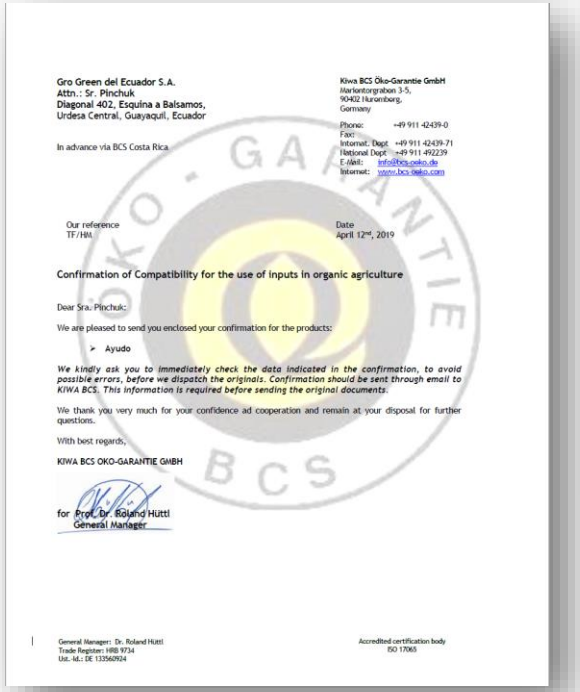
PolyHydra-O®

SynBionic Évolution Inc.

PolyHydra-O®(PHO)Chracteristics

- **PHO is**100% Water soluble
- Formulated with High Quality ingredients
- Certified **OMRI Listed** ® in the USA
- Certified **KIWA**® in Europe and SA (AyudO™)
- Modification of droplet size for aerial spraying. Improved ‘sticker’ characteristics.
- Trace UV markers can be added to **PHO** which can be detected by Infra-red spectrograph to prove application and to determine re-application schedule.
- Can be used to replace mineral oil and therefore reduce the impact of phototoxicity and photosynthesis.
- Allows the mixture of multiple agricultural treatments within the **PHO** matrix.
- Oral toxicity (LD_{50}) of **PHO** is >5000 mg/kg in female albino rats. Practically non-toxic.
- Can reduce the amount of pesticides used.



Gro Green del Ecuador S.A.
Attn.: Sr. Pinchuk
Diagonal 402, Esquina a Balsamos,
Urdesa Central, Guayaquil, Ecuador

In advance via BCS Costa Rica

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Our reference
TF/HM

Date
April 12nd, 2019

Confirmation of Compatibility for the use of inputs in organic agriculture

Dear Sra. Pinchuk:

We are pleased to send you enclosed your confirmation for the products:

- Ayudo

We kindly ask you to immediately check the data indicated in the confirmation, to avoid possible errors, before we dispatch the originals. Confirmation should be sent through email to KIWA BCS. This information is required before sending the original documents.

We thank you very much for your confidence ad cooperation and remain at your disposal for further questions.

With best regards,

KIWA BCS OKO-GARANTIE GMBH

for Prof. Dr. Roland Hüttl
General Manager

General Manager: Dr. Roland Hüttl
Trade Register: HRB 9734
Ust.-Id.: DE 133560924

Accredited certification body
ISO 17065

OMRI Listed®

The following product is OMRI Listed. It may be used in certified organic production or food processing and handling according to the USDA National Organic Program regulations.

Product
PolyHydra-O Adjuvant/Humectant Water Soluble

Company
Synbionic Evolution, Inc.
Orley Pinchuk
255 Ave Labrosse
Pointe-Claire Quebec H9R1A3 Canada

Status
Allowed with Restrictions

Category
NOP: Adjuvants – for use in pesticides

Issue date
05-May-2015

Product number
snb-5542

Class
Crop Management Tools and Production Aids

Expiration date
01-Jun-2020

Restrictions
For use as an inert ingredient in combination with permitted active pesticidal ingredients.

Peggy Miars
Executive Director/CEO

Organic Materials Review Institute
P.O. Box 11558, Eugene, OR 97440-3758, USA
541.343.7600 · info@omri.org · OMRI.org

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Results using PHO from a Florida based citrus farm against “Citrus Greening”

https://vimeo.com/158206096/e3dd56c8df

Problem: the leaves were small, the roots were weak, and the fruits were falling before they were ripe.

Experimental: A ‘nutritional’ formulation blended into **PHO®** trademarked “Argosy-RF*”

Results: The leaves grew larger

- The roots were stronger therefore keeping the fruits on the trees much longer

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https://vimeo.com/158351442/472bda6119

“Argosy-RF*” blended with a herbicide

The farmer attests that Argosy-RF helped to reduce the amount of herbicide used . Replaced at 50% the re-application frequency was reduced from 5 times per year to 2 times per year.

*private label

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Reduced Dessication (drying out) of Tomatoes

Observation:

- Minimum loss of weight was observed in the first group (**PHO®** only)
- Added essential oils were counterproductive

Conclusion:

- **PHO®** minimises the loss of water in tomatoes.

→ Anti-dessicant Application

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Reduced Dessication of Tomatoes (Continued)

Object: To prolong the shelf-life of tomatoes after harvest

Protocol: The tomatoes were exposed for 52 heurs under UVB (313µm) light, at a temperature range of 25-30°C

GROUP	TREATMENT	INITIAL MASS	FINAL MASS (% WEIGHT LOSS)
#1	0.5% PH-0	699.97g	673.01g (-3.8%)
#2	0.5% PH-0 + 0.25% E01*	779.06g	745.87g (-4.26%)
#3	0.5% PH-0 + 0.25% E02*	477.08g	452.64% (-5.12%)
#4	Water	277.35g	265.91g (-4.12%)

*Essential oils

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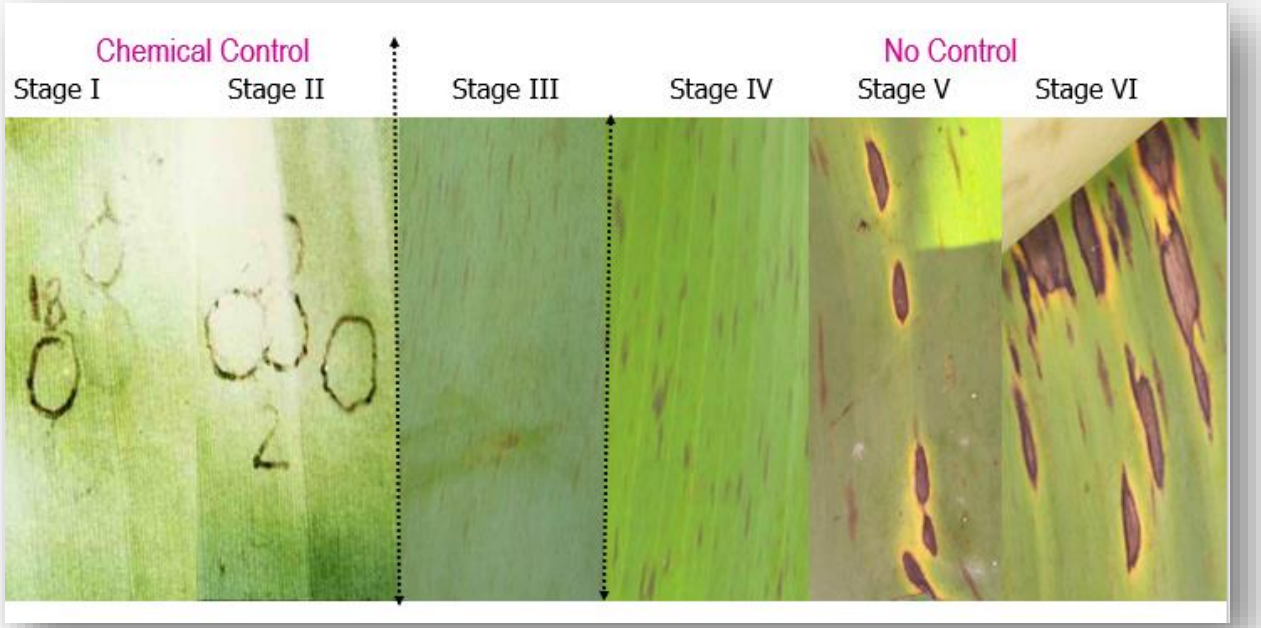
Experiment: Bananas in Ecuador

- Plant infestation of “Sigatoka Negre” fungus in Ecuador which has been responsible for a 50% reduction on crop output.
- **Treatment:** A combination of fungicides blended into Agricultural Oil and aerial sprayed
- **PHO** can reduce the total quantity of fungicides and agricultural oil up to 80%
- **PHO** improved the “pack-out” of the bananas more than 33%
- The leaves were larger, the plants grew taller and the fruits were large and healthy
- A big improvement over the current situation



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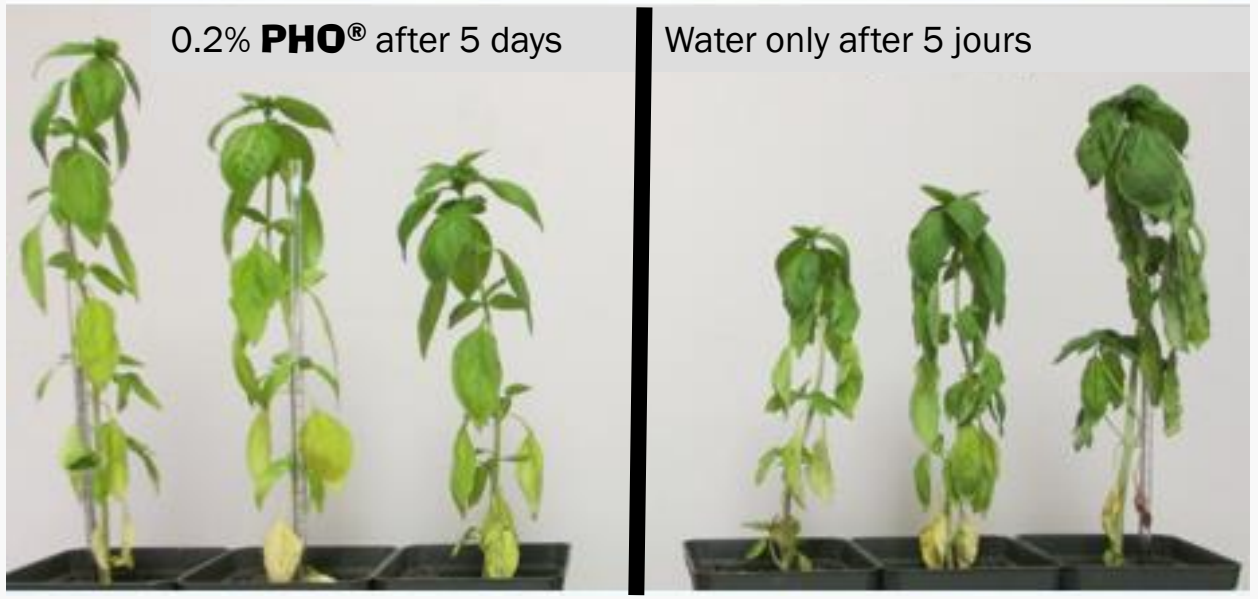

EXPERIMENT WITH BASIL PLANTS

The Basil plants were kept at 90°F (32°C) during 5 days.

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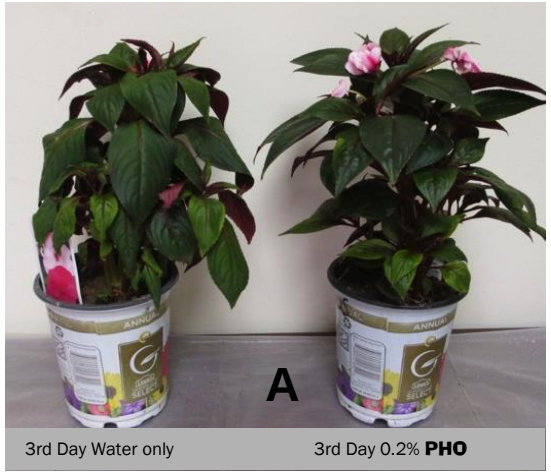
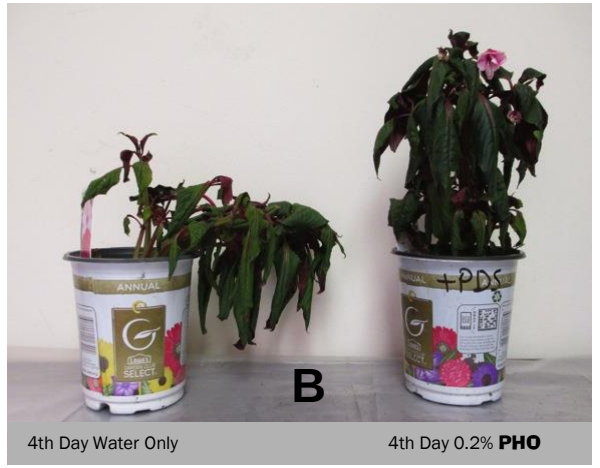
Experiment with Impatient Plants

Days 1-3, The plant were kept in the following conditions: 80°F (26.6°C) dry, and directly in the sun (A)

Day 4, The plants were placed under UV light, and were watered to their saturation point (B). Then the plants were left to recuperate for 4 hours. (C) (D)





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Experiment to measure the retention Forza® Glyphosate using PHO®

Forza® is traditionally used at 4.7 L / Ha

“Trial 1”

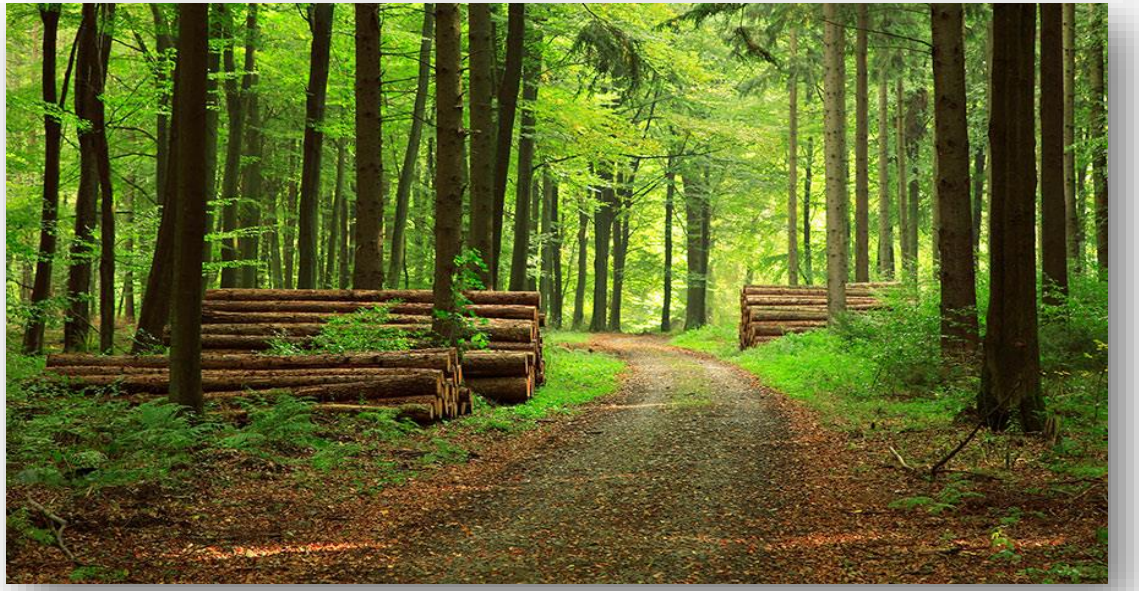
- Is a25% reduction of **Forza®** used at 3.5 L/Ha

“Trial” 2, 3 & 4

- Were different versions of **PHO®** used for evaluation

Variations of **PHO®**

	Liters sprayed per Ha							
Trial	Ha Sprayed	Water	Forza	PHDC	PHDC-HN	PHDC-H	PHDC-HN25	Total L/Ha
1	1	38.5	3.5				5.0	47
2	1	30.6	4.7	4.7				40
3	1	25.6	4.7			4.7		35
4	1	20.6	4.7		4.7			30



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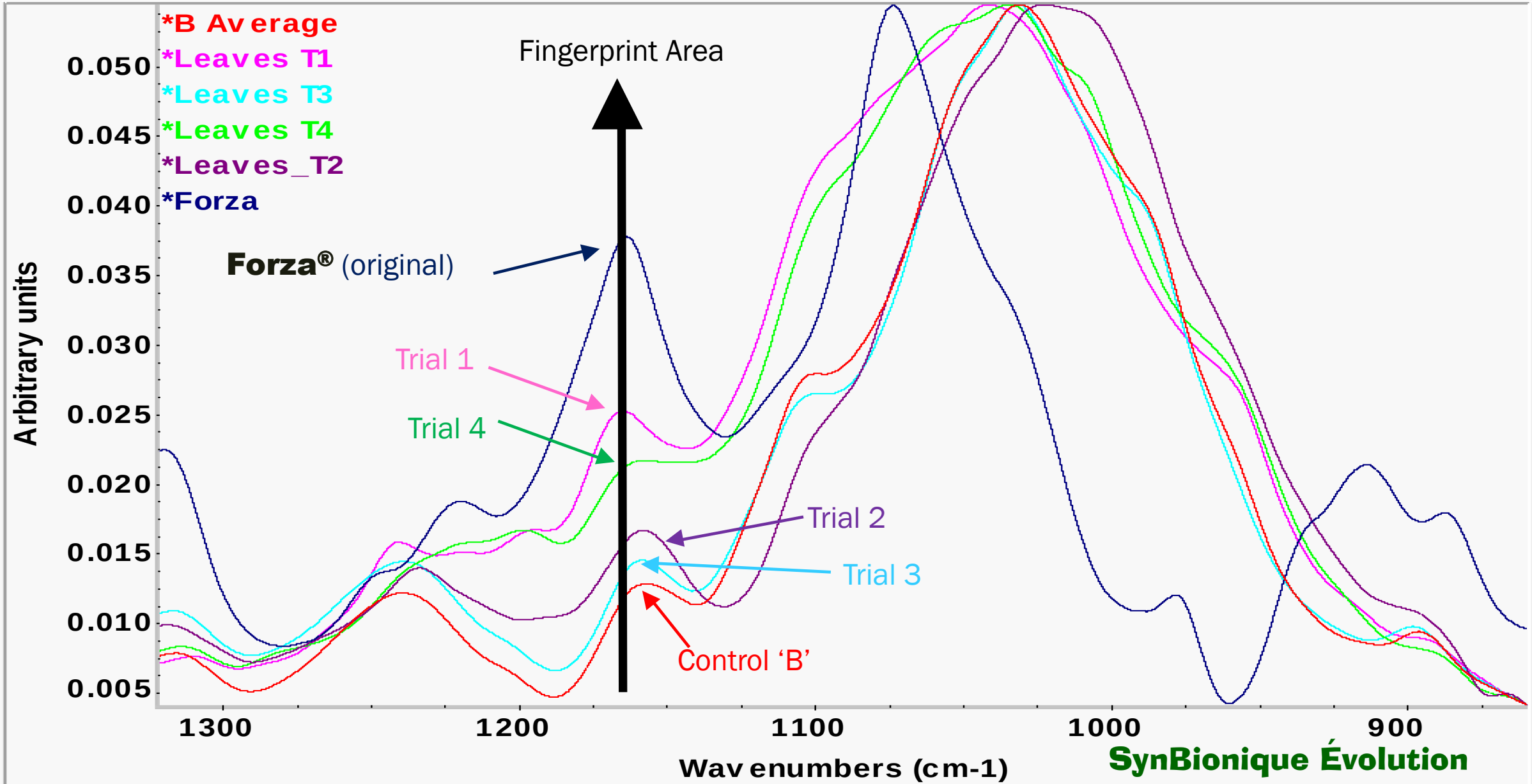
ATR-FTIR Spectrocopy evaluation of Forza® Retained on the leaves after 45 days.



Experiment with McGill University in Montréal
The Impact of PHO on the Germination of Seeds

"C4 broadleaf species" seedlings were exposed to 5 different concentrations of **PHO®** and the germination progression was monitored..

Treatment	Replicates	Out of 10	Complete germination (with elongation)	Incomplete (starting of germination)		Mean	Standard Deviation		t-test results	p value	result
0	1	9	5	4		7.666667	1.154700538		0 vs 0.01 g	0.211325	NS
0	2	7	4	3					0 vs 0.1 g	0.112702	NS
0	3	7	5	2					0 vs 1 g	0.227834	NS
0.01	1	7	2	5		6.666667	1.527525232		0 vs 10 g	0.018875	Significant
0.01	2	5	1	5							
0.01	3	8	4	4							
0.1	1	7	5	2		6.666667	0.577350269				
0.1	2	6	3	3							
0.1	3	7	2	5							
1	1	5	1	4		6.333333	1.527525232				
1	2	8	3	5							
1	3	6	1	5							
10	1	8	5	3		6	1.732050808				
10	2	5	1	4							
10	3	5	3	2							

No germination impact was observed up to 10% **PHO®**

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Experiment with the University of Florida (Gainesville) on Strawberries and Tomatoes

Fraises:

PHO® use was compared to two commercial fungucides. The results show that with the addition of **PHO®** and a reduction of 33% of the fungicide, we were able to attain the same results to control infection, and a small (2%) increase in crop output

Tomatoes:

6 treatments with **PHO®** were applied on the plants. Then half (3) treatments were wetted rain simulation) and dried. All the plants were inoculated with a suspension of *X. perforans*, and incubated. The lesions on the leaves were recorded.

Results:

PHO® alone (without any additional chemicals added), wetted or notshowed a significant number of reduced lesions in comparison with other treatments,

Table 1. Effect **PHO®** on rain fastness of Cuprofix (copper sulfate) and the severity of Bacterial leaf spot (BLS) caused by *Xanthomonas perforans*.

	BLS lesions/cm^2 leaf area:	
Treatments:	Non-washed plants	Washed plants
PHO®(250:1)	45.8 (35.5 - 56.2)	36.9 (26.6 - 47.3)
PHO®(250:1) + Cuprofix (3lbs/A)	8.2 (0 - 18.5)	18.3 (8.0 - 28.7)
PHO®(250:1) + Cuprofix (1.5lbs/A)	10.7 (0.3 - 21)	21.9 (11.5 - 32.2)
Cuprofix (3lbs/A)	6.9 (0 - 17.3)	23.7 (13.3 - 34.1)
Cuprofix (1.5lbs/A)	8.8 (0 - 19.2)	23.9 (13.5 - 34.3)
Control	60.9 (50.5 - 71.2)	
$P > F$	< 0.0001	

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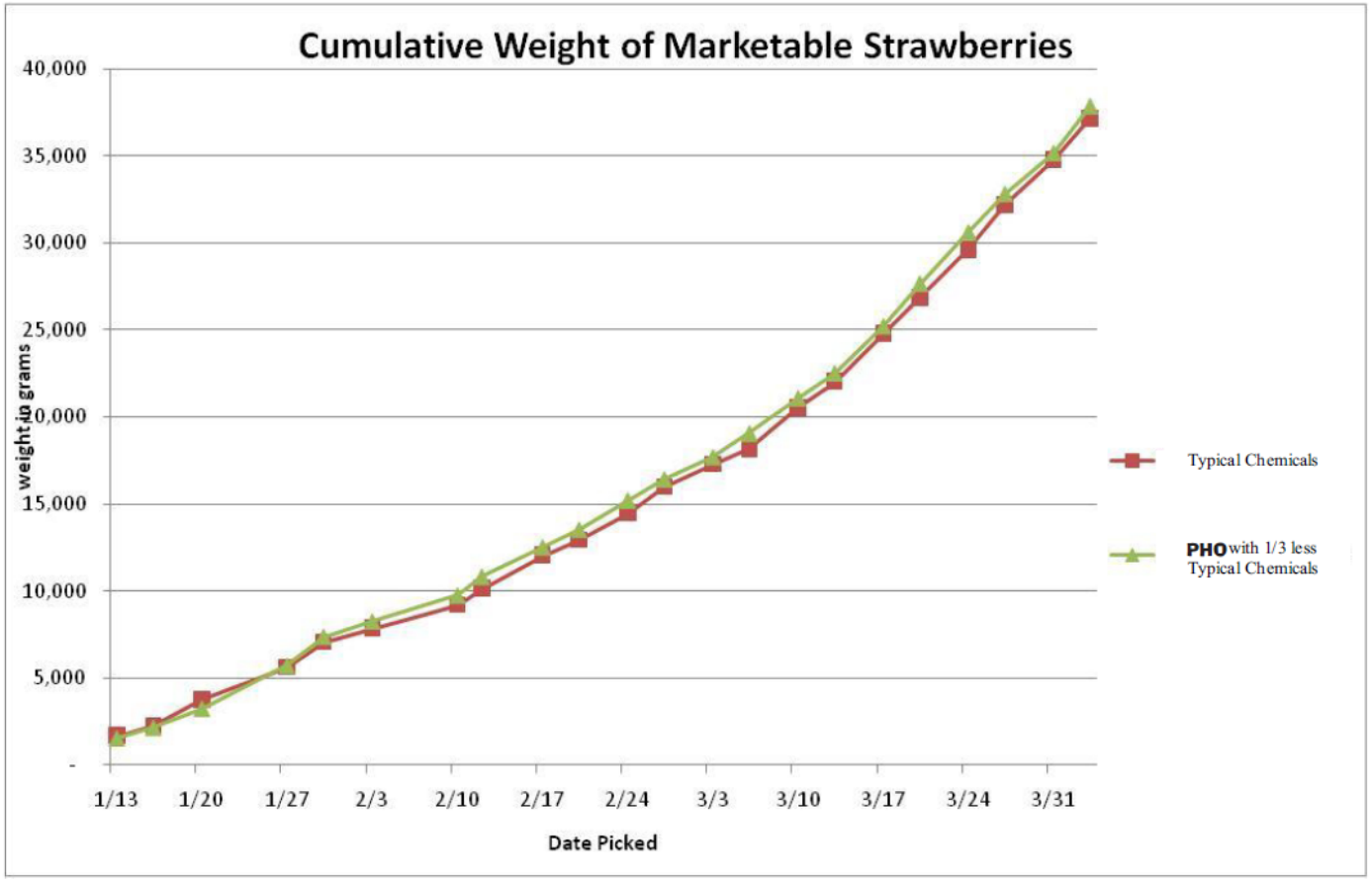
- **PHO** was used with 1/3 less chemicals than the typical spray protocol throughout the growing season
- The areas treated with **PHO** delivered a slightly higher yield (approx. 2% more marketable fruit)
- There was not a significant difference in disease control between the treatments



Conclusion: After the Experiment with the University of Florida IFIS

Showed the same results using PHO® and 33% less chemicals

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Vinyard – Using Only PHO®

Untreated control	Industry Standard	With **PHO®**

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CANABIS
Using only
PHO®

Without **PHO®** With **PHO®**

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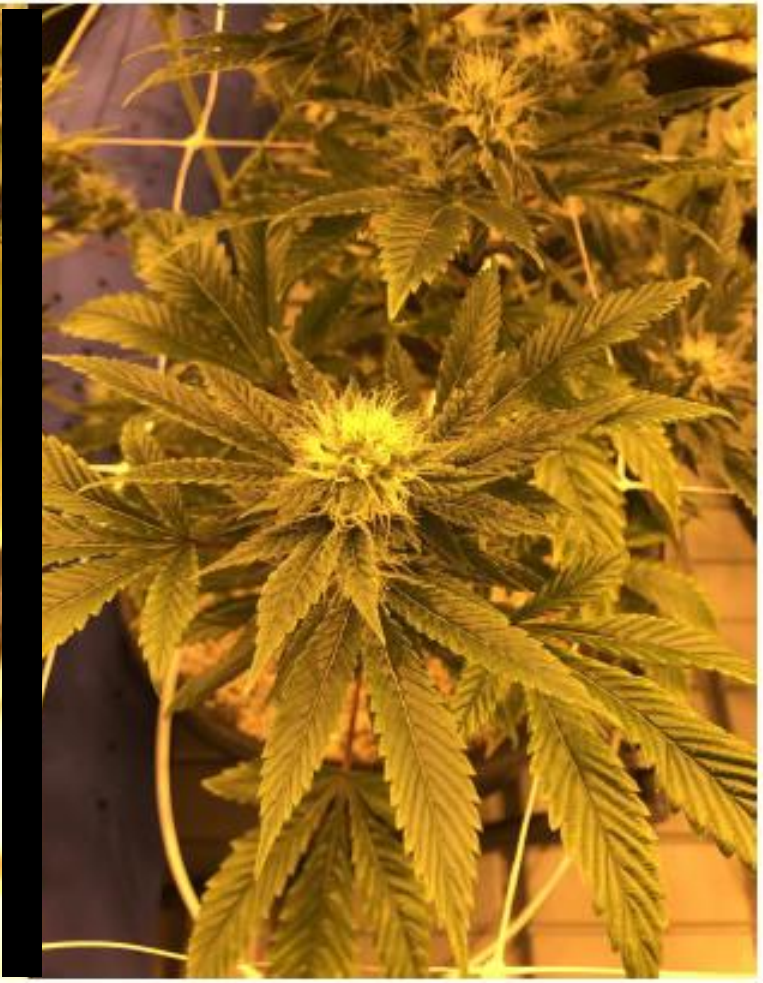
CANABIS
Using only
PHO®



Without **PHO®** With **PHO®**

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PHO-ENVIRONMENTAL BARRIER
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by Ashatec

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