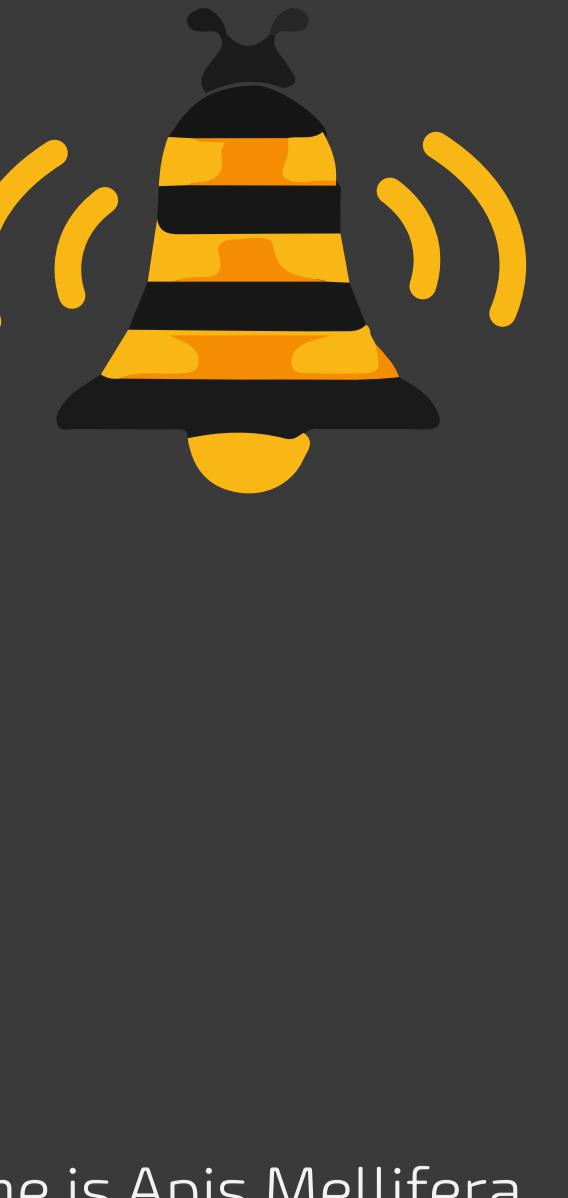


# BEE AWARE

The buzz on U.S. honey bee decline

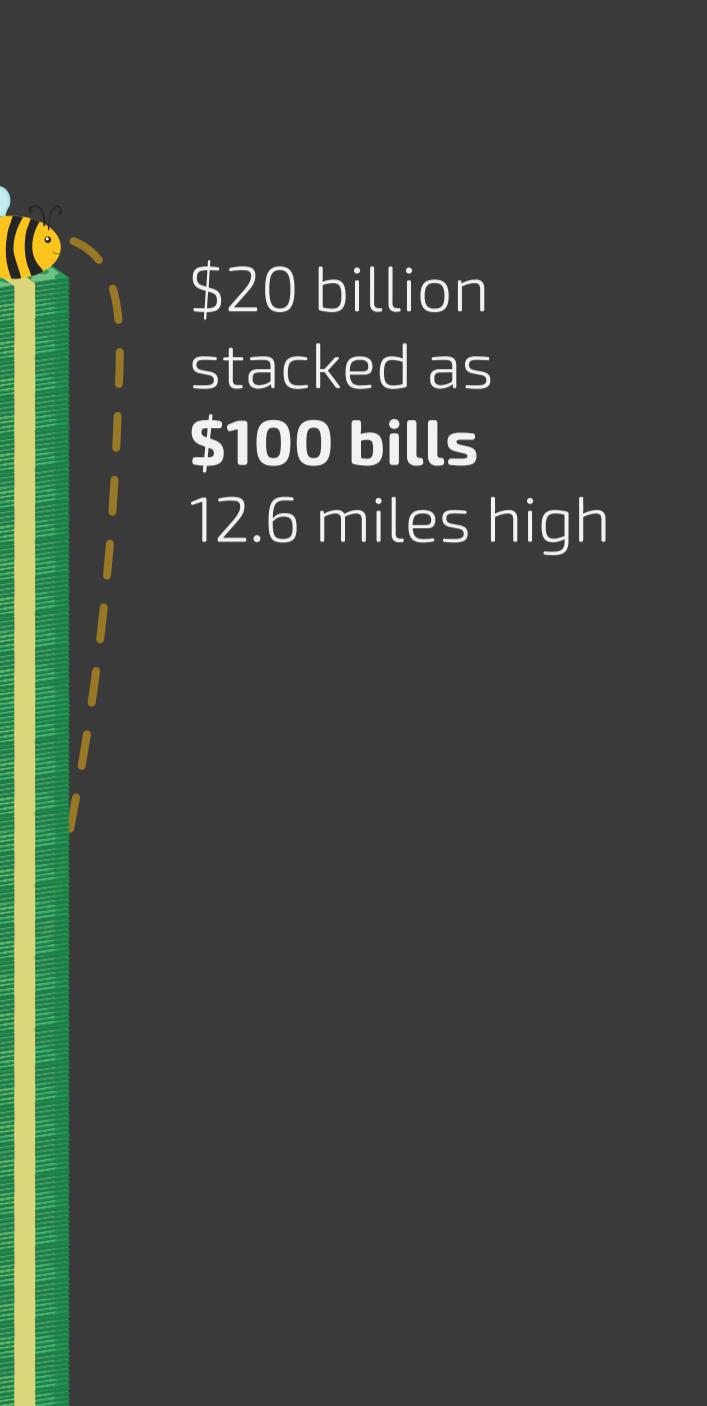


## Who is our honey bee?



"Hi, I come from Europe! My name is *Apis Mellifera*, but most call me the western/European honey bee."

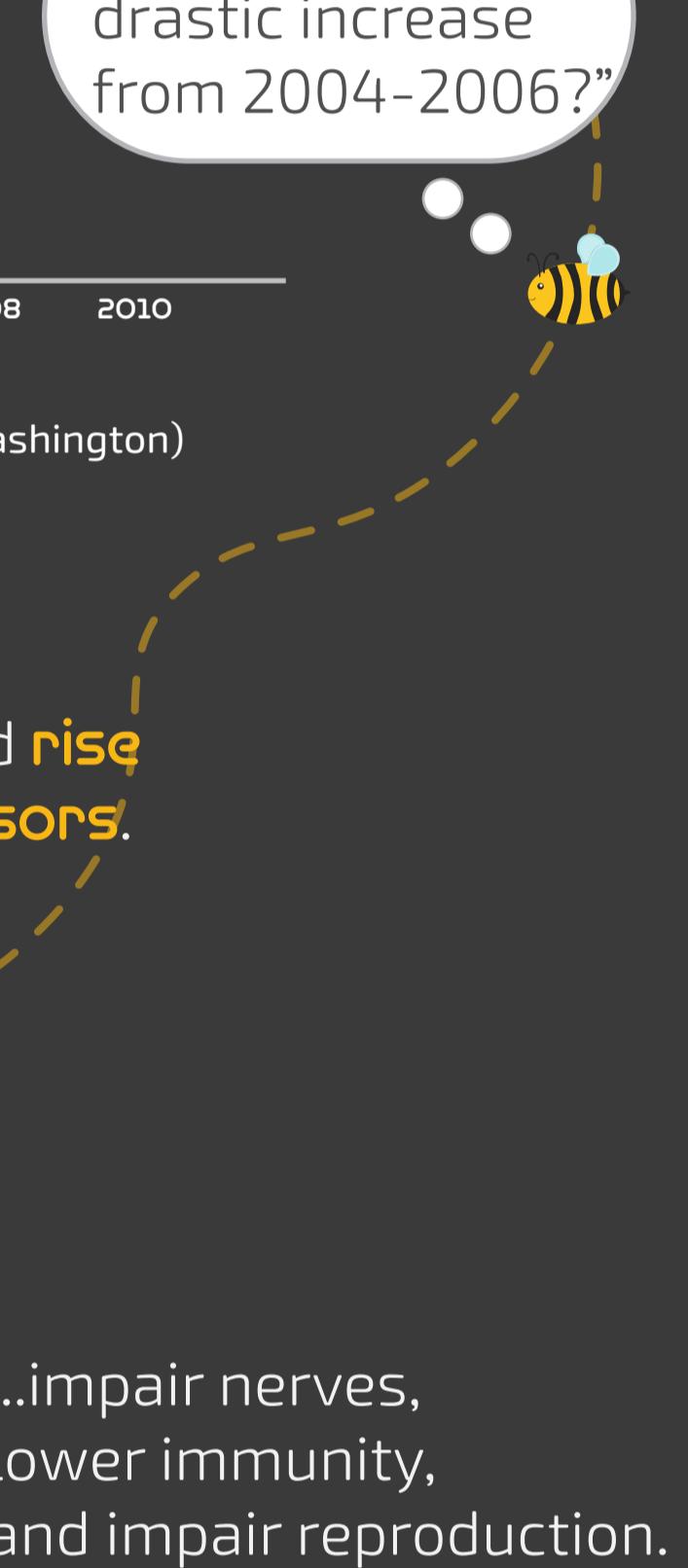
I live in a **bee colony** managed by **beekeepers**. Farmers rent bee colonies from beekeepers to get **pollination services** from us bees! We help ensure the crops grow well.



Honey bees pollinate **80%** of all Nuts

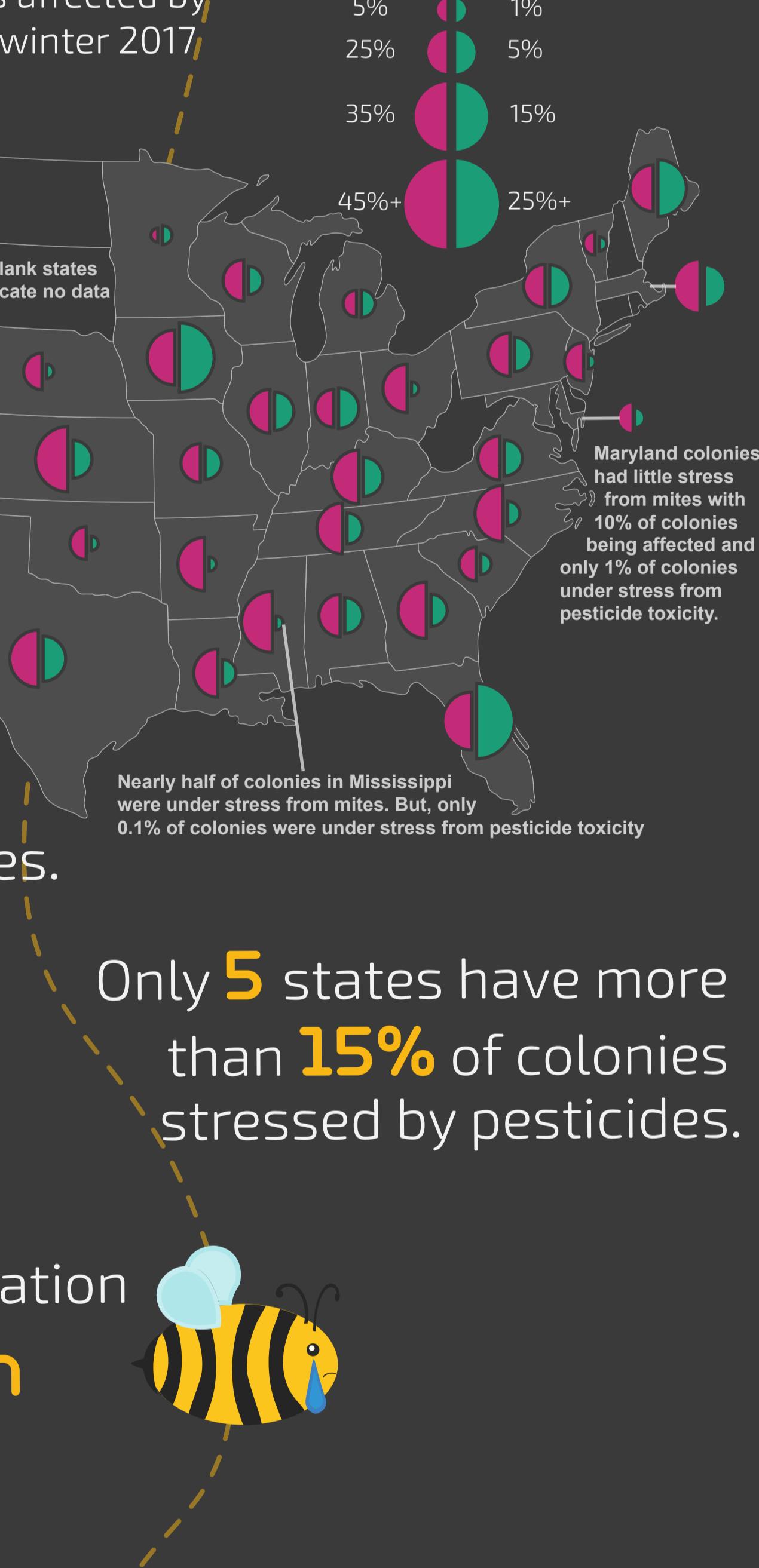


Honey bees contribute **\$20 billion/year** to U.S. agriculture by providing **pollination services** which boost yields.



## What are the prices we pay for bees?

Almonds alone account for:



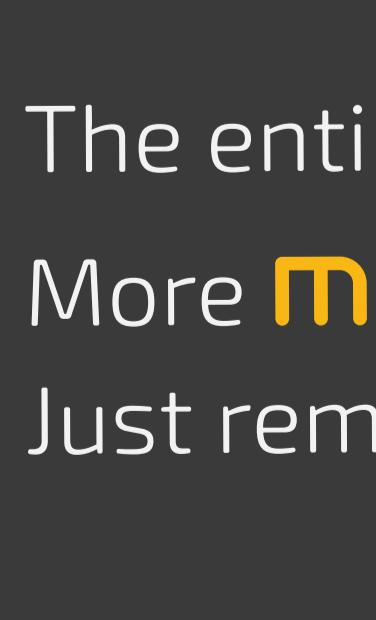
Since almonds encompass the majority of U.S. honey bee **pollinator services** and limited honey bee data for the contiguous U.S. exists, **almond** pollination fees from the west coast (where **all** U.S. almonds are grown) are examined.

### Doubling of Historic Almond Pollination Fees



Since 2004, bees have experienced an unprecedented **rise** in mortality rates from **15%** to **30%** due to new **stressors**. More stressors means more costs to keep bees alive! The most impactful two stressors are the following:

Varroa Mites...



...spread disease, stunt growth, and steal energy.

Pesticides...



...impair nerves, lower immunity, and impair reproduction.

Together, mites and pesticides are especially lethal!

Honey bees **usually** "comb" themselves regularly to remove mites...

...but **pesticides** inhibit this behavior.

Unfortunately, the situation continues to **worsen**.

"There's been no significant effort to correct what's causing the decline..."

-Maryann Frazier, Senior Extension Associate at Pennsylvania State University

"The picture is well beyond honeybees. The whole system is crashing."

-Maryann Frazier, Nielsen S (2019)

What can **must** be done?



The entire agriculture system is at risk. More **must** be done by **more** people! Just remember...

"...the Earth is a fine place and **worth** fighting for."

-Ernest Hemingway

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