

# Leaching patterns of organic pollutants (pesticides and pharmaceuticals) in agricultural fields A Leaching Scheme

### **1. Introduction and motivation**

Organic pollutants in agricultural fields sourcing from irrigation with treated effluents and pesticide application

### **Chronic:** accumulation,

Impaired organism function:

\*Physiological and behavioral.

### **Challenging to diagnose!**

\*immunology, reproduction, thermoregulation, morphology, and behavior

### The benefit of an extensive database:

Chromatography and mass spectrometry lab methods (e.g. LC-MS)

Molecules from: https://pubchem.ncbi.nlm.nih.gov/





## 2. Methods

runoff and subsurface We sampled drainage system outlet during storms and winter 2022.

<u>Groundwater</u>: every 2-3 days before, during and after a storm in mid January 2022. were analyzed for 103 All samples

compounds by LC-MS and for nutrients.











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• Nutrients are good proxies for pesticides leaching patterns due to mobility



### 4.1 Discussion and conclusions

- Concentration rise before the storm is attributed to piston flow of old
- Concentration rise after the storm sourced from the upper water layer,
- Low-intermediate mobility compounds involve in adsorption-desorption
- Legacy pollutants emerge from intensive, long history of agricultural
- Very mobile pollutants leached in past storms, accumulated in
- Very immobile pollutants stayed adsorbed, did not leach downwards

