Reduction of aphids and virus transmission by organic mulch in potato cultivation

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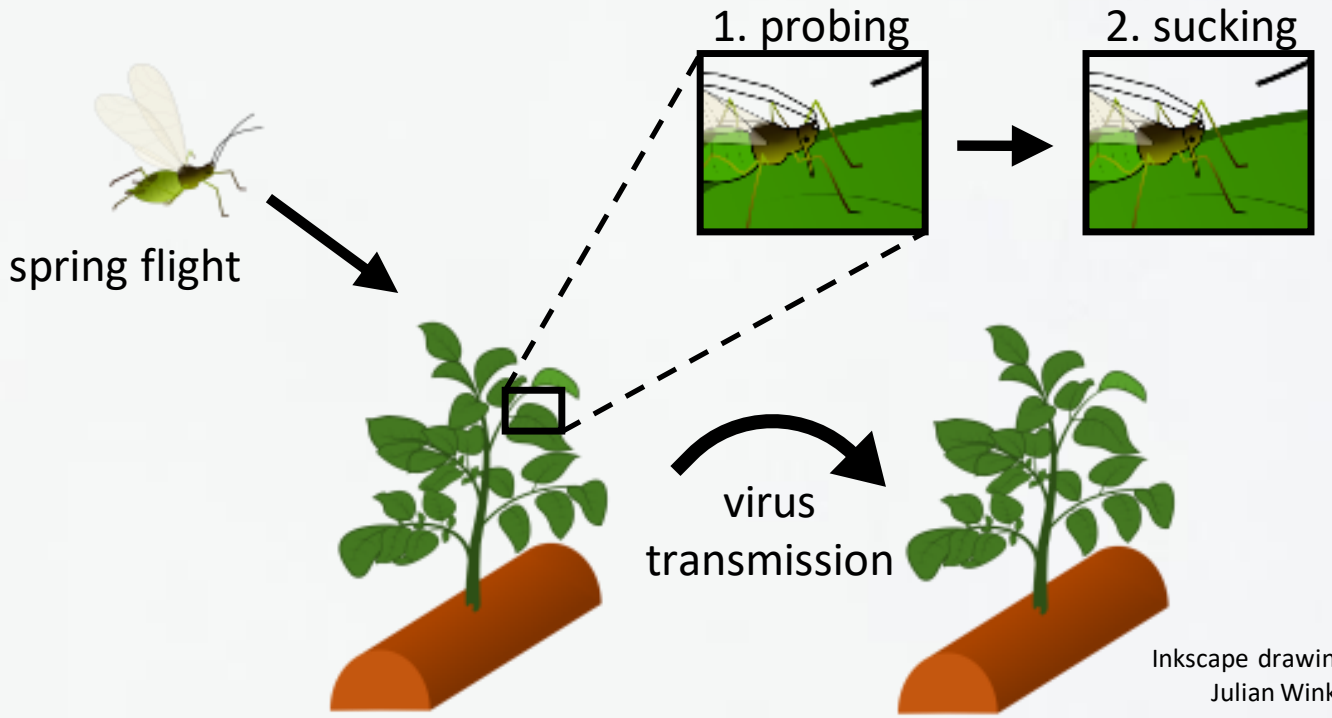
Potato viruses damage and their control

- yield losses
  (+ necrotic ring spots)
- rejection of infected seed potatoes
- virus control needs vector control
- effectiveness of insecticides limited

Picture: CERTIS EUROPE B.V.

EcoStack

Aphids and virus transmission

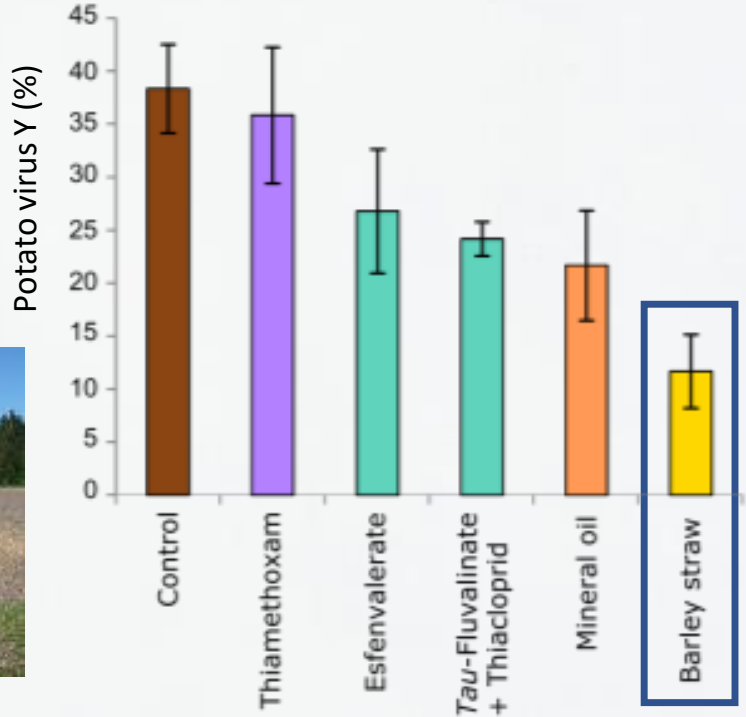


Inkscape drawings:
Julian Winkler

EcoStack

Past trials with straw mulch

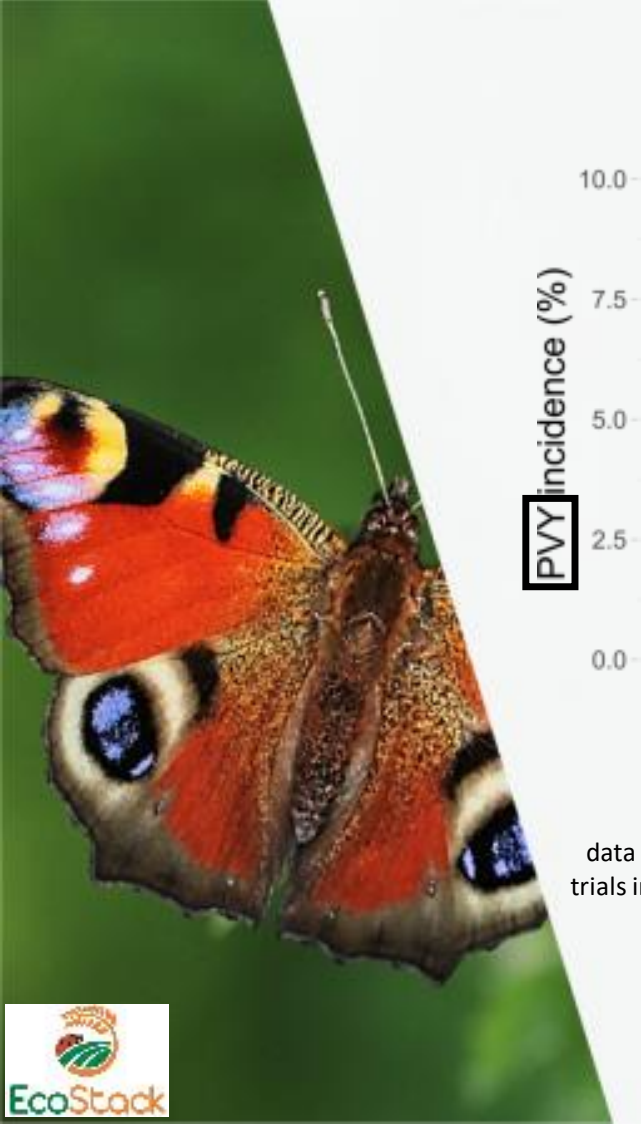
Pictures and data: Kirchner et al. 2014

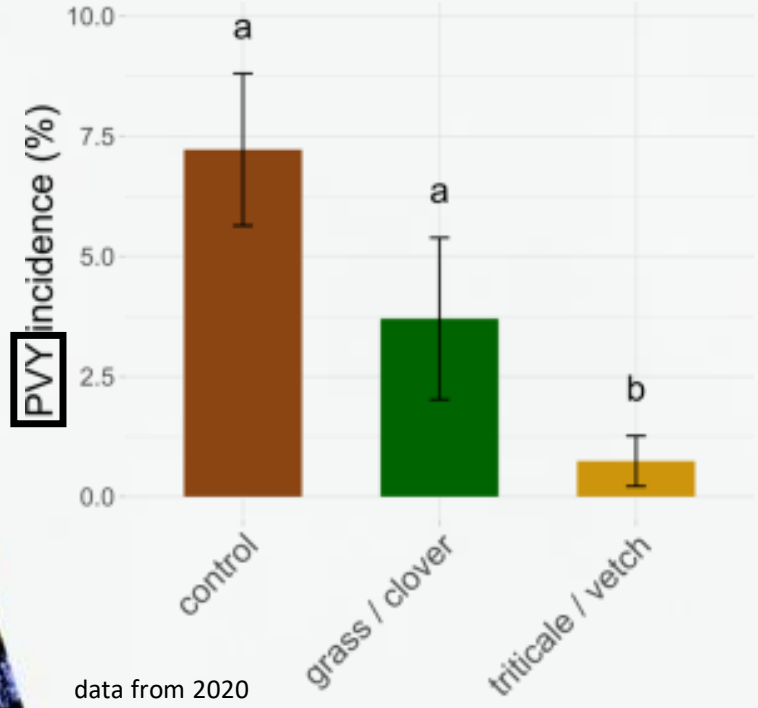


EcoStack potato trials with other organic mulches

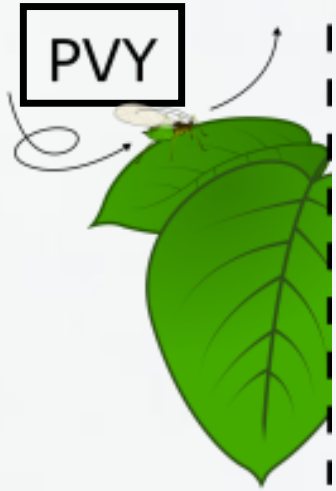
Pictures: Julian Winkler

Potato virus Y (PVY) reduction





data from 2020 trials in Germany



Inkscape drawing: Julian Winkler

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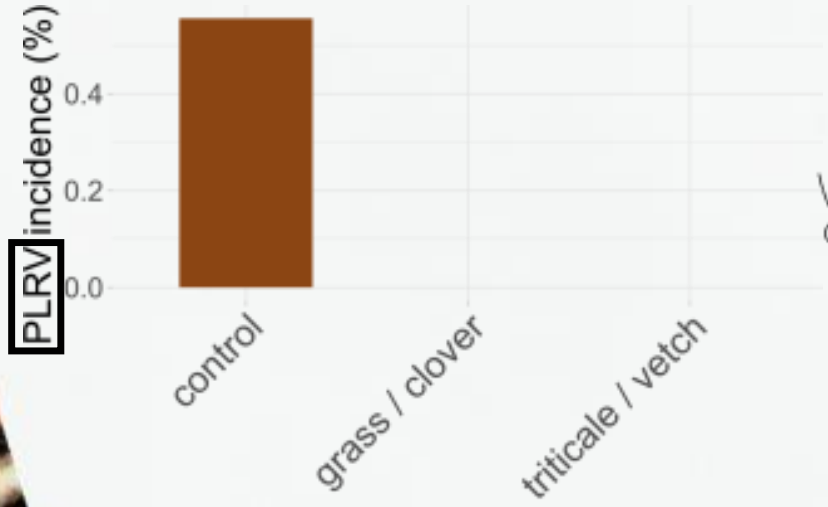
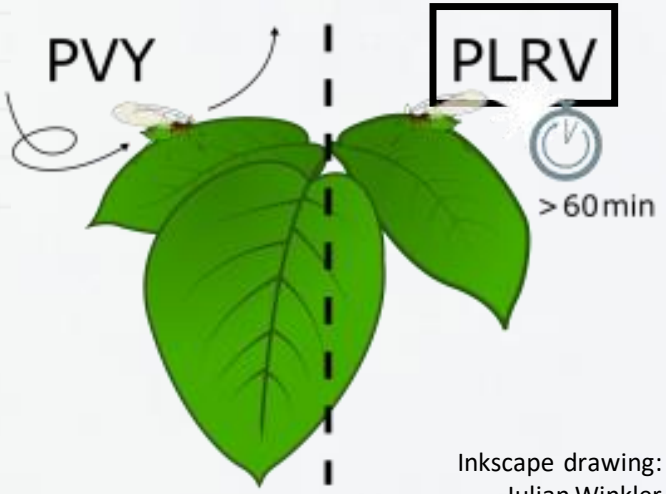
Potato leafroll virus (PLRV) reduction



data from 2020 trials in Germany



Inkscape drawing: Julian Winkler

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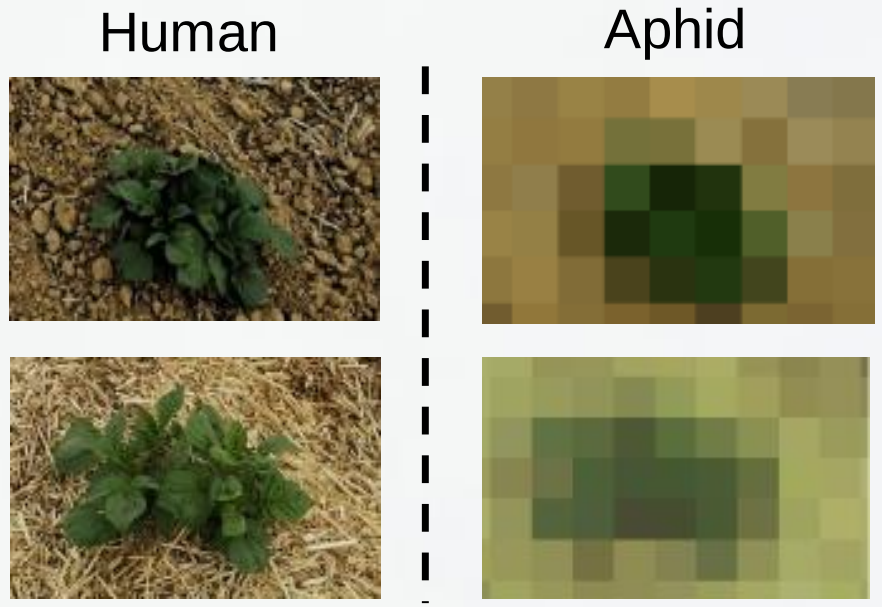
How does mulch affect aphids?

Pictures: Sascha Kirchner



Pictures: Julian Winkler; Transformation based on Kirchner et al. 2005, Döring et al. 2009 and Döring and Röhrig 2016

Conclusion

- various organic mulches can reduce virus transmission

- Organic mulching makes it difficult for aphid vectors to find the plants
- Organic mulching brings other positive effects
  - e.g. reduced soil erosion and evaporation
  - source of organic matter