April 2017

PAm Monthly News and Updates

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Danielle's Discourse

Sow What? Natives vs. Introduced Plant Use for Pollinator Conservation

Project Apis m.'s primary mission has been to fund and directresearch to help honey bees, but as we expand our forage programs, includingSeeds for Bees in California and The Bee and Butterfly Fund in the UpperMidwest, there is a whole new body of interests to understand. The recentcampaign from General Mills, where Buzz the honey bee disappeared from theCheerios box, has gotten a lot of attention–both praise and criticism. Notonly did they quickly 'sell out' of all the free seed packets that wereoffered, but there was equally swift backlash criticizing the effort for theseeds chosen. As we engage to replace critical habitat which has been lost forhoney bees, below the surface of that good deed are interests that may seem atodds, and may confuse most audiences seeking to help the situation. As Idiscussed this issue with the Director of Habitat Partnerships from PheasantsForever, Pete Berthelsen, he provided the following explanation from his yearsof service building habitat:

The use of "Invasive" or "Introduced" plants in

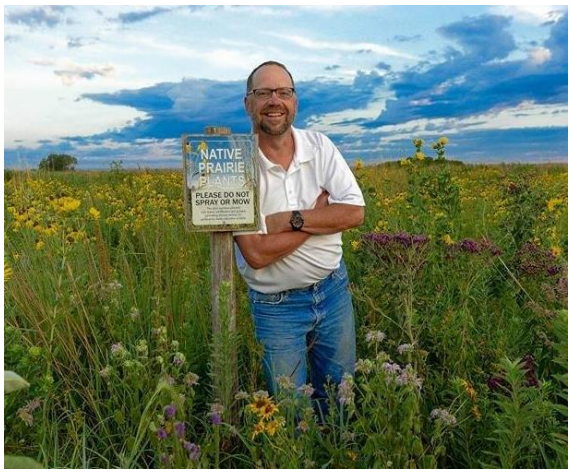
1. **Not all Introduced plants are all bad**. If you were to remove all introduced species from a pollinator planting, you would also remove the most important plants for honey bees (sweet clover and many other introduced clovers). Recent research conducted by USGS in the Dakotas has identified introduced clovers as the most important plants on the landscape for honey bees.

2. **Not all introduced plants are good for all landscapes**. Introduced plants like sweet clover can become invasive in areas with moderate to generous rainfall (about 32" of annual rainfall or more). That's why species like sweet clover are not included in our Bee & Butterfly Habitat Fund NextGen Habitat Project seed mixtures for East of the Dakotas and Nebraska. When designing pollinator seed mixtures, you must take the time to consider where and how each of the species- native or introduced- will function on the landscape, and in the mixture. If they have a tendency to become 'invasive', they are likely to outcompete the other species in the mixture.

3. **There is a "Natives First" movement out there**. There are states where there is a strong movement to use only native species in their conservation/pollinator plantings. This effort can usually be traced back to conservation programs that used introduced species in their past program seed mixes, like Fescue, smooth brome, etc., which were generally detrimental to wildlife and pollinators. The backlash solution is often to recommend the use of only native species in conservation programs going forward, assuming all non-natives are similarly detrimental.

4. **Introduced and native can live and work well together**. When Conservation/pollinator program seed mixtures are designed properly, there is a role for both native and introduced species to perform well in mixtures. This is especially important where pollinator habitat is concerned. If we allow people to repeat the message that "*All Introduced species are bad*", we will be removing

seeding mixturesto benefit pollinators has been a hot topic the past month or so. This isan interesting and important discussion and it's exciting to see the enthusiasmaround the topic of planting pollinator habitat. But like most complicatedissues, there are many aspects to this story that we need to considercarefully. Here are five points to consider when deciding whether "introduced"plants are friend or foe.



(Pete Berthelsen, Director of Habitat Partnerships from Pheasants Forever)

Just like the 'Flow Hive' generated lots and lots of media attention, dollars raised, Facebook posts, enthusiasm, etc., it was a far more complicated issue than the message on the surface would have the public believe. The issue of introduced plants vs. native plants is just as complicated. Here are a few points that need to be understood and considered about Introduced plants in pollinator plantings:

one of the most valuable tools in the toolbox for pollinators……especially honey bees.

5. Introduced plants can fill important roles. The use of the correct combination and rate of introduced species alongside native species can provide important benefits in other areas like: Cost-effective seed mixtures, habitat that establishes quickly and easily, providing significant pollinator benefits within just a few months, and a habitat planting that is better able to compete with weeds.

The bottom line is that this is a complex topic without a simple answer or response. We need to be thoughtful and careful about how this message is relayed to the public that is enthusiastically wanting to help the bees and butterflies! I hope these five points will help inform habitat enthusiasts as they encounter these debates.

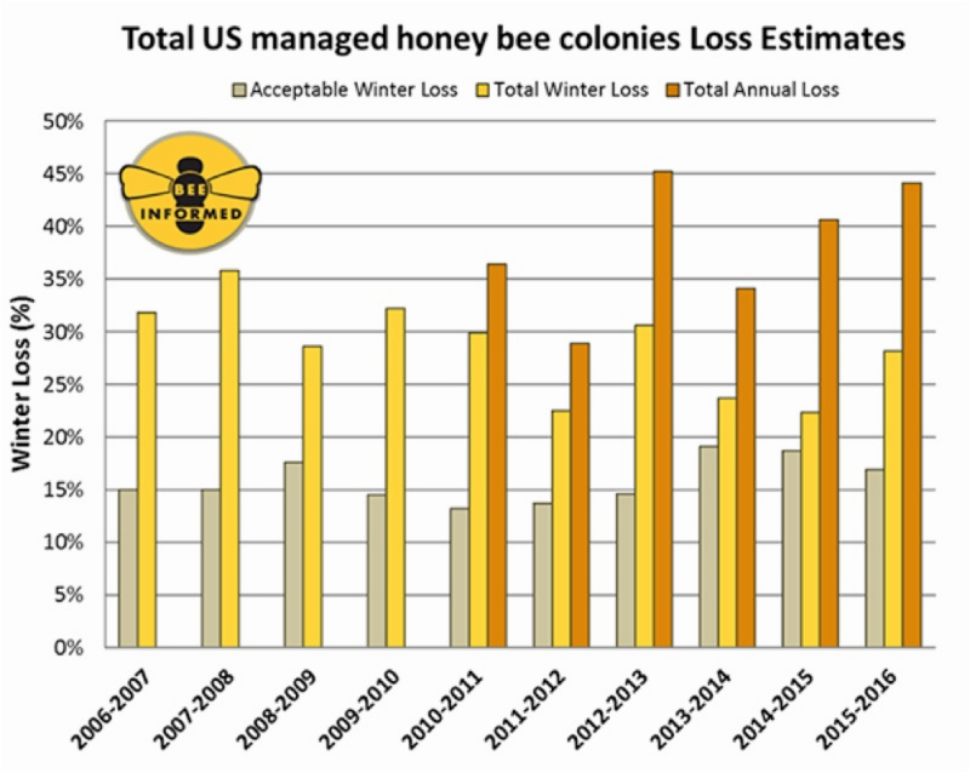
Danielle Downey,
Executive Director

with Pete Berthelsen,
Director of Habitat Partnerships
from Pheasants Forever

Read more from Danielle here...

The BIP Box

Gearing up for the Annual Loss and Management Survey

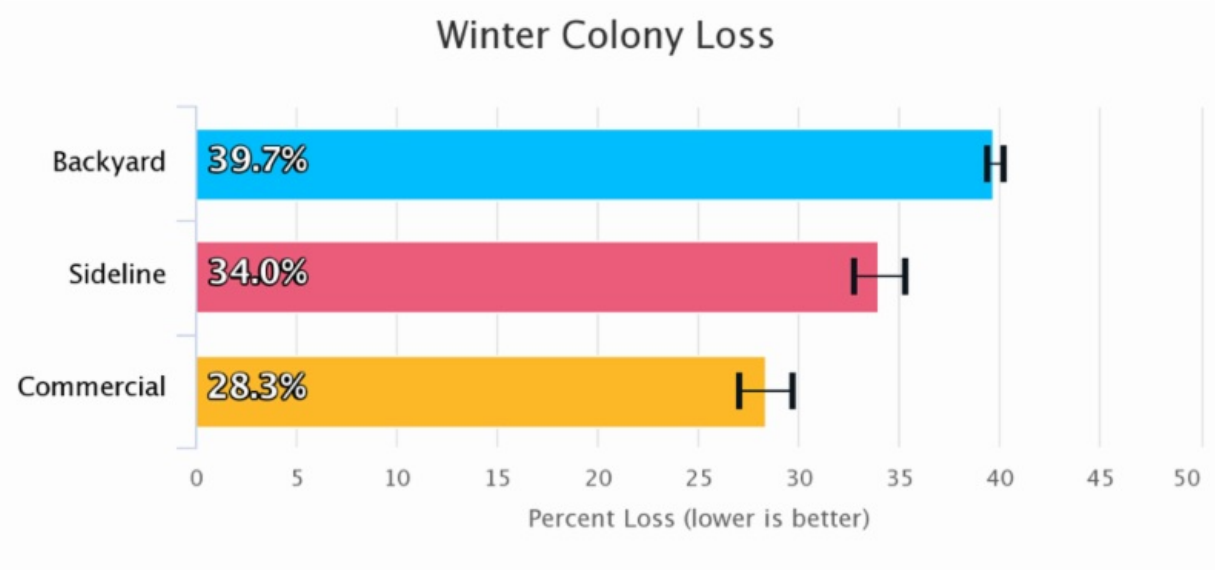


ColonyLoss Data. *Courtesy of the Bee InformedPartnership, Inc.*

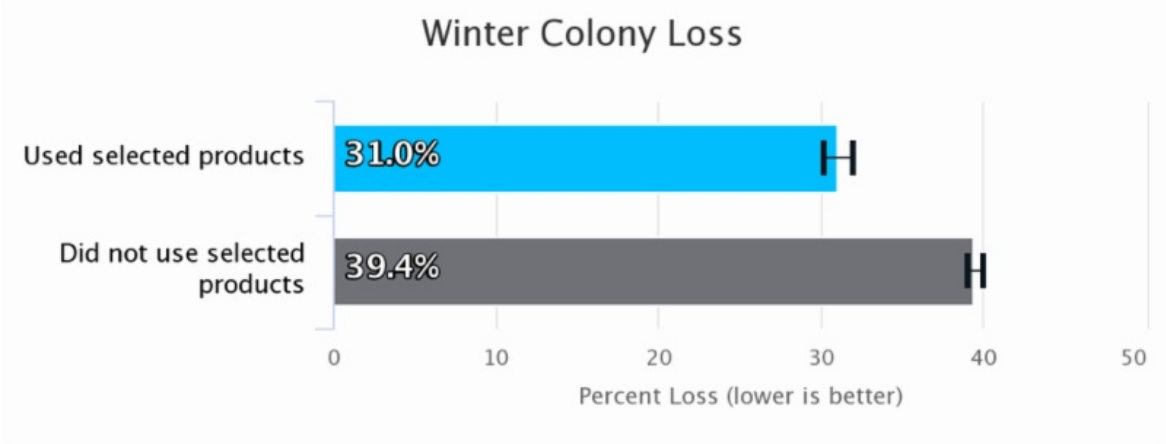
April 1st is usually regarded as atime to play jokes and pranks on fellow family members, neighbors, andcoworkers and it is not restricted to the US – it is a day recognized by manyother countries and cultures dating back to at least the 14thcentury. For those of us at the Bee Informed Partnership, we begin preparing atleast a month ahead of time, not for playing pranks, but to get ready for ourannual loss and management survey.

In just 1 week, our annual online survey willgo live to record losses from beekeepers all over the country independent ofoperation size. Whether you manage 1 colony or tens of thousands of colonies, **this is your opportunity to record whatyour summer, winter and annual losses were for the past year!** If you continue past the loss survey andspend some time to take our management survey**, and we hope that you do**, you will provide valuable informationthat allows us to track those practices associated with reduced or increasedcolony losses. We've matured as an organization and instead of static reports,we now offer a dynamic management tool to help you improve your beekeeperpractices that is publically available to everyone. You can find it here: https://bip2.beeinformed.org/survey

Our dynamic reporting tool puts the power ofinteracting with our large database in your hands! Select the operation size,state, survey year and walk through your management practices to see how theycorrelate with losses. No joke! **Pleasego to our website at www.beeinformed.org on April 1stand take the survey!**



Wintercolony loss in all survey years based on operational size. *Courtesy of the Bee Informed Partnership, Inc.*



Wintercolony loss in all survey years based on formic acid use across all operationalsizes. Beekeepers who used formic acid to control for varroa mites lost >21%fewer colonies (8.4 percentage points) than beekeepers who did not use formicacid. (*Courtesy of the Bee InformedPartnership, Inc.)*

Read more BIP Box here...

We thank our recent supporters!

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National Honey Board
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Wella Bar/Lockhart Foods
Veronica Swarens

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Billy's Blog

Project Apis m.'s forage projects support bees all season long

As the world's largestpollination event, the California almond bloom, comes to a close, beekeeperseverywhere are asking themselves one question: Where do I take my bees now? Asspring turns to summer here in California the foraging opportunities become morescarce. Surely there are pollination-for-hire jobs that beekeepers can try tofill. But the number of these contracts is limited and can't support our nation's2.5 million colonies. Even if it were easy to find, the nutrition provided bysome of these crops is of poor quality (e.g., blueberry 13%-14% protein).Historically, middle America has served as a summer vacation spot for manyhives. Bees that have worked hard pollinating almonds get shipped to America'sheartland to get fat and happy. In fact, 75% of the nation's honey bee coloniesare found in just 8 states in the summer.

Places like North Dakota, SouthDakota, Montana, Minnesota, Nebraska and Missouri used to have far more beesupportive flowers than they do now. Bees are under enough stress as it is. Yearround, they are getting fed on by varroa mites that transfer disease. Interestingly, research indicates access todiverse, nutritious forage actually helps bees' natural immune systems and hasa direct impact on pollinator health (Alaux et al. 2010). This is why it'salarming when vast amounts of forage in the upper Midwest and great plainsregions disappear. From 2008-2011 alone, 23 million acres of grasslands havebeen destroyed and converted into cropland. This means there is now less landto support bee health, honey production, monarch butterflies, songbirds,pheasants, quail and wildlife, in general. The need for more forage is urgent!

Forage planted anywhere that is accessible to honey bees is a good thing. However, Project Apis m. is committed to using our donors' support for forage programs in the most efficient way possible. We accomplish this in two ways. One, we target bee hives when they are at their weakest–early spring right before the almond bloom. The Seeds for Bees program has put more than 3,000 acres of cover crops into orchards this growing season. And secondly, we focus on replacing forage that has been lost in middle America.

The Bee and Butterfly Habitat Fund has already planted NextGen habitat plots on 124 farms in North and South Dakota. A bee hive that's lucky enough to be in an almond orchard with a Seeds for Bees cover crop or near a NextGen forage plot in the Dakotas is getting a 5-7 month nutrition boost solely from Project Apis m.'s efforts! Seed is expensive. Funding can be hard to come by. Urban sprawl and increased agricultural production are making habitat and forage less common. By providing cost effective seed mixtures to growers in California and landowners in middle America, Project Apis m. is attacking forage issues head on.

If you learn one thing from this blog, it should be this: Forage supports bees and their health for a period of time that stretches far beyond the day they collected that pollen or nectar. What bees did or did not have access to during the summer has a direct effect on their survival and performance for the next season. It was eye opening for me to learn the abundance and diversity of forage in North Dakota during the summer has a major impact on almond pollination in California. Did you realize this? Those of us that toil in mud, rain, and scorching heat realize it every day. Those of us looking at honey bee health on a small and large scale get it. The title of Dr. DeGrandi Hoffman's 2015 paper says it all, "Honey bee colonies provided with natural forage have lower pathogen loads and higher overwinter survival than those fed protein supplements" (DeGrandi-Hoffman, et al. 2016). When a beekeeper checks a colony in late fall, and it doesn't have adequate pollen and honey stores, they know they must work much harder to get that hive strong come almond bloom. If they don't, their livelihood and the almond crop will both suffer. Almonds contribute more than $11 billion dollars to the California state economy, so this is a problem that affects not only our bees, but our wallets and also our pantry.

Alaux, C. et al. 2010 Diet effects on honeybee immunocompetence Biol. Lett. (2010) 6, 562–565 doi:10.1098/rsbl.2009.0986

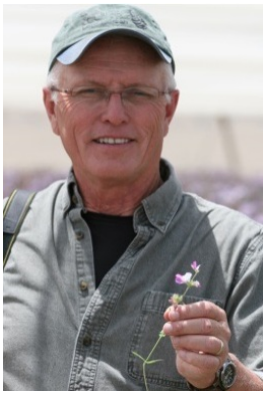
DeGrandi-Hoffman, G., Chen, Y., Rivera, R. et al. Apidologie (2016) 47: 186. doi:10.1007/s13592-015-0386-6

Billy Synk
Director of Pollination Programs

Read more Billy's Blog here...

Word From Wardell

Introducing: "The Sounding Board"



Dear PAm readers,

I would like to welcome you to a new column in the Project Apis m.newsletter that we are calling The Sounding Board. This column will take the place of the column, Word from Wardell. I'm not going anywhere;it is just that Danielle and I feel that there is a wealth of information andknowledge available from our Board. Thiscolumn will give you, the readers, a chance to hear from the PAm Board membersand gain from their insights. I will becontributing to the Project Apis m. newsletter on a periodic basis. But, like you, I'm looking forward to hearingfrom all the PAm Board members.

Thanks for being loyal PAm Newsletter readers.

Gordon

Gordon Wardell
Chairman, Project Apis m

Read more from Wardell here...

The Sounding Board

March Madness, Heitkam Style

Project Apis m. Board Member Pat Heitkam has been keeping bees since he took a colony for payment at his bike shop. That was 35 years ago, and he is now a major queen breeder in Northern California, a honey producer and a commercial pollinator. He owns Heitkam's Honey Bees in Orland, California, with his son Russell.

Greetings from Northern California,

Hi there, I'm PatHeitkam. It was not my first choice to be writing this column, but since youwill get a diversity of voices from the PAm's new Board Report column, I am whoyou get first. I am many things, though a writer isn't one of them. But here goes!

Heitkams' Honey Bees in Orland, California. Myson, Russell, and I run about 6,000 hives. We pollinate almonds along with afew minor crops. We also sell package bees, but our primary endeavor is queenproduction. We ship queens from April through November depending onavailability. I often say that it used to be a beekeeper had to fall asleep tofail. But nowadays it seems all you must do is blink, and you're behind theeight-ball. This year at Heitkams' Honey Bees started out very challenging.

Theft protection, or deterrents, is something else to discuss with your grower. In one vulnerable area up here the beekeepers and growers chipped in .25 per hive to hire a nighttime security officer to drive around the orchards to discourage thefts of all types. It has been successful for three years. When you consider the loss of a hive, the bees, and equipment, the pollination contract, and the honey crop, it is worth protecting!

And now, it's March Madness for Heitkams' Honey Bees. No basketball is involved. We are moving hives from almonds to prunes, shaking bees for graft, raising cells, shaking for queen nucs, stocking nucs, putting nucs out in mating yards, producing

Ourwinter losses were the highest ever. This included subpar hives not suitablefor pollinations (it seems we all get our turn), and we're still not sure ofall the causes. We think mite re-infestations and the accompanying viruses area major factor. Recent evidence shows that a collapsing colony's mites are soonfound in colonies over two miles away! This means you can do everything right,and still fall victim to somebody else's mites. Beekeeping businesses are alldifferent, but one of the basic principles of Integrated Pest Management is totime treatments strategically, as in 'immunize the herd.' If beekeepers coulddevelop some common treatment windows, it could really help reduce all our miteloads. Obviously, it wouldn't work for all beekeepers, but if beekeepers couldcooperate even just on a regional level, it could make a big difference. Beforealmond pollination, we predicted a significant shortage of bees, but that didnot come to pass. There seemed to be just enough hives to fill the needs of thegrowers. In coming years, as more acreage becomes available, the availabilityof bees may be tighter.

Fortunately,our season improved. With the assistance of some good friends, who areconscientious beekeepers, we could do an effective job for our growers. Theweather was not ideal in Northern California, but populous hives were able towork in small weather windows and marginal conditions. We think the crop may beOK, we will know for certain when they are in the wind row. We hope to have anearly report on the crop from Gordy Wardell, so stay tuned.

Thisyear, flooding has been an issue for many of us. There were significant losses,and the dramatic photos on PAm's Facebook page had many people asking, who isresponsible for the loss of hives? Whois responsible for replacing the hives to get pollination completed? As abeekeeper who does pollination, these are questions that should be dealt with priorto doing the job. For Heitkams' Honey Bees, we've been accustomed to thepossibility of flooding since the early 1980's. We've discovered the high parts in the orchards (bee islands), andknowing the risk some orchards provide stands up to four feet above the orchardfloor (see photo below). They're difficult, but nobody has wet feet!

cells for other keepers, catching and shipping queens, shaking packages, praying for nice weather, etc., etc. We are so thankful that we have great and loyal work crews. When we are finished, we will have an outfit to rebuild. It may or may not return to its previous size. For this job, all of the rainy weather may pay off.

I am very thankful for and proud to be part of Project Apis m. There are so many positive actions being taken by PAm, it's difficult to single out one. But today I'm going to talk about PAm and habitat.

PAm is taking a two-pronged approach with habitat, Seeds for Bees in California and the Bee and Butterfly Habitat Fund expanding from the Upper Midwest. These are locations where forage can benefit most the nation's bees.

Where we live in California, ground is being converted into orchards, primarily almonds and walnuts, at a very high rate. Most orchards are planted fence row to fence row with good weed control. This is taking a toll on beneficial insect populations, as well as pheasants, quail, and virtually all wild life. It's also removing all the other blooming plants that pollinators are looking for. What can we do? We could use those same farming efficiencies to create habitat in non- or less productive areas. Seeds for Bees offers free seed to growers to create habitat, between tree rows, on bordering open ground, etc. The benefits to bees are obvious, but the benefits to farmers are excellent as well. Jump starting hives so they're ready early, soil nutrition, and water penetration are a few of these benefits.

Bee and Butterfly Habitat Fund is working with Midwest farmers to alleviate problems caused by large increases in corn and soybean acreage. Farm consolidation, fence row to fence row farming, Round-up ready crops, etc., have taken a toll on beneficials and critters as a whole. Let's get those excellent farmers to use marginal ground, riparian areas along waterways, as well as rehab areas to plant the best habitat possible.

Honey bees have had their 15 minutes of fame for the past 10 years! Now people like Pheasants Forever, Monarch Butterfly folks, as well as many other concerned groups want to team with us. We all need the same thing! The movement is big but lacks a uniting force. Can Project APIS m. be the leader? What can you do to help promote this effort?

When bees are healthy the beekeeper prospers. When bees are not healthy, it's hard to make a living, and there is much more at stake. In my 30 plus years of associating with beekeepers, I've never seen a group of folks who are more resilient. That may be due to pure stubbornness, but I like to think it's hopefulness, tenacity, and a passion for the incredible interaction with nature that we get to be a part of.

I want to thank my family, especially my son, Russell, for keeping it all going.

Happy Trails

Pat Heitkam
Board Member, Project Apis m.

April Bee Husbandry

- Requeen, maintaining genetic quality to meetyour objectives.
- Select stocks that are productive and disease& pest resistant.
- Encourage high drone densities during matingseason to provide well-mated queens and genetically diverse crops.
- Discourage stocks that are excessivelydefensive.
- Control swarming by making nucs, splits oradding another super.
- Check hives for pests and diseases. Early detection is key!
- Use diagnostic services for objective colonyassessment.
- Follow guidelines for thresholds of Varroa andNosema. Treat when you have reached thatthreshold.

Project Apis m. is a 501 (c) (5) non-profit organization.

STAY CONNECTED