Honey bee forage

UPSIDES, DOWNSIDES, RESOURCES

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2012 Heintz Lost Hills, CA
Honey bee problems

Averaging 30% hive losses every winter.
Causes: multiple. Mites, fungus, pesticides
A common stressor: lack of forage.

Pollen and nectar are the best food for bees.

“The supplements just maintain them; they don’t keep them nice and robust”
- Bret Adee, beekeeper

Top Producer Concerns about Cover Crops

Water use

Need solid packed floor for almond harvest

Bloom Competition

Freeze Damage
Water use of cover crops

Ground vegetation in orchards uses more water than bare ground
(20-35% more for perennial covers.)

Prichard 1989: Orchard water use and soil characteristics

For annual cover—it will use some winter soil moisture.

Need solid packed floor for harvest:
Project Apis interview Gino Favagrossa, almond grower and former beekeeper in Fresno County
http://www.youtube.com/watch?v=XMdPonKhSdl
Blooming Covercrops

Most growers assume that a blooming covercrop in their orchard will reduce bee activity in their almond trees. This sounds logical, but it is not necessarily true. A blooming cover crop can increase almond pollination by stimulating bees to collect more almond pollen.

Tests have shown that feeding sugar syrup to honeybees stimulates the bees to collect pollen; nectar from a blooming covercrop provides the same stimulus. To determine if your covercrop is reducing or increasing almond pollination, check bee activity on your covercrop vs. bee activity on your trees during the morning hours. Look for pollen-collecting bees (those that store pollen on their back legs). If there are significant numbers of pollen-collecting bees on the cover crop, then it should be mowed; if nectar-collecting bees are working your cover crop, this will be beneficial to you because it will increase almond pollen collection. Because almond flowers do...
Bloom competition test 2/25/2015

2/25/15
Almonds & wildflowers on a levy bank

9:30am bees in almonds,
1 bee in wildflowers

2:45pm fewer bees in almonds,
20-40 bees seen in wildflowers

Note: past full bloom.
Not much pollen left in almonds.
Not much bloom overlap.
Still, bees went to almonds first.

Almond bloom almost finished; wildflowers just starting
Benefits

- Strong hives this year and next
  (More pollen = more brood = more pollen)
- Legumes capture nitrogen, provide it to your crop
- Organic matter = water & nutrient retention
- Improve percolation
- Reduce dust
- Native bees and beneficial insects

Christi Heintz, Project Apis m.
Where are producers planting bee forage?

Vineyard near almonds
Levy and road banks
1-3 year old trees
Cover crops

Plant where you want to!

‘Seeds for Bees’

Nov, Dec & Jan – PAm Mustard Mix

Feb & Mar – 6 week almond bloom

Mar, Apr, & May – Clover & Vetch

Christi Heintz, Project Apis m.
Bean, pea, vetch, barley cover peaches/pistachios

Wildflower mix on berm peaches

Mike Silveira of B&S Orchards holds an oriental radish on Wednesday morning (02-18-15) in one of his orchards in Oakdale, Calif.

John Holland, Modesto Bee
Levy bank wildflower mix;  
Low maintenance, no water!

Road bank hedgerow. Can be low water.

Low maintenance, no water bee food. Wild mustard
Low maintenance, no water: leave some winter weeds by the road

Low maintenance bee food- white clover
Cover Crops - annual reseeding clovers

Photos: Lockwood Seed and Grain, Greg Wittenborn

Grower Benefits

In addition to providing needed food resources for honey bees, you may also profit from cover crop planting. There are a large number of benefits to planting forage for pollinators. Planting a bee forage cover crop will:

- Improve soil fertility
- Increase organic material
- Fix nitrogen
- Improve water infiltration
- Suppress noxious weeds
- Conserve soil moisture
- Increase beneficial insects by providing pollen and nectar
- Increase pollination diversity by attracting native pollinators
- Reduce soil erosion
- Create visual appeal

Be part of the solution!
To enroll in the pollinator forage project, contact us at ProjectApis@gmail.com

Visit us!
www.ProjectApis.org
NRCS Resources:
- Plant lists, project planning

Environmental Quality Incentive Program:
funding is available for establishing pollinator habitat of all kinds:
cover crops
Hedgerows
field borders
conservation cover
wetlands and riparian areas

*consider combining with irrigation improvements or nutrient management improvements*

Additional Resources:
- Your local seed supplier!
- Project Apis m.
- Xerces Society
- Burts Bees
Additional Resources:
Honey bee best management practices for California almonds-
preparing for arrival
pesticide/fungicide bee safety
provide clean water source

Thank you!

Bee adapted from Clker.com