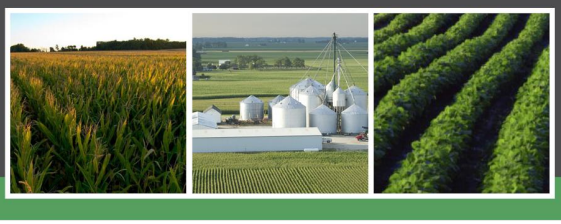

Agronomic Spotlight

Improving Pollination with Bee Health

Pollination is necessary for fertilization of most fruits and vegetables. Increased pollination can also provide a yield bump in agronomic crops such as soybeans, canola, and alfalfa. Maintaining or improving pollinator populations can benefit crop yield potential. In the United States, honey bees are the primary managed pollinator for agronomic crops. Honey bee populations have changed due to several factors. Ways to help honey bee populations include providing shelter, water, food, and using pesticides carefully.

WHAT TO CONSIDER

Considering honey bee health and populations into farm management practices could prove to be beneficial to growers. Honey bees can help to achieve crop pollination, in return increasing yield potential, and ultimately helping improve the bottom line of farms.

There are many factors that compromise honey bee health, including varroa mite, pesticides, weather, and disease.[1] The greatest threat to honey bee health in the United States is varroa mite infestations. These insects have contributed to hive collapse and increased susceptibility to other viruses. Incidental pesticide exposure can also cause an unintended damage to honey bee populations. Reduced diversity in the diet of bees may also impact populations.

YIELD IMPACT

To help protect honey bee populations, many coalitions and initiatives have been organized to help bring farmers and beekeepers together. Beekeepers are encouraged to register the location of honey bee hives to help inform and create awareness to farmers. Beekeeping regulations and bee hive registration varies by state and region. Contact your state's department of agriculture or a local land grand university to determine the registration procedure used.

MANAGEMENT OPTIONS

There is no single cause for change in honey bee and/or other pollinator populations. Habitat enhancements, targeted pesticide use, colony management, and improved pest and disease resistant stocks of bees are all needed to improve overall honey bee health. The following are examples of how farmers can play an important role toward improved bee health.

Figure 1. Honey bees are the primary managed pollinator for crops in the United States.

- Farmers may contact local honey bee keepers and inform them of cropping/production plans.
- Planters should be cleaned away from any flowers or blooms that bees may meet. This may help to reduce honey bee exposure to seed treatments. Beekeepers may wish to restrict bee movement several days around planting to avoid honey bee contact with pesticides/seed treatments.
- Bees and other pollinators living around production agriculture can lack a diverse diet. Growers are encouraged to plant forage to promote pollinator health. If selecting a forage mix evaluate the seed

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included to avoid any weed species. More information on bee forage programs and initiatives can be found at http://honeybeehealthcoalition.org/focus-on-forage/

However, there are several standard practices that can benefit most, if not all, honey bees and native pollinators. Tips for improving and providing pollinator habitat:

- Existing nests should be left as is.
- Area must have adequate food, shelter, water, and nesting sites.
- Uncultivated and untilled field margins can provide areas where ground nests and forage may become established.
- Build or plant additional nest sites or shelter for pollinators.
- Stagger planting of a single crop or choose multiple products with different flowering periods to help extent the period flowers, nectar, and pollen are available. Pollinators will benefit the most by targeting flowering from February to November.
- Rethink weeds. Remove noxious weeds, but give a second thought to the less invasive species as they can be beneficial to pollinators.
- Protect forage areas from herbicide and/or insecticide applicaitons. Habitat corridors are not only beneficial for pollinators, but can provide some extra benefits such as habitat for wildlife. According to the United States Department of Agriculture Natural Resources Conservation Service, over 70% of all terrestrial wildlife species use riparian corridors.[1]

Honeybee Health Coalition - https://honeybeehealthcoalition.org/

United States Department of Agriculture – Honey Bees https://www.aphis.usda.gov/aphis/

Sources
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[3] Vaughan, M., Hopwood, J., Lee-Mader, E., Shepherd, M., Kremen, C., Stine, A., and Hoffman Black, S. 2007. Farming for bees. The Xerces Society for Invertebrate Conservation. (web sources verified 8/20/2017).

Individual results may vary, and performance may vary from location to location and from year to year. This result may not be an indicator of results you may obtain as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible. **ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS.** All other trademarks are the property of their respective owners. ©2017 Monsanto Company. 140822101636 08202017CRB.