

a voice
for the natural
landscaping
movement



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Celebrating natives
plant and natural
landscapes
since 1979.

Grapevine

By Maryann Whitman

Analogies

When reading about the effects of chemicals on honey bees we would do well to remember that honey bees, in form and function, are quite similar to our native pollinating bees, bugs, flies, butterflies, and moths. Honey bees, however, are immediately understood to be connected to our economics and our food supply. And, because they live and work as "controllable" colonies, they are the subject of research into the side effects of pesticides.

The same attention has not been paid to our native pollinators who feed on the same nectar, and our native bees who provision their brood with the same pollen bread. It may reasonably be argued that our native pollinators are heir to the same effects of pesticides as are honey bees – and look what's happening to them.

Greenish pesticides

With the third National Pollinator Week coming up on June 22nd, we are reminded of the plight of honey bees, pollinators of one-third of our food. While honey bees have been seen to be declining over decades, from various causes, in 2006 a new concern, "colony collapse disorder," was blamed for large, inexplicable die-offs, sometimes characterized by bees simply disappearing.

A recently published study shed more light on what bees deal with in the environment we share with them. Investigators found 121 different types of pesticide in the wax and pollen taken from beehives in 23 states. Sixty percent of the samples had at least one systemic herbicide – the sort of pesticide that is designed to spread through out all parts of a plant. The panoply of chemicals in our environment grows by happy leaps and bounds. A minor stumbling block occurred in December, 2009, when a court ruling upheld a ban on the sale of a new "greener" pesticide that is designed to stop insect reproduction. Bayer, the company producing this chemical, has an interesting sense of what is "green."

In recent years, there's been a big move by U.S. farmers to turn away from broadspectrum potent bug killers to the more "natural" and environmentally friendly pyrethroids. These synthetic chemicals have been fashioned after the natural pyrethrin bug deterrent in chrysanthemums.



Bifenthrin is used to kill everything from termites to fire ants, corn pests, and the mites that attack fruit trees. Deltamethrin is targeted at aphids, mealy bugs, whitefly, fruit moths, caterpillars on field crops, roaches, horseflies, mosquitoes, and fleas.

Out of China comes a study that investigated the effect of feeding honey bees with nectar laced with sub-lethal doses of pyrethroids. The queens in the colonies were also fed this same nectar. Clean queens laid a little more than 1,200 eggs a day – the treated queens laid roughly half as many – and of those, 15 percent fewer hatched. Of the hatchlings, 95 percent of the untreated group reached adulthood, and 55 percent of the treated hatchlings made it to adulthood.

In summary, the effects of these pesticides on bee colonies are quite clear. Pyrethrins and pyrethroids are neurotoxins, causing paralysis and death in insects. The Chinese study did not investigate if early exposure to the pesticide might lead to aberrant behavior in adulthood, like forgetting how to get home – which is one of the problems that appear to be correlated with colony collapse disorder.

**Preserving native biodiversity:
An interesting twist**

Our agroscientists quickly came up with switchgrass as a possible crop for biomass for biofuel production. Knowing that mono cultures should be avoided, other tallgrass prairie grasses

were added: Big bluestem and prairie cordgrass. Recently cup plant was added to the mix. It's a forb that routinely grows to 7 and 8 feet in height, and can hold its own among the tall prairie grasses. Like the grasses, it can store carbon in its massive roots.

Now here's the twist: Cup plant is the only host plant of a moth (*Eucosma gigantea*), whose larvae feed voraciously on its rapidly growing terminal structures, often leading to complete loss of floral production and significant loss of biomass. "Turning cup plant into a commodity thus converts the giant eucosma into a pest of significant concern," points out one of the researchers.

We all look forward to the next installment in this biomass-for-biofuel saga.

Landscape architects rate hottest outdoor living trends

83.9 percent of residential landscape architects rate native plants as being hot landscape elements for the coming season. Native or otherwise drought-tolerant plants – 85.2 percent, reduced lawn – 73.9 percent, permeable paving – 72.5 percent.

In an article on maximizing the benefits of plants, in the American Society of Landscape Architects magazine, mentioned in the references and resources section: Native Plants, Natural Landscapes. Sound familiar? It should – it refers to us. Wild Ones – by the other part of our name.