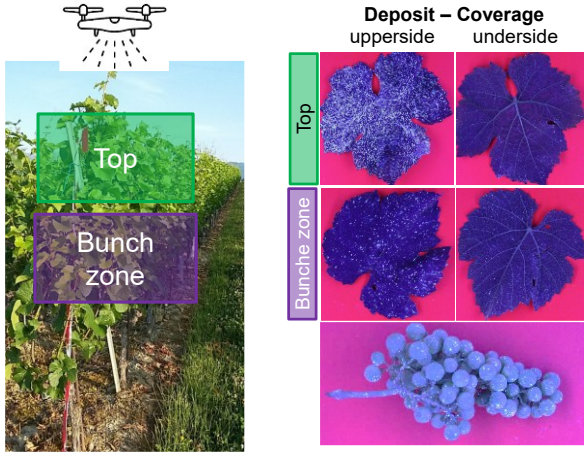


Use of UAVs for plant protection treatments in Swiss vineyards

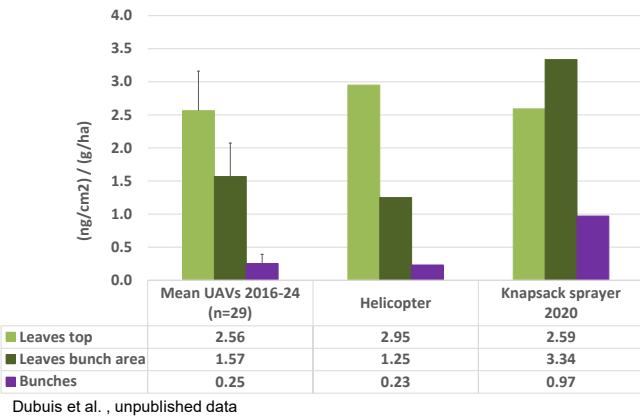
Dubuis PH¹, König SLB² *et al.*

¹Agroscope, 1260 Nyon, Switzerland; ²Federal Food Safety and Veterinary Office, 3003 Bern, Switzerland

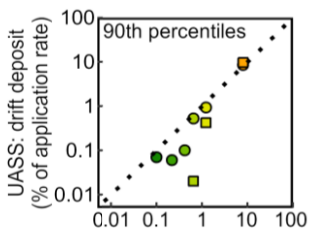
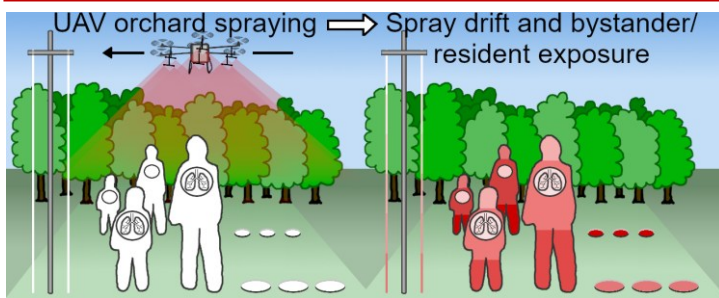
Application quality



Deposit in different compartments



Drift and resident/bystander exposure



In 3D crops (**grapevine** and fruit-producing trees), drift and resident/bystander exposure due to UAVs is similar to or lower than the regulatory reference values relating to tractor-mounted sprayers → corresponding risks of UAVs covered

○ Rautmann *et al.* (2001), grapevine late vs. Agrofly dataset
 □ Rautmann *et al.* (2001), grapevine late vs. DJI Agras MG-1 dataset
 Downwind distance: 1 m 50 m
 Dubuis *et al.* (2023), DOI: 10.1016/j.scitotenv.2023.163371

Efficacy trials in grapevine

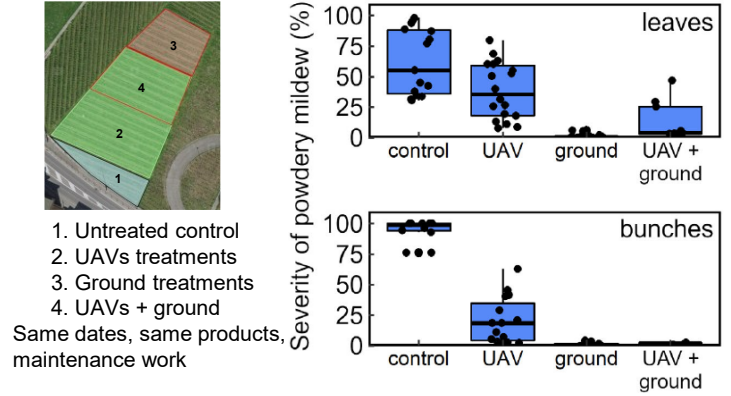
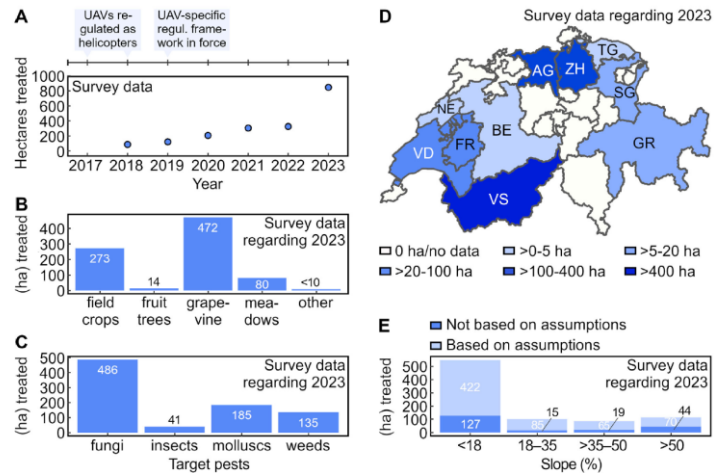


Figure 2 (B) Severity of powdery mildew on leaves (top) and bunches (bottom). Anken *et al.* (2025) DOI: 10.1002/ps.8721

Use of UAVs for plant protection treatments in CH



Results of a survey conducted in 2024. Anken *et al.* (2025) DOI: 10.1002/ps.8721

Summary

- UAVs are widespread for treatments in grapevine, increasingly used in other crops
- An authorisation from FOCA is required
- Drift similar to risk assessment values for ground applications in grapevine and fruit-producing trees
- Deposit, distribution and coverage: low on grapes and on the underside of leaves
- Grapevine: limited efficacy, but acceptable with additional ground applications (1 to 3 depending on disease pressure and local conditions)
- Situation in 2025: ~54 permits, ~90 spraying drones, >2000 ha sprayed
- New UAVs every year (rotary atomisers, larger tanks, more efficient batteries)