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Towards
the veterinary
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of the
future

Main topic : One Health

Bees in the One Health concept

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The problem of safely feeding the world while preserving the environment requires cooperative scientific problem-solving. One Health partnerships enable cumulative actions that are essential to ensure the health and safety of humans. The One Health concept recognizes that the health of people is connected to the health of animals and the environment. Honeybees are domestic animals and should be included in the One Health concept. Preserving the health of bees both bred and wild, is an integral part of good environmental management, food security and enhanced global agriculture. Neglecting bee health and allowing our planet's bee populations to collapse would have a far-reaching impact on the environment, the agriculture and the economy. There is an expression attributed to Albert Einstein: "If the bee disappeared off the surface of the globe, then man would have only four years of life left. No more bees, no more pollination, no more plants, no more animals, no more man." Starting in last decade, bee colonies have been disappearing at alarming rates in many parts of the world due to the cumulative effects of parasitic mites, viral and bacterial diseases, and exposure to pesticides and herbicides. Pathogen loads were highly covariant in Colony Collapse Disorder (CCD), suggesting that CCD colonies rapidly become susceptible to a diverse set of pathogens, or that co-infections can act synergistically to produce the rapid depletion of workers that characterizes the disorder. Disease management of honeybee populations is nearly impossible without regular disease reporting and the participation of beekeepers themselves in this management. The risk of transmission of pathogens to honey bees through the international trade of bee products such as honey, bee-collected pollen, propolis, beeswax, royal jelly and honey bee venom as well as food safety for humans will be discussed. Human health hazards that may arise from bees, such as allergy to bee stings, infant botulism, residues of drugs and environmental pollutants, will be addressed. Agricultural practices influencing habitat loss, such as the decline of flowers due to ruminant grazing, herbicides, pesticides and crop monoculture, have a crucial effect on the numbers and diversity of bees, especially wild ones. In most parts of the world, annual colony losses make commercial bee keeping a risky occupation, and as a hobby it becomes unpleasant. Mankind's influence, which rapidly transforms all the planet's natural systems and has been viewed for decades as causing a growing environmental crisis, needs to be viewed also as the cause of a growing public health crisis. The climate change is also making life harder for bees. As average monthly temperatures rise, flowers bloom earlier in the spring, creating a potential mismatch in seasonal timing between when flowers produce pollen and when bees are ready to feed on that pollen. These changes negatively affect bees' health, making them less likely to reproduce and less resistant to predators and parasites. As the WOAHP puts it: "Human health and animal health are interdependent and bound to the health of the ecosystems in which they exist."