Hannah Falcone is 12 years old and lives in Plainfield, NH. She is in sixth grade at Plainfield Elementary School. Hannah lives on Five Sisters Farm with her parents and four sisters. They raise Shetland sheep, alpacas, chickens, pigs, bees, and share their home with many pets. In her spare time, Hannah enjoys reading, writing, training her sheep, gardening, playing soccer, running track, and goofing around with her sisters. She is an active member of 4H.

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NOTE:
HANNAH IS THE WINNER OF THIS YEARS 4H ESSAY CONTEST AND IS NOW ENTERED AT THE NATIONAL LEVEL.
SHE WAS HONORED AT THIS YEARS N.H. BEEKEEPERS SPRING MEETING.
RB

Protecting Honey Bees from Pesticide Poisoning

A honey bee lands on an apple blossom. It gathers the yellow powdery pollen and sweet nectar, flaps its delicate, papery wings, floats away on a breeze, and zig zags into the hive. The harvest is made into honey and is either fed to the queen and baby bees or stored for winter. Now, if that apple orchard had sprayed its trees with chemicals meant to kill pests, that whole bee colony could disappear. People mostly think of large commercial farms using dangerous pesticides. In reality, many local stores sell pesticides that can be fatal to honey bees. I spent time researching the problems and found out some interesting solutions.

People might not realize how important honey bees are to human welfare. Honey bees pollinate flowers so that the blossoms can produce fruit, and they also make delicious golden sticky honey.[4] If we didn't have honey bees on Earth, there would be no apples, corn, tomatoes, or other crops that rely on their pollination. We need honey bees so we can have food for our survival. Honey is delicious to eat, but also is used medically (it can help people with allergies!).

Chemical use by large farms is obviously a huge problem. It's hard to understand why farmers would choose to use something that will kill such an important part of the ecosystem. On the other hand, so many people have gardens in their own backyards. We can all become more aware of our impact on the environment. Gardeners can use ladybugs or diatomaceous earth instead of the toxic chemicals.[1] If farmers must use pesticides, there are safer forms and ways to apply them. They can spray it when the plants are not in bloom because the honey bees are only attracted to flowers.[1] If they mow any flowering weeds around the garden, they will also avoid harming bees.[1] If they

spray at night when honey bees are not foraging or searching for pollen, it is safer.[1] They should also warn beekeepers in the area, who might be able to lock up their honey bees during the spraying to keep them safe. Bees actually can fly 2-3 miles from their home to forage![3] So it is worth finding out which community members might keep honey bees.

Did you know that powdered and wettable forms of pesticides are more toxic to bees than spray-ons?[1] Another surprising discovery I made was that pesticides dangerous to bees are found at many local stores! I found a list of pesticides that are known to be the most toxic to honey bees[1]. All four of the local stores that I checked (WalMart, Kmart, Home Depot, Tractor Supply) carried at least two of the most toxic chemicals. Home gardeners can just buy and use them without knowing that they could also kill their friends the honey bees! I think that all pesticides toxic to bees should have a big warning label on the front so that people can be made more aware.

I myself am a beekeeper and at my farm, all of our bees died mysteriously last spring. There are many reasons why this might have happened, but I really hope that a neighbor using pesticides was not the cause. Beekeepers around the country are experiencing "colony collapse" which is death of a whole colony for unknown reasons.[1] A lot of people think it is linked to chemicals that the bees are unknowingly carrying with them back to the hive. This year, I am looking forward to getting new bees as part of my 4-H project. At our farm, we grow all different kinds of vegetables, fruits, and flowers. I always love it when I see the familiar black and yellow stripes whizzing around. My mom and I never use chemicals on our garden. We do get really frustrated with the pests, and we want to protect our harvest! We spend time inspecting plants for damage, and pull off all the garden pests we find: potato beetles, Japanese beetles, and tobacco

hornworms (eww!!!). Our neighbors ordered a big box of lady bugs to release on their garden to help control aphids this year.

Saving the honey bees doesn't mean that people have to be completely organic gardeners (although I think that is the best). It is about being aware of what each person can do to make a difference. And then each person caring enough to do it! We don't need more problems on this planet. I want to share what I have learned to make other people aware of how they can make a difference. And why keeping honey bees alive and well is important for all of us.

[1]Adams, Roger and Bartholomew, Candace. University of Connecticut Publications. "Protecting Honey Bees from Pesticide Poisoning."
www.stanford.edu/dept/rde/shs/pdfs/**protecting_honeybees**.pdf

[2]Benjamin, Allison and McCallum, Brian. 2008. Keeping Bees and Making Honey. UK

[3]Delaplane, Keith. 2007. First Lessons in Beekeeping. Hamilton, Illinois.

[4]Weiss, Edward. 1978. The Queen and I. USA