

About Implementation of Applicative Research Project & Case of Good Practice

**IN HOP GROWING BY SUSTAINABLE, NATURALLY MODE
(2013, 2014), in circumstances of severe drought and heat
waves**

without any irrigation or watering of hops fields

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Aplicative Research Project & Good Practice Case:
producing/growing hop per Program Coraagro™:
pesticides were successfully replaced
with naturally, sustainable PRODUCTS WITHOUT ACTIVE SUBSTANCES Cora AH™



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Hmezad
exim d.d. Žalec



**INŠTITUT ZA HMELJARSTVO
IN PIVOVARSTVO SLOVENIJE**
Slovenian Institute of Hop Research and Brewing

Applicative research project & Case of good practice :

Production/ growing of hop – without pesticides, with innovative, sustainable, natural PRODUCTS WITHOUT ACTIVE SUBSTANCES, year 2013 (very short summary); PART 1 of the Project

Content:

Hop production per sprinkling program prepared by Ph. Agrohom., Ing. Majda Ortan sp, with useage of innovative natural products without active substances, self-developed by Majda Ortan, ing. (100% owner of all business rights for those products)

Project Partners:

- Ph. Agrohom., Ing. Majda Ortan sp,: Growing program and products used, leading of the Project.
- Hmezad exim d.o.o.: Participation in the implementation of the Growing Program, ensuring operational implementation (*farmer Ivan Šlander, his hop field*), implementation control, constant monitoring in the experimental plantation,
- corective measures (if needed), agronomic records on the results of continuous observation.
- Slovenian Institute of Hop Research and Brewing (Expert supervision, inspection, results of expert inspections in hop plantations and hop crops (hop cones)



Aplicative Research Project & Good Practice Case: producing/growing hop per Program Coraagro™: pesticides were successfully replaced



with naturally, sustainable PRODUCTS WITHOUT ACTIVE SUBSTANCES Cora AH™

WITH THIS OUR PROJECT WE HAVE DESTROYED „MYTHS“ that for demanding crops – like hop cornes, there are no possibilities for sustainable growing!

Sustainable Win-Win Solution:

- There is no withdrawal period after spraying.
- The spray is free from harmful effects on humans and the environment.
- The use of personal protective equipment is not required underway of spraying process.
- In Slovenia, the products have a certificate of conformity for use in organic farming.
- Good yield is growing, due to the severe drought, despite the fact, that our experimental plot was not irrigated neither watered.

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PART I. – Hops field trials of hops growing with products Cora agrohomoepathie® in growing season 2013:

Summary for Part I

I.1 The reason for the hops field trials (2013), the purpose of the hop field trials (2013), the working hypothesis.

I.2 Content from published post:

- Some data about hops growing in Slovenia
- Location of this hop field trial in 2013
- Hops, variety Aurora
- Soil
- Agrometeorological factors, important for hops growing
- Major hops diseases, description
- Major hops pests, description
- Phenophase (BBCH scale)

I.3 Materials and methods

- Design of hops field trials: spraying program for products Cora agrohomoepathie® for hops, Used products properties and product documentation, Mode of monitoring- monitoring frame program; Methods for monitoring, evaluating etc.

I.4 Implementation of hop field trials:

- Weather and climate conditions
- Implementation of spraying program
- Implementation of monitorings and tests
- Results

5. Discussion and conclusions

6. Summary for Part I

Part II. - EXPOSE OF EVALUATING EFFECTIVENESS OF PRODUCT Cora agrohomoepathie X62 on strengthening vitality of plants with specific effects on strengthening plants adaptability on drought and high temperatures as well as to strengthening plants resistance to stress because of drought and high temperatures

Content

II.1.

The reason for the expose of evaluating effectiveness of product Cora agrohomoepathie X62; [link](#)

II.5.

Results, ([link](#))
* NOTE: Test Results are from first part of the projects ([link](#))

II.2

Abstract, Summary, conclusion; [link](#)

II.6.

Comparisons of scientific findings and monitorings results with monitoring and tests results of hops from hops field trials, where on variety Aurora product Cora agrohomoepathie X62 was used on not irrigated hop fields in 2013; [link](#)

II.3

Methods; [link](#)

II.7= II.2

Abstract, Summary, conclusion, [link](#)

II.4

Content of published posts:

1. Weather circumstances 2013 March – August):

- Temperatures, precipitation, drought; [link](#)
- Long terms observation – weather circumstances effect to the growing of hop and to the cones yield; Kf factor; [link](#)

2. Results of Slovenian Institute for hops research and brewing from their irrigated hops fields: monitorings of hops development per BBCH scale, Quantity of yield, content of alpha acids in harvested hops cones; hop Variety Aurora, field location: Savinjska valey, year 2013; [link](#)

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Part of Sprinkling Program:

Obravnavanje št. 1: Škropljenjen glede na fenofazo	I. škropljenje	II. škropljenje (X66 + X62)
Sredstva:	(X66 + X62)	(X66 + X62) + C1 + C3
Datum:	xy. maj	Konec junija, prva ½ julija
Fenofaza:	Po napeljavi hmelja (h = 1,2 m)	Takoj ob pojavu prvih cvetov
Škropilna naprava:	Pršilnik	Pršilnik
Poraba vode:	Q = 400 L/1 m višine poganjkov	Q = 1500 L/ha
Odmerek pripravka (1 ml/L vod):	400 ml/ha pri 400 L vode/ha	1500 ml/ha
Količina sredstva (ml)/parcelo P_{parcela} = 2600 m²	X66 = 104 ml X62 = 104 ml	X66 = 390 ml X62 = 390 ml C1 = 390 ml C3 = 390 ml
Izvedba aplikacije (čas):	Zgodaj zjutraj ali proti večeru, ko je jakost UV sevanja šibkejša	Zgodaj zjutraj ali proti večeru, ko je jakost UV sevanja šibkejša

Results of Aplicative Research Project & Good Practice Case: producing/growing hop per Program Coraagro™: pesticides were successfully replaced with products without active substances

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PLANT'S DISEASES AND PESTS, ECONOMICALY DAMAGE caused by diseases and pests

- Conditions was generally unfavorable to development of downey mildew .
- Red spider mite -Tetranychus urticae:
First appearence 8th August,
constant population – **it has not been caused economically important damage**
- Hop flea beetle - Psylliodes attenuatus:
- both generations present – **it has not been caused economically important damage!**
- Hop Damson Aphid - Porodon humuli:showed interesting population dynamic. After first spraying, it's population grown up. Explanition is, that on starting of effects on energy ballance system of plants, some plant's reaction occured. So, for short time plants weakened, than their imunology started to strenghten. On weakened plants camed more aphids, but despite of quick improvement of hop's vitality, thay didn't caused damage. Results of hop apfids indicate different mechanisms of controll of pest population compared to controll applications. **It has not been caused economically important damage!**



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PART 2 of the Project**

**Weather characteristic of the season 2013:
extremely hot and dry year!
IMPORTANT: hops in our experimental plot
was not watered!**



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- YIELD:

Harvested on 6th of September, 2013.

Yield:

- **Quantity:** calculated 1.182 kg/ha (overall avg. 2013: 1186kg/ha) → **we got practically the same yield, without wattering of hop!**
- **Quality:**
- Alpha acid content: 7.4 % (overall avg.2013: 5,7%) → **We got for cca 42% better quality**
- Corns: health, no economical damage!



**Results of Aplicative Research Project & Good Practice Case:
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PART 2 of the Project – SHORT SUMMARY**

RESULTS OF THE PROJECT

**For no more needed irrigation
for good Agricultural yield
growing in drought and heat
condition:**

**Very promising attraction :
Advanced, novel, energized,
natural, sustainable and effective
PRODUCT WITHOUT ACTIVE
SUBSTANCES!**



2nd Edition of
Euro-Global Conference on
**food Science and
Technology**

*"Optimizing new paths in food science and
technology towards the global demand"*

Date: September 19-21, 2019

Venue: London, UK

<https://food-chemistry-technology-conferences.magnusgroup.org/>

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**SHORT
SUMMARY –
from speach**

Disemination of Results of Aplicative Research Project & Good Practice Case: producing/growing hop per Program Coraagro™: pesticides were successfully replaced with products without active substances

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Here: some from continue of this „ hops project“ -in growing season 2014: Together in demanding Project of hop production/growing without pesticides - using only products Cora AH™: In cooperation with company Hmezad exim d.d. and Ph. Agrohom., Ing. Majda Ortan, s.p., Prevalje, Slovenia:

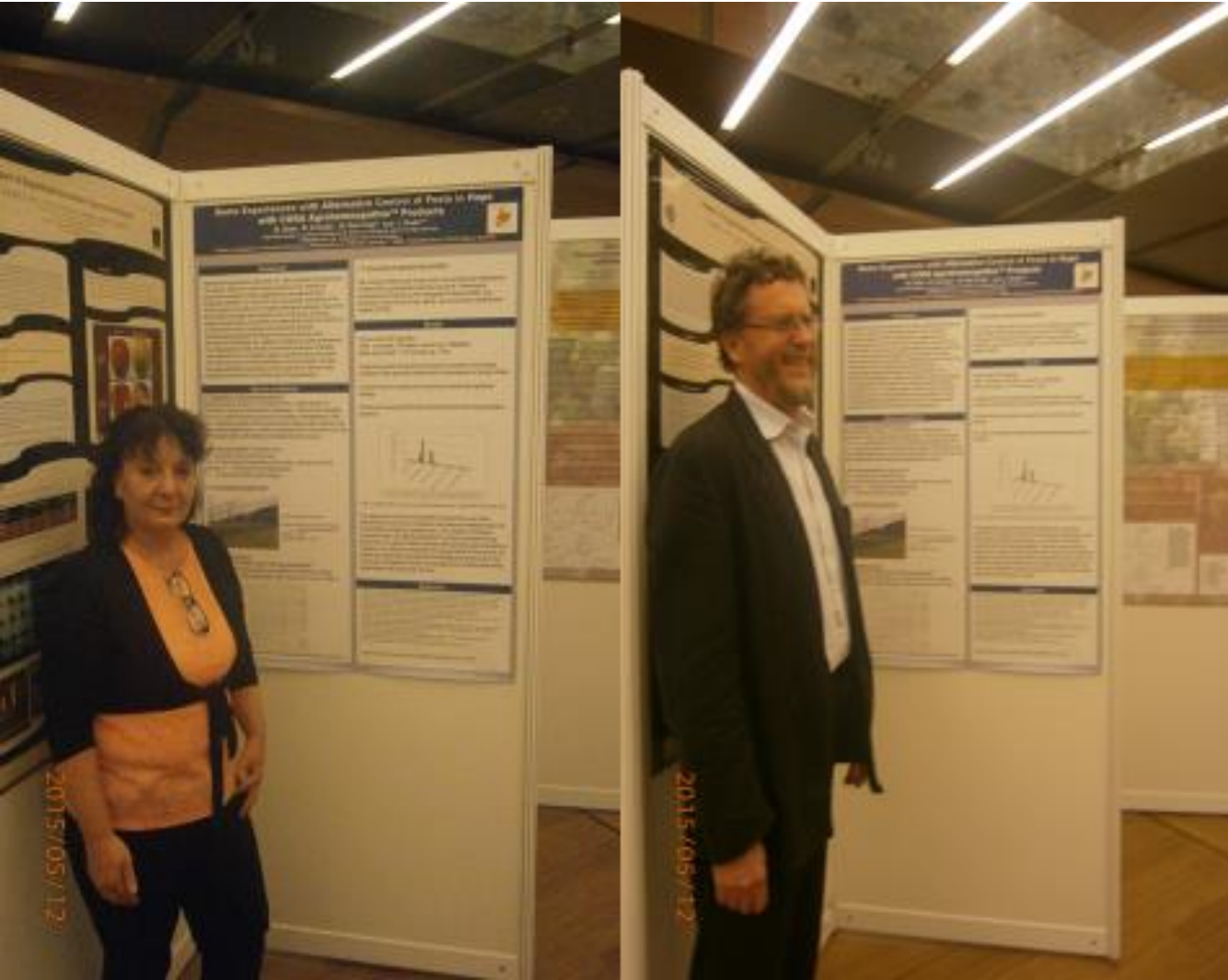
In Avgust 2014 hop growers: Orožim, Šporn, Škrabar, Šlander: their experiences with the products Cora AH™ in our trials hop fields, succesfully transferred to 52 farmers - hop growers and experts – agronomists.



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**Disemination of Results of Aplicative Research Project & Good Practice Case:
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**Results of our Hop project were sucessfully
presented also in Scientific Conferences.**

On the photo:

**Presentors: Majda Ortan ing. and Dr. Janko Rode
from Chamber of Agriculture Slovenia**

**Conference: Plant Health Sustainable Development
Ljubljana, 11 May 2015**



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Case of Dissemination of Good Practice Case:

Producing/ growing hop in drought and heat conditions and without irrigation or watering, per Program Coraagro™, where pesticides were successfully replaced with **products without active substances** Cora AH™,

For no more needed irrigation for good Agricultural yield growing in drought and heat condition:

Very promising attraction :
Advanced, novel, energized, natural, sustainable and effective **PRODUCT WITHOUT ACTIVE SUBSTANCES!**



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@foodscienceconf



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SHORT SUMMARY – from speach

**Possibilities for Dissemination of
Results of Applied Research Project & Good Practice Case:
producing/growing hop per Program Coraagro™: pesticides were successfully replaced with
products without active substances**



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Applicative Research Project & Good practice case: producing /growing hop per Spraying Program Coraagro™ with products without active substances Cora AH™, which was successfully replaced pesticides .

By farmer: Šlander, Savinjska Valey, Slovenia.

Sort of hop: Aurora. Year of implementing this applicative Research Project: 2013



Applicative Research Project & Good practice case: producing /growing hop per Spraying Program Coraagro™ with products without active substances Cora AH™, which was successfully replaced pesticides .

By farmer: Šlander, Savinjska Valey, Slovenia.

Sort of hop: Aurora. Year of implementing this applicative Research Project: 2013

Thank you for your attention!

You're wellcome!

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