PROGRAM

GLAS4.0 ACCELERATOR WORKSHOP

****11 & 12 SEPTEMBER 2017****

With this two-day program, we wish to bring together as much knowledge as possible from business and research on the use of crop sensing and robotics in the fruiting vegetable crops in the greenhouse. After collecting this knowledge, we would like to discuss how growers and their producer associations can speed up the process of making those disruptive technologies available for fruiting vegetable crops tomato, eggplant, cucumber and pepper.

PRESENTATIONS IN ENGLISH & DUTCH; TRANSLATION AVAILABLE

DAY-1 11 SEPTEMBER 2017	**9:00**	***WELCOME & OPENING*** ***The first day will take place at the farm* Het Lansingerland*: an excellent example of sensing & robotics in dairy farming.*** ***www.boerderijhetlansingerland.nl*** ***Hoeksekade 146 A*** ***2661 JL Bergschenhoek***

BOERDERIJ Het Lansingerland

HARVEST HOUSE door van Nature best of four

The first goal of the workshop is to collect knowledge by answering three questions on the current state of affairs.

COLLECT – SENSE

The question to be answered is **what is the current state of affairs on cropsensing** and the translation of crop data collected by vision technology with big data, artificial intelligence, deep/machine learning etc. into decision-making information for growers and/or the producer associations.

Topics:

- State of the crop
- Growth
- Fruits
- Yield prediction
- Scouting diseases/insects
- Etc.

DAY-1		***CROP SENSING in FRUITING VEGETABLES***
9.30-11.00	1.30 hour max.	<u>Presentations</u>
	25 min	✓ **Mathematics for crops** - University Leiden - Prof. Dr. B. van Duijn
	25 min	✓ **State of Cropsensing** – Wageningen University & Research NL - R. van de Zedde
	35 min	✓ **A Crop Intelligence System for Greenhouses** - Australian Center for Field Robotics / University Sydney - Prof. S. Sukkarieh
11.00-11.15	15 min max.	COFFEE BREAK
11.15-12.30		***CROP SENSING in FRUITING VEGETABLES***
	1.15hour max.	<u>Pitches</u>
		Which solutions are available? What will the (near) future bring? Which bottlenecks are we confronted with in development and use?
	15 min	✓ **Sensing in Business** - ARIS NL - Sven Rusch
	15 min	✓ **Deep Fresh Learning** - Delft Robotics - H. ten Have
	15 min	✓ **Lab on a chip** - Sensor Factory NL - W. Dijkstra
	15 min	✓ **Thermoview** - Lets'grow - P. Hendriks
	15 min	✓ **Cropsensing in Tomato** - Hortikey - A. Hofland
	15 min	✓ **Crop = data ?** - Rijk Zwaan - M. Poodt & A. van Os
12.30-13.30	1.00 hour max.	LUNCH

COLLECT – MOVE

The question to be answered is **what is the current state of affairs on automated guided vehicles** (for instance electric cars for transport, labour etc.)

13.30-15.00		***AUTOMATED TRANSPORT IN CROPS***
	1.30 hour max.	Presentations
		✓ **State of Drones** - TU Delft/Delfly - Christophe de Wagter
		Pitches
		Which solutions are available? What will the (near) future bring? Which bottlenecks are we confronted with in development and use?
	15 min	✓ **Benomic** - Berg Hortimotive NL - Marc van den Berg
	15 min	✓ **Greenhouse Logistics** - Bogaerts Greenhouse Logistics BE - Joris Bogaerts
	15 min	✓ **Robot in het Railspant** - Klimrek - S. van Dijk
15.00-15.30	30 min max.	COFFEE BREAK

COLLECT – ACT

The question to be answered is **what is the current state of affairs on robots that take action based on sense & move in the crop** (for instance harvesting robots etc.)

15.30-18.00		
	2.30 hour max.	***ROBOTS for FRUITING VEGETABLES***
		Presentations
	25 min	✓ **State of BIOrobotica -** TU Delft - Prof Dr Ir M. Wisse
	25 min	✓ **State of Precision Horticulture** - Wageningen University & Research NL - E. Pekkeriet
	25 min	✓ **Acceleration by Simulation** - University Putra Malaysia / Adaptive Agro Tech – Research Fellow R. Shamshiri
		Pitches
		Which robot are you working on? What developments can we expect in the near future? Which bottlenecks are we confronted with in development and use?
	15 min	✓ **Cucumber Harvesting Robot** - TU Delft - Students
	15 min	✓ **Kompano Tomato Deleafing Robot** - Priva - Maren Schoormans
	15 min	✓ **Cucumber Harvesting Robot** - One of a kind Technologies - R. Vialle
	15min	✓ **Strawberry Robot** - Octinion - T. Coen

The second goal of the workshop is to connect researchers and developers with growers. In addition, we want to inspire our participants by providing them with examples of how Sensing and Robotics are disrupting other industries.

CONNECT

18.00-19.00

GUIDED TOUR

A short tour of the fully automated farm of Lansingerland. Milk robotics, feeding robotics etc.

19.00-21.30

2.30 hour max.

Including Walking Dinner

GLAS4.0 INSPIRATION DINER

Diner-buffet with inspiring speakers. During this diner, we will venture into the world of dairy. In this world, sensors and robots are becoming increasingly normal, as well as working with the data from those robots in the cooperatives and supply chain. Speakers from the dairy industry will present their view on the opportunities and challenges of sensing and robotics.

- ✓ **Succesvol robotiseren in AGFood** - Lely - G. Scholman
- ✓ **DATA, mijn data** - Data Coöperatie Smart Dairy Farming - A. Beetsma

Closing drinks at the farm bar.

HOTEL

Hotel Van de Valk The Hague – Nootdorp is used by the international speakers and lies between the two locations. Participants can stay there at their own expense.

DAY-2 12 SEPTEMBER 2017 | **09.00** | ***WELCOME & OPENING***

On the second day, we will go to the Technical University Delft, at the Bouwcampus.

www.debouwcampus.nl
TU Delft – building 26
Van der Burghweg 1
2628 CS Delft

The third goal of the workshop is to analyse which actions could, should and must be taken to speed up the availability of crop sensing and robotics for fruiting vegetable crops.

ACCELERATE

09.00-09.30	30 min max.	***GLAS4.0 ACCELERATION SESSION*** What more is needed for acceleration? What are the technical and research issues? How can further collaboration between projects be speeded up? What can growers and/or their associations do to help?
09.30-10.30	1 hour max.	***THE CROP DISCUSSION*** Participants are divided into 4 groups of researchers, traders and growers to discuss the following question: "How can we speed up the use of cropsensing & robotics in fruiting vegetables?" Based on the outcomes, the groups will offer an advice for the Produce Organisations "Whats next?". *What is needed, Why is it needed and How can we get there?*
10.30-11.30	1 hour max.	INSPIRATION BREAK Guided tour of the Green Village TU Delft More info: www.thegreenvillage.org
11.30-12.30	1 hour max.	***THE PARTICIPANTS ADVICE*** The four groups will present their advice for the future.
12.30-13.30		GLAS4.0 CLOSING REMARKS & LUNCH

**Participants have to confirm their participation, open for more participants based on the rule: participating is presenting what you are doing. If you want to be invited for the workshop as a grower, contact your produce association. Researchers and Companies can send an email to glas40@ficenter.nl*

Harrij Schmeitz , *Program-manager GLAS40, 18 augustus 2017*