Peanut farming, bees and pollinators

One third of all plants consumed by humans rely on insects for pollination. Peanuts do not require insects for pollination and peanuts are not particularly attractive to pollinators. Nevertheless, the peanut industry is committed to doing our part to ensure vibrant pollinator populations. Many peanut farmers also grow fruits and vegetables that require pollination, so it is in their own best interest to ensure vibrant populations of beneficial insects on their farms. The industry also realizes that pollinators are important to healthy ecosystems.

Bees and other pollinators can be impacted by a variety of things in nature as well as the activities of man. These include weather and climate, food supply, parasitic mites, viruses, bacteria, fungal parasites, bee keeping practices and agricultural practices. The potential complex interactions between these factors make finding the cause(s) and solution(s) for pollinator decline difficult. Although bees have multi-stressors, honeybee colonies have increased 45% globally since the 1960s. U.S. colonies have trended upward over the past decade, reaching 2.78 million in 2016, the highest level in 20 years. Nevertheless, the peanut industry is committed to doing our part to address the issue.

There is only limited data regarding visitation of peanut flowers by pollinators, and there are no recent surveys of pollinators in the crop. It is clear from the literature and from growers' observations that pollinators visit peanut flowers much less often than crops that require insects for pollination and are therefore highly attractive to pollinators.

A 1967 census of bees visiting peanut flowers in Georgia resulted in the identification of 11 species (Leuck and Hammonds 1969). A more recent study conducted in Australia reported that no bees were seen visiting peanut flowers even when honeybee colonies were placed in close proximity to fields. The authors hypothesized that the flowers of modern peanut cultivars may be less attractive to bees than those of older cultivars (Blanche et al. 2006). The USDA's table of "attractiveness of agricultural crops to pollinating bees for the collection of nectar and/or pollen" provides little information other than that honey bees, bumble bees, and some solitary bees are attracted to pollen resources "under certain conditions". The EPA assessment comes from the EFSA document "Guidance Document on the risk assessment of plant protection products on bees (*Apis mellifera*, *Bombus* spp. and solitary bees)". The bottom line is that no one really knows what pollinators are doing in peanut fields or how much time they are spending there.

Pollinator protection plans have been developed on a statewide basis. For example, the University of Georgia and the Georgia Department of Agriculture developed and published a set of voluntary guidelines for pollinator protection. The document entitled Protecting Georgia's Pollinators outlines practical steps that bee keepers, the agricultural industry, and other citizens can take to ensure the health

of pollinators in Georgia, the leading peanut producing state in the USA. Other peanut growing states have similar plans.

While Georgia's pollinator protection plan is voluntary, one of its cornerstone principles is the use of an Integrated Pest Management (IPM) approach for managing crop pests. Virtually all peanut growers employ some level of IPM for insect management that reduces the overall risk to pollinators and other non-target organisms. Growers who regularly monitor pest populations are less likely to apply an insecticide that is unneeded thereby reducing exposure to non-target insects. The potential impact of insect management tactics on pollinators is further lessened by the relationship between peanut phenology and typical patterns of pest infestation. For example, foliar insecticide applications are sometimes required for thrips, an important early season pest, but the applications occur prior to the initiation of bloom. The use of selective active ingredients for caterpillar control in recent years led to a reduction in the use of broad-spectrum pyrethroid insecticides. Though pyrethroids are still used in peanut to manage certain pest species, the residual activity of this class of chemistry is relatively short.

According to Mark Abney, Assistant Professor of Entomology at the University of Georgia, "While I do not have empirical data, I think it is safe to say that the use of pyrethroid insecticides in peanut fields has declined in recent years with the advent of more effective and more selective active ingredients that target caterpillar pests. This means that peanut farms are an even lower risk to pollinators than previously thought."

Leuck, D.B. and R.O. Hammonds. 1969. Occurrence of atypical flowers and some associated bees (Apoidea) in the peanut, Arachis hypogaea L. Agronomy Journal. 61: 957-960.

Blanche K. R., Hughes M., Ludwig J. A., Cunningham S. A. 2006. Do flower-tripping bees enhance yields in peanut varieties grown in north Queensland?. Australian Journal of Experimental Agriculture 46: 1529-1534.

Protecting Georgia's Pollinators Link:

http://www.caes.uga.edu/content/dam/caes-website/departments/entomology/documents/honey-bee-program/PollinatorBookletforWeb2-2016.pdf