Pesticide linked to cancer has boomed in Calif.

By Rachael Bale, Reveal

Monsanto Co.’s Roundup has been having a bad couple of weeks. Last week, the World Health Organization declared that its active ingredient, glyphosate, and two other pesticides probably cause cancer in humans.

Another study out this week suggests glyphosate use also may contribute to antibiotic resistance, a mounting problem that’s begun to be compared to climate change.

Glyphosate is one of the most widely used pesticides in the world. Using our California pesticide database, we wanted to see where it is used, on which crops and just how much gets applied.

In California, glyphosate use for commercial agriculture has increased by nearly two-thirds over the past decade. About 20 percent of it went to almonds alone. It is most heavily applied in the Central Valley counties of Fresno and Kern.

While it’s popular in the United States, glyphosate is banned, or about to be banned, in several countries because of health risks that may range from infertility and birth defects to kidney disease. The WHO report now says it could cause non-Hodgkin lymphoma.

Malathion, WHO found, could cause non-Hodgkin lymphoma and prostate cancer. In California, malathion use has decreased by more than 40 percent from 2003 to 2012. Much of the malathion applied in California goes to strawberry and alfalfa crops.

Use of diazinon, the third pesticide newly identified as probably carcinogenic, has dropped 85 percent in California

during the past decade. It’s used most heavily on lettuces. More than one-third of all diazinon applied in California was used in Monterey County. The WHO says there is some evidence diazinon could cause non-Hodgkin lymphoma and lung cancer.

The U.S. Environmental Protection Agency, which regulates pesticides, does not consider glyphosate, malathion or diazinon to be carcinogenic. In 1985, the EPA classified glyphosate as possibly causing cancer, but six years later, changed its designation after new studies suggested it does not cause cancer.

Malathion and diazinon are part of a class of pesticides known as organophosphates, which previously have been the source of health concerns because of what they can do to the brain and nervous system. They work by blocking an enzyme called acetylcholinesterase, which breaks down a certain neurotransmitter. When there isn’t enough acetylcholinesterase, the neurotransmitter builds up, causing nerve overstimulation. That causes pest insects to die, but in high enough doses, it can make humans really sick, too.

When your nervous system doesn’t work right, your muscles – including your heart and those involved with breathing – don’t work right either. Effects of organophosphate exposure range from eye and skin irritation to muscle twitching, trouble breathing and a fast heartbeat, to seizures and death. Some organophosphates, including malathion and diazinon, also are considered by some agencies to be endocrine disruptors – meaning they mess with humans’ hormones.

These new cancer designations are controversial, especially in the case of glyphosate. Some scientists, along with Monsanto, say the evidence that WHO cites appears thin. The Science Media Centre in London has a valuable roundup of scientists’ reactions to WHO’s announcement.

Another thing to keep in mind is the difference between hazard

(pesticides can cause cancer) and risk (how likely a person is to get cancer from those pesticides).

“The IARC (World Health Organization’s International Agency for Research on Cancer) process is not a risk assessment. It determines the potential for a compound to cause cancer, but not the likelihood,” Alan Boobis, a biochemical pharmacology professor at Imperial College London, told the Science Media Centre.

That means the next step is more studies looking at the health of farmworkers and nearby residents who are exposed to these pesticides to determine if they are likely to cause cancer in real-world situations.