

7th International VDI Conference Smart Farming

April 24 and 25, 2023, Dusseldorf

- Smart Implements – The Role of Advanced Technologies for Future Farming
- Crop Automation – Technology, Growers and Start-up Perspectives
- Challenges on the Way to Autonomy
- Addressing Ag Data Interoperability
- Decoupling Safety and Ag-Robotics Development

+ Interactive World Café Session

Meet international Experts from:



09:00 Registration & Welcome Coffee

10:30 Chair's Welcome and Opening Address

Chair: Dipl.-Ing. Ralf Kalmar, Business Development Manager, Fraunhofer IESE, Germany

I. Bringing Technology to Specialty Crops

10:45 Integrating Field Automation in California Vegetable Farming: Challenges and Opportunities

- Context: It is all about labor savings!
- Weeding as the farm stepping-stone into AI and field robotics
- Recruiting the right people for the job
- Opportunities abound: Harvesting is in sight!
- Nurture relationships with start-ups and need for results/ROI

Alain Pincot, Managing Partner, BONIPAK, USA

11:15 Specialty Crop Automation – Technology, Growers and Start-up Perspectives

- Increasing challenges for specialty crop growers across the US and Europe (labor, cost, regulation drive the need for automation)
- Survey of growers highlights the need for technology driven solutions
- Notable Progress in the commercialization of harvest automation
- Automation start-ups: Progressing well in terms of funding, robots deployed, customers, etc.

Dr. Wilfried G. Aulbur, Senior Partner, Roland Berger LP, co-author: Walt Duflock, Vice President of Innovation, Western Growers, both: USA

11:45 Challenges developing Strawberry Harvesting Robots

- Challenges at the machine-nature interface based on field testing experience
- Methodical approach for addressing the problems
- Solutions and results to tackle the issues based on real-life experience and improvements

Enrico Neumann, Product Manager, IAV GmbH, Germany

12:15  Lunch

II. Enabling Technologies

13:45 Modern Weed Management – Camera Technology for better Yields and more Crop Insights

- Global experiences from the season 2022
- The LIFE project: Joint go to market research with the University of Hohenheim
- Outlook on the next generation – Updates from Innovate UK and the "HoPla-Project"

Janis Faltmann, Global Product Manager, Bosch BASF Smart Farming GmbH, Germany

14:15 Phased Array Radar Applications in Agriculture – See clearly through Dust

- How is a phased array radar different from other radar systems?
- Advantages and disadvantages of phased array radars
- Applications for phased array radar sensors in agriculture

Rhett Schildroth, B.Sc., CTO, Mach, USA

14:45 How to deploy Autonomous Soil-working Robots in 2023

- The regulation and relevant standards
- The risks associated to low motion robots
- Solutions and conditions of use

Cédric Segueineau, Autonomy Director, Naïo Technologies, France

15:15  Networking & coffee break

15:45 III. Interactive World Café Session

We invite you to directly engage with other experts in small discussions. Identify challenges within your sector as well as problems, needs and solutions. Decide what exactly you would like to discuss and introduce your own experiences and cases.

- **Ag Data Management – Driven by Food Retailers?** • Dipl. Inform. Oliver Rahner, IT-Management, DKE-Data GmbH & Co. KG, Germany
- **Autonomous Agriculture Regulations – Which are relevant in each Part of the World?** • Rhett Schildroth B.Sc., CTO, Mach, USA
- **Flexibility of an Autonomous System – What is necessary for Production Processes in Agricultural Business?** • Lars Heier, Business Development, Lemken GmbH & Co. KG, Germany

17:15 End of Conference Day One



17:30 Get-together

At the end of the first conference day we kindly invite you to use the relaxed and informal atmosphere for in-depth conversations with other participants and speakers.

09:25 Chair's Welcome

Chair: Rhett Schildroth B.Sc., CTO, Mach, USA

IV. Addressing Ag Data Interoperability

09:30 What is the Agricultural Interoperability Network?

- Cloud-to-Cloud cross-sector data exchange project which integrates existing solutions driven by use-cases
- Network is growing by integration of use-cases
- Close cooperation with AgGateway and European initiative Gaia-X

Norbert Schlingmann, General Manager, AEF e.V., Germany, co-author: Slawi Stesny, Product Manager Connectivity, AGCO, Germany

10:00 The Journey from a Data Transporter to a Data Logistics Provider – A centralized Approach

- Possibility to continuously optimize agricultural production processes
- Extending Data-Exchange from arable to dairy farming
- Data handling beside Data-Exchange to increase the interoperability
- Self-determination in storage/access of data with sovereignty for the data owner

Dr. rer. agr. Johannes Sonnen, Business- and Productmanagement, co-author: Dipl. Inform. Oliver Rahner, IT-Management, both: DKE-Data GmbH & Co. KG, Germany

10:30 Recap World Cafés

We will review the results and key takeaways shared by our participants. This is an opportunity to reflect on the ideas generated during the World Cafés and gain a deeper understanding of the challenges facing our industry.

11:00 ☕ Networking & coffee break

V. Future of Implement Automation

11:30 Smart Implements – The Role of Advanced Technologies for Future Farming

- Connectivity of implements as enabler of precise applications
- Potentials and limitations of technology from farmer's perspective
- Expectation management for the introduction of advanced technologies

Dr. Max Bouten, Product Director, Kverneland Group Mechatronics, Netherlands

12:00 Combined Powers – Together for the next Level in Agriculture Process Automation

- Autonomy from the viewpoint of implement manufacturers
- Steps from automation towards autonomy
- First experiences of the autonomous 'process unit' consisting of a drive unit and various implements
- Challenges on the way to autonomy

Eva Schröer-Merker, Product Management, Bernard KRONE Holding SE & Co. KG and **Lars Heier**, Business Development, LEMKEN GmbH & Co. KG, both: Germany

12:30 🍽️ Lunch

VI. System Architecture

14:00 System Design for an Autonomous Agricultural Vehicle

- Off board infrastructure: Plan, control, monitor and analyse the autonomous operation
- On board infrastructure: Centralised architecture based on a high-performance embedded controller
- Safety: Decoupling safety and robotics development

Lars Schmitz, M. Sc., CTO, AgXeed B.V., The Netherlands

14:30 Design of an Open Software Framework for Planning, Observing and Controlling Missions for Agricultural Robots

- How to create a modular system architecture that is applicable to almost any agriculture robot
- Interfaces for enabling multi-brand compatibility and accelerating control tower software development
- Services for mission planning, e.g., for field covering and optimizing the path with focus on high speeds

Dr.-Ing. Sebastian Wagner, Group Leader Vehicle Control and Sensor System, Fraunhofer Institute for Transportation and Infrastructure Systems IVI, Germany

15:00 How to approach the Optimization of Farming Operations with a multi-vehicle Autonomous Platform

- Leverage lessons learned in optimizing other industrial production to improve farming
- Use process mapping for data driven transition to autonomy
- Employ AI, Autonomy, and Machine learning to improve performance

Mel Torrie, CEO, Autonomous Solutions Inc. (ASI), USA

15:30 Conference Chair's Closing Remarks

15:45 End of Conference



Upcoming Events

4th International VDI Conference

Automation and Robotics in Agriculture

June 28–29, 2023 in Dusseldorf, Germany

80. International Conference

LAND.TECHNIK 2023

November 10–11, 2023 in Hannover, Germany

8th International VDI Conference

Connected Off-Highway Machines

From Smart Sensors to Smart Systems

Date and venue:

April 24-25, 2023

Van der Valk Airporthotel Dusseldorf, Germany

Following topics will be discussed:

- Autonomous Mobile Machinery
- Cyber Security for Connected Off-Highway Machines
- Data-Driven Business & Technologies
- Wireless Connectivity for Vehicles
- Fleet Management & Operations

www.vdi-international.com/01K0902023

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Conferences



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7th International VDI Conference

Autonomous Trucks

Date and venue:

April 24-25, 2023

Van der Valk Airporthotel Dusseldorf, Germany

Renowned speakers will present their results on the following topics:

- Drivetrain Solutions for Autonomous Trucks
- Data handling and data regulations
- LIDAR and sensor fusion
- Connectivity, vehicles control and on-board software
- Digital services for commercial vehicles

www.vdi-international.com/01K0915023



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24.04.2023

Smart Farming

Supporting Experts

Dipl.-Ing. Ralf Kalmar, Business Area Manager, Fraunhofer Institute for Experimental Software Engineering IESE, Germany
Rhett Schildroth B.Sc., CTO, Mach, USA
James Miller C.Eng FIMechE, Chief Operating Officer, Earth Rover, UK
Dan Danford, Global Industry Relations Manager, CNH Industrial America, USA
Julian Sanchez, Director Emerging Technology, John Deere, USA



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Conference venue
Van der Valk Airporthotel Düsseldorf
Am Hülserhof 57
40472 Düsseldorf, Germany
Phone: +49 211/20063-0
Email: dusseldorf@valk.com



You will find more hotels
close to the venue at
www.vdi-wissensforum.de/hrs

Hotel room reservation: A limited number of rooms has been reserved for the benefit of the conference participants at the Van der Valk Airporthotel Düsseldorf.

Please refer to "VDI Conference". For more hotels: www.vdi-wissensforum.de/hrs

VDI Wissensforum service package: The conference package includes the conference documents (online), beverages during breaks, lunch and the get-together on April 24, 2023.

Conference attendance conditions and terms can be found on our website:
www.vdi-wissensforum.de/en/terms-and-conditions/

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Become a speaker at our international VDI Automotive Conferences. Make yourself known in the industry and discuss best practice examples with other international experts. We are looking for speakers on: Automation & Robotics in Agriculture, Sensor & HMI Technologies for the Off-Highway Industry.

Please submit your topic to:
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Product Manager International Business
Agricultural Engineering
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Email: georgiou-smith@vdi.de

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Register online!
www.vdi-international.com/12K0100023



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