## Formetanate (Carzol) in California citrus and alfalfa

Formetanate is used in California citrus (mainly orange and tangerine) for citrus thrips beginning at petal fall and lasting about six weeks. Petal fall usually begins the last week of April or the first week of May. Growers have transitioned to using abamectin and spinetoram for citrus thrips, but depending on insect pressure, use formetanate in rotation. Citrus thrips pressure is greater in warmer, dryer years. Thus, the recent drought years saw higher pressure from citrus thrips and climate change is predicted to exacerbate the problem. Formetanate is also effective against Asian citrus psyllids. It is not currently used for that pest in production orchards since the regulatory response is to use pyrethroids or neonics.

Formetanate is used in California seed alfalfa and is not labeled for use in forage alfalfa. The main pest target is Lygus bugs and also spider mites. Lygus bugs are more important in seed alfalfa than in forage alfalfa. With the recent loss of chlorpyrifos for Lygus in seed alfalfa, formetanate may become more important. Most of the 2016 seed alfalfa applications were in Imperial and Fresno Counties where alfalfa is predominately grown on neutral to alkaline soils. A rough estimate is that formetanate is applied to one-third of seed alfalfa acreage in California.

California soils in the main orange, tangerine (=mandarin), and seed alfalfa production areas are neutral to alkaline pH (https://casoilresource.lawr.ucdavis.edu/blog/soil-properties-visualized-1km-grid/)

