



## Approaches to Hop Agrotechnics in Organic Farming in the Czech Republic

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### ABSTRACT

The poster summarizes organic hop growing in the Czech Republic. It's focused on usage of organic manuring and mineral fertilizers, along with auxiliary plant preparations. Weed control, leaf analysis, irrigation, seedlings and growth improvement are described in connection with actual legislation.

### Keywords

Hop, *Humulus lupulus* L., organic hop growing, manure, weed control, irrigation, leaf analysis

### 1 INTRODUCTION

The beginning of organic hop growing in the Czech Republic dates back to 2009. The first Czech certified organic hops was harvested in 2012 after 3 years long transition period. According to the statistics of Ministry of Agriculture of the Czech Republic there were 10,55 ha of organic hop gardens on 30<sup>th</sup> May 2018. This area is divided among four hop growers in hop regions Saaz and Tirschtitz with only two grown varieties - Saaz and Premiant.

### 2 CONCLUSIONS

#### Manuring

Manure and compost are the most used substrates for hop nutrition, but they can't be produced in intensive livestock farming (due to Methodological Instruction of the Ministry of Agriculture No. 6/2016).

#### Green manuring

Green manuring is recommended in order to ensure the circulation of nutrients between plants and the soil. If there is not organic seed on the market, an exemption for conventional seed with limited validity is required. Most of the hop gardens are sown with monocultures such as white mustard (*Sinapis alba*), lacy phacelia (*Phacelia tanacetifolia*), buckwheat (*Fagopyrum* spp.) and especially leguminous plants with the ability to fix air nitrogen like beans (*Faba* spp.), peas (*Pisum* spp.), peavines (*Lathyrus* spp.), lupine (*Lupinus* spp.), vetch (*Vicia* spp.), etc. or various mixtures of clover (*Trifolium* spp.) and ryegrass (*Lolium* spp.).

#### Mineral fertilizers

Mineral fertilizers of natural origin, like calcium carbonate, magnesium carbonate, magnesium sulfate etc., can be used. Since 2012, Central Institute for Supervising and Testing in Agriculture in the Czech Republic administers database „Fertilizer Register“, which is supplemented by a clause on the use of fertilizers and auxiliary plant preparations in organic farming. A liquid nitrogenous fertilizer TopStim N13 (made of rabbit skins) is available on the market and can be used for foliar application or applied with water to the soil.

#### Irrigation

The irrigation dose is calculated by a graphical-analytical method. Fertigation is allowed if authorised fertilizers are used.

#### Weed control

Weeds are regulated mainly by mechanical cultivation. Herbicides and defoliantes are forbidden. Thermal weeders are allowed.

#### Seedlings, replanting missing plants

Seedlings for planting a new hop garden or just replanting missing plants doesn't need to be organic, because of the exception in the Methodological Instruction of the Ministry of Agriculture No. 6/2016.

### 3 ACKNOWLEDGEMENTS

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Certified organic hops



Mechanical weed control



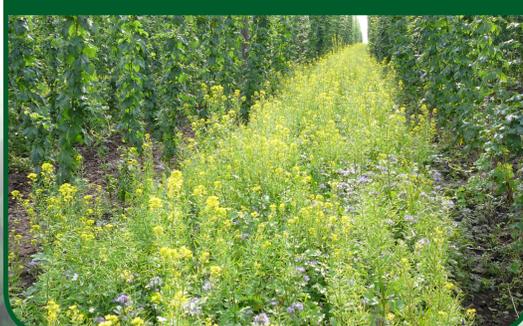
Manuring



Strip of cloth containing predatory mite *Typhlodromus pyri*



Green manuring with white mustard



TopStim N13 spraying



Certified hops label

