

DE

Delphy

Magazine | 2024/25

Worldwide Expertise for Food & Flowers

**SPEAKING:
EXPERTS &
GROWERS**

**WE MAKE GROWERS BETTER:
DELPHY AS
A PARTNER**

**RESEARCH & PROJECTS:
THE IMPACT OF
DELPHY**



THE IMPACT OF PRACTICAL RESEARCH

PREFACE JACCO VAN DER WEKKEN

DE Delphy

Dear reader,



At Delphy, everything is about developing, sharing and applying knowledge with impact to clients. We are proud to play a leading role in this and to offer added value to the plant sectors, both nationally and internationally. Our experts provide expertise on food and ornamental crops worldwide, with the ambition:

We Make Growers Better.

The five pillars of Delphy

Our approach is based on five solid pillars: advice, research, projects, training, and data-driven crop management. In this edition, we take you into the world of research conducted by Delphy.

From practice to practice

We conduct research on climate-resilient cropping systems, digitization, and resilient cultivation. Our clients are diverse: growers, the supply industry, and governments. This research takes place at various locations, ranging from our own research centers in Horst, Bleiswijk, Hazerswoude, Randwijk, and Lisse to practical farms. The questions we investigate arise directly from practice, and our mission is to quickly and effectively apply the acquired knowledge back into that same practice. This way, we continue to fuel the innovation power of our sectors.

Independence and professionalism

At Delphy, we stand for independence, entrepreneurship, trust, and responsibility. Our professionals: advisors, researchers, trainers, project leaders, and crop engineers are engaged, reliable, and knowledgeable. They take responsibility in the interest of our partners while retaining freedom thanks to Delphy's independent position.

Knowledge development and growth

Our employees form the heart, culture, and strength of our company. Through continuous competence and knowledge development, they daily fulfill our ambition. And for new colleagues, we have successfully established the Delphy Academy to support their personal, expertise, and professional development.

Finally

In this edition of De Delphy, growers, researchers, and important stakeholders share their experiences and insights about our research and its impact in practice. Corporate information is available at the heart of the magazine. We hope you get to know our wonderful company even better. Enjoy reading! For any feedback, please send an email to info@delphy.nl.

Jacco van der Wekken, C.E.O. Delphy

Green Guide App

Delphy's "Green Guide App" is an innovative tool that helps growers make informed choices about green crop protection products and biostimulants.

This app offers

- **comprehensive information about the products and application possibilities**
- **independent reviews**

These reviews are based on product descriptions, independent research and practical experience. This enables growers to make better informed decisions.

Added value

The added value for growers lies in making easily and uniform access to essential information. This contributes to healthy, successful and sustainable cultivation.

Growers and advisers can thus easily separate the wheat from the chaff.

The app distinguishes between the sectors: strawberry, arable farming, flower bulbs tree nursery, big fruit, woody berries and field vegetables.

Information and ordering

For more information or questions, interested parties can contact us via

digital@delphy.nl or

delphy.nl/en/delphy-launches-green-guide-app/. Here you can also purchase the app.



Colophon

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'DE Delphy' offers an insight into our role and significance for the vegetable sectors in the Netherlands and internationally. Knowledge development and knowledge implementation are our keywords.

Delphy develops knowledge through practical research (often at its own trial locations), by developing digital systems for crop management and by carrying out innovative projects. Delphy implements knowledge by advising, training and guiding partners and entrepreneurs and by organizing networks (study groups, demo days, fairs).

We Make Growers Better!

Visit www.delphy.nl for more information.

Search for sustainable treatment methods

Like their peers, dahlia growers have to deal with a shrinking range of chemical crop protection products. The future of the product to combat the Northern root knot nematode is also uncertain. Together with the Flower Bulbs expert team, they look for alternative solutions.



The northern root knot nematode *Meloidogyne hapla* can cause growth retardation, yield reduction, damage to the roots and tuber fingers. "Do you see those knobby thickenings on the thin roots? That's where the females live with their eggs," explains Delphy researcher **Malu Steenwijk**. "These tubers are therefore no longer allowed to be exported. A significant amount of damage."

Challenge

To prevent contamination, growers try to start on a clean plot every year. "Unfortunately, this is not always sufficient and corrections must still be made," Malu continues. The use of chemical nematocides is currently still permitted, but with a view to sustainability, green methods will be preferred in the future. At the request of the dahlia growers, Malu is therefore testing various green treatment methods. "The objective is of course to find a method with which growers can suppress or prevent damage." An initial screening in 2022 yielded hopeful results from treatments with both compost and chitin. Based on those results, a two-year study was approved.

Testing ground Lisse

Home base for Delphy's Flower Bulbs team.

This one-hectare trial location is located in the middle of the 'Dune and Bulb Region'.

Since 2018, practice-based research has been taking place here with biostimulants, green manures and crop protection products in dahlia, tulip and lily, among others. The climate chamber is used for hot-firing tests in tulip, Allium, Gladiolus nanus, lily, daffodil and Muscari.



**ARNOLD VAN DER LINDEN, DAHLIA GROWER
IN HILLEGOM:**

"Changes are happening too fast to solve on your own"

Arnold van der Linden appreciates the practice-oriented-ness of Delphy's researchers. *"You notice in everything that there is a lot of knowledge there. And more importantly, they also know well what is going on at our companies. As a result, they succeed in effectively translating the challenges we face in practice into tests. Because what good is knowledge if you can't apply it?" Collaboration only bears fruit if you trust each other, Arnold continues. "Just stand next to it. Root knot nematodes are a serious pest for dahlia growers. We only dare to stop using chemistry if there is a good replacement. And preferably in a form that we can apply successfully. Delphy guides us in that search."*

"I find it quite surprising that compost now gives such good results. Almost too good to be true. All kinds of new questions immediately arise in my mind. For example, how does sandy soil with a different humus content respond to such a treatment? Fortunately, as a person involved you can always contact us easily, for example by calling us. This way you keep the conversation open and the working method transparent."

Experimental design

In the spring of 2023, the researcher planted a total of twenty test plots with dahlias. She compared five treatments and repeated each treatment four times. "Of course we opted for compost and chitin again, this time with a combined use of both resources." Through soil analyzes and qualification of tuber damage, Malu hoped to gain more insight into the effects of these methods compared to the chemically controlled and untreated test sections. "We will do the test again this year to draw good, representative and reliable conclusions."

For the growers

Dahlia growers are eager for more knowledge, according to the researcher. "There are so many green products on the market that have a supposed effect on pests and diseases. We create order in that chaos by independently assessing it." When the test tubers are harvested in October 2024, Malu hopes to share information that growers can use in concrete terms. "Because that is ultimately what the research is intended for." ✨



WOUT RADEMAKER, CONIFER GROWER IN WADDINXVEEN:

“Learning through comparison”

Wout Rademaker’s conifer company sells starting material to domestic and foreign growers. *“We aim to deliver a robust and resilient crop that meets all applicable standards. And sometimes, that requires innovations.”* These innovations are investigated by Delphy with a fixed group of conifer growers behind closed doors.

“Every test is a learning opportunity. You know what’s great? At the research nursery, you can compare. You can’t do that on your own farm. There, you might apply one spray and that’s it. At Delphy, all those trial plots with different treatments are neatly arranged side by side. Then you can see with your own eyes what the effects are. And you discuss what you see with colleagues and advisors. That’s where the real learning happens.”

Sometimes, acquired knowledge results in new applications on their own farm. *“Thanks to the trials, for example, we’ve incorporated new products into our weed control practices. Additionally, I’m very interested in using existing products as effectively as possible. For instance, we’re exploring whether we can achieve the same results with fewer chemicals. Together with researchers and advisors, we devise such tests.”*

“Delphy conducts the experiments, and we observe. With the experiences gained, we can make our cultivation more sustainable and continue to deliver the quality our customers expect from us, despite having a narrower range of crop protection products.”

A back and forth with the conifer growers

The demands placed by customers on nursery products are often stricter than the legal regulations. This compels conifer growers to continually research new methods and treatments. For over eight years, they have utilized the expertise and facilities of the Tree Cultivation and Perennials expert team.

It might sound obvious, but Delphy researcher **Johan van den Broek** gladly reiterates: "Strength lies in unity." Based on this conviction, a collective of seven conifer growers annually funds a series of experiments in Hazerswoude-Dorp. With the information obtained, they consistently strengthen their market position. Johan cherishes the trust-based relationship that has developed. "Each project is a new collaboration between growers, Delphy researcher, and advisor."

Challenge

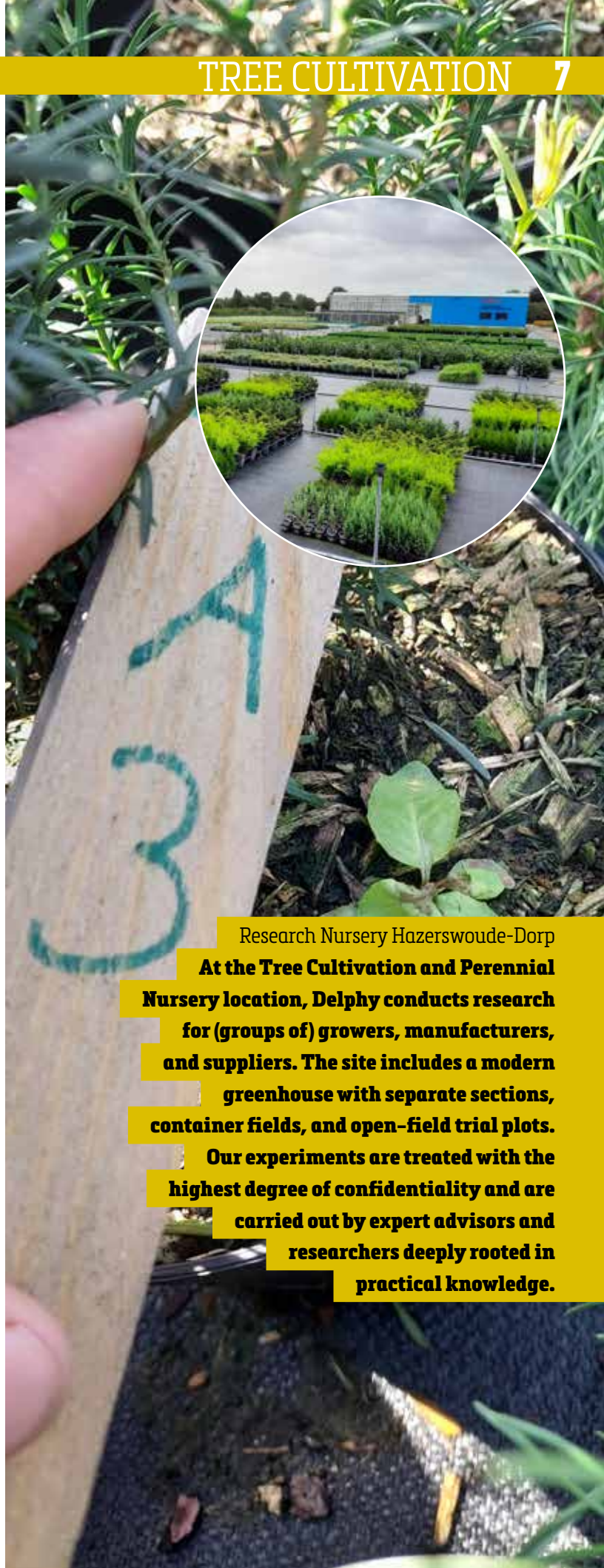
The experiments follow a fixed setup, the researcher continues. "We discuss with the growers about the right research question, depending on the challenges they face. Then, we gather different pot sizes and varieties. This also creates a good reflection of reality." The same applies to the outcomes. The growers themselves select what is applicable to their situation. Johan calls it 'ready-to-implement advice.'

Experimental setup

He points out the small crane plots that allow tailored management. "This ensures nothing gets lost in the crowd; each experiment receives the attention it deserves." Such efforts would be impossible on their own farms. They don't have the time or resources for all that 'hassle.' Now, the effort is limited to a few inspection moments during the growing season. Johan considers these encounters crucial. "And always educational. Because growers are just as passionate about their craft as we are."

For the growers

'Learning from each other' is perhaps as important a part of the project as the outcomes themselves. "This sector faces a lot of competition, and companies are therefore quite closed off. The collaboration in Hazerswoude-Dorp provides participants with a 'safe' environment to exchange experiences." In March, Delphy researchers will begin new experiments for a study on organic fertilization. ✨



Research Nursery Hazerswoude-Dorp
At the Tree Cultivation and Perennial Nursery location, Delphy conducts research for (groups of) growers, manufacturers, and suppliers. The site includes a modern greenhouse with separate sections, container fields, and open-field trial plots. Our experiments are treated with the highest degree of confidentiality and are carried out by expert advisors and researchers deeply rooted in practical knowledge.



At the start of the tree nursery project 'wAardewerk'

Project leader Milan Franssen: "Showing courage and involving partners"

It is a hectic period for Milan Franssen. Financially and organizationally, 'his' new TKI project is ready to start. Only a few administrative details need to be finalized. The preparation phase is more intensive than usual this time, acknowledges the young project manager. Because Delphy is not only a participant but also an initiator.



Milan Franssen's Profile

Position: **Project Leader at Delphy**

Location: **Netherlands and Europe**

Education: **Bachelor's degree from HAS Venlo followed by two Master's degrees at Wageningen University & Research (WUR)**

Expertise: **Open horticultural crops, soft fruits, nutrients, soil, and fertilization.**

A research is successful when:

'All stakeholders understand each other's expectations and can utilize their expertise optimally.'

With a test location in the heart of the Boskooops tree nursery area, Delphy is heavily involved with regional growers. Our advisors pick up urgent and more dormant practical problems on a daily basis. The 'wAardewerk' (which translates to 'worth/earthwork') project integrates some of these challenges. The research goal is threefold. The team will search for more circular components for supplementary soils, will subsequently test the different fertilization needs, and finally translate all developed knowledge into concrete, actionable tools. Duration from 2024 to early 2028.

Why this research?

"By proactively responding to regional and national developments, we want to secure the license-to-produce of tree nurseries." An important theme in future-oriented production concerns the use of supplementary soils. These soil-bound substrates are often mixes of peat and raw materials such as compost and sand for depletion. Since peat has a significant environmental impact, we are looking for more sustainable alternatives. We link this quest to an update of the current fertilization advice. The current guidelines date back to the 1980s and have limited consideration for leaching and mineralization. Rijnland has determined that twenty percent of phosphates measured in surface water in Boskoop and surroundings originate from tree nurseries. It's commendable for the sector to take responsibility and limit leaching. Because how much fertilizer does

the crop - even when using the new supplementary soils - actually need? How far can we deplete? While maintaining the desired profitability, of course. At the same time, we are exploring opportunities to actively recover phosphate from surface water. "For an even greater, positive impact."

What are you working on now?

"With this project, we show courage." As the main knowledge partner of the growers, we initiate the research and associated financial and collaborative structures. That entails a lot of paperwork. For example, with 'wAardewerk', two knowledge institutions and 11 (chain) organizations are involved. You have to get them all on the same page. "To keep my head cool, I rely a lot on colleagues who have been playing this game a bit longer."

What are you looking forward to?

"The beauty of my role as project leader is that I get to think and talk about everything." Not jumping to conclusions too quickly, but rather asking new questions. And dropping far-reaching ideas based on interim results. There is so much expertise involved in this project; I love brainstorming with all those partners. And luckily, there are always our advisors to assess the feasibility of those ideas. "They keep such a project grounded." ❖

Leading the way with everbearers

Year-round production of the tastiest strawberries. Future music? Not if the researchers at ISFC Soft Fruit have their way. Together with partners, they unravel the secrets of everbearing varieties and develop corresponding cultivation strategies.



THWAN VAN GENNIP, GROWER AND PLANT NURSERY OWNER IN LIEROP:

"We Like to Stay Ahead with Innovations"

Thwan van Gennip gains a lot of knowledge from the research location in Horst. *"They do what we cannot: thoroughly test new varieties under varying conditions for an extended period." The soft fruit and tray plant nursery owner tries to schedule a visit every three to four weeks. "Purely to stay informed."*

The company has seen the sales of everbearer plants explode in the last five years. *"From ten to at least sixty percent. A tremendous amount of varieties has been added. And to advise our customers as best as possible, we want to know everything about them. Much of that information comes from Delphy."*

"They compare newcomers with existing varieties and measure aspects like fruit size, earliness, shelf life, and yield. And because they approach it independently, the reliability of the data is high. They are also leading in cultivation. Our cultivation managers gladly learn from their expertise. You have to learn to cultivate everbearers, and by now, we're doing quite well. But you never stop learning, which is why we keep a close eye on further developments."

Most Dutch strawberry farms work with June-bearing varieties. Productive strains that we can cultivate well, but with a significant drawback: “They have a relatively long lead-up time to harvest, followed by one large peak in production,” explains Delphy researcher **Pim Kleeven**.


Challenge

This short harvest period puts entrepreneurs in a tight spot. It’s increasingly difficult to find enough personnel for this labor-intensive period. Thus, the sector is eagerly looking into everbearers. Pim says, “These varieties offer opportunities to better spread production and therefore labor.” A longer harvest period will also increase energy efficiency. “Growers only need to heat and/or light a vegetative crop once a year.” Plenty of benefits. However, the sector is cautious. “Because physiologically, everbearers differ significantly from June-bearers,” continues the researcher. “And therefore, cultivation must also be approached differently. We develop and test these new methods here at Delphy ISFC in Horst. From propagation to harvest.”

Experimental Setup

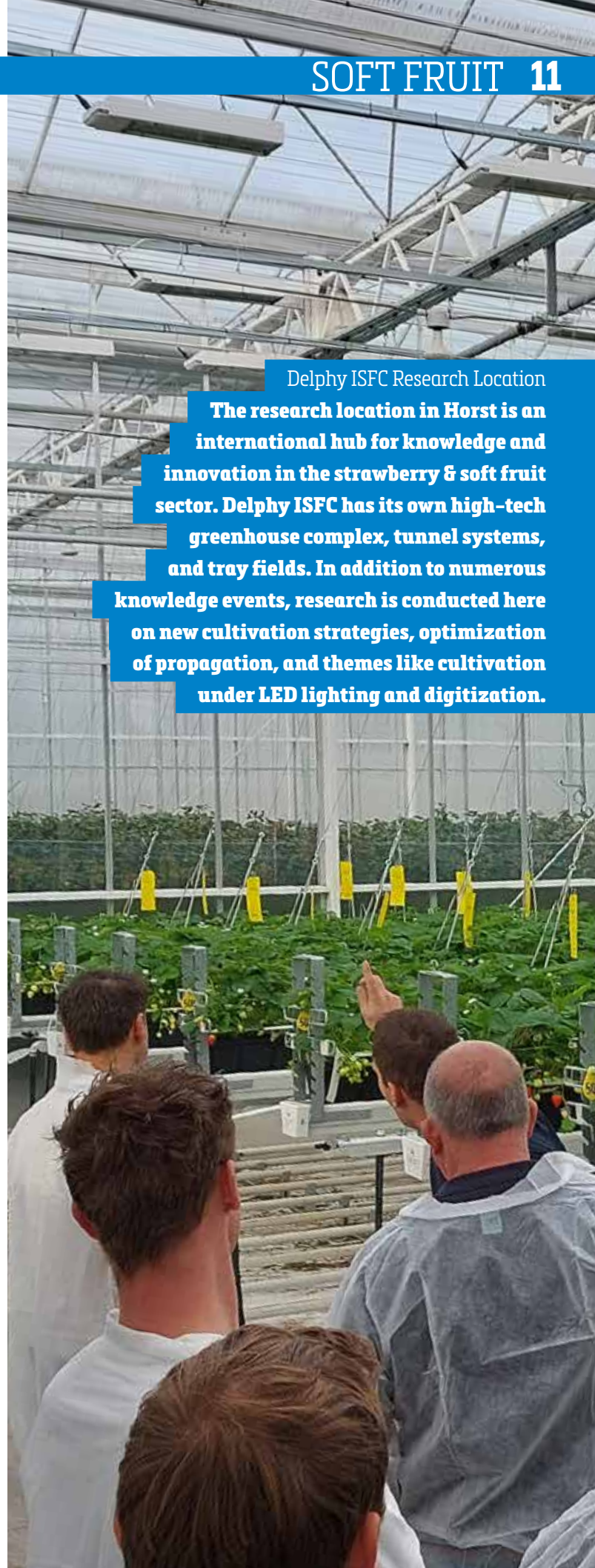
A large project with everbearers has been running since 2023. Two unlighted crops and one lighted crop under LED lighting. “In these trials, we also test new varieties to see which are suitable for a specific cultivation concept.” Until July 2024, there’s a continuous cropping trial where there will be long-term harvests in two controlled peaks in fall and spring. “In another section, we’re testing fresh everbearers that will be in production from March to November.” For the lighted winter crop, researchers have dimmable LEDs and a dynamic spectrum. “More and more growers are considering lighting, and with this knowledge, they can make well-founded decisions in the long run.”

For the Growers

The researcher hosts weekly groups and discusses progress with stakeholders. “We measure parameters like sugar content of the strawberries and count the new flowers on each plant. By continuously monitoring and discussing, we can adjust cultivation where necessary.” By stacking all research results, it’s becoming increasingly possible to maintain balance with everbearers. And that’s the basis for a flat harvest pattern, emphasizes Pim. 

Delphy ISFC Research Location

The research location in Horst is an international hub for knowledge and innovation in the strawberry & soft fruit sector. Delphy ISFC has its own high-tech greenhouse complex, tunnel systems, and tray fields. In addition to numerous knowledge events, research is conducted here on new cultivation strategies, optimization of propagation, and themes like cultivation under LED lighting and digitization.



RON MULDER, CHAIRMAN OF THE DUTCH FRUIT GROWERS ORGANIZATION (NFO):

“Helping Each Other to Improve”

Ron Mulders advocates for more unity in the fruit sector. A situation where growers, organizations, and companies formulate a sustainable vision together and actually validate it. It’s the task of researchers to make the intermediate process concrete. “Tell us how we can safely get from point A to point B.”

The NFO is celebrating its anniversary. For 125 years, it has been representing the interests of fruit growers in the Netherlands. Always with the goal of building a strong, profitable sector ready for the future. And that future demands a lot from its members. “We’re moving towards productions with fewer chemicals and paying more attention to water quality,” summarizes Mulders the main challenges.

Proactive Approach

Changes follow a strong desire from society. “If society wants more sustainability, we must realize that,” says the chairman. “Otherwise, we’ll lose our license to produce.” He advocates for a proactive approach. “In my opinion, we’re often still too reactive. The government introduces a rule or proposal, and we work hard to make it feasible. I think it’s better for growers to take control them-

selves; to lead the way. How? By collectively thinking about what sustainability means for fruit farms and what is needed to reach that goal.”

Orchard of the Future

Such an approach requires collaboration, a shared vision. Mulders therefore calls for everyone to come together. “I’d prefer to see education, research, lobbying, and growers’ parties sitting together at a table with a blank sheet of paper. Everyone gets a pencil, and then we start brainstorming: the orchard of the future! How do we design it so that diseases and pests don’t stand a chance? Perhaps more diverse crops on smaller plots with hedges or hedgerows in between. In the coming period, we need to discover where the opportunities lie. Ultimately, it’s about the big picture. We won’t succeed if we only replace method one with method two.



‘A menu of proven possibilities.’



'What we have in mind is being researched in the trial'

We must dare to look further, create a 'new normal', and work towards it."

Giving More Than Taking

To make this approach succeed, the chairman emphasizes the importance of utilizing and respecting each other's expertise. "Currently, knowledge is fragmented; we need to consolidate it more. And not talk over each other, but listen carefully. Only then can we set a goal that everyone supports."

Mulders refers to the book 'Net Positive'. It discusses the idea that entrepreneurs perform better when they give more than they take. "I find that an inspiring way of thinking. So, sacrificing a bit on production and quality, and then compensating with added value for nature, water, and landscape. Ultimately, a net gain. If we can achieve that while maintaining profitability, we'll be an example for the rest of the world."

Proeftuin Randwijk

A grand ambition for which the groundwork has already been laid. "Proeftuin Randwijk is a good example of what collaboration can look like. An innovative place where everything we have in mind can be researched. Naturally, Delphy plays a crucial role there. They are the indispensable link between desire and execution. Because not only do they test and develop the necessary tools, they also come to the farm in their advisory role. Ideally, with a sort of menu of proven possibilities from which the grower can choose. What concrete steps can he or she take to reach the agreed goal?"

Learning and Developing

Unfortunately, we are not there yet. Mulders foresees a challenging decade of discussion and research first. Of learning and developing. "We're in the design phase; only then can we start building. Our task: as a sector, take the lead and keep it." ↴

Tomato Towards Fossil-Free

Tomato is the world's largest fruit vegetable crop. And when it comes to greenhouse cultivation, the Netherlands is definitely a frontrunner. If we want to maintain that position, innovation and research are essential. Therefore, together with the Greenhouse Vegetables expert team, growers are keeping the momentum going: moving towards a fossil-free future.



CEES MAAN, CULTIVATION MANAGER AT LANS, DE LIER BRANCH:
"Researchers Assess Risks"

By continuously investing and innovating in new products, new techniques, and new markets, Lans has developed into one of the most modern tomato nurseries in the Netherlands. The company is closely involved in Delphy's projects. **"We learn from them, and they learn from us," says Cees Maan.**

Cees knows better than anyone that lighting solutions affect the greenhouse climate. **"Over the years, we've grown with all types of lamps and combinations thereof. And each time, we had to learn to deal with the new conditions. We can and we do. But not before the biggest risks have been assessed."**

"Even with LED. We feel that the plants transpire less under these lamps. The big question is: is that negative or not? It's up to researchers to delve deeper into this issue. The Improvement Centre is well-equipped for that. They can test things on a small scale and push boundaries. Those boundaries are crucial for us. When working out our own cultivation strategy, we then know exactly what to look out for."

"There's always something to see and learn at Delphy. And I have plenty of ideas myself. Together, we elevate tomato cultivation to a higher level."

Delphy Improvement Centre
Our high-tech research location in Bleiswijk includes 24 greenhouse sections, 2 climate chambers, and 2 growth chambers. Here, research and knowledge development take place in the following areas:

- Crop & cultivation optimization
- LED lighting & light spectrum
- Energy saving & greenhouse climate
- Digitization & sensor technology
- Plant health & resilient cultivation
- Variety research & demonstration

The deadlines are clear. By 2030, greenhouse horticulture must have halved its CO₂ emissions, and by 2040, it must be entirely climate-neutral and economically viable. "To achieve those goals, energy consumption must be drastically reduced," Delphy researcher **Stijn Jochems** articulates the challenge facing the sector. With the introduction of LED lighting, a significant step has already been taken.

Challenge

These highly efficient lamps allow growers to save significantly on electricity. It also turns out to be a good tool for managing plants and thus production. However, the LED story also has a 'tail', Stijn continues. "Compared to conventional lamps (SON-T), a completely different greenhouse climate is created, and the crop reacts to that." Since 2015, the research team has been quantifying the effects of LED and other energy-saving techniques on growth conditions. "A significant challenge is learning to cultivate with less heat. Every year, our knowledge grows, and new questions arise."

Experimental Setup

The Improvement Centre in Bleiswijk is the designated trial location for the series of experiments. "We have the facilities to meticulously monitor and control a cultivation, while also mapping out crop reactions." Stijn mentions, among other things, the screen installations that isolate the greenhouse section and dehumidification devices that provide extra tools to improve the climate and reduce energy consumption. "We're now able to establish a energy-efficient and highly productive cultivation with full LED. But perhaps it can be even more efficient. Therefore, last year, we experimented with dimmable lamps. In that trial, we focused on achieving the best kilogram yield per energy unit."

For the Growers

Throughout the entire project, Stijn keeps the growers informed. Blogs, newsletters, tours, and lectures; the interest is significant. Understandably, as the deadlines are approaching rapidly. "Before growers make large-scale investments, they want to see the techniques proven first. Especially regarding integration into the complete cultivation strategy. That can be done here, under practical conditions." ✨

An apple without damage

Lumpy leaves with brown spots and apples with crusted, corked cells. Every fruit grower recognizes this damage pattern. "Scab is perhaps the most important fungal disease in apples," says Sarah Kemp of the Fruit Cultivation expert team. At the Randwijk testing ground, she is researching new methods and means to combat scab together with partners.

For years, preventing and combating scab has been a top priority for apple growers. Because if there's scab on the apples, it directly affects the yield. Chemical fungicides have been effective, but some are soon up for reevaluation. "And that could potentially lead to severe restrictions," Delphy researcher **Sarah Kemp** suspects.

The challenge

To prepare for the future, a search for alternatives started in 2022. For this task, Delphy collaborates with Fruitconsult and the Central Fruit Growing Advisory Service (CAF). "Ultimately, we hope to find a method of control that is as effective as traditional means, but with a lower environmental impact." The project team focuses on existing products, so that growers can start using

them immediately. "For example, we experiment with biological agents and treatments with which little experience has been gained. We also add additives such as wetting agents to sulfur to increase efficiency. And then just look and compare."

Experimental design

A total of 14 objects were compared in 2023. Each object was repeated four times in plots of six trees (Jonagold variety). "In a normal orchard that would be impossible. We have the right equipment and enough people here. For example, our orchard sprayer can carry eight different solutions in one go. Then you don't have to drive separately for each treatment." Sarah and the researchers at Fruitconsult carefully scout the trees for leaf and



Testing ground Randwijk

'Proeftuin Randwijk' is a partnership of the Central Fruit Growing Advisory Service (CAF), Delphy, Fruitconsult, the Dutch Fruit Growers Organization (NFO) and Wageningen University & Research (WUR).

This partnership makes the Gelderland test location the central place in the Netherlands where independent research and practice-oriented tests and demos take place for integrated and organic fruit cultivation.

Themes are: sustainable fruit cultivation, modern fruit varieties and rootstocks, efficient production methods and innovative technology.

fruit damage. The conclusions so far? "There is less damage than with untreated trees, but still more than with traditional products. We won't give up!"

For the growers

To increase the reliability of the results, the project will be continued for the time being. "No year is the same in fruit growing," Sarah continues. "Just think of temperature and rainfall alone. These are matters that we have no control over, but which do influence the development of apple scab and the effectiveness of remedies. "Our research is therefore always about long-term thinking." 🌱





Researcher Johan Wander: "I have always been curious"

In the midst of practical research for grass seed and turfgrass cultivation

Soon he'll be retiring, and Johan Wander won't be able to fully complete the grass seed research that started in 2022. That will be for his successor. However, after 41 years of knowledge development, his legacy for agriculture is certainly not diminished. Proud!

Densed soil, after winter 21/22



Situation soil after mechanical weed control



Johan Wander's Profile

Position: **Researcher at Delphy**

Location: **All of the Netherlands**

Education: **HAS Dordrecht, Plant Cultivation program**

Expertise: **Grass seed, seed potatoes, coarse carrots, cover crops, spraying technique, and field runoff**

A research is successful when:

"We can offer growers a workable solution to a problem."

The project 'Nurture grass seed cultivation in your crop rotation' will continue until 2026. Over four years, a collaboration between Proefboerderij Rusthoeve, CLM, the independent Working Group Grass Seeds and Turfgrass, and Delphy will explore the possibilities for sustainable grass seed cultivation. The team focuses on five aspects: mechanical weed control, organic fertilization, climate, biodiversity, and profitability.

Why this research?

"In the Netherlands, grass seed cultivation only takes place on a contract basis. Buyers prefer a pure product, so seed of a specific variety without contamination from weeds or other grasses. Considering changing circumstances, this objective demands a more sustainable cultivation approach. The use of fertilizers and conventional pesticides, for example, is under pressure. We test and compare alternatives. At the same time, we investigate the ecological contribution that grass seed plays and can play in a cultivation plan. Consider CO₂ sequestration, shelter for flora and fauna, and combinations with field margin management. And especially what financial benefits can improve the commercial balance."

What are you currently working on?

"Since spring 2022, we have been conducting trials with mechanical weed control. On two fields of English ryegrass at our Zeeland trial location, we are testing modern roller-cultivators, a harrow, and hoe. The machines loosen the soil and remove unwanted plants. The good grasses, especially in perennial grassland, have stronger roots and therefore remain upright. I see potential. And challenges. For carrying out this method, you are highly dependent on soil conditions. Especially in spring, the soil is often too wet or compacted to work well with machines. So if the timing is right and the conditions are good, my colleague Dominique will even get on the tractor herself if necessary. Not me, no, you don't have to be able to do everything."

What will you miss?

"I have been working in arable farming since I was a teenager, and precisely because I am also very curious, the research role at Delphy suited me perfectly. So yes, I will miss the crops and technology. But also my network contacts. Our research team and advisors work closely with growers and representatives of the business community. Their involvement in solving problems is significant, and I find that beautiful." ❖

Robust potato of the future

Potatoes are a valuable crop for arable farmers, especially in the southwest of the Netherlands. In order to give this crop a 'robust' place in the crop plan in the future, the Arable Farming expert team is investigating options for a more sustainable use of raw materials. Including more efficient use of nitrogen and freshwater.



The market for potatoes remains as large as ever. In fact, Delphy researcher **Dominique Cammaert** expects demand to rise even further in the coming years. An excellent opportunity for this innovative sector. "But not an easy one." She refers to changing circumstances as a result of climate and social developments.

Challenge

By dividing major issues into smaller sub-projects, the researchers work on manageable solutions. For example, together with the Rusthoeve experimental farm, Dominique is now experimenting with drip irrigation and nitrogen utilization. "Water is becoming scarcer. By only moistening the plant base, you prevent a lot of loss through evaporation and runoff. The efficiency of your donation therefore improves." The same challenge applies to nitrogen, she



Rusthoeve experimental farm

This company is located in Colijnsplaat in Zeeland, the Netherlands and is one of the five Delphy Arable Farming research locations in the Netherlands where Delphy conducts research.

Soil type and soil conditions are especially suitable for onion and potato cultivation. The themes that are currently receiving a lot of attention at Rusthoeve are soil fertility, water, biobased economy and emission reduction.

continues. "Nutrients that are not absorbed by the plant go into the surface water. That is undesirable and we want to prevent it as much as possible." In the current project she tries to link both subjects.

Experimental design

"We do this by dosing nitrogen in different ways on eight objects with the same drip irrigation. We spread the fertilizer loose as granules and dissolve it in water (fertigation). In addition, we also vary the amount of nitrogen." The first cultivation round has now been completed and the results have been shared. For example, visitors to the potato field days heard that the objects where 70% and 100% nitrogen had been spread had an equal yield. "The fertigation method also appears to work well," adds Dominique. "We saw few

differences with the conventionally fertilized test sections."

For the growers

The tests are repeated. With the same design and an extra variety. "Every year the growing conditions are different. So you will have to collect a lot of results before you can draw a reliable conclusion." Dominique notices a great commitment from arable farmers. "Especially among seed potato growers. They already use drip irrigation sparingly because it increases the production of tubers. And if they can also reduce their nitrogen input with fertigation, yes, that would be a double win." ✨

ANDRÉ HOOGENDIJK,
DIRECTOR OF BRANCHE ORGANISATION ARABLE FARMING:

“For now and in the future”

The world is changing rapidly and arable farming is changing along with it. André Hoogendijk points out both challenges and opportunities for all links in the chain. “It is up to us as a sector to ensure a positive perspective,” he summarizes the mission of BO Arable Farming. Research & innovation is one of the foundations that must realize this task.



‘Solving urgent problems and bringing opportunities closer’

**'No one wants
a wheelbarrow
full of
thick reports'**

The Branche Organisation is investing a total of 1.5 million euros in research this year. Divided over eight projects, the director continues. "That brings the counter to around seventy ongoing studies in which we are now participating. Each and every one of them responds to questions from practical arable farmers." Hoogendijk mentions, among other things, the quality and availability of water, the smaller package of permitted chemical crop protection products and climate change.

Mix of urgency and long term

'Big' topics that are, on the one hand, very urgent and challenge practical short-term solutions. At the same time, these are multi-year developments, often motivated by social wishes. Hoogendijk sees an important role for arable farmers in matters such as circularity, green energy and an attractive landscape. "We think there is an opportunity in such a task. And to make the most of that opportunity, a long-term approach is needed in which all links are involved."

Strong together

That is exactly the strength of his organization. After all, breeding, cultivation, trade and processing are united in BO Arable Farming. "This allows us to bundle knowledge and tackle collective issues integrally." Additional advantage: the business community involved helps finance research. And if the government also steps in, the budget can be multiplied. "For every euro that arable farmers contribute through their contributions, four euros worth of research is carried out. A good deal, I think."

Arable farmers at the helm

Despite the variety of parties and possible (sub)topics, the focus is always on arable farmers. They must be able to implement the results in practice and continue to earn a living. "Every now and then we ask growers what they need in terms of research and knowledge dissemination.

Hundreds of ideas then come in, ripe and green. After an internal test for usefulness and necessity, we ask specific questions to knowledge institutions such as Delphy. They make project proposals that are then considered by a digital panel of arable farmers. We will then start working on the best-scoring projects."

Enough to do

Apart from new research, there are always projects that are extended or have a follow-up. "Sometimes a task is so extensive and complex that we can only realize an ambition step by step." Hoogendijk mentions climate adaptation as an example. "Periods of extreme drought or a lot of precipitation in a short time. Every arable farmer has to deal with it. But climate adaptation also includes issues such as salinization and poor soil quality. This therefore requires several lines of research. By conducting tests with water-saving techniques and sustainable soil management, we hope to develop instruments with which arable farmers can manage the risks. Now and in the future."

Reliable Partner

Problems are meant to be solved. In that process, Delphy has long been regarded as a reliable partner. "Regarding research & innovation, we consider connection with practice very important. Delphy shares that vision. Arable farmers are well aware that research is necessary, but they are not interested in a wheelbarrow full of thick reports. Through tailored advice and information sessions, Delphy's advisors make knowledge directly applicable. That's why Delphy is also a partner of our Sustainable Practice Network for Arable Farming. Nationally, there are about twenty groups of arable farmers who regularly come together to exchange knowledge and experiences in an accessible manner. Delphy's advisors are always willing to give a demonstration or a presentation. Their commitment is commendable." ✨

Reducing Energy Input for Pot Plants

A Kalanchoe in every living room. For years, this potted plant has been a favorite mood enhancer. Consequently, its cultivation has reached a high level. To ensure a sufficient supply of quality plants in the future, adjustments are necessary regarding energy and chemical usage. With the growers' assistance, the Ornamental Horticulture expert team developed a demonstration trial.



ANDRÉ LANKHAAR, KALANCHOËTELER IN BLEISWIJK:

“Black-and-white evidence if something works or not”

André Lankhaar's Kalanchoe company is on the same road as the Delphy Improvement Centre. *“If there's a trial, I often stop by. For practical support but also out of curiosity. How are the plants doing? Because cultivating with less energy is really different. Together, we try to determine the best strategy.”*

“My experience is that research at Delphy always serves a purpose. It's conducted independently, and the results are well-documented. Thus, you have black-and-white proof if something works or not. And we need this data to further professionalize the sector. Currently, many growers rely on intuition. That makes it difficult to change. With concrete, practice-oriented information, it's easier. We need that knowledge to 'build'.”



Producing a good Kalanchoe requires warmth. Additionally, the potted plant strongly responds to light, blooming only with the right amount. Particularly in winter months, these characteristics demand precise control. Yes, in a greenhouse, such a climate can be achieved excellently, explains Delphy researcher **Bas Oudshoorn**. "However, this requires significant energy input." Considering a fossil-free future, this needs to decrease.

Challenge

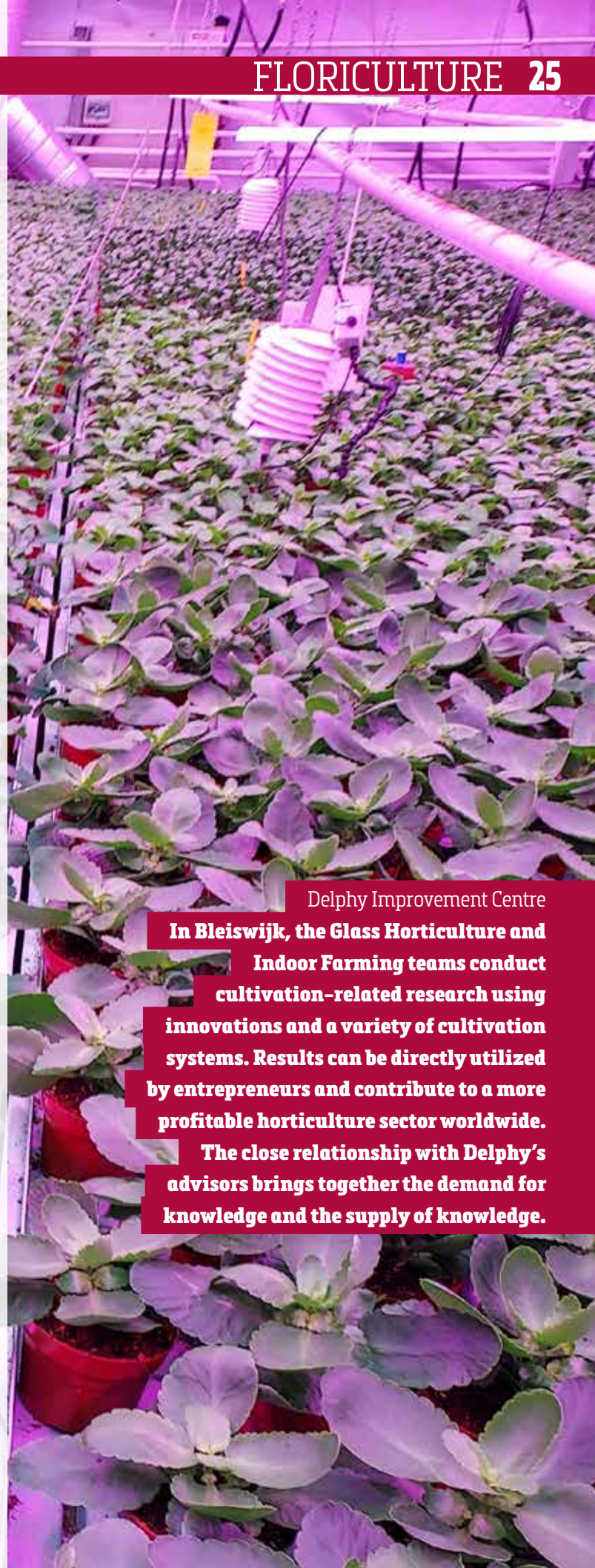
And that's easier said than done, Bas continues. "The current system is set for an average daily temperature of about twenty degrees. Lowering the heating disturbs the greenhouse's equilibrium." The same applies to LED lights. "While LEDs can save a lot of electricity, they lack the radiant heat of the original lighting." It's up to researchers to develop a new, workable strategy. "We have the facilities, and the growers have the crop experience. So, it makes sense to collaborate."

Experimental Setup

After gathering additional plant physiology knowledge, a first trial began in September 2023. Thanks to the use of three climate screens and a variable LED installation, the project team significantly reduced heat input and electricity consumption. "At the growers' request, we're also experimenting with a substrate without peat. The standard potting soil remained too moist. So, we're comparing the two. Another point of focus is the use of growth regulators. These products keep the plants compact but need to be used less. We're investigating if LED light could possibly fulfill this function. Here, we can test this without risk." The outcomes will be implemented in the next cultivation cycle.

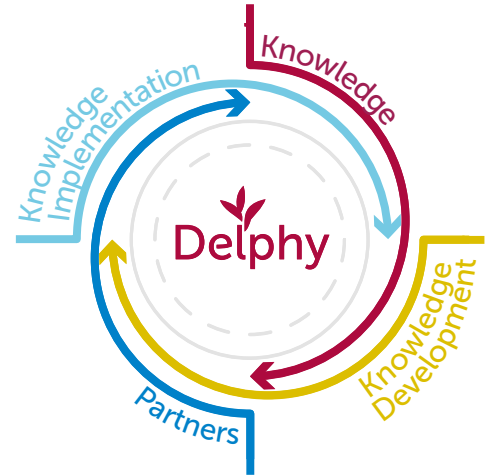
For the Growers

Greenhouse climate is highly complex; all growth factors interact. Finding a new cultivation equilibrium isn't easy. "We tackle this step by step. Every two weeks, the steering committee visits to brainstorm with us. This ensures solutions are widely accepted and practical." ✨



Delphy Improvement Centre
In Bleiswijk, the Glass Horticulture and Indoor Farming teams conduct cultivation-related research using innovations and a variety of cultivation systems. Results can be directly utilized by entrepreneurs and contribute to a more profitable horticulture sector worldwide.
The close relationship with Delphy's advisors brings together the demand for knowledge and the supply of knowledge.

About Delphy



Delphy advises growers, conducts practice-oriented research, is project leader of innovative projects, provides national and international training and develops software for digital cultivation management. In summary: Delphy optimises crop production through knowledge development and knowledge implementation, taking into account location, crop, sustainability and market demand. In this way Delphy contributes to health, food safety, sustainability and the well-being of the people in this world.

Delphy		
Knowledge development	Knowledge implementation	International Subsidiaries
Team Delphy Improvement Centre (Greenhouse Horticulture) Team Delphy ISFC (Soft Fruit) Team Delphy Research Centre Tree Cultivation Team Delphy Research Arable Farming Team Delphy Research Top Fruit Cultivation (Randwijk) Team Delphy Projects and Innovations Team Delphy Research Crop Protection (Aegisto) Team Delphy Research Flower Bulbs	Team Delphy Arable Farming Northeast Netherlands Team Delphy Arable Farming Northwest Netherlands Team Delphy Arable Farming and Field Vegetables Southwest Netherlands Team Delphy Arable Farming and Field Vegetables Southeast Netherlands Team Delphy Soft Fruit Team Delphy Fruit Cultivation Team Delphy Tree Cultivation and Perennials Team Delphy Flower Bulbs Team Delphy Floriculture Team Delphy Greenhouse Vegetables Team Delphy Middle, East and South Africa Team Delphy North and West Africa Team Delphy Kazakhstan Team Delphy Crop Appraisals Team Delphy Delphy Digital	Delphy Poland Delphy United Kingdom Delphy Belgium Horti Advice Scandinavia Delphy South Africa Delphy Kazakhstan Delphy Japan Delphy Egypt

Research Locations Delphy

Delphy Research Centre Tree Cultivation, Hazerswoude, the Netherlands

Delphy Improvement Center Bleiswijk, the Netherlands, Horticulture, Indoor Farming

Research Locations Arable Farming, various locations in the Netherlands, with partners

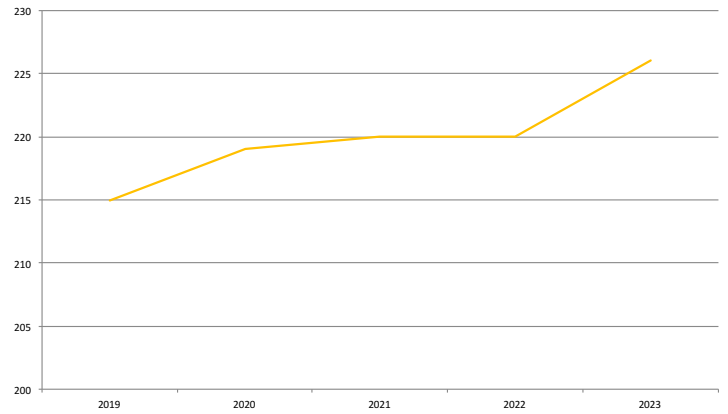
Delphy International Soft Fruit Centre Horst, the Netherlands

Delphy research garden flower bulbs and bulb flowers, Lisse, the Netherlands

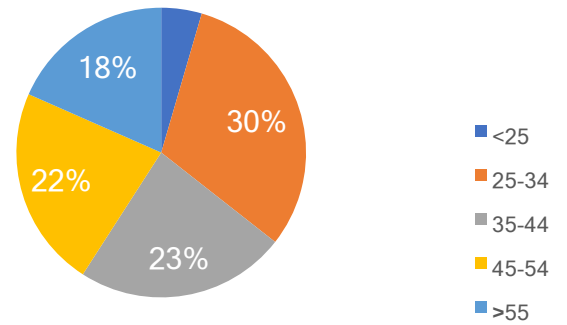
Fruit growing research location Randwijk, the Netherlands

Delphy numbers

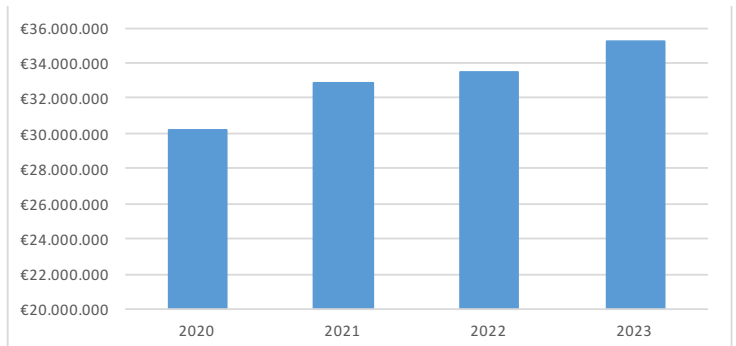
Employees Delphy



Age Distribution Delphy Group



Turnover Delphy



Working at Delphy

Plants and people, that's what it's all about at Delphy. We offer a wide range of functions, spreading across the activities of our company.

A job at Delphy is based on everyone's personal expertise, strength and interests. The coloring of the position is very personal and this growth and flowering is supervised by the Delphy Academy.

What jobs do we offer?

In all vegetable sectors

Consultants provide cultivation, strategic and business advice based on a high level of knowledge. Consultants are an important sparring partner for growers.

- Cultivation expertise (fertilization, crop protection, climate control, digitization, harvest, storage and energy)
- Advice on expansion, crop rotation, takeovers, sales, legislation and regulations
- Development of a broad network in the sector

Researchers conduct research and thus develop knowledge that can be directly applied in practice. Plant and cultivation concepts are central to the research. Working at or from our own research locations.

- Initiating and setting up research projects
- Managing relationships in practice and the public field
- Connecting projects and research calls
- Knowledge sharing of research results with advisors, partners and growers

Cultivation engineers make digital intelligence available to growers through the development and deployment of software for decision and growth models.

- Initiating and supervising the development and deployment of software for decision and growth models for (crop) management.
- Switch between growers, cultivation experts and digital intelligence

Project managers are close to practice and build up an (international) network. Acquiring, writing and managing projects. Workplaces are both in the Netherlands and internationally.

- Building a Dutch (and for European projects also international) network
- Having knowledge and following regulations and openings
- Knowledge transfer (open days, training courses, workshops, live or online)
- The development of agriculture and horticulture in the core countries of Delphy
- Providing cultivation technical training, live and online
- Setting up projects together with Partners

Trainers transfer their crop knowledge to groups, companies or individuals in the Netherlands and internationally.

- Tailor made
- At Delphy research locations or at clients' sites

To strengthen the mutual meeting and the bond, Delphy organizes the annual New Year's meeting, there are team outings and we pay a lot of attention to highlights such as anniversaries.



For current vacancies:
werkenbij.delphy.nl/en/



Delphy Academy

Anyone who starts at Delphy as a consultant, researcher, cultivation engineer or project leader, participates in the Delphy Academy. In this two-year program, employees are guided in their development as experts, professionals and as a person.

Why?

Anyone starting a first or second job already has a lot of knowledge through training or work experience. Yet new colleagues at Delphy do not only need professional competencies. Acquiring customers or projects, collaborating with colleagues and partners, organizing work, managing time and personal development are also important skills and competencies.

'I have become stronger and a better professional. I have been given a foundation that I can use every day. This allows me to present myself more confidently and confidently!'

These are discussed during the Delphy Academy training program. The Academy also has value for experienced colleagues; they get to know the organization better and create a tailor-made development plan with their team manager and the trainer-coach.

How

Learning and development is not just about acquiring new skills, competencies or building on successes. There must also be room to investigate what prevents someone from achieving goals in certain situations. That is why we organize personal coaching and interventions with colleagues. This is where your own dilemmas or issues come to the table. Each candidate is guided by the Delphy Academy coach and his or her manager.

Learning Process

Training and education are useful, but ultimately practice is the best teacher. We learn most from working in practice, watching others and 'copying' and also from the exchange about this. Conversations with colleagues, customers and managers have a great impact on us as people and as professionals. Everyone needs feedback; a different perspective on an issue can be very welcome. The Delphy Academy provides mutual connection, feedback, intervision and is a safe place for personal development and growth.

"I have learned so much about myself. That was sometimes confrontational, but especially helpful because I also received tools to deal with myself and certain situations differently. You are not alone within Delphy, which is very nice."

Three parts of the Delphy Academy



You as an expert *professional development*



You as a professional *competence development*



You as a person *personal development*





INTERNATIONAL KNOWLEDGE EXCHANGE
Tomasz Krasowski, Delphy Poland:

"Delphy is the only knowledge institution I know with its own trial facilities. I implement the practical conclusions daily in my work when assisting clients in improving their crops. Of course, it's not simply a matter of copying and pasting. I always have to consider differences in cultivation methods and conditions between Poland, Romania, Lithuania, and the Netherlands. The basic principles generally remain the same. And in case of questions or doubts, I can always consult our Dutch colleagues. At the same time, we hope to contribute to further research through our participation in discussions on trials and results."



Joe Coetsee, Delphy North and West Africa:

"At Delphy, there is a culture of continuous learning and knowledge sharing among colleagues. Through joint participation in discussions, workshops, and projects, we enrich our understanding of horticulture and stay informed about industry developments. I apply this collaborative approach with my clients as well. Intensive contact is necessary to understand their unique circumstances, challenges, and goals. Then, based on Delphy's latest research findings, I can address specific practical needs, minimize risks, and maximize profits. Tailored advice, therefore. Continuous communication, monitoring, and adjustment ensure that knowledge is effectively integrated into their businesses. For sustainable success and better competitiveness."



INTERNATIONAL KNOWLEDGE EXCHANGE
Herbert Stolker, Delphy South Africa:

"My growers benefit mainly from Delphy's research on climate control and the management of diseases and pests. With the results, they can optimize growing conditions and elevate their cultivation to a higher level. And since we often work with Dutch technology here, it's reasonably straightforward to tailor it to local conditions. This way, the difference between European and African companies is narrowing. The knowledge exchange goes both ways. During the Delphy International Consultancy meetings, it was possible to share knowledge updates with each other. Particularly in the cultivation of peppers, we could make valuable contributions."



INTERNATIONAL KNOWLEDGE EXCHANGE
Akira Saito, Delphy Japan:

"I notice that Dutch technology, recognized worldwide as the most advanced, creates considerable interest among many Japanese growers and related companies. Partly for this reason, Delphy's practical research facilities and the directly applicable knowledge developed there are highly valued. It is our task to translate these new insights into customized advice for Japanese producers. Quite a challenge as our weather conditions, cultivation facilities, and social situations differ significantly from the Netherlands. Therefore, we maintain intensive contact with our Dutch colleagues. Looking to the future, we would like to see the information exchange broadened. The goal is to create a larger network for sharing insights and experiences on a global scale, recognizing the diverse conditions and approaches in different regions. Such a collaborative effort seems essential for the advancement of agricultural practices on a global scale."