

One Step Ahead with Sustainable Agriculture

Agro-Farm GmbH Nauen –
Germany



Bayer
Forward ►►
Farming

Good for generations: Today and tomorrow

"I'm a fourth-generation farmer and I've never done anything else. When I was six, my father gave me my first hoe and I was considered part of the team. Compared with the time that Grandpa Kahle, my great-great-grandfather, ran the farm, the challenges have changed quite dramatically. That's why we need competent partners, in-depth specialist knowledge, and viable concepts to be able to farm in a sustainable and economical manner – both now and in the future.

For example, with renewable energies: on my farm, I grow not only corn, but also fast-growing timber trees, which I harvest. By thinking outside the box and implementing new ideas, we can be successful in the long-term. Climate change and new species of pests are a real challenge for us farmers. On the one hand, we have to be able to provide food for an increasing number of people, yet at the same time, we must not lose sight of the quality of our products. Furthermore, society is becoming increasingly conscious of how its food is produced. Here, we want to have an honest dialog with everyone who is interested in agriculture and nutrition because talking together, listening and understanding promote closeness and awareness.

I believe that a lot of people who might not be involved in agriculture on a daily basis would like to know how modern agriculture functions in practice nowadays. It is especially important for me to reach them and to inform them about my values and methods. That's why I create the opportunity on my farm for people to see what modern agriculture is really like: efficient and sustainable.

Bayer ForwardFarming supports me in farming responsibly and sustainably, and it provides me with very specific solutions. I value the great research expertise, the products, the personal advice and digital tools that Bayer and I have worked to implement on my farm for many years."

Dirk Peters,
Agro-Farm Gmbh Nauen

"Bayer ForwardFarming, together with farmers, promotes cultivation methods which combine environmental and social responsibility with economic success."

Peter R. Müller,
Director of Bayer Crop Science
Deutschland GmbH



Sustainable Farming

at Agro-Farm GmbH Nauen



Farm Profile

**Location:**

Nauen, northwest of Berlin.

**History:**

The Peters family are fourth-generation farmers in Nauen. Agro-Farm GmbH Nauen was founded in 1991.

**Farming Land:**

2,500 hectares of land on the Nauen Plateau, mineral and marshy lowland soils.

**Crops:**

Winter oilseed rape, corn, winter wheat, winter rye, winter barley, sugar beets, summer oats, soybeans, fast-growing timber trees and grassland.

**Partners:**

Leibniz Centre for Agricultural Landscape Research (ZALF), research station Paulinenaue, the Institute for Agro-ecology and Biodiversity (ifab) at Mannheim University, local bee-keepers and schools, among others.

Key Elements

**1 Seeds and Bayer SeedGrowth®**

High-quality, certified seed forms the foundation for optimal yield. Bayer SeedGrowth® protects the seeds from diseases and improves stress tolerance.

**2 Integrated crop protection**

Targeted crop protection based on the economic threshold principle protects crops from pests and diseases.

**3 Digital solutions**

Assisting the farmer in making the right decisions to optimize cultivation methods and protect resources.

**4 Safe storage and safe use of crop protection products**

Crop protection products are stored safely in a suitable storage facility. The correct personal protective equipment and closed transfer system easyFlow M provide protection for both the user and the environment.

**5 Soil health and erosion prevention**

For years, the farm has been using cover crops and tillage methods to minimize soil erosion and maximize water protection.

**6 Flower strips and flower meadows**

Flower strips are planted in favorable locations and boost native flora and fauna, especially as a source of food and habitat for insects and birds.

**7 Phytobac® and water protection**

Areas covered with grass all year round along the course of the river protect against undesirable runoff of crop protection products. The installation of a Phytobac® is planned to prevent point source pollution.

**8 Bee houses, beetle banks and earth piles**

These measures offer vital breeding grounds for wild bees in particular, but also for other pollinators and insects.

**9 Skylark plots and nesting boxes**

Strategically placed open plots in crop fields provide skylarks and other birds, such as partridges, safe places to land and nest. It also benefits hares.

**10 Renewable energy**

With wind turbines, solar panels, and a biogas plant, Dirk and Stefanie Peters have created a sustainable second business pillar.

**11 Direct sales**

The farmers also sell products directly on their site in their own farm store.

**12 Partnerships**

Combining the expertise of various players to jointly master the challenges of sustainable agriculture.

■ Tailored Solutions

■ Proactive Stewardship

■ Partnerships

Good yields with sustainable oil seed rape cultivation

Dirk Peters sows winter oilseed rape on around 150 hectares, either for consumption as food or for biodiesel production. But times are hard. Restrictions increase the risk of reductions in yields, which the farmers have to address.

As of May 2013, neonicotinoids are no longer authorized as a seed treatment for oilseed rape. Dirk Peters does not like the restriction – and neither do his professional colleagues – because since its introduction, the yields from winter oilseed rape have been uncertain, and in some cases, have even fallen. “We have a huge problem with a higher incidence of pests,” he explains. “Last year, 100 percent of our fields were damaged and we incurred some considerable losses.” Even so, oilseed rape remains an important crop for Agro-Farm GmbH Nauen. As a foliage plant, it is particularly good in crop rotation on the fields in Nauen.

Facing the challenges

Dirk Peters uses a number of measures to keep the yields as stable as possible, even in adverse conditions. From the correct selection of the variety, to optimum plant protection, to needs-based fertilization, thanks to the right products, Dirk Peters can take optimal care of his golden crop.

“Our actions must be both ecologically and economically sound.”

Dirk Peters, Agro-Farm GmbH Nauen

Ecologically and economically sustainable: Renewable energy

In agriculture, no two years are the same. Cultivation, weather, yields, the market situation – everything is always in a state of flux. In order to remain independent and keep your head above water, it is important to not put all of your eggs in one basket. Dirk Peters’ most important mainstay is renewable energy.

Visible from afar, Agro-Farm GmbH Nauen supports renewable energy. Nestled in fields with windmills, the roofs and open land are dotted with solar panels – but this isn’t enough for Dirk Peters. He also produces raw materials such as oilseed rape for biodiesel and fast-growing trees for firewood pellets, as well as running a biogas plant. With great success, particularly at times when the price of grain plummets, the farm continues to create steady profits from this mainstay and thus guarantees the jobs of its workforce of more than 20 people.

Before he decided to take this step in 2004, Peters visited numerous biogas plants throughout Germany. “I’m really pleased that I took the plunge. This means that we’re a little better shielded from price fluctuations of the other crops in the marketplace,” he says. “Because it’s important that our actions are not only ecologically sound, but that they also make sense economically.”



A precious resource water

Water is an incredibly important resource throughout the world. Farmers must ensure that they use water economically and that they protect it from pollutants.

“Water protection has always been highly important to us,” says Peters. “Brandenburg is known as an area that is particularly short of water. On average, annual precipitation is no more than 500 milliliters.” Another challenge: Due to the two different soils – mineral and marshy – operations have to meet different conditions for success. “The marshy soils are particularly difficult,” Peters explains. “Drainage systems are in place here, which we have to be careful with.” Part of the system was already constructed by Frederick the Great, and some of the ditches carry water all year round, while others only periodically. “Our spraying drivers are specially trained to be aware of these circumstances, and to keep the correct distance away from the ditches at the right times and pay attention to the choice of nozzle,” says Peters.

Protection for people and the environment

Yet it’s not just the use of the plant protection sprayers in the field in Nauen that is carried

out correctly and in an environmentally friendly way. Dirk Peters also uses state-of-the-art technology for the cleaning and filling of the 12,000 liter self-propelled sprayers on the farm. The new Phytobac® system stands next to a wash plate at Agro-Farm GmbH Nauen. This solution, which is produced by the Dutch company Beutech Agro, ensures the biological degradation of crop protection residues using micro-organisms as in the field. The Phytobac® allows the sprayer to be cleaned safely with a high-pressure cleaner directly at the estate.

How it works

First, the water used for cleaning runs from the wash plate into a recovery tank. From there, a measured quantity trickles into basins that are filled with a soil-straw chaff mix. The natural soil organisms degrade any residues of fungicides, herbicides and insecticides while the water evaporates. The straw layer encourages microbial degradation.

“We were able to tailor the Phytobac® system precisely to my needs, in a modular way. Like this, we achieve an excellent symbiosis between water protection and modern plant protection.”

Dirk Peters, Agro-Farm GmbH Nauen



“We help farmers enhance biodiversity while at the same time ensuring productive arable farming.”

Heinz Breuer, Head of Corporate Communications and Sustainability, Bayer CropScience Deutschland GmbH



Promoting biodiversity

Biodiversity is the basis of all life on this planet, whether for humans, animals, or plants. Diversified nature can adjust to changing circumstances and thus, guarantee food security. This applies in particular to the variety of species of pollinators.

However, for pollinators and birds to thrive in the agricultural landscape, their habitats need to be carefully cultivated. This is why Dirk Peters, together with Bayer, has incorporated flower strips into his fields. In addition, some cereal areas have been sown at a broader inter-row distance with a flowering undercover crop. Together with herbaceous plants, flower strips offer pollinators and other insects a source of food and shelter. Nesting aids such as bee hotels and soil ridges, known as beetle banks, have been set up too. In addition, the farm collaborates with local beekeepers. “We need the bees for our crops and the beekeepers need our fields as a source of food for their colonies. So, we work hand in hand”, says Peters.

In working for biodiversity, the birds have not been forgotten. Nesting boxes for cave breeders and birds that nest in crevices – such as swifts and swallows – and skylark plots, ensure that they can bring up their young in safety.

“We make use of external partners, especially in regard to biodiversity,” says Heinz Breuer, Head of Corporate Communications and Sustainability at Bayer. At Agro-Farm GmbH Nauen, this means the Institute for Agro-ecology and Biodiversity (ifab). The specialists offer Dirk Peters comprehensive advice on the implementation of the different measures and monitor the effects, in order to constantly optimize the activities. “We’ve brought conservation organizations on-board, in order to promote understanding between them and the farmers,” Breuer explains.



Reliable operator safety

Providing methods that support farmers, their employees, and nature in the safe use of plant protection products: this is another aim of Bayer ForwardFarming.

In addition to the basic elements such as suitable gloves, protective glasses, and training, this also includes technical solutions for correct handling.



Safe transfer

According to this principle, Agro-Farm GmbH Nauen guarantees the correct storage conditions for its plant protection products. Additionally, employees are instructed in how to work with easyFlow®. This closed system for withdrawing liquid plant protection products from sealed or open canisters makes the safe partial or full extraction of products possible and is also fully self-cleaning. Not a single drop is lost.



Shaping the future: With strong partners

The Bayer ForwardFarms are part of a network of fruitful cooperations. Partners with a diverse range of expertise such as science, the economy, and the media are included in the discussion about the development of sustainable solutions for agriculture.

“In the area of biodiversity, we have already been given extremely professional support from ifab,” says Peters. “Their expert knowledge has helped us enormously in this area.” In addition, the farmer is hoping to set up cooperations with local beekeepers. “They also help offer suggestions: for example, creating the flowering strips.”

Agriculture goes to school

A project that is very close to Dirk Peters’ heart is the planned cooperation with

local schools. “We want to make agriculture accessible to children and adolescents.” Peters is planning a special course for this together with the secondary school where he himself was once a pupil. The course, entitled “Biochemistry, Ecology and Agriculture,” includes the principles and challenges of modern agriculture and food production in the syllabus. “This is the first step in creating closer proximity between us, our commodities, the methods of production, and the consumers,” says Peters.

“I have a responsibility for my employees, and this also applies in the case of plant protection.”

Dirk Peters, Agro-Farm GmbH Nauen



Three questions...

... to Dr. Rainer Oppermann – Head of the Institute for Agroecology and Biodiversity (ifab), University of Mannheim.

How are you supporting the Agro-Farm Nauen team?

Within the framework of Bayer ForwardFarming, Dirk Peters and his team are carrying out a variety of biodiversity measures on his farm: for example, planting flower strips and flowering undercover crops in broad row distance in cereals. We are supporting him both in the selection and the implementation of these measures. What works best in this location? Which mix of flowers thrives here particularly well? What nesting aids can encourage the diversity of species even on the farm? How does the bee hotel have to be set up to encourage the bees to use it? We help Dirk Peters with the implementation of the measures and continually monitor their success.

What are your focal points when it comes to sustainability in agriculture?

Since 2004, the topics of agriculture and conservation have been at the heart of our work. There are three areas to this: we carry out research and development projects, test them out in practice, and evaluate the results. We always consider the big picture and not just the individual measures. For example, the topic of biodiversity includes creating the most interconnected structure of flower habitats possible in the cultivated landscape and incorporating existing elements such as hedges, river courses, and forest edges. We are happy to pass on this knowledge to farmers.

Why are partnerships with farmers important to you?

Biological diversity can only be achieved and safeguarded as a joint action. We have to help farmers achieve a balance between economics and ecology in their fields, and show them measures that will allow a more realistic relationship between productive arable land and the promotion of biodiversity.

Precision thanks to digital farming

Standing still means moving backwards – and this applies to agriculture, as well. Where horses once pulled the plow across the field, digitally-controlled agricultural machines now carry out the work in a much more effective way, which shows that innovation is essential for ecologically and economically sustainable agriculture.

“I am convinced that digitization will win out in the end. It’s currently in its infancy stage, but I can already see the benefits that it will bring,” says Dirk Peters. For example, by recording, combining and evaluating different data, Peters can manage his fields in an extremely targeted manner.

“On the one hand, I save products, money, and time, and on the other hand, I am also doing something good for the environment.” The farmer also believes digital solutions will be a great advantage for future generations.



“Farming is becoming increasingly digitized; that’s the new reality in farming. There is lots of innovation on the way.”

Peter R. Müller,
Director of Bayer CropScience Deutschland GmbH



Bayer ForwardFarming makes sustainability tangible

Bayer ForwardFarming provides an up-close look at how farmers are practicing modern and climate-smart sustainable agriculture around the world. Unique in its global reach the Bayer ForwardFarming network serves as platform for knowledge sharing and dialogue. ForwardFarmers deploy technologies and best practices to improve productivity, reduce agriculture-related greenhouse gas emissions, decrease the environmental impact of crop protection, promote biodiversity and conserve natural resources.

On the ForwardFarms, progress towards the Crop Science sustainability commitments truly comes to life.

Bayer ForwardFarming demonstrates solutions that support sustainability in agriculture across the following three components:

// **Care for Crops** – Every farm is different, and every field within a successful farming operation is unique. **Tailored Solutions** are needed to meet the needs of the individual farmer and their specific field – from the right seeds and traits to the correct type and amount of crop protection, to the digital tools and services that allow for good decision making and precision.

// **Care for the Planet and People** – Bayer ForwardFarming promotes and demonstrates **Proactive Stewardship** to protect human health and preserve the environment. Examples include addressing the safe and responsible use of crop protection products; soil health, biodiversity, and water conservation; and offering training in all of these areas.

// **Care for Partnerships** – Bayer ForwardFarming fosters **Partnerships** with value chain actors, research centers, universities, and other institutions to strengthen sustainable farming development.

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