

# Larch extract as an alternative to reduce copper use in grapevines

## Problem

Copper is the only effective fungicide authorised for a variety of important diseases in organic farming. Because of its environmental impact, it is restricted to 4kg/ha/year in the EU, and further restrictions may come while only a few alternatives are available on the market.

## Solution

Larch (*Larix decidua*) extract (Larixyne) acts as a contact fungicide against a range of oomycetes (downy mildews), ascomycetes (e.g. powdery mildew) and basidiomycetes. It is an effective addition to the toolbox of copper alternatives with good efficacy on important diseases.

## Outcome

If the formulated Larixyne extract is authorised under EU regulation 1107/2009, plant protection products (PPPs) based on larch extract (Larixyne) can help to reduce copper use in organic grapevine production.

## Practical recommendations

- Larch extract can be used as a stand-alone replacement for copper under low to medium disease pressure.
- As an alternative to copper in grapevines, it will most likely be used to replace some copper treatments and thus to reduce overall use of copper during the season. It may also be used to increase yield stability in addition to standard copper use.
- Larch extract formulations will consist of ready to use formulations to be applied by standard professional sprayers.
- In low copper strategies, treatments with tank mixtures of Larixyne and copper (100-300 g/ha copper metal per treatment) are recommended **during bloom** and **in the last two treatments** (usually at véraison) to protect plants till harvest or in periods with high disease pressure.
- Disease pressure should be assessed during the season to decide on treatment timing and dosage. The use of **Decision Support Systems** is crucial in order to predict the infection pressure and apply low dosages of copper only when strictly necessary.
- Repeated use of larch extract at high dosages may lead to phytotoxicity symptoms on leaves and grapes depending on the grape variety and climatic conditions.

## Applicability box

### Input used

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> Copper | <input type="checkbox"/> Anthelmintics |
| <input type="checkbox"/> Mineral oil       | <input type="checkbox"/> Antibiotics   |
| <input type="checkbox"/> Fertilisers       | <input type="checkbox"/> Vitamins      |

### Geographical coverage

Global

### Application time

Application strategy similar to copper, i.e. prior to infection risk periods

### Required time

Identical to standard treatments

### Period of impact

Actual crop

### Equipment

Standard spraying equipment

### Best in

Downy mildew and powdery mildew in grapevines, also in cucumber and tomato



Picture 1: Larch bark as a raw material for extraction (Photo: L. Tamm, FiBL)



Picture 2: Spray application of Larixyne in a vineyard (Photo: HJ. Schärer, FiBL)

## On-farm application

### System approach

To reduce copper, all possible preventive measures, such as robust varieties or crop management practices should be deployed. Larch extract must be used with professional spray equipment and Decision Support Systems to optimize efficacy.

## Further information

### Video

Check the following video for further instructions: <https://www.youtube.com/watch?v=sxV9VRqqSgE> (in German, subtitled in English, French and Spanish)

### Further readings

Leaflet for plant protection in viticulture, FiBL: <https://www.fibl.org/fileadmin/documents/shop/1217-rebbau-krankheit.pdf> (in German)

Tamm, L., Pertot, I., & Gubler, W. D. (2015). Organic grape disease management. *Plant Dis. their Manag. Org. Agric.* APS Press, St Paul, 335-350. DOI:10.1094/9780890544785.025

### Weblinks

Check the [Farm Knowledge Platform](#) for more practical recommendations.

## About this practice abstract and RELACS

### Publishers:

Research Institute of Organic Agriculture (FiBL)  
Ackerstrasse 113, Postfach 219, CH-5070 Frick  
Phone +41 62 865 72 72, [info.suisse@fibl.org](mailto:info.suisse@fibl.org), [www.fibl.org](http://www.fibl.org)

IFOAM Organics Europe  
Rue du Commerce 124, BE-1000 Brussels  
Phone +32 2 280 12 23, [info@organicseurope.bio](mailto:info@organicseurope.bio), [www.organicseurope.bio](http://www.organicseurope.bio)

**Authors:** Lucius Tamm, Hans-Jakob Schärer

**Editors:** Mathilde Calmels, Joelle Herforth-Rahmé, Lauren Dietemann, Bram Moeskops

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