Circuit



Distances travelled

- South Florida to Kern County CA almonds 2800 miles
- Ca almonds to N Florida locations 2400 miles
- N Florida to Maine blueberry pollination 1800 miles
- Maine blueberry to Mass cranberry pollination 400 miles
- Mass cranberry to South Florida locations 1600 miles

- Total 9,000 miles

January

- All hives in South Florida near Fort Myers
- Willow yields lots of pollen and some nectar
- Bee yards of 200+ hives for feeding and management.
- Feeding sucrose syrup in buckets and some pollen patties if necessary.
- Rapid growth of brood and bees for Almond pollination in California
- Large crew to care for hives (45+ people

Bulk syrup in totes

Filling feeder buckets

Feed station

Preparing bees for California

February

- Shipping bees from Florida to California February 1 till 10th (43+ loads in 2013)
- Continue feeding of sucrose in buckets and pollen patties on hives to ship
- Bring hives to home yard to change out pallets and grade quality (large crew needed 40 + people)
- Load 2 to 3 semi trucks each night
- Crew in California (2 to 4 people) unload and distribute to almond orchards generally in 4 pallet drops
- Dave on the phone coordinating trucking and dealing with Border entry into California

Loading bees on semis

Making pollen patties

Grading hives and adding pollen patties

Quality Control

March

- 90 % of our hives in California on almond pollination
- Weaker hives or “extras” continue to build in south Florida and/or used for watermelon and vegetable pollination
- Inspection for quality in California
- Shipping bees from California to Florida as soon as released (mid March typically)

Arrival in California

Ready to unload

Taking off the nets

California holding yard …. Desert!!!

Just before bloom

Sometimes 4 wheel drive is not enough…

Finally, bloom starting!!

Close to full bloom

April

- 80% or more hives in North Florida for honey production and/or making new hives
- Queen yard to make 3000 mated queens per week in April in North Florida
- Very strong pollen and nectar flow in FL panhandle
- Control swarming in North Florida by making nucs and/or splits

Hives needing to be split

Grafting eggs to raise queen cells

Queen cells ready to install

May

- Begin shipping bees to Maine around May 5
- Load 1 to 2 semis every night
- Pull and extract honey to get hives ready for shipping
- Very large crew (35+ people)to prepare hives in Florida for shipping (add 8 lb. pollen patty also)
- Crew in Maine (4 people) unloads and distributes bees in blueberries in 10 to 20 pallet drops
- Dave on the phone coordinating trucking, loading in Florida, and deliveries in Maine

Maine blueberry field

Blueberry bloom

20 pallet yard

Small truck spreading bees in the field

Ten wheel truck load of bees

8 pallet yard

Bear electric fence already set up

Setting bees in the road

June

- Blueberry pollination until the middle of June
- Quality control inspection by blueberry growers (bonus for 10 frames of brood)
- Ship most bees from Maine to Massachusetts for cranberry pollination (1 to 2 semis per night)
- Beekeeping crew in Maine to sort out weak/dead hives, feed with pollen patties(8+ people)
- Distribute bees to cranberries (hive drops from 1 to 15 pallets)

Cranberry bog early bloom

Holding yard for cranberry pollination

Cranberries ready to harvest

Cranberry harvest

Bumble bee quads

July

- Cranberry pollination until the middle of July
- Ship all hives from Massachusetts to Florida
- In Florida hives are unloaded at shop, checked, add pollen patties, distribute to out yards of 30 to 40 pallets around Fort Myers
- Feeding of sucrose syrup in Florida begins
- Cabbage palm blooms to provide pollen

Hives returning from Massachusetts

Typical Fall yard

Headwaters truck after unloading

August

- All hives back in South Florida spread into out yards by August 1
- Queen yard producing 3000 queens per week
- Early splits made weaker at start and stronger later in season
- Very large crew (45+ people)
- Feed sucrose in buckets all of August to build bees

Making Fall splits

New foundation

Nice brood!!

September

- Continue splitting bees until Pepper flow starts (15th) and then check and super splits
- Manage full strength hives for honey production of Brazillian Pepper
- Feed sucrose until honey flow begins
- Wood shop builds new boxes and frames

October

- Strip Fall honey on unsplit 10 frame hives
- Split remaining 10 frame hives using double screens
- Queen yard continues to produce 3000 queens per week
- Extract fall honey until done

Small trucks loaded for field work

November

- Begin feeding of sucrose and pollen patties on all bees
- Check splits made in October
- Varroa treatments begin near end of month
- Build new boxes and frames for Spring

Making pollen patties

Mixer and auger

December

- Continue feeding of liquid sucrose and pollen patties
- Complete varroa mite treatments by end of month
- Build new boxes and frames for Spring

Come visit us sometime!!!