

LSU Journal of Energy Law and Resources

Volume 11
Issue 1 *Fall 2022*

2-6-2023

Taking Initiative: Utilizing Louisiana Law to Protect Honey Bees and Fill Regulatory Gaps in Federal Pesticide Laws

Bailey Anderson

Repository Citation

Bailey Anderson, *Taking Initiative: Utilizing Louisiana Law to Protect Honey Bees and Fill Regulatory Gaps in Federal Pesticide Laws*, 11 LSU J. of Energy L. & Resources (2023)
Available at: <https://digitalcommons.law.lsu.edu/jelr/vol11/iss1/7>

This Article is brought to you for free and open access by the Law Reviews and Journals at LSU Law Digital Commons. It has been accepted for inclusion in LSU Journal of Energy Law and Resources by an authorized editor of LSU Law Digital Commons. For more information, please contact kreed25@lsu.edu.

Taking Initiative: Utilizing Louisiana Law to Protect Honey Bees and Fill Regulatory Gaps in Federal Pesticide Laws

*Bailey Anderson**

TABLE OF CONTENTS

- I. Introduction 68
- II. Background 73
 - A. Importance of Honey Bees 73
 - B. Evolution of Pesticides and Concurrent Harm to Pollinators..... 75
 - C. Application of State Law Rather than Federal Law..... 79
- III. World-Wide Honey Bee Crisis, Responses by Foreign Governments..... 80
 - A. International Setbacks to the Protection of Honey Bees..... 81
 - B. International Positive Strides to Save Honey Bees..... 84
- IV. Inadequacies of Federal Insecticide, Fungicide, and Rodenticide Act..... 87
 - A. Limited Scope and Depth of FIFRA Toxicology Report Requirements 88
 - B. The EPA’s Risk Assessment Process Lacks Frequency..... 91
 - C. Pesticide Industry Financial Incentives and FIFRA 93
 - D. State Governments Respond by Implementing Pesticide Regulations..... 95
- V. Louisiana Agricultural Regulations..... 97
- VI. Conclusion..... 101

Copyright 2022, by BAILEY ANDERSON.

* Bailey Anderson is an associate attorney at The Johnson Firm in Lake Charles, Louisiana. She graduated from Louisiana State University Paul M. Hebert Law Center in 2022. During her time at LSU, she served as Senior Articles Editor on the Editorial Board of the *Journal of Energy Law & Resources*.

I. INTRODUCTION

Pesticides increase per-acre crop yields by protecting crops from unwanted insects.¹ Incidentally, pesticides target and kill beneficial insects, like pollinators.² Pollinators are responsible for pollinating 75% of the world's leading crops³ and 35% of the human diet.⁴ Honey bees are an extremely valuable class of pollinators—contributing \$15⁵ to 20 billion⁶ annually to the United States' (U.S.) agricultural industry.⁷ Yet, honey bees are not protected and are “[e]dging . . . towards extinction.”⁸ Pesticides are the leading cause of death⁹ for approximately 23% to over

1. See JORGE FERNANDEZ-CORNEJO et al., PESTICIDE USE IN U.S. AGRICULTURE: 21 SELECTED CROPS, 1960-2008 1 (2014); see also *Importance & Benefits of Pesticides*, PESTICIDE FACTS, <https://pesticidefacts.org/topics/necessity-of-pesticides/> [<https://perma.cc/4H7E-V5Q4>] (last visited Nov. 3, 2022).

2. See *Protecting Pollinators From Pesticides*, UNIV. OF GA.: HONEY BEE PROGRAM, <https://bees.caes.uga.edu/bees-beekeeping-pollination/pollination/pollination-protecting-pollinators-from-pesticides.html> [<https://perma.cc/N684-ARKX>] (last visited Nov. 3, 2022).

3. Press Release, Deputy Secretary-General, Decline, Disappearance of Bees Would Have Drastic Consequences for Global Ecosystem, Deputy Secretary-General Warns at Event Marking World Day, U.N. Press Release DSG/SM/1282-OBV/1881 (May 20, 2019).

4. Alexandra-Maria Klein et al., *Importance of Pollinators in Changing Landscapes for World Crops*, PROCS. ROYAL SOC'Y B, 303, 306 (Oct. 27, 2006) <https://royalsocietypublishing.org/doi/epdf/10.1098/rspb.2006.3721> [<http://perma.cc/7TGW-LCB8>].

5. *Fact Sheet: The Economic Challenge Posed by Declining Pollinator Populations*, THE WHITE HOUSE (June 20, 2014), <https://obamawhitehouse.archives.gov/the-press-office/2014/06/20/fact-sheet-economic-challenge-posed-declining-pollinator-populations> [<https://perma.cc/84H9-TUPF>].

6. James T. Chisel, *Honey Bees' Impact on the U.S. Economy* (Summer 2015) (B.A. thesis, University of Puget Sound) (on file with author).

7. *Economic Value of Commercial Beekeeping*, PESTICIDE ACTION NETWORK N. AM., <http://cues.cfans.umn.edu/old/pollinators/pdf-value/EconomicValueCommercialBeekeeping.pdf> [<https://perma.cc/DH63-2MCY>] (last visited Nov. 25, 2022); see also *Pollination Facts*, AM. BEEKEEPING FED'N, <https://www.abfnet.org/page/PollinatorFacts> [<https://perma.cc/8UPF-U55S>] (last visited Nov. 3, 2022).

8. Christopher Li, *Chinese Honey Bees Face Endangerment*, PLANET BEE FOUND. (Feb. 20, 2019), <https://www.planetbee.org/planet-bee-blog/the-chinese-honey-bee> [<https://perma.cc/AJZ6-VUM5>].

9. See Chensheng Lu et al., *Sub-Lethal Exposure to Neonicotinoids Impaired Honey Bees Winterization Before Proceeding to Colony Collapse Disorder*, 67 BULL. OF INSECTOLOGY 125, 127 (2014), <http://www.bulletinof>

50% of honey bee colonies annually.¹⁰ Without honey bees, humanity will experience irreparable environmental and economic harm. Anderson and Card are Louisiana beekeepers who have observed the effect of pesticides on the local bee populations. Their stories described below illustrate the pesticide crisis encountered by beekeepers worldwide.

Gray and Mollie Anderson own a Christmas tree farm nestled deep in the piney woods of southwest Louisiana. In addition to growing Christmas trees, Gray Anderson acquired a small 175-colony honey bee operation from a local elderly man. Anderson enjoys nurturing his colonies and harvesting honey to the tune of the lively hives' calming buzz. One summer night, the Andersons sank in despair as they heard planes flying low, misting their farm with chemical pesticides used to abate mosquitoes. Chemical pesticides do not exclusively target mosquitoes and often slaughter honey bees and other pollinators in their wake. Anderson was not given notice of the aerial spraying; as a result, he could not protect his honey bees by relocating or covering the colonies. All Anderson could do was hold onto the hope that the bees would survive the pesticide exposure.

While honey bees are known for their golden honey, their pollination is pertinent to agriculture, the environment, and the economy. Wesley Card, owner of Evergreen Honey Company, Incorporated ("Evergreen"), is a Louisiana-based commercial beekeeper located less than 100 miles from the Anderson's farm.¹¹ Card owns 24,000 colonies.¹² Every spring, Evergreen ships truckloads, with approximately 15 million bees per load,¹³

insectology.org/pdfarticles/vol67-2014-125-130lu.pdf [http://perma.cc/AS9X-CC AX].

10. University of Maryland, *U.S. Beekeepers Lost Over 40 percent of Colonies Last Year, Highest Winter Losses Ever Recorded*, SCI. DAILY (June 19, 2019), <https://www.sciencedaily.com/releases/2019/06/190619142532.htm> [https://perma.cc/X4X6-GNCL]; see Nathalie Steinhauer et al., *Colony Loss 2014-2015: Preliminary Results*, BEE INFORMED (May 13, 2015), <https://beeinformed.org/2015/05/13/colony-loss-2014-2015-preliminary-results/> [https://perma.cc/3MNH-WSUV]; see *Nation's Beekeepers Lost 44 Percent of Bees in 2015-16*, BEE INFORMED (May 10, 2016), <https://beeinformed.org/2016/05/10/nations-beekeepers-lost-44-percent-of-bees-in-2015-16/> [https://perma.cc/Z7WT-QX9D]; see also Dennis van Engelsdorp et al., *Colony Loss 2013-2014*, BEE INFORMED (May 15, 2014), <https://beeinformed.org/2014/05/15/colony-loss-2013-2014/> [https://perma.cc/GF7Q-FAGR].

11. See *Home*, EVERGREEN HONEY CO., <http://evergreenhoneycompany.com/> [https://perma.cc/S2H7-53R6] (last visited Nov. 3, 2022).

12. *Id.*

13. This estimate is about 250 to 1,500 colonies per truckload with roughly 10,000 to 60,000 bees in a single colony. See *How Many Honey Bees in a Hive?*, COMPLETE BEEHIVES (Sept. 3, 2019), <http://completebeehives.com/how-many->

to California almond orchards to pollinate their crops.¹⁴ California almond farmers produce 82% of the world's almonds¹⁵ and rely exclusively on honey bees for pollination.¹⁶ A large percentage of the world's leading crops and human diet rely heavily on pollinators.¹⁷ For example, about 15,000 commercial beekeepers take 2.5 million hives to California to pollinate their fruits and vegetables.¹⁸ California would not have its robust produce yields in citrus, squash, blueberries, and other fruits, as well as various nuts, and vegetables without commercial beekeepers, like Card, shipping bees to California.¹⁹ In order to preserve agriculture, the honey bees must be protected.

While Louisiana's wide variety of crops²⁰ offer a sublime and beneficial habitat for honey bees, the life of a Louisiana honey bee is fragile because they face threats from multiple directions.²¹ A scientific link exists between pesticides and the negative effects on hive health—e.g., decrease of reproductive rates due to lower drone sperm count and

honey-bees-in-a-hive/ [https://perma.cc/5PX3-EK8C]; see also *Seasonality of Brood and Adult Populations (Basic Bee Biology for Beekeepers)*, BEE HEALTH (Aug. 20, 2019), https://bee-health.extension.org/seasonality-of-brood-and-adult-populations-basic-bee-biology-for-beekeepers/ [https://perma.cc/3ZTG-JSRH].

14. Robert Siegel, *Bees Travel Cross Country For The California Almond Harvest*, NPR (Mar. 9, 2017, 4:34 PM), https://www.npr.org/transcripts/519500033 [https://perma.cc/34BA-JXWH].

15. David Pierson, *California Farms Lead the Way in Almond Production*, L.A. TIMES (Jan. 12, 2014, 5:00 AM), https://www.latimes.com/business/la-fi-california-almonds-20140112-story.html#axzz2zvLYmTNS [https://perma.cc/4W66-PXLM].

16. *Economic Value of Commercial Beekeeping*, *supra* note 7.

17. See Press Release, *supra* note 3; see also Klein et al., *supra* note 4.

18. *Honey Bees*, USDA, https://www.aphis.usda.gov/aphis/ourfocus/planthealth/plant-pest-and-disease-programs/honey-bees/honeybees [https://perma.cc/NYY6-RKWD] (last modified July 25, 2022); RANDAL R. RUCKER & WALTER N. THURMAN, COLONY COLLAPSE DISORDER: THE MARKET RESPONSE TO BEE DISEASE 1 (2012).

19. Siegel, *supra* note 14.

20. The top Louisiana crops are sugar cane, soybean, rice, corn, cotton, and sweet potatoes. Rachel Stroop, *Louisiana's Top 10 Ag Products (Infographic)*, FARM FLAVOR (July 1, 2017), https://www.farmflavor.com/louisiana/louisiana-crops-livestock/louisianas-top-10-ag-products-infographic/ [https://perma.cc/8BQZ-WVXX].

21. Honey bees' well-being and lives are also threatened by a loss of habitat, climate change, disease, and parasites. See *What's Threatening Bees?* EARTH RANGERS (June 2, 2015), https://www.earthrangers.com/my-missions/whats-threatening-bees/ [https://perma.cc/B9S5-2AND].

interference with memory and directional skills.²² Furthermore, research indicates that toxic chemicals in these pesticides are addictive, encouraging the honey bees to return for more.²³ Before shipping, in order to counter colony losses attributed to colony collapse disorder (CCD), Card must prepare two new hives for every hive shipped.²⁴ CCD is when honey bees mysteriously disappear, posing a massive threat to the honey bee population worldwide.²⁵ Notably, pesticides are a big, if not the biggest, threat to honey bees and other pollinators.²⁶ Moreover, many beekeepers, environmentalists, and entomologists opine that pesticides cause CCD.²⁷ Even though the elimination of pesticide use would prevent further pesticide-related honey bee deaths, it is an unrealistic goal at this time.²⁸ Monoculture²⁹ farmers would oppose a pesticide ban, arguing that

22. Dawn Hammon, *France Is the First Country to Ban All 5 Pesticides Linked to Bee Deaths*, INHABITAT (Feb. 8, 2019), <https://inhabitat.com/france-is-the-first-country-to-ban-all-five-pesticides-linked-to-bee-deaths/> [<https://perma.cc/8FRP-9Q9N>].

23. *Id.*

24. Siegel, *supra* note 14.

25. Simon Klein & Andrew Barron, *Colony Collapse: 10 Years After the Crisis Began, What is Happening to the World's Bees?*, ABC NEWS (May 8, 2017, 1:02 AM), <https://www.abc.net.au/news/2017-05-08/colony-collapse-ten-years-after-crisis-what-is-happening-to-bees/8507408> [<https://perma.cc/DXR5-D8XL>]; see also Casey Williams, *These Photos Capture the Startling Effect Of Shrinking Bee Populations*, HUFFPOST (Apr. 7, 2016, 11:07 AM), https://www.huffpost.com/entry/humans-bees-china_n_570404b3e4b083f5c6092ba9 [<https://perma.cc/QQ3C-4GR6>]; see also *CCD in France*, THE DISAPPEARING BEE, <https://the-disappearingbee.weebly.com/ccd-in-france.html> [<https://perma.cc/K9DH-47JB>] (last visited Nov. 3, 2022).

26. VANISHING OF THE BEES (Hive Mentality Films & Hipfuel Films 2010).

27. *Id.*

28. See Hinklej, *France Becomes the First Country to Ban All Five Major Pesticides*, OR. STATE: PLAGUES, PESTS & POLITICS OH MY! (Nov. 17, 2019), <http://blogs.oregonstate.edu/hinklejent300/2019/11/17/the-western-honey-bee/> [<https://perma.cc/2KPN-QK8L>] (citing *Honey from France*, HONEY TRAVELER, <https://www.honeytraveler.com/honey-by-country-region/honeys-from-france/> [<https://perma.cc/QE5K-CE2L>] (last visited Nov. 3, 2022)).

29. Monoculture farming is the cultivation of a single crop. John Spacey, *Monoculture vs Polyculture*, SIMPLICABLE (Sept. 17, 2016), <https://simplicable.com/new/monoculture-vs-polyculture> [<https://perma.cc/WFR6-N7MT>]. Another way to help bees, not addressed in this article, is to push for polyculture as opposed to monoculture. A wide variety of crops allows a honey bee to behave consistent with its nature. For more information, see Matina Donaldson-Matasci, *Honeybees and Monoculture: Nothing to Dance About*, SCIENTIFIC AMERICA (June 7, 2013), <https://blogs.scientificamerican.com/guest-blog/honey-bees-and->

agriculture would immensely suffer since approximately “more than half of [their] crops would be lost to pests and diseases.”³⁰ Even France and the European Union (EU), which have some of the most progressive pesticide regulations and honey bee protections, received backlash from farmers due to their imposition of pesticide bans.³¹

However, laws can strike a balance between agricultural and environmental concerns. Currently, the scale tips heavily in favor of agricultural concerns and pesticide use.³² State environmental regulations will likely be more effective to protect pollinators than federal regulations since the federal Environmental Protection Agency (EPA) is large, slow to change, and protective of pesticide companies.³³ States need not—and should not—wait on the EPA and federal statutory reform. Incremental, yet significant, changes on a state-by-state basis can achieve a balance between the needs of crop farmers and honey bees. This article addresses how the application of Louisiana pesticide and apiary law, as opposed to federal law, can and should be used to protect honey bees and other pollinators from endangerment. By protecting honey bees, Louisiana can protect the world from food shortages and the long-term environmental side effects of life without pollinators.³⁴ By enacting stricter pesticide and apiary laws, Louisiana has an opportunity to improve the honey bee population, economy, and environment.

monoculture-nothing-to-dance-about/ [https://perma.cc/K4S4-RJAW]; see also Aidee Guzman et al., *On-Farm Diversification in an Agriculturally-Dominated Landscape Positively Influences Specialist Pollinators*, FRONTIERS (Oct. 15, 2019), <https://www.frontiersin.org/articles/10.3389/fsufs.2019.00087/full> [https://perma.cc/J6B2-FUVJ].

30. *Importance & Benefits of Pesticides*, supra note 1.

31. *Reversal of Pesticide Ban Sparks Critique of French Federal Government*, INTERCONNEWS OUTLET (Sept. 5, 2020), <https://www.ft.com/content/7e51d733-ce2f-40b0-9170-52209e9540fa> [https://perma.cc/WW2A-SPME].

32. See John Carlucci, *Reforming the Law on Pesticides*, 14 VA. ENVTL. L.J. 189, 193 (1994); Keith Cunningham-Parmeter, *A Poisoned Field: Farmworkers, Pesticide Exposure, and Tort Recovery in an Era of Regulatory Failure*, 28 N.Y.U. REV. L. & SOC. CHANGE 431, 468 (2004); see *EPA Buzz Kill: Is the Agency Hiding Colony Collapse Disorder Information?*, NRDC (Aug. 18, 2008), <https://www.nrdc.org/media/2008/080818> [https://perma.cc/8GMS-JKHX]; see also *Nat. Res. Def. Council v. EPA*, No. 09 Civ. 4317(DLC), 2010 WL 431885, at *1 (D.C.N.Y. Feb. 8, 2010).

33. This article does not argue that the EPA should not or cannot change. The EPA should and can change. Rather, this article argues that the states should not take on the giant head first but begin to pull the giant's teeth little by little, then face the giant headfirst.

34. See Press Release, supra note 3; see also Klein et al., supra note 4.

Part II of this article discusses the background of honey bees, pesticides, and the EPA. Part III through Part IV progress by analyzing the various global, national, and local approaches taken to protect honey bees. Part III surveys the global successes and pitfalls of honey bee regulations by comparing other countries' honey bee protections and pesticide laws. Part IV explores national protections and why the EPA and the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) do not properly address the issue. Part IV also discusses the states' responses to federal regulatory gaps. Part V applies the successes and pitfalls of other laws and proposes changes to Louisiana law under Louisiana Pesticide Law³⁵ and Regulation of Apiaries.³⁶ Lastly, Part V proposes practical, legal solutions that balance the interests of farmers, environmentalists, and beekeepers. If the U.S. and individual states do not start taking environmentalists' and beekeepers' concerns seriously, the agricultural industry and the economy will suffer irreparable harm.

II. BACKGROUND

A. Importance of Honey Bees

It is natural to associate honey bees with their production of sweet honey.³⁷ Delicious honey is often used for anything—from sweetening coffee, yogurt, and cereal, to treating seasonal allergies and other

35. LA. REV. STAT. § 3:3201 (2022).

36. *Id.* § 3:2301 (2022).

37. The honey bee colony is a matriarchal kingdom, which is 95% female and contains three types of honey bees: the queen, the worker bees, and the drones. The queen is responsible for laying eggs and ruling her colony. The drones are the only male bees in the colony, with the solitary job of fertilizing the eggs. Lastly, all worker bees are females and are responsible for pollinating, gathering honey, building comb, protecting the hive, and raising young bees. *See This is *Exactly* Why We're So Obsessed with Queen Bees*, BEEKEEPER'S NATS. (Mar. 20, 2019), <https://shop.beekeepersnaturals.com/blogs/blog/this-is-exactly-why-were-so-obsessed-with-queen-bees> [<https://perma.cc/BLA5-T4NA>]; *see also Bee Bonanza: Colony Life of a Honey Bee*, ARIZ. STATE UNIV.: ASK A BIOLOGIST, <https://askbiologist.asu.edu/bee-colony-life> [<https://perma.cc/DSC4-LN7Y>] (last visited Nov. 3, 2022); *see also* VANISHING OF THE BEES, *supra* note 26; *see also* Stephen Chen, *Why China's Asian Honeybees Are Losing Out to Their Western Counterparts*, S. CHINA MORNING POST (Apr. 9, 2017, 12:03 PM), <https://www.scmp.com/news/china/society/article/2083725/why-chinas-asian-honeybees-are-losing-out-their-western> [<https://perma.cc/BA48-AGHK>].

ailments.³⁸ Moreover, honey bees' most crucial role is the one they play behind the scenes as pollinators of a wide variety of plants,³⁹ which contributes billions of dollars annually to the U.S. economy.⁴⁰ The chart below illustrates the honey bees' role in agriculture.⁴¹

U.S. Crops	Percentage of crop reliance on bees as pollinators	Approximate crop value	Economic value of bees
Almond	100%	\$2.84 billion (2010/11)	\$2 billion
Apple	90%	\$2.2 billion (2010)	\$1.98 billion
Blueberries	90%	\$381 million (2005)	\$343 million

38. Brent A. Bauer, M.D., *Does Honey Really Help with Allergies?*, MAYO CLINIC, <https://www.mayoclinic.org/diseases-conditions/allergies/expert-answers/honey-for-allergies/faq-20057927> [<https://perma.cc/YW47-P22Y>] (last visited Nov. 3, 2022); see *How, When, and Why Honey Is Used for Wound Care*, HEALTHLINE, https://www.healthline.com/health/honey-on-wounds#TOC_TITLE_HDR_1 [<https://perma.cc/VZ8H-YHWP>] (last updated Nov. 16, 2018). Honey bees contribute to human health via their six substances—honey, pollen, royal jelly, beeswax, propolis, and venom—all of which are used to make various products for nutritional, cosmetic, and medical purposes. *Helping Agriculture's Helpful Honey Bees*, FDA, <https://www.fda.gov/animal-veterinary/animal-health-literacy/helping-agricultures-helpful-honey-bees> [<https://perma.cc/ERS4-YLE7>] (last updated July 30, 2018).

39. See Ginger Zee et al., *Growing California Almonds Takes More Than Half of the US Honeybees*, ABC NEWS (Jan. 16, 2018, 3:21 AM), <https://abcnews.go.com/US/growing-california-almonds-takes-half-us-honeybees/story?id=52265334> [<https://perma.cc/7N72-2GLZ>].

40. See *Fact Sheet: The Economic Challenge Posed by Declining Pollinator Populations*, *supra* note 5; JAMES T. CHISEL, HONEY BEES' IMPACT ON THE U.S. ECONOMY 16 (2015) (B.A. thesis, University of Puget Sound) (on file with author); *Economic Value of Commercial Beekeeping*, *supra* note 7; see also *Pollination Facts*, *supra* note 7.

41. *Economic Value of Commercial Beekeeping*, *supra* note 7. Honey production is about \$2.1 billion and is considered a modest amount when compared to their pollination economic contributions in the U.S., as seen in the chart above. Kylie Banks, *U.S. Honey Industry Contributes More Than \$4.7 Billion to Economy, According to Ag Issues Center Report*, UC ANR: FOOD BLOG (Feb. 26, 2019), <https://ucanr.edu/blogs/blogcore/postdetail.cfm?postnum=29513> [<https://perma.cc/5RDP-ZSXG>] (looking at 2017 honey production GOP).

Ants, beetles, wasps, birds, and butterflies all help in pollination; however, honey bees are particularly vital pollinators,⁴² as they perform more than 80% of the pollination for cultivated crops.⁴³ Without honey bees, fruits, nuts, and vegetables would not exist.⁴⁴ In addition to being vital contributors to the economy, honey bees act as “detector[s] of environmental pollution,” as well as indicators of ecological well-being.⁴⁵

B. Evolution of Pesticides and Concurrent Harm to Pollinators

Pesticides were first used in the U.S. post-World War II,⁴⁶ which started out as dichloro-diphenyl-trichloroethane, better known as DDT.⁴⁷ DDT was the first modern insecticide,⁴⁸ highly praised for much of the 20th century.⁴⁹ As a result, DDT production began to accelerate.⁵⁰ By 1972, the many adverse effects resulting from the excessive use of DDT became evident.⁵¹ In response, the Army and Public Health Service—not the EPA—issued a policy that banned DDT use.⁵² Unfortunately, DDT

42. *Pollinator Health Concerns*, EPA, <https://www.epa.gov/pollinator-protection/pollinator-health-concerns> [<https://perma.cc/SU2A-X873>] (last updated July 20, 2022).

43. Brianna Randall, *The Value of Birds and Bees*, USDA (June 22, 2020), <https://www.farmers.gov/blog/value-birds-and-bees> [<https://perma.cc/TA2J-JN38>].

44. See *Economic Value of Commercial Beekeeping*, *supra* note 7; see also Pierson, *supra* note 15.

45. Giorgio Celli & Bettina Maccagnani, *Honey Bees as Bioindicators of Environmental Pollution*, 56 BULL. OF INSECTOLOGY 137 (2003).

46. Edmund P. Russell, III, *The Strange Career of DDT: Experts, Federal Capacity, and Environmentalism in World War II*, 40 TECH. & CULTURE 770, 772 (1999).

47. DDT was initially used by the military in WWII. Royal Dutch Shell (the oil and gas company commonly known as Shell) used DDT in the 1940s as a synthetic insecticide. *Id.*; *DDT – A Brief History and Status*, EPA, <https://www.epa.gov/ingredients-used-pesticide-products/ddt-brief-history-and-status> [<https://perma.cc/QSS9-BJFS>] (last updated Apr. 21, 2022).

48. Russell, III, *supra* note 46; *DDT – A Brief History and Status*, *supra* note 47.

49. Matt Davis, *Forgotten Nazi Pesticide Rediscovered—It Was Safer Than DDT*, BIG THINK (Oct. 16, 2019), <https://bigthink.com/surprising-science/ddt-pesticide?rebelltitem=2#rebelltitem2> [<https://perma.cc/4VTW-RETM>].

50. *Id.*

51. *DDT – A Brief History and Status*, *supra* note 47.

52. Russell, III, *supra* note 46; *contra DDT – A Brief History and Status*, *supra* note 47.

was only the beginning of harmful pesticide use in the U.S., and pesticide use has caused agriculture to become 48 times more toxic to pollinators.⁵³

Chemical pesticides protect crops from plant-eating insects, allowing for higher crop production rates on less acreage.⁵⁴ Nevertheless, chemical pesticides are not selective in the insects they target.⁵⁵ Additionally, the timeline of the introduction of pesticides in the U.S. and the subsequent decline of honey bee colonies coincide.⁵⁶ Currently, honey bees face future extinction.⁵⁷ In the U.S., there were 6 million colonies in the 1940s, whereas today, approximately 2.5 million colonies remain.⁵⁸ Pesticides are the main culprit of colony deaths,⁵⁹ causing anywhere from 23% to more than 50% of colonies to die annually.⁶⁰ However, annual colony deaths are controversial. One author recognizes the high-loss percentage of honey bee colonies and places the burden on beekeepers to “work a little harder” to mitigate hive loss with methods such as splitting colonies⁶¹ and buying

53. Lauren Aratani, *Pesticide Widely Used in the US Particularly Harmful to Bees, Study Finds*, THE GUARDIAN (Aug. 6, 2019, 2:00 PM), <https://www.theguardian.com/environment/2019/aug/06/us-pesticide-neonics-toxic-harmful-bees-study> [<https://perma.cc/G794-THUQ>].

54. *Importance & Benefits of Pesticides*, *supra* note 1.

55. *See Protecting Pollinators From Pesticides*, *supra* note 2.

56. VANISHING OF THE BEES, *supra* note 26; *see* Evan, *Understanding The Buzz on Honey Bee Population Decline*, DEBATING SCI. (Apr. 20, 2016), <https://blogs.umass.edu/natsci397a-eross/understanding-the-buzz-on-honey-bee-population-decline/> [<https://perma.cc/Q6BZ-D88H>]; *see also* Dr. Ann Bartuska, *Being Serious About Saving Bees*, USDA (Aug. 4, 2021), <https://www.usda.gov/media/blog/2017/06/20/being-serious-about-saving-bees> [<https://perma.cc/F2DT-U65B>].

57. *See* Li, *supra* note 8.

58. Bartuska, *supra* note 56.

59. Lu et al., *supra* note 9 (“this study . . . reinforce[s] the conclusion that sub-lethal exposure to neonicotinoids is likely the *main* culprit for the occurrence of CCD.”) (emphasis added).

60. Univ. of Md., *supra* note 10 (40% colony loss in 2018); *see* Steinhauer et al., *supra* note 10.; *see* *Nation’s Beekeepers Lost 44 Percent of Bees in 2015-16*, *supra* note 10 (reporting a 44.1% loss for 2014-2015); *see also* Engelsdorp et al., *supra* note 10 (reporting a 23.2% colony loss in 2013-2014 and 30.5% loss for 2012-2013).

61. Beekeepers can mitigate losses and essentially “double” a colony by “splitting” the colony. Inside a hive (the wooden box the colony is in), there are several frames filled with honeycomb and cells with eggs. Splitting a colony is when a beekeeper removes about half of the frames from a strong, healthy colony and places them in a new, empty hive box. There will be worker bees and drones on the transferred frames. The beekeeper will then place a new caged queen in the new hive box. The dissolvable cage is around the queen to protect her from the

more bees to replace the dead ones.⁶² Others criticize the purported honey bee decline, arguing that there has been a rise in population since 2014.⁶³ While the United States Department of Agriculture's 2019 statistical report shows a 1.46 million rise of colonies from 1969 to 2017, critics gloss over the overall population decline since the 1940s, when DDT was first introduced.⁶⁴ The honey bee population is not at "historical highs,"⁶⁵ since the population is lower than it was prior to the introduction of DDT into the U.S.⁶⁶ The recent population increase is more likely due to the aggressive mitigative measures taken by beekeepers, such as hive splitting,⁶⁷ than a reduction or change in pesticide use.⁶⁸

This article addresses two methods of distributing pesticides: topical distribution and systemic distribution. Topical pesticides, or contact

worker bees and drones, until they get used to her scent. Once she is released from the cage, she will begin to populate her new colony. The queen in the original colony will continue to repopulate the other half. *Statistical Summary: Honey Bees*, USDA: NAT'L AGRIC. STAT. SERV. (Sept. 2019), https://www.nass.usda.gov/Publications/Highlights/2019/2019_Honey_Bees_StatisticalSummary.pdf [<https://perma.cc/8JWY-NL34>] (see Fig. 1, U.S. Honey Bee Colonies, various years); *ARS Honey Bee Health*, USDA, <https://www.ars.usda.gov/oc/br/ccd/index> [<https://perma.cc/6T4F-E89V>] (last modified June 24, 2022); Ross Conrad, *Introducing Her Royal Highness*, BEE CULTURE (June 19, 2015), <https://www.bee-culture.com/introducing-her-royal-highness> [<https://perma.cc/3ABW-H9FW>]; see Hilary Kearney, *Springtime Is Splitting Time if You Want Another Colony*, HONEY FLOW, <https://www.honeyflow.com/blogs/beekeeping-basics/spring-split> [<https://perma.cc/U8S4-JRYW>] (last visited Nov. 3, 2022).

62. Christopher Ingraham, *Call Off the Bee-Pocalypse: U.S. Honeybee Colonies Hit a 20-year High*, THE WASH. POST (July 23, 2015, 9:55 AM), <https://www.washingtonpost.com/news/wonk/wp/2015/07/23/call-off-the-bee-pocalypse-u-s-honeybee-colonies-hit-a-20-year-high/> [<https://perma.cc/ZEE2-MTP9>].

63. Markie Hageman, *Are Honey Bees Endangered? Here's the Truth of the Matter*, AGDAILY, <https://www.agdaily.com/crops/are-honey-bees-endangered> [<https://perma.cc/993M-REHJ>] (last visited Nov. 3, 2022). See also Dan Charles, *Honeybees Help Farmers, But They Don't Help the Environment*, NPR (Jan. 27, 2018, 8:21 AM), <https://www.npr.org/sections/thesalt/2018/01/27/581007165/honeybees-help-farmers-but-they-dont-help-the-environment> [<https://perma.cc/7XS9-6HWL>] (arguing that the focus should instead be on other pollinators).

64. *Statistical Summary: Honey Bees*, *supra* note 61 (supporting research of honey bee population rise).

65. Hageman, *supra* note 63.

66. Bartuska, *supra* note 56.

67. See *Statistical Summary: Honey Bees*, *supra* note 61 for an explanation of hive splitting.

68. *Statistical Summary: Honey Bees*, *supra* note 61; *ARS Honey Bee Health*, *supra* note 61; Conrad, *supra* note 61; see Kearney, *supra* note 61.

pesticides, are applied by spraying the crop. They affect insects by penetrating their external body structure upon contact.⁶⁹ Systemic pesticides are applied either by coating the plant seed or placing pesticides in the irrigation system.⁷⁰ Systemic pesticides kill the insect via ingestion of the pesticide, either by eating a portion of the plant or collecting pollen or nectar from the crop.⁷¹ Two of the most harmful and controversial classes of pesticides are neonicotinoids (systemic) and chlorpyrifos (topical).⁷² Moreover, systemic and topical pesticides are sometimes used in conjunction with one another,⁷³ thus, distributing a double dose of toxins to the nearby insects. An important characteristic of pesticides is their residual times;⁷⁴ the longer the pesticide's residual time, the greater the opportunity for a honey bee to come into contact with the toxic chemicals because the pesticide can remain on the crop for a longer period of time.⁷⁵

Saving bees after their exposure to pesticides can be difficult.⁷⁶ If the entire colony or individual bees are exposed to topical pesticides, the beekeeper can take some measures to save the hive, although hive

69. *What Is the Difference Between Contact and Systemic Insecticides?*, TURF GATOR LAWN CARE & PEST CONTROL, <https://turf-gator.com/faqwd/difference-contact-systemic-insecticides> [<https://perma.cc/MD86-Q9ZQ>] (last visited Nov. 3, 2022).

70. VANISHING OF THE BEES, *supra* note 26.

71. *Id.*

72. Univ. of Saskatchewan, *Neonicotinoid, Chlorpyrifos Insecticides Impact Bird Migration, Study Finds*, GENETIC LITERACY PROJECT (Nov. 13, 2017), <https://geneticliteracyproject.org/2017/11/13/neonicotinoid-chlorpyrifos-insecticides-impact-bird-migration-study> [<https://perma.cc/CSA5-K788>].

73. *What Is the Difference Between Contact and Systemic Insecticides?*, *supra* note 69.

74. Residual time is the length of time pesticide residue remains on a crop. See *Setting Tolerances for Pesticide Residues in Foods*, EPA, <https://www.epa.gov/pesticide-tolerances/setting-tolerances-pesticide-residues-foods> [<https://perma.cc/N5YW-EY26>] (last updated June 1, 2022).

75. Residual time of a pesticide is the amount of time chemical residue or remnants remain in effect. See *Residual*, MERRIAM-WEBSTER'S COLLEGIATE DICTIONARY (11th ed. 2020).

76. See *Protecting Pollinators From Pesticides*, *supra* note 2; John A. Chimel et al., *Understanding the Effects of Sublethal Pesticide Exposure on Honey Bees: A Role for Probiotics as Mediators of Environmental Stress*, FRONTIERS (Feb. 19, 2020), <https://www.frontiersin.org/articles/10.3389/fevo.2020.00022/full> [<https://perma.cc/TBT9-FWQV>].

recovery is not guaranteed, especially if the poison reaches the comb⁷⁷ and cells.⁷⁸ Reviving honey bees is even more difficult—if not impossible—when honey bees are exposed to systemic pesticides, since the effects can take months, even generations, of honey bees to materialize.⁷⁹ Therefore, it is important to proactively protect honey bees and other pollinators.

C. Application of State Law Rather than Federal Law

In 1947, Congress enacted the first version of FIFRA, giving the U.S. Department of Agriculture regulatory power over the registration of pesticides that enter interstate commerce.⁸⁰ In 1970, Congress created the EPA, transferring the regulatory power under FIFRA to the EPA.⁸¹ The EPA was tasked with protecting the environment by regulating pesticide registration, licensing, and use.⁸² Under EPA guidelines, pesticides must go through a toxicology analysis before entering the market.⁸³ The toxicity of pesticides is reassessed periodically under the EPA's Risk Assessment program.⁸⁴ FIFRA also grants the states concurrent pesticide regulatory

77. The comb, also known as the honeycomb, is the cluster of wax cells where the queen lays her eggs. Brantley Crowder, *What Is Honeycomb?*, SAVANNAH BEE CO. (Aug. 2, 2022), <https://savannahbee.com/blog/what-is-honeycomb> [<https://perma.cc/22CB-ZD8L>].

78. *Protecting Pollinators From Pesticides*, *supra* note 2.

79. VANISHING OF THE BEES, *supra* note 26. *See* Chimel et al., *supra* note 76 (explaining that sublethal doses slow the queen's reproductive cycle and honey bee development, thus harming the life cycle and affecting generations of honey bees. The article also explains how pesticides harm honey bees' immune systems, cognition, and ability to detoxify pollutants.).

80. This version required registration of pesticides distributed in interstate commerce. *See Federal Insecticide and Rodenticide Act (FIFRA) and Federal Facilities*, EPA, <https://www.epa.gov/enforcement/federal-insecticide-fungicide-and-rodenticide-act-fifra-and-federal-facilities> [<https://perma.cc/T87E-9JYF>] (last updated Mar. 28, 2022).

81. *The Origins of EPA*, EPA, <https://www.epa.gov/history/origins-epa> [<https://perma.cc/5D45-D3A9>] (last updated June 24, 2022); *Summary of the Federal Insecticide, Fungicide, and Rodenticide Act*, EPA, <https://www.epa.gov/laws-regulations/summary-federal-insecticide-fungicide-and-rodenticide-act> [<https://perma.cc/88BD-NP7L>] (last updated Sept. 12, 2022).

82. *Regulatory and Guidance Information by Topic: Pesticides*, EPA, <https://www.epa.gov/regulatory-information-topic/regulatory-information-topic-pesticides> [<https://perma.cc/5D6V-9UF6>] (last updated Feb. 17, 2022).

83. 7 U.S.C. § 136a(a).

84. 40 C.F.R. § 702.1(a) (2022); 15 U.S.C. § 2605(b)(1)(A); 40 C.F.R. § 155.40 (2022).

power.⁸⁵ Typically, utilizing federal law to regulate pesticides is ideal because it creates uniformity among the states. However, FIFRA contains many gaps, and the EPA is arguably partial to pesticide companies and users because of their successful lobbying efforts.⁸⁶ Therefore, due to the EPA's failure to protect the environment, some states, such as Hawaii⁸⁷ and California,⁸⁸ took on the duty of protecting pollinators and the environment through their own laws and regulations.⁸⁹ Thus, Louisiana is also capable of protecting honey bees and mitigating the decline of environmental health by implementing heavier restrictions or creating pesticide-specific bans.

III. WORLD-WIDE HONEY BEE CRISIS, RESPONSES BY FOREIGN GOVERNMENTS

“The earth will not continue to offer its harvest, except with faithful stewardship. We cannot say we love the land and then take steps to destroy it for use by future generations.”

— Pope John Paul II⁹⁰

85. 7 U.S.C. § 136(v); *Regulatory and Guidance Information by Topic: Pesticides*, EPA, <https://www.epa.gov/regulatory-information-topic/regulatory-information-topic-pesticides> [<https://perma.cc/5D6V-9UF6>] (last updated Feb. 17, 2022).

86. See Cunningham-Parmeter, *supra* note 32, at 448–49, 484.

87. Dominique Mosbergen, *Hawaii Becomes First State to Ban Widely-Used Pesticide Found to Be Harmful to Kids*, HUFFPOST (June 14, 2018, 5:10 AM), https://www.huffpost.com/entry/chlorpyrifos-ban-hawaii-pesticide_n_5b21fd3ee4b09d7a3d7a2fd9 [<https://perma.cc/DUN2-E5AB>].

88. CAL. CODE REGS. tit. 10, § 6400 (2022); Richard Gonzales, *California Bans Popular Pesticide Linked to Brain Damage in Children*, NPR (Oct. 9, 2019, 10:47 AM), <https://www.npr.org/2019/10/09/768795666/california-bans-popular-pesticide-linked-to-brain-damage-in-children> [<https://perma.cc/FE44-9LTJ>].

89. Cat DiStasio, *Pesticide Industry Spending ‘Hundreds of Thousands of Dollars’ to Slow U.S. Bee Production*, INHABITAT (June 17, 2016), <https://inhabitat.com/pesticide-industry-spending-hundreds-of-thousands-of-dollars-to-slow-u-s-bee-protection/> [<https://perma.cc/7LZ3-9DKE>]; Mosbergen, *supra* note 87; Gina Solomon, *Why California Is Banning Chlorpyrifos, a Widely-used Pesticide: 5 Questions Answered*, THE CONVERSATION (Jan. 3, 2020, 8:51 AM), <https://theconversation.com/why-california-is-banning-chlorpyrifos-a-widely-used-pesticide-5-questions-answered-130115> [<https://perma.cc/Y4LU-E SPG>].

90. *Pope John Paul II: Quotes: Quotable Quote*, GOOD READS, <https://www.goodreads.com/quotes/24902-the-earth-will-not-continue-to-offer-its-harvest-accept> [<https://perma.cc/Z52U-BMJ9>] (last visited Nov. 3, 2022).

The pesticide-honey-bee-crisis is not exclusive to the U.S.; honey bees around the world are dying from pesticides.⁹¹ France is an example of a country that acted swiftly and proactively to protect their honey bees. Conversely, China was slow to reduce pesticide use, and despite recent efforts to mitigate the effects, faces a long, discouraging road to recovery. Louisiana and the U.S. should observe and apply the lessons from France and China, modeling pesticide restrictions and honey protections after France to avoid consequences similar to China's.

A. International Setbacks to the Protection of Honey Bees

China's use of natural pesticides traces back to 500 B.C.⁹² The 1970s introduced even more harmful synthetic chemical pesticides.⁹³ China became one of the world's largest producers and consumers of pesticides,⁹⁴ using more than double the amount of pesticides needed annually.⁹⁵ The native Chinese honey bee population declined by 80% and has been listed as an endangered species since 2006.⁹⁶ As a result of

91. Alison Benjamin et al., *Buzzfeeds: The Effects of Colony Collapse Disorder and Other Bee News*, THE GUARDIAN (July 30, 2013, 10:35 AM), <https://www.theguardian.com/environment/2013/jul/30/buzzfeeds-bees-colony-collapse-disorder> [<https://perma.cc/CA6M-FZ5K>]; see also Erik Stokstad, *Pesticides Found in Honey Around the World*, AAAS (Oct. 5, 2017), <https://www.sciencemag.org/news/2017/10/pesticides-found-honey-around-world> [<https://perma.cc/YTR6-8AFN>].

92. These pesticides were very different from present-day pesticides, which were more natural, and less harmful to the environment and pollinators. However, it marks the beginning of pesticide pollution. ZhenNing Shi, *Pesticide Pollution in China*, CENTRIA UNIV. OF APPLIED SCIS. 1, 3 (Dec. 2017), https://www.theseus.fi/bitstream/handle/10024/139893/Zhenning_Shi.pdf [<https://perma.cc/HQ77-YFQU>].

93. *Id.*

94. Rui Xu et al., *Factors Contributing to Overuse of Pesticides in Western China*, 5 ENV'T SCI. 235 (NOV. 18, 2008), <https://www.tandfonline.com/doi/pdf/10.1080/15693430802346543> [<https://perma.cc/D8G5-NFSL>].

95. Jonathan Watts, *Chinese Farms Cause More Pollution Than Factories, Says Official Survey*, THE GUARDIAN (Feb. 9, 2010, 10:26 AM), <https://www.theguardian.com/environment/2010/feb/09/china-farms-pollution> [<https://perma.cc/B5N7-93B9>]; *China to Crack Down on Banned Pesticide Use*, REUTERS (Aug. 7, 2007, 8:28 PM), <https://www.reuters.com/article/idUSPEK92660> [<https://perma.cc/PWK8-KGEM>]; Xu et al., *supra* note 94.

96. Qing Hu et al., *Endangered Chinese Honey Bee*, 6 J. BIODIVERS. ENDANGER SPECIES 1000224 (Aug. 21, 2018), <https://www.hilarispublisher.com/open-access/endangered-chinese-honey-bee-2332-2543-S2i101.pdf> [<https://perma.cc/A7W7-QXML>].

China's agricultural pollution,⁹⁷ Chinese farmers must undergo the painstaking task of pollinating their crops by hand.⁹⁸



Leasing honey bees for crop pollination is an option in China; however, pesticide overuse makes it hard for the beekeeper to keep the colonies alive, and the beekeepers must move the hive frequently to protect them from pesticide spraying.¹⁰⁰ Moreover, many farms in China are in rural, underdeveloped areas, with low labor costs making hand pollination a more viable option.¹⁰¹ Despite farmers' best efforts, the fruit yield is declining,¹⁰² while the labor costs continue to rise, thereby eliminating hand pollination as a viable long-term solution.¹⁰³

Historically, China's pesticide regulation "suffered from scattered data, complex laws and lack of transparency regarding rule

97. "Agricultural pollution has become one of China's gravest environmental crises." Watts, *supra* note 95 (quoting Greenpeace campaign director Sze Pangcheung).

98. Williams, *supra* note 25.

99. *Id.*

100. *Blossoms Without Bees in China*, DEUTSCHE WELLE (Apr. 28, 2018), <https://www.dw.com/en/blossoms-without-bees-in-china/av-43577307> [<https://perma.cc/AU5M-CUNR>].

101. Williams, *supra* note 25; Li, *supra* note 8.

102. Williams, *supra* note 25. Hand pollination is a labor-intensive task. The blooms must have opened recently, the pollen dust must be fresh, clean, and handled very carefully, and each tree or crop has to be pollinated at least three times. Further, it is not as precise as the honey bees' method because they are able to go right to the center of the crop, whereas hand pollination is merely sprinkling the pollen on top. *Blossoms Without Bees in China*, *supra* note 100.

103. Williams, *supra* note 25.

implementation and compliance.”¹⁰⁴ In recent years, however, China made great strides in improving pesticide regulation. In 2014, the Chinese Ministry of Agriculture banned 50 pesticides and is in the process of restricting 30 more.¹⁰⁵ More recent regulations started phasing out an additional 12 pesticides, which was set for completion by 2022.¹⁰⁶ In May of 2022, China issued *Notice No. 15 of 2022*, which vowed to improve China’s pollutant treatment capacity by 2025.¹⁰⁷ China is quickly passing the U.S. in pesticide regulation—the 25 most common pesticides in the U.S. are either banned or being phased out in China, Brazil, and the EU.¹⁰⁸ Despite China’s recent efforts to better regulate pesticides and facilitate the increase of the honey bee population, honey bees continue to suffer from the effects of China’s past poor treatment of the environment.¹⁰⁹

One might look at China and say, “the U.S. will never get there. We can afford to ship bees in.” However, much of the world looks to the U.S. for direction in governmental policies. Therefore, the U.S.’s failure to act could cause a ripple effect inspiring other countries to also ignore the problem. Then, because too few countries took proactive steps toward preserving honey bees, there will be an insufficient amount of bees to import. Moreover, if China and the U.S.—both economic leaders of the world—cannot bring in billions of dollars in revenue from honey bees and the fruits of their pollination, not only will the U.S. see adverse effects on its economy, but so will the rest of the world.¹¹⁰

China essentially hit environmental rock bottom and now must implement reactive measures. Despite China’s recent efforts to better regulate pesticides and facilitate the increase of the honey bee population,

104. Nathan Donley, *The USA Lags Behind Other Agricultural Nations in Banning Harmful Pesticides*, 18 J. ENVIRON. HEALTH 1, 2 (2019).; Francis Snyder & Lili Ni, *A Tale of Eight Pesticides: Risk Regulation and Public Health in China*, 8 EUR. J. OF RISK REG. 469 (2017).

105. Donley, *supra* note 104 (citing Food & Agric. Org. of the U.N., *Progress in Pesticide Risk Assessment and Phasing Out of Highly Hazardous Pesticides in Asia*, RAP Pub. 2015/01 (2015)).

106. *Id.*; *China to Phase Out More Pesticides in Push to Improve Food Safety*, REUTERS (Dec. 4, 2017, 9:59 PM), <https://www.reuters.com/article/china-pesticides/china-to-phase-out-more-pesticides-in-push-to-improve-food-safety-idUSL3N1O51PO> [<https://perma.cc/Z25V-GTS7>].

107. *China Releases Action Plan for New Pollutants Treatment*, REACH24H (May 26, 2022), <https://www.reach24h.com/en/news/industry-news/chemical/china-releases-action-plan-for-new-pollutants-treatment.html> [<https://perma.cc/89SX-8ZZR>].

108. Donley, *supra* note 104, at 9

109. See Shi, *supra* note 92.

110. Press Release, *supra* note 3.

its environment will continue to suffer. Consequently, it is imperative to both the economic and environmental future of the U.S. to take immediate proactive measures, rather than reactive measures, to avoid a situation similar to the one in China.

B. International Positive Strides to Save Honey Bees

Honey bee die-offs are a worldwide crisis, but some parts of the world handle it better than others. France took the scientific link between pesticides and the negative effects on hive health¹¹¹ seriously by implementing precautionary measures.¹¹² As a result, the country saw improvement in honey bee population and health.¹¹³ Rather than waiting on more definitive proof while the honey bee population rapidly decreased in 2013, Edouard Philippe, then Prime Minister of France, opted to remove pesticides from the market.¹¹⁴ France became the first country in the world to place a ban on pesticides.¹¹⁵ Environmentalists and beekeepers applauded France's decision, while farmers strongly opposed it.¹¹⁶ Farmers claimed the ban stripped them of their ability to compete in the food industry and felt the evidence insufficiently supported such a drastic decision.¹¹⁷ While enacting the ban affected farmers, France did not ignore the farmers' need for protecting crops and increasing yields; in 2008,

111. Hammon, *supra* note 22.

112. Precautionary in terms of removing the source of the issue rather than reactive measures that merely treat the system's problems after they occur. Stating that France took precautionary measures does not mean they removed pesticides from their agriculture *before* they saw a decline of honey bees. France also saw a decrease of honey bee population; from 1989 to 2014, the number of hives in production fell from 1,108,550 to 748,398. Hinklej, *supra* note 28 (graph, Honey Production in France).

113. *See id.*

114. Hammon, *supra* note 22; Hinklej, *supra* note 28; *French PM Says Ban on 'Bee-Killer' Pesticide Will Go Ahead*, PHYS.ORG (June 26, 2017), <https://phys.org/news/2017-06-french-pm-bee-killer-pesticide.html> [<https://perma.cc/67PR-9D X3>] (the 2013 ban was temporary, followed by other bans in 2016 and 2018).

115. Hammon, *supra* note 22; Hinklej, *supra* note 28; *French PM Says Ban on 'Bee-Killer' Pesticide Will Go Ahead*, *supra* note 114.

116. Hammon, *supra* note 22; *Reversal of Pesticide Ban Sparks Criticism of French Government*, *supra* note 31.

117. Hammon, *supra* note 22; *Reversal of Pesticide Ban Sparks Criticism of French Government*, *supra* note 31.

before placing the pesticide ban, it launched a global action plan called *Écophyto*.¹¹⁸

Écophyto educated farmers on safe alternative methods to protect their crops¹¹⁹ and how to gradually reduce the use of pesticides.¹²⁰ The plan set an ambitious goal of reducing chemical pesticides by 50% within 10 years.¹²¹ However, after this 10 year period, *Écophyto*'s target was not met, and France rejuvenated its plan by implementing *Écophyto II*.¹²² *Écophyto II* consolidated certain structural actions from *Écophyto* and addressed collective climate change, which pesticide use impacts.¹²³ Further, it required the Ministers of Agriculture and the Ministers of the Environment to work in tandem to strike a balance between agricultural and environmental concerns.¹²⁴ *Écophyto II* altered *Écophyto*'s 50% pesticide reduction goal by making it a two-phase process.¹²⁵ In phase one, France aimed to reduce total pesticide use by 25% by 2020; phase two's goal consists of a 50% reduction by 2025.¹²⁶ In 2018, Prime Minister Philippe enacted a full ban on the neonicotinoid pesticide class—reaching beyond the EU's 2013 restrictions for these chemicals.¹²⁷

As a result of France's precautionary measures, the bee population and honey production started to rebuild. By 2019, the number of productive hives reached 1.3 million—a 200,000 hive increase from 1989, which was

118. *Écophyto Plan II*, MINISTÈRE DE L'AGRIC. DE L'AGROALIMENTAIRE ET DE LA FORÊT, 1, 3 (Oct. 20, 2015), https://ec.europa.eu/food/sites/food/files/plant/docs/pesticides_sup_nap_fra-ecophyto-2_en.pdf [<https://perma.cc/86SY-RVK9>]; Hinklej, *supra* note 28.

119. Hinklej, *supra* note 28.

120. JAY RAM LAMICHHANE ET AL., RESEARCH AND INNOVATION PRIORITIES AS DEFINED BY THE ECOPHYTO PLAN TO ADDRESS CURRENT CROP PROTECTION TRANSFORMATION CHALLENGES IN FRANCE 84 (Donald L. Sparks, 1st ed. 2019).

121. The plan implemented a wide range of actions, including “a national pest monitoring system, a network of farms and field experiments . . . an internet information platform . . . a training and certification scheme for farmers . . . etc.” *Id.*

122. *Écophyto Plan II*, *supra* note 118, at 1, 5 (stating the national use of chemical products rose by 5% between 2009 and 2013); LAMICHHANE et al., *supra* note 120.

123. *Écophyto Plan II*, *supra* note 118, at 1, 6.

124. *Id.* at 1, 5.

125. *Id.*

126. *Id.* at 1, 4.

127. Molly Quell, *Top EU Court Swats Challenge to Bee-Protection Rules in France*, COURTHOUSE NEWS SERV. (Oct. 8, 2020), <https://www.courthouse-news.com/top-eu-court-swats-challenge-to-bee-minded-pesticide-rules-in-france/> [<https://perma.cc/U5S2-PUD7>].

when France began to see a decline.¹²⁸ Despite France's efforts to provide farmers with safer alternatives, farmers have resisted the ban.¹²⁹ Farmers opposing the ban claim their crops will not survive without pesticides.¹³⁰ The French Crop Protection Association, an agricultural lobbying group, sued to reverse the ban.¹³¹ In August 2020, the European Court of Justice—the EU's highest court—upheld France's ban of neonicotinoid pesticides, due to their toxicity to honey bees.¹³² However, the French National Assembly later approved a proposal giving farmers an exemption from the ban until July 2023,¹³³ a decision environmentalists protested.¹³⁴

Valuable lessons can be drawn from both China's failure as well as the EU and France's successes. China faces serious consequences from its years of unregulated and overused pesticides.¹³⁵ The U.S. could experience an environmental crisis similar to China's because the U.S. heavily relies on the chemical pesticide industry at the expense of honey bees and other pollinators.¹³⁶ The EU and France currently have the most comprehensive, progressive pesticide regulations among major agricultural producers and have seen positive results.¹³⁷ However, in spite

128. Hinklej, *supra* note 28 (citing *Honey from France*, HONEY TRAVELER, <https://www.honeytraveler.com/honey-by-country-region/honeys-from-france/> [<https://perma.cc/QE5K-CE2L>] (last visited Nov. 3, 2022)).

129. Mallet, 'Ecocide'? Green Groups Blast France for Lifting Neonicotinoid Pesticide Ban to Save Sugar-beet Growers, FINANCIAL TIMES (Sept. 9, 2020), <https://geneticliteracyproject.org/2020/09/09/ecocide-green-groups-blast-france-for-lifting-neonicotinoid-pesticide-ban-to-save-sugar-beet-growers/> [<https://perma.cc/AZ3Y-4KYL>]; *Reversal of Pesticide Ban Sparks Critique of French Federal Government*, *supra* note 31.

130. They argue that beet yields will decrease by 70% due to green aphid infestations and yellow disease. *Reversal of Pesticide Ban Sparks Critique of French Federal Government*, *supra* note 31; *European Top Court Upholds French Ban on Bee-harming Pesticides*, DEUTSCHE WELLE (Oct. 8, 2020), <https://www.dw.com/en/european-top-court-upholds-french-ban-on-bee-harming-pesticides/a-55204286> [<https://perma.cc/5DVW-FA6R>]; Quell, *supra* note 127.

131. Quell, *supra* note 127.

132. *Id.*

133. *European Top Court Upholds French Ban on Bee-harming Pesticides*, *supra* note 130.

134. *Reversal of Pesticide Ban Sparks Critique of French Federal Government*, *supra* note 31.

135. See Shi, *supra* note 92.

136. Over 45 million pounds of agricultural pesticide use in the U.S. comes from the 13 pesticides that are banned or in the process of being phased out in the EU, Brazil, and China. Donley, *supra* note 104, at 4 (see Table 1 and Figure 2).

137. *Id.* at 2 (major agricultural producers include European Union, US, Brazil, and China).

of Europe's more environmentally progressive culture and government, European farmers still protested the pesticide regulations. The U.S. must learn from these approaches and make proactive changes on a smaller scale—*e.g.*, state-by-state—to achieve a better balance between the concerns of farmers and environmentalists. While clean, sustainable farming options exist, making the radical shift from chemical-based agriculture to clean agriculture will take time for American farmers to accept and adapt. Louisiana, as well as other states, can still learn from France's initiatives—there is no doubt the pesticide ban resulted in healthier honey bees and an increase in the honey bee population. It is reasonable for Louisiana to place heavier restrictions on, or ban, the most harmful pesticides. Every change in the right direction benefits honey bees, pollination efforts, and the environment as a whole.

IV. INADEQUACIES OF FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT

“Only when the last tree has died and the last river has been poisoned and the last fish has been caught will we realize that we cannot eat money.”
—Cree Indian Proverb¹³⁸

The U.S. uses FIFRA to grant the EPA power to regulate pesticides.¹³⁹ For successful registration under FIFRA, the pesticide must not cause “unreasonable adverse effects on the environment,”¹⁴⁰ which is any “unreasonable risk to man or the environment, taking into account the economic, social, and environmental costs and benefits of the use of any pesticide.”¹⁴¹ While FIFRA requires the pesticide to “perform its intended function,”¹⁴² the statute also explicitly grants the EPA the authority to waive pesticide data requirements pertaining to efficacy.¹⁴³ The EPA exercises its waiver authority by rule.¹⁴⁴ FIFRA also requires pesticide

138. *When the Last Tree Is Cut Down, the Last Fish Eaten, and the Last Stream Poisoned, You Will Realize That You Cannot Eat Money*, QUOTE INVESTIGATOR (Oct. 20, 2011) <https://quoteinvestigator.com/2011/10/20/last-tree-cut/> [<https://perma.cc/WBG4-C2DV>].

139. *The Origins of EPA*, *supra* note 81.

140. 7 U.S.C. § 136a(c)(5).

141. *Id.* § 136(bb) (2022); 40 C.F.R. § 166.3(B)(2) (2022).

142. 7 U.S.C. § 136a(c)(5)(C).

143. *Id.* § 136a(c)(5).

144. 40 C.F.R. § 158.400(e) (2022).

applicants to submit risk-related data.¹⁴⁵ However, applicants can register without this data by submitting a ‘conditional registration,’ which may only be used under specific circumstances.¹⁴⁶

FIFRA is manufacturer friendly and limits the EPA’s regulation in several ways.¹⁴⁷ First, the EPA’s requirements for toxicity and risk testing are limited in both scope and depth.¹⁴⁸ Second, EPA risk assessments are not performed frequently enough to keep up with new environmental and agricultural research.¹⁴⁹ Third, relying on pesticide companies to perform their own toxicology research allows for manipulation of data or research to obtain favorable results.¹⁵⁰

A. Limited Scope and Depth of FIFRA Toxicology Report Requirements

Most of the EPA’s toxicity data requirements pertain to the effects of pesticides on human health.¹⁵¹ It requires wildlife and ecological toxicity testing for a limited number of species and only in certain instances.¹⁵² The

145. 7 U.S.C. § 136a(a), a(c)(2)(A). Data requirements are found at 40 C.F.R. § 158 (2022). The regulation provides for the submission of health and environmental effects data.

146. 7 U.S.C. § 136a(c)(7) (2022).

147. See Cunningham-Parmeter, *supra* note 32, at 448–50 (stating that FIFRA is a “toothless statute” that creates a “presumption of efficacy” of pesticides. Further, Cunningham-Parmeter points out that “[t]here is no set standard for determining an “unreasonable risk.”).

148. The requirements are limited in scope because the data is more extensive for human health than wildlife and the environment. See Mary Jane Angelo, *The Killing Fields: Reducing the Casualties in the Battle Between U.S. Species Protection Law and U.S. Pesticide Law*, 32 HARV. ENVTL. L. REV. 95, 106–07 (2008); see also Leslie W. Touart & Anthony F. Maciorowski, *Information Needs for Pesticide Registration in the United States*, 7(4) ECOLOGICAL APPLICATIONS 1086–87 (1997); see also 40 C.F.R. § 158.500 (2022); it is limited in depth because of the lack of testing on the effects of sublethal doses of pesticides. See 40 C.F.R. § 158.510 (2022).

149. See 40 C.F.R. § 155.40 (2022).

150. See Carlucci, *supra* note 32; Cunningham-Parmeter, *supra* note 32; see also *EPA Buzz Kill: Is the Agency Hiding Colony Collapse Disorder Information?*, *supra* note 32; see also Nat. Res. Def. Council v. EPA, No. 09 Civ. 4317(DLC), 2010 WL 431885, at *1 (D.C.N.Y. Feb. 8, 2010); Cunningham-Parmeter, *supra* note 32, at 447-48.

151. 40 C.F.R. §§ 158.1000, 158.1010, 158.1020, 158.1050, 158.1060, 158.1070, 158.1410 (2022).

152. Angelo, *supra* note 148; see also Touart & Maciorowski, *supra* note 148; 40 C.F.R. § 158.500 provides for oral, dermal, inhalation, and eye irritation testing on rats, rabbits, and hens. 40 C.F.R. § 158.630 provides for testing of mammals,

EPA requires wildlife related data when the pesticide is widely distributed and persistent in the environment.¹⁵³ However, the data requirements mainly address acute toxicity¹⁵⁴ and rarely address chronic toxicity or generational, neurological, and behavioral effects of pesticides.¹⁵⁵ Honey bees and other pollinators are some of the lucky few species for which the EPA requires acute testing, but the EPA does not outright require subacute¹⁵⁶ or chronic testing¹⁵⁷ of honey bees and other pollinators.¹⁵⁸ Moreover, the EPA ignores the potential long-term effects of pesticides by not requiring manufacturers to test the effects of pesticide interactions that buildup over multiple crop seasons on pollinators.¹⁵⁹ In other words, the

aquatic organisms, sediment, and pollinators. However, most of the tests under both sections are conditionally required.

153. Angelo, *supra* note 148.

154. Acute toxicity refers to the adverse effects following oral or dermal administration of a *single* dose of a substance, or multiple doses given within 24 hours, or an inhalation exposure of 4 hours. *Acute Toxicity*, CHEMSAFETYPRO, (Apr. 24, 2016), https://www.chemsafetypro.com/Topics/CRA/acute_toxicity_ld50_lc50.html [<https://perma.cc/P8AW-5B4C>].

155. 40 C.F.R. § 158.510 recognizes “acute, subchronic, chronic, and other toxicological studies”; however, under 40 C.F.R. § 158.630, the EPA mainly provides for acute toxicity testing in some instances when it is not outright required, but only conditionally required. *See also* Angelo, *supra* note 148; *contra* 40 C.F.R. § 158.630(e) n. 25 provides for more extensive testing (*e.g.*, subacute, chronic) of pollinators *if* “[d]ata from other sources . . . indicate potential adverse effects on colonies . . . (reproductive, behavioral, etc.)” But note, it is a conditional requirement—the manufacturers are not outright required to test their pesticides for subacute or chronic effects on pollinators. Angelo, *supra* note 148.

156. Subacute toxicity is defined as the adverse effects occurring after multiple or continuous exposure between 24 hours and 28 days. *Subacute Toxicity*, SCIEDIRECT, <https://www.sciencedirect.com/topics/chemistry/subacute-toxicity> [<https://perma.cc/2HJ7-79A4>] (last visited Nov. 3, 2022).

157. Chronic toxicity is defined as the adverse effects occurring after repeated or continuous administration of a test for up to 90 days or not exceeding 10% of the animal’s lifespan. *Id.*

158. 40 C.F.R. § 158.630(d)–(e), as noted in footnote 14, provides that more extensive testing on honey bees and pollinators is conditional. The extent of additional research that is *occasionally* required is vague in note 25 of 40 C.F.R. § 158.630(e).

159. The guide lists eight *factors* for evaluating residue, but the factors are not required and “most likely will not be necessary to quantify the effect of all such factors.” *Guidance for Assessing Pesticide Risks to Bees*, EPA: OFF. OF PESTICIDE PROGRAMS, 46–47 (2014), https://www.epa.gov/sites/default/files/2014-06/documents/pollinator_risk_assessment_guidance_06_19_14.pdf [<https://perma.cc/4R BW-SSRK>]. According to Dr. Marla Spivak, Professor of Agriculture and Social

EPA does not look at the effects of farmers mixing multiple pesticides,¹⁶⁰ nor the effects of buildup from a single pesticide's use over multiple years, nor the effects of buildup from multiple pesticides.¹⁶¹

FIFRA's first gaping inadequacy is that the EPA does not require sublethal testing for honey bees and other pollinators. The EPA collects some data on the sublethal effects of pesticides;¹⁶² however, by not mandating subacute and chronic testing, the EPA fails to encourage environmental protection. While the specific cause of CCD is unknown, researchers believe that pesticides are the largest contributor.¹⁶³ Honey bees may not die immediately from pesticides, but the ingestion of sublethal, subacute doses of pesticides could kill them over time by reducing hive health¹⁶⁴ and causing CCD.¹⁶⁵

Even though the EPA protects honey bees from lethal pesticide doses, the protection only applies if the chemical is expected to come into contact with honey bees.¹⁶⁶ For example, if there is an aquatic chemical honey bees may or may not come into contact with, then subsequent testing is not automatically required.¹⁶⁷ While some measures can be taken to save bees after exposure to lethal pesticide doses, it is difficult.¹⁶⁸ Further, it is

Insects at the University of Minnesota, there is little research on the accumulation of pesticides in the ground, on the crops after an extended period of time, or whether the accumulation is enough to kill bees. VANISHING OF THE BEES, *supra* note 26; *see also* University of Minnesota Opens New Bee and Pollinator Research Lab, UNIV. OF MINN. (Oct. 26, 2016), <https://twin-cities.umn.edu/news-events/university-minnesota-opens-new-bee-and-pollinator-research-lab> [<https://perma.cc/U54E-8SSQ>].

160. *What Is the Difference Between Contact and Systemic Insecticides?*, *supra* note 69.

161. *See* 40 C.F.R. § 150 (2022).

162. *Guidance for Assessing Pesticide Risks to Bees*, *supra* note 152.

163. Other potential contributing factors are mites, parasites, stress, changes in habitat, poor nutrition, and immune-suppressing stress caused by one or more of the prior listed factors. *Colony Collapse Disorder*, EPA, <https://www.epa.gov/pollinator-protection/colony-collapse-disorder> [<https://perma.cc/8WEV-VKJ3>] (last updated Nov. 4, 2021); *contra* VANISHING OF THE BEES, *supra* note 26 (stating that mites, parasites, etc. are likely more prevalent because pesticides are weakening honey bees' immune systems that are needed to fight off threats, rather than being independent harms).

164. *See* Hammon, *supra* note 22.

165. *See* VANISHING OF THE BEES, *supra* note 26.

166. 40 C.F.R. § 158.630 (2022).

167. *See* 40 C.F.R. § 158.630 (2022).

168. Some methods of colony recovery are: feeding the bees a sugar mixture, protecting them from extreme temperatures, moving hives to pesticide-free areas,

even harder to protect honey bees from systemic pesticide exposure.¹⁶⁹ The major systemic pesticides¹⁷⁰ are sublethal, causing honey bees to suffer silent and slow deaths.¹⁷¹ Thus, the preventative testing required by the EPA should be extensive; yet, the use of neonicotinoid pesticides in the U.S. exploded in recent years from essentially no use in 1994 to over six million pounds of usage in 2012.¹⁷² The effects of systemic pesticides can take months, if not generations—which is one to two months—of honey bees to see the effects.¹⁷³ These pesticides are toxic even at low doses¹⁷⁴ and remain active in the soil for months, if not years.¹⁷⁵

B. The EPA's Risk Assessment Process Lacks Frequency

The EPA requires occasional reassessment of chemical pesticides registered under FIFRA.¹⁷⁶ The same toxicity data required for FIFRA

washing pollen from cells, removing the wax comb and replacing it with a new foundation. *Protecting Pollinators from Pesticides*, *supra* note 2. For successful recovery, the poisoning must be caught quickly since the death from poisoning is rapid (anywhere from the time of contact to 1–3 days after). Christian H. Krupke et al., *Protecting Honey Bees From Pesticides*, PURDUE UNIV. (July 2016), <https://extension.entm.purdue.edu/publications/E-53/E-53.html> [<https://perma.cc/B4ZN-PKP9>].

169. See *Protecting Pollinators from Pesticides*, *supra* note 2; see also Chimel et al., *supra* note 76.

170. Neonicotinoids are the most widely used class of systemic pesticides and include imidacloprid, acetamiprid, dinotefuran, thiamethoxam, and clothianidin. STEVE M. ENSLEY, VETERINARY TOXICOLOGY 521 (Ramesh Gupta, 3d ed. 2018); *Systemic Pesticides*, THE TASK FORCE ON SYSTEMIC PESTICIDES, <http://www.tfsp.info/en/systemic-pesticides/> [<https://perma.cc/GZZ3-NSNK>] (last visited Nov. 3, 2022).

171. VANISHING OF THE BEES, *supra* note 26. See Chimel et al., *supra* note 76 (explaining that sublethal doses slow the queen's reproductive cycle and honey bee development, thus harming the life cycle and future generations of honey bees).

172. DiStasio, *supra* note 89 (the chart shows a combination of United States Geological Survey charts published in the Environmental Pollution journal); Michelle L. Hladik et al., *Widespread Occurrence of Neonicotinoid Insecticides in Streams in a High Corn and Soybean Producing Region, USA*, 193 ENVTL. POLLUTION 189, 190 (2014).

173. VANISHING OF THE BEES, *supra* note 26.

174. Michael DiBartolomeis et al., *An Assessment of Acute Insecticide Toxicity Loading (AITL) of Chemical Pesticides Used on Agricultural Land in the United States*, PLOS ONE, 1, 10, (Aug. 2019). *Systemic Pesticides*, *supra* note 170.

175. *Systemic Pesticides*, *supra* note 170.

176. See 15 U.S.C. § 2605.

registration is required for the subsequent EPA Risk Assessment.¹⁷⁷ The EPA follows testing guidelines required under the Toxic Substances Control Act (TSCA), including the reassessment frequency for pesticides.¹⁷⁸ Risk assessments are not required annually, bi-annually, or even decennially.¹⁷⁹ Rather, the TSCA established the risk-based screening process by designating the chemical as high-priority¹⁸⁰ or low-priority, with high-priority pesticides reassessed more frequently.¹⁸¹ “Low-priority” pesticides only require review every 15 years.¹⁸²

A vast amount of research can accumulate in a particular area of study, especially one that is highly publicized in the scientific community, like the honey bee crisis and CCD. For example, in recent years, research on pesticides’ toxicity to honey bees expanded and advanced.¹⁸³ Therefore, reassessing pesticides’ toxicity every 15 years is not sufficient to keep up with scientific discoveries of the effects of toxic pesticides. While the 15-year requirement was not enacted until 2006,¹⁸⁴ suppose that the 15-year requirement had been in effect since the enactment of FIFRA (1947) and that a pesticide was immediately registered—the EPA would have only re-evaluated the toxicity of said pesticide 4 to 5 times in the last 75 years.¹⁸⁵ Research and awareness of the harmful effects of pesticides has advanced immeasurably in the last 75 years.¹⁸⁶ Conversely, assume the same pesticide is flagged as high-priority and reviewed more frequently than the 15-year lapse.¹⁸⁷ The pesticide is still evaluated under FIFRA’s inadequate

177. 40 C.F.R. § 158 (2022).

178. 15 U.S.C. § 2601.

179. *See* 40 C.F.R. § 155.40 (2022).

180. High-priority substances are those that present “unreasonable risk of injury to health or the environment” and low-priority substances are those that do not meet the high-priority standard. 15 U.S.C. § 2605(B).

181. 40 C.F.R. § 702.1(a) (2022); 15 U.S.C. § 2605(b)(1)(A).

182. 40 C.F.R. § 155.40 (2022).

183. *E.g.*, JENNIFER HOPWOOD et al., HOW NEONICOTINOIDS CAN KILL BEES (Sara Morris, 2d ed. 2016); Tjeerd Blacquière et al., *Neonicotinoids in Bees: A Review on Concentrations, Side-Effects and Risk Assessment*, 21 ECOTOXICOLOGY 973 (2012); *see also* Gonzales, *supra* note 88; Univ. of Saskatchewan, *supra* note 72.

184. *See* 40 C.F.R. § 155.40 (2022).

185. *See id.* § 155.40 (2022).

186. For example, in the last 12 years, there have been major discoveries of the effects of pesticides. *See* Angelo, *supra* note 148; *see also* Chimel et al., *supra* note 76.

187. The process for re-evaluating high and low priority pesticides is at the EPA’s discretion. *See* 15 U.S.C. § 2605(b)(1)(A).

data requirements (discussed above) due to the statutory gaps, such as lack of subacute testing.¹⁸⁸

C. Pesticide Industry Financial Incentives and FIFRA

Lastly, the EPA protects pesticide-manufacturers and users for two reasons.¹⁸⁹ First, the pesticide companies' investments in lobbying efforts persuade the EPA towards more lenient pesticide regulations.¹⁹⁰ FIFRA's lenience exemplifies the power of agricultural lobbying within Congress.¹⁹¹ For the last several years, top agrochemical companies¹⁹² collectively spent \$7 million on lobbying efforts annually.¹⁹³ The

188. See Angelo, *supra* note 148; see also 40 C.F.R. § 155.40 (2022).

189. Carlucci, *supra* note 32; Cunningham-Parmeter, *supra* note 32 (stating that “[w]hen the EPA does act, it is often to appease the agriculture lobby.” (emphasis added)). See *EPA Buzz Kill: Is the Agency Hiding Colony Collapse Disorder Information*, *supra* note 32 (reporting on the Natural Resources Defense Council's lawsuit against the EPA for hiding information of the risks of pesticides on honey bees); see also Nat. Res. Def. Council v. EPA, No. 09 Civ. 4317, 2010 WL 431885, at *1 (S.D.N.Y. Feb. 8, 2010).

190. Cunningham-Parmeter, *supra* note 32, at 447–48 (citing DAN FAGIN et al., TOXIC DECEPTION: HOW THE CHEMICAL INDUSTRY MANIPULATES SCIENCE, BENDS THE LAW AND ENDANGERS YOUR HEALTH 134 (1st ed. 1996) (stating that “deep lobbying” has created an overwhelming bias “toward the almost uncritical faith in the pesticide paradigm.”)).

191. Cunningham-Parmeter, *supra* note 32, at 467–68.

192. Syngenta, Bayer Corporation, Monsanto, DuPont, and Dow Chemical. See *Top 10 Companies in Insecticides Market*, METICULOUS BLOG (July 25, 2021), <https://meticulousblog.org/top-10-companies-in-insecticides-market/> [<https://perma.cc/C95S-S2SN>]. While Monsanto is not in the top 10, it is well-known and a Fortune 500 company. See *Fortune 500: Monsanto*, FORTUNE, <https://fortune.com/fortune500/2018/monsanto/> [<https://perma.cc/F4JR-NVYZ>] (last visited Nov. 3, 2022).

193. The average is based on the last 3 reported years of each company. Syngenta spent \$940,000 in 2016, \$1,400,000 in 2015, and \$1,310,000 in 2014. *Client Profile: Syngenta AG*, OPEN SECRETS, <https://www.opensecrets.org/federal-lobbying/clients/lobbyists?cycle=2016&id=D000064447> [<https://perma.cc/X3DR-SM2M>] (last visited Nov. 3, 2022). Bayer spent \$6,710,000 in 2020, \$9,050,000 in 2019, and \$12,110,000 in 2018. *Client Profile: Bayer AG*, OPEN SECRETS, <https://www.opensecrets.org/federal-lobbying/clients/summary?cycle=2019&id=D000042363> [<https://perma.cc/6C53-QV8J>] (last visited Nov. 3, 2022). Monsanto spent \$4,600,000 in 2016, \$4,330,000 in 2015, and \$4,120,000 in 2014. *Client Profile: Monsanto Co*, OPEN SECRET, <https://www.opensecrets.org/federal-lobbying/clients/summary?cycle=2016&id=d000000055> [<https://perma.cc/DQE4-D9BJ>] (last visited Nov. 3, 2022). DuPont spent \$2,250,000 in 2020, \$2,820,000

companies allocate a large amount of money into lobbying efforts that are directed at prohibiting the protection of honey bees so that agrochem can continue thriving off of the agriculture industry.¹⁹⁴

Second, despite the incorporation of the EPA's occasional re-evaluation of pesticides, FIFRA has no requirement for unbiased, third-party toxicologists to perform required data research—likely a result of prolific lobbying efforts.¹⁹⁵ Even though the EPA reviews registration and risk assessment applications, there is a conflict of interest in the actual research and reporting to the EPA by manufacturers.¹⁹⁶ The major pesticide companies refuse to provide additional data, such as subacute and chronic effects of chemical pesticide products, because it would harm their sales. While the EPA provides guidelines for the risk assessment process,¹⁹⁷ the very fact that these companies are not required to outsource their data collection likely facilitates adverse financial incentives to misrepresent data in favor of pesticide companies.¹⁹⁸ Manufacturers are disinclined to submit business-jeopardizing findings.¹⁹⁹ Money is persuasive and environmentalists lack an equivalent financial backing to

in 2019, and \$11,600,570 in 2018. *Client Profile: DowDuPont*, OPEN SECRETS, <https://www.opensecrets.org/federal-lobbying/clients/summary?cycle=2018&id=D000069022> [<https://perma.cc/CH6B-3USA>] (last visited Nov. 3, 2022). Dow Chemical spent \$13,685,982 in 2016, \$11,250,000 in 2015, and \$14,430,000 in 2014. *Client Profile: Dow Chemical*, OPEN SECRETS, <https://www.opensecrets.org/federal-lobbying/clients/summary?cycle=2016&id=D000000188> [<https://perma.cc/K4ZX-C8JY>] (last visited Nov. 3, 2022). Dow Chemical also has in-house lobbyists and hires its services out to other chemical companies. *See Lobbying Firm Profile: Dow Inc*, OPEN SECRETS, <https://www.opensecrets.org/federal-lobbying/clients/summary?id=D000000188> [<https://perma.cc/RD3Q-DTQX>] (last visited Nov. 3, 2022).

194. Tiffany Finck-Haynes et al., *Buzz Kill: How the Pesticide Industry Is Clipping the Wings of Bee Protection Efforts Across the U.S.* 5, 18 (June 2016), https://1bps6437gg8c169i0y1drtgz-wpengine.netdna-ssl.com/wp-content/uploads/2017/07/FOE_BuzzKillReport_7_web.pdf [<https://perma.cc/63EQ-B2DQ>].

195. *See* 40 C.F.R. §§ 158.1–158.80 (2022); *Understanding the Science Behind EPA's Pesticide Decisions*, EPA, <https://www.epa.gov/pesticide-registration/understanding-science-behind-epas-pesticide-decisions> [<https://perma.cc/HA9V-LMS2>] (last updated Aug. 17, 2022).

196. 40 C.F.R. § 158.70 (2022).

197. *Risk Assessment Guidelines*, EPA, <https://www.epa.gov/risk/risk-assessment-guidelines> [<https://perma.cc/BDZ3-FNA4>] (last updated May 31, 2022) (sets forth guideline documents, handbooks, framework documents, and standard operating procedures).

198. *See* VANISHING OF THE BEES, *supra* note 26.

199. *Id.*

go against powerful corporations.²⁰⁰ As a result, environmentalists' concerns are ignored.

While the EPA has made some progress towards honey bee protection through its pesticide evaluation efforts, plenty of work remains to fix FIFRA and the EPA's processes.²⁰¹ Some scholars assert the need for more federal protections, rather than deferring to state and municipal jurisdictions.²⁰² While FIFRA and the EPA need change, the most rational step begins on a state-by-state basis, since honey bees and other pollinators remain unprotected—as the EPA's progress is only evident on paper.²⁰³ In other words, the EPA's "progress" is inadequate—it fails to make any material change, such as outright banning a harmful pesticide or restricting the annual amount released into the market. The EPA's failure to effectively and adequately evaluate pesticides does not mean the change cannot be made. Beekeepers, environmentalists, and states do not have to sit and wait in agony. Because FIFRA grants states regulatory power,²⁰⁴ individual states can fight against pesticide companies, work to save honey bees, and further the economy and environment.

D. State Governments Respond by Implementing Pesticide Regulations

"It is our collective and individual responsibility to preserve and tend to the world in which we all live."

—Dalai Lama²⁰⁵

200. E.g., Clare Foran, *The Costly Lobbying War Over America's Dying Honeybees* (July 1, 2014), <https://www.theatlantic.com/politics/archive/2014/07/the-costly-lobbying-war-over-americas-dying-honeybees/443664/> [<https://perma.cc/5PQV-NPWH>].

201. See Maria Vanegas, *The Silent Beehive: How the Decline of Honey Bee Populations Shifted the Environmental Protection Agency's Pesticide Policy Toward Pollinators*, 44 *ECOLOGY L.Q.* 311 (2017).

202. Katherine Headley, *Honey Bees & Neonicotinoids: Why Pollinators Need More Protections*, 38-1 *N. ILL. U. L. REV.* 134, 146 (2017) (reasoning that honey bees are mobile, unconfined insects (unlike typical domestic agriculture). Since they fly across borders, the protections need to be universal across the U.S. Thus, the burden falls on federal laws.); See, e.g., Carlucci, *supra* note 32; see also Cunningham-Parmeter, *supra* note 32.

203. Vanegas, *supra* note 201 (pointing out that even after the 2012 amendment, which added new registration guidelines, and despite research showing that the pesticide sulfoxaflozole posed high risk to honey bees, the EPA approved *unconditional* registration).

204. 7 U.S.C. § 136v (2022).

205. Lori Jendruko, *How Can We Individually Impact Our Global Environment?*, SCHELLMANLIFE, <https://www.schellman.com/blog/how-can-we->

The federal government has largely failed environmentalists and beekeepers by rarely taking the necessary steps to protect the environment.²⁰⁶ Even when the EPA makes positive strides, the federal government subsequently retracts its progress. For example, in 2015, the Obama Administration proposed a federal ban on chlorpyrifos to take effect in 2017.²⁰⁷ However, in 2017, President Trump's administration reversed the ban.²⁰⁸ Thus, some states in the U.S. decided to stop relying on the EPA and joined the global initiative.²⁰⁹

Maryland, the first state to place a ban on the use of neonicotinoids, enacted the Maryland Pollinator Protection Act.²¹⁰ The Maryland law initially sounded like a huge legislative success because it included every type of neonicotinoid. However, the ban only affected private users.²¹¹ In other words, the statute still allowed 6,000 commercial farmers and other "certified applicators" to use neonicotinoids.²¹²

In 2018, Hawaii became the first state to ban chlorpyrifos,²¹³ a widely used and harmful pesticide.²¹⁴ Due to its harmful effects, the state legislature unanimously approved the senate bill.²¹⁵ The law provides that "no person shall . . . use or apply any pesticide containing chlorpyrifos"

individually-impact-our-global-environment [https://perma.cc/9NNC-WJLW] (last visited Nov. 3, 2022).

206. See *Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA): Overview*, PACE UNIV., <https://libraryguides.law.pace.edu/FIFRA> [https://perma.cc/LMT8-DT7K] (last updated June 30, 2022, 2:59 PM).

207. Gonzales, *supra* note 88.

208. *Id.*

209. See HAW. REV. STAT. § 149A-31 (2022); see also CAL. CODE REGS. tit. 10, § 6400 (2022).

210. DiStasio, *supra* note 89; Maryland Pollination Protection Act, MD. CODE ANN., Agric. §§ 5-2A-01–5-2A-05 (West 2022).

211. MD. CODE ANN., AGRIC. §§ 5-2A-01, 5-2A-02 (West 2022).

212. *Id.* § 5-2A-02 (West 2022); *Maryland at a Glance*, MD. STATE ARCHIVES, <https://msa.maryland.gov/msa/mdmanual/01glance/html/agri.html> [https://perma.cc/E6YH-2VU4] (last visited Nov. 3, 2022).

213. Chlorpyrifos is in the organophosphate class of pesticides, not neonicotinoid, and is directly toxic to seed-eating birds, causes potential developmental harm in children, and creates severe memory deficits in honey bees. Univ. of Saskatchewan, *supra* note 72; Solomon, *supra* note 89.; *Bees 'Dumb Down' After Ingesting Tiny Doses of Pesticides*, UNIV. OF OTAGO (Mar. 2, 2016), <https://www.otago.ac.nz/news/news/otago595819.html> [https://perma.cc/SL92-K965].

214. Mosbergen, *supra* note 87.

215. S.B. 3095, 29th Leg., Reg. Sess. (Haw. 2018).

unless “the department grant[s] . . . a temporary permit.”²¹⁶ Hawaii’s chlorpyrifos ban is state-wide, making it inaccessible to all pesticide users, both private and commercial, unless approved for a temporary permit.²¹⁷ If a pesticide user receives a temporary permit, the user may distribute the pesticides in the statute’s restricted areas.²¹⁸ California also joined the state-by-state progress. At the beginning of 2020, the California Department of Pesticide Regulation placed a state-wide ban on chlorpyrifos when “labeled for the production of agriculture.”²¹⁹ Thus, Hawaii and California are model states because both enacted heavier restrictions on pesticide use in comparison to Maryland.

V. LOUISIANA AGRICULTURAL REGULATIONS

“We do not need a handful of people protecting the environment perfectly. We need millions of people doing it imperfectly.”

—Anne Marie Bonneau²²⁰

The federal government’s system through the EPA and FIFRA is currently unequipped to protect honey bees because it is slow to change and is friendly to pesticide companies.²²¹ Further, seeking justice through the court system is not a viable solution: it wrongfully places the burden on the beekeeper, a trial can last for several years, and it is an individualized remedy that fails to address the underlying issues.²²² Thus, the best solution requires legislative reform on a state-by-state basis—it is quicker and protects all honey bees within a state.

Much like Maryland, Hawaii, and California, Louisiana is an agricultural state.²²³ Louisiana is capable of following suit and taking action to protect honey bees. The two applicable sections of the Louisiana

216. HAW. REV. STAT. § 149A-31 (2022).

217. *See id.* § 149A-31 (2022).

218. *Id.* § 149A-31(7) (2022).

219. CAL. CODE. REGS. tit. 10, § 6400 (2022); Gonzales, *supra* note 88.

220. Catie Payne, “*We Don’t Need a Handful of People Doing Zero Waste Perfectly. We Need Millions of People Doing It Imperfectly.*” Anne Marie Bonneau, *Zero Waste Chef (1)*, SUSTAINABLE TABLE (March 31, 2021), <https://sustainabletable.org.au/10-cracking-good-ideas-for-an-ethical-easter-kid-friendly/we-dont-need-a-handful-of-people-doing-zero-waste-perfectly-we-need-millions-of-people-doing-it-imperfectly-anne-marie-bonneau-zero-waste-chef-1/> [https://perma.cc/MQZ7-JH97].

221. *E.g.*, *Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA): Overview*, *supra* note 206.

222. Headley, *supra* note 202, at 148.

223. *See* Stroop, *supra* note 20.

Revised Statutes are the Louisiana Pesticide Law²²⁴ and Regulation of Apiaries.²²⁵ While Louisiana could enact a pesticide regulation statute under the Regulation of Apiaries,²²⁶ Louisiana should pass the pesticide regulation under its pesticide regulation section, just as other states have previously done.²²⁷ The Regulation of Apiaries section of the code is narrow, since it only relates to honey bees.²²⁸ Thus, the Louisiana legislature would likely not pass a restriction in this section regarding pesticides broad enough to protect all pollinators.²²⁹ However, since research on pesticide's sublethal effects continues to develop, the narrow section of the Regulation of Apiaries could be amended to set up a program that researches the sublethal effects of pesticides; this research could be useful in phasing out harmful pesticides. Even though reformation of the Regulation of Apiaries would be beneficial, broad restrictions on pesticides should fall under the Louisiana Pesticide Law.

Currently, Louisiana does not ban neonicotinoids or chlorpyrifos.²³⁰ California and Hawaii banned chlorpyrifos because it affects more than just the honey bee population.²³¹ Banning chlorpyrifos is controversial because it is one of the main classes of pesticides.²³² However, it is imperative to the honey bee population and the environment for the Louisiana legislature to follow Hawaii and California's lead and ban chlorpyrifos. As more states advocate for environmental protections, large chemical pesticide companies will either lose revenue, or will research and provide cleaner products to adapt to the progression of the agriculture industry.

The likelihood of banning the two classes—neonicotinoids and chlorpyrifos—of pesticides in Louisiana depends on agricultural revenue, political affiliation, and regulatory power under Louisiana Pesticide Law.

224. LA. REV. STAT. 13 §§ 3:3201-3:3391.13 (2022).

225. *Id.* §§ 3:2301-3:2311 (2022).

226. *Id.* § 3:2301 (2022).

227. "Hawaii Pesticides Law," HAW. REV. STAT. § 149A (2020); "Pesticide and Pest Control," MD. CODE ANN., AGRIC. § 5-2A (2022); "Pesticide and Pest Control Operations," CAL. CODE REGS. tit. 10, § 6400 (2020).

228. LA. REV. STAT. § 3:2301 (2022).

229. However, since research on sublethal effects is still developing, the narrow section of the code could be amended to set up a program that researches sublethal effects of pesticides. The research could be useful in phasing out harmful pesticides. While the reform to the Regulation of Apiaries code would be beneficial, broad restrictions of pesticides would be better situated under the Louisiana Pesticide Law.

230. *See* LA. REV. STAT. § 3:3201 (2022).

231. *See* Gonzales, *supra* note 88; Univ. of Saskatchewan, *supra* note 72.

232. *See* Univ. of Saskatchewan, *supra* note 72.

First, the Louisiana crop industry comprises a large part of the state's revenue.²³³ Louisiana farmers would likely oppose learning a new method of farming—namely clean farming, if the legislature passed a prohibition on certain pesticides.²³⁴ Second, Hawaii and California are Democrat-led states that emphasize environmental protections; therefore, they are more receptive to stronger pesticide restrictions.²³⁵ Conversely, Louisiana is a more conservative state, with agriculture making up a large part of its economy.²³⁶ Thus, Louisiana may receive more pushback on such pesticide restrictions than Hawaii or California.

Third, under Louisiana Pesticide Law, the legislature granted the Louisiana Department of Agriculture and Forestry (LDAF) Commissioner of Agriculture (LCOA) the power to regulate pesticides.²³⁷ The LDAF, an agricultural agency, has an interest in growing the agriculture industry. In contrast, the Louisiana Department of Environmental Quality (LDEQ) is apt to manage the environmental aspect of pesticides. A regulatory shift to create a bifurcated power scheme would be more palatable than a pesticide ban since it lacks the shock-factor of a complete ban for farmers. Under this bifurcation, the LDAF and the LDEQ would share regulatory powers, much like France's *Écophyto II* plan.²³⁸ California also employs a collective decision-making process; when a department would like to propose a change to the pesticide regulatory program, a report must circulate among the various departments.²³⁹ Further, under the Regulation of Apiaries, the LCOA administers and enforces apiary regulations.²⁴⁰ Amending section 3203 of Louisiana Pesticide Law and section 2303 of the Regulation of Apiaries to include LDEQ allows for more thorough assessments of pesticide regulation and use in Louisiana. Amending the

233. See Stroop, *supra* note 20.

234. See Lesley E. Ogden, *The Clean Farming Revolution*, BBC, <https://www.bbc.com/future/bspoke/follow-the-food/the-clean-farming-revolution/> [<https://perma.cc/689B-DZVC>] (last visited Nov. 3, 2022).

235. Wang Xiaonan & Zhao Hong, *Behind U.S. Elections: Why Are Deep Red States Turning Blue?*, CGTN (July 30, 2020, 1:47 PM), <https://news.cgtn.com/news/2020-07-30/Behind-U-S-elections-Why-are-deep-red-states-turning-blue--SxJF4L6sve/index.html> [<https://perma.cc/CMA9-DMHL>] (see map).

236. *Member Demographics*, LA. HOUSE OF REPS., https://house.louisiana.gov/H_Reps/H_Reps_ByDemographicProfile [<https://perma.cc/FEZ7-2RG6>] (last visited Nov. 3, 2022) (showing house majority); *Membership Statistics*, LA. STATE SENATE, <http://senate.la.gov/Senators/Data.asp> (last visited Nov. 3, 2022) (showing senate majority).

237. LA. REV. STAT. § 3:3203 (2022).

238. *Écophyto Plan II*, *supra* note 118, at 1, 5.

239. CAL. CODE REGS. tit. 10, § 6110 (2022).

240. LA. REV. STAT. § 3:2303 (2022).

statutes represents a step towards strict pesticide restrictions, as legislators and their constituents will likely be more susceptible to additional, yet progressive, changes to pesticide laws that protect honey bees.

An alternative to outright banning neonicotinoids and chlorpyrifos is restricting the amount of pesticides distributed per acre annually, thereby mitigating pesticide harm to honey bees. The legislature could adopt this restriction by placing a cap on the amount a consumer can buy annually, or by requiring farmers to report their annual distribution amount. Furthermore, a provision is already in place to enforce a violation of the cap: the commissioner has authority to “apply to the district court for the district in which the alleged violation [of this Chapter] occurred for a warrant to search the premises.”²⁴¹ Therefore, if a consumer violates the restriction, the commissioner can immediately enforce the restriction by executing a search warrant.

Louisiana could also require pesticide distributors to give beekeepers that are within a certain distance of a distribution advanced notice prior to distributing the pesticide. The tracking and notification system requires a two-step process, the first of which already exists under the law.²⁴² First, the state and pesticide distributors must know of colony locations so that pesticide distributors can notify the right beekeepers. Under the Regulation of Apiaries, every beekeeper must annually report the number of their colonies and colony locations.²⁴³ While beekeepers likely move hives throughout the year, hives typically move to another bee yard, which would already be recorded.²⁴⁴ The second step requires amending the Louisiana Pesticide Law, requiring pesticide distributors to give actual notice to beekeepers 48 hours in advance of the pesticide distribution. The burden of notice falls on the pesticide user for both private and public entities. The notice requirement provides a more robust protection of honey bees.

The amendment should pertain to pesticide distribution at any time of the day. Sometimes, pesticides are distributed via aerial spraying, often from a plane, which is particularly harmful to honey bees because the pesticide can drift to the honey bees even if the plane does not fly directly over the hive, which can be “catastrophic.”²⁴⁵ Planes often spray at night to mitigate honey bee population loss because the temperature drop at

241. *Id.* § 3:3204(A) (2022).

242. *See id.* § 3:2305(A) (2022).

243. *Id.* § 3:2305(A) (2022).

244. *Id.* § 3:2305(A)(1) (2022).

245. *Protecting Pollinators from Pesticides*, *supra* note 2.

night causes the honey bees to seek shelter inside the hive.²⁴⁶ However, in the Louisiana heat—especially during the summer months—the temperatures do not drop low enough to prevent honey bees from bearding²⁴⁷ at night, leaving them exposed to aerial-sprayed pesticides.²⁴⁸ Enacting a provision to include these requirements would give beekeepers the opportunity to either temporarily cover their hives or transport them out of the spraying zone.

VI. CONCLUSION

“Never doubt that a small group of thoughtful, committed citizens can change the world; indeed, it is the only thing that ever has.”

—Margaret Mead²⁴⁹

Often, real change is not made in leaps and drastic transformations; rather, it is achieved by making seemingly small but conscious decisions. The EPA has made some positive changes; however, it appears that for every step forward, they take two steps back.²⁵⁰ China illustrates an environmental crisis the U.S. can easily fall into if it does not begin to act. While China attempts to reverse these effects, its honey bee population is far from recovery. France, the EU, and some individual U.S. states provide a glimpse of the success for honey bee health and the environment brought about by heavy restrictions, bans, and the implementation of alternative crop protection methods. It is important for Louisiana and other states to enact and amend pesticide laws for the benefit of pollinators. State-by-

246. *Id.* Honey bees forage during daylight hours when the temperatures are above 55–60°F.

247. Bearding occurs when honey bees gather on the outside of the hive. Bees beard when it is too hot and humid, which is typically mid-day; however, bees may also beard at night if it is still too hot inside the hive. Bearding is their way of cooling down the hive—exiting removes body heat from the hive and allows the bees to fan their wings to circulate cool air into the hive. See Jennifer Nickson, *Bee Bearding: Why Are Bees Hanging Out Outside Of The Hive At Night?*, HONEST BEEKEEPER, <https://honestbeekeeper.com/688/bee-bearding-why-are-bees-hanging-out-outside-of-the-hive-at-night/> [<https://perma.cc/7RYK-WFCV>] (last visited Nov. 3, 2022).

248. Rusty Berlew, *Aerial Spraying and Honey Bees*, HONEY BEE SUITE, <https://www.honeybeesuite.com/aerial-spraying-and-honey-bees/> [<https://perma.cc/BQ5P-XLYF>] (last visited Nov. 3, 2020).

249. *Margaret Mead: Quotes: Quotable Quote*, GOOD READS, <https://www.goodreads.com/quotes/1071-never-doubt-that-a-small-group-of-thoughtful-committed-citizens> [<https://perma.cc/39MM-SBJ6>] (last visited Nov. 3, 2022).

250. *E.g.*, Gonzales, *supra* note 88.

state awareness and change can show the EPA that its pesticide agenda harms the environment and that national changes must be made.

Louisiana is uniquely situated to join in on the progress. As an agricultural state with minimal pesticide regulations, it currently contributes to the honey bee crisis. However, amending the Louisiana Pesticide Law and the Regulation of Apiaries to bifurcate regulatory power between LCOA and LDAF can balance agriculturalists' and environmentalists' concerns. Further, implementing a colony-tracking and distribution-notification system allows farmers to continue distributing non-restricted pesticides, while allowing beekeepers to protect their bees. Alternatively, sharing regulatory powers between LDEQ and LDAF to cap the annual pesticide distribution amount and requiring pesticide users to give honey bee keepers advance actual notice of distribution constitutes minor, palatable changes in the right direction. Such incremental changes encourage future bans on harmful classes of pesticides. Incremental changes will add up and make a difference in the survival of honey bees, the environment, and the world's quality of life.