

Field Studies at Fendt

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Peter-Josef Paffen is watching the world's population grow. To provide enough food in the future, agriculture needs to undergo radical change. It will become intelligent, connected, and highly efficient.



“Farms of the future will be operated considerably more intensively than they are today.”

PETER-JOSEF PAFFEN
Chairman of the AGCO Fendt Management Board

When Peter-Josef Paffen has to make major decisions, he spends some time on a deer stand. “It’s a superb place to think,” says this passionate hunter and son of a farmer. Since assuming the chairmanship of the AGCO Fendt Management Board in 2009, he has surely passed a few hours sorting his thoughts while gazing out over the beautiful pre-alpine landscape of the Allgäu region.

Efforts in recent years have focused on making this long-established company fit for the future as well. Once a specialist in tractors, it has become a generalist whose product portfolio includes combines and forage harvesters, application systems for fertilizer and crop protection agents, and fodder crop equipment. The new strategic orientation, developed together with Porsche Consulting, has proved to be a real success. AGCO Fendt plans to sell around 20,000 tractors in 2020. An ambitious target? Not at all. In 2018 it sold 16,800 tractors—12 percent more than in the preceding year. And this year’s sales are expected to exceed 18,000 units. The company, which is based in the modest town of Marktobendorf—around an hour’s drive southwest of Munich—has a simple secret: “At Fendt, we focus on people, and try to give them more than they expect.”

Otherwise, one is just a follower instead of a leader in innovation. Fendt is a leader and wants to keep it that way. After all, high quality and premium service are no longer sufficient to ensure success in this sector. Paffen, a man with alert eyes and a firm handshake, is not the only manager to realize this, or to devote substantial thought to the future of agriculture and what it will look like over the next ten to twenty-five years.

Autonomous action

Fields can already be cultivated fully automatically—even at night.



Surgical precision for every plant

“Farms of the future will still be farms, but they will be operated considerably more intensively than they are today,” predicts Paffen. He likes to refer to farmers in the future as “children of the sun,” because they will transform solar energy into food. Agriculture needs to undergo this transformation because of the veritable explosion in the world’s population. “Meat consumption will decline because we will no longer be able to afford to send grain through animals’ stomachs,” he says in no uncertain terms.

In order to continue feeding everyone in the future, cultivation will have to become more efficient. That starts with ensuring healthy soil. The nutrients that plants remove from the earth need to be returned to it. Today it is already possible to spread fertilizer with near-surgical precision and thereby minimize effects on the groundwater. Exact dosing practices also benefit biodiversity. Aggressive agents such as glyphosate will no longer be needed. “Otherwise, we’ll cut off the branch we’re sitting on,” says the head of Fendt.

Farmers will buy harvesting capacities instead of machines

In the future, farmers will have an entire arsenal of technical aids at their disposal. The transformation in agriculture will be based on robotics, driverless vehicles, and digital connectivity. Drones will analyze the soil and crops from the air. Small, lightweight, and autonomous robots will serve the welfare of grains and vegetables day and night. These changes will be driven by a flood of data that will help farmers make the right decisions every day on how to cultivate their land as efficiently as possible. “The beneficiaries will be consumers, who will get enough food of unprecedented quality produced in sustainable, environmentally friendly environments,” says Paffen in summarizing the direction.

Farms of the future will be intelligent and connected in ways analogous to a state-of-the-art automotive production plant. The individual machines will communicate with each other and with the cloud that stores all the data gathered. These data are a sensitive affair. The farmers alone will decide what will be made available and what will not. They will, however, benefit from the swarm intelligence generated as a group. AGCO Fendt is prepared for this scenario and already



RISE OF A CLASSIC—FENDT TAKES TO THE FIELDS



1930

START
Two brothers—Hermann and Xaver Fendt—launch their tractor production business in Marktobendorf in 1930 with the small 6-hp *Dieselross* (“diesel steed”).



1959

SUCCESS
Prize-winning innovations like the “one-man system” lay the foundation for the company’s role as a technological leader and promote rapid expansion.



1982

GLOBAL
Fendt products are bestselling exports worldwide. Not only tractors but also machinery for fruit production and vineyards fuel the success of the company from Marktobendorf.



1995

VARIABLE
Fendt’s 926 Vario is a farmer’s dream come true: it is the world’s first large tractor with a continuously variable Vario transmission.



1997

ACQUISITION
A new age dawns: AGCO, the U.S.-based global farm machinery corporation, acquires Xaver Fendt GmbH & Co.



2012

TRAILBLAZING
The world’s most modern tractor production network in Marktobendorf/Bäumenheim opens and the 500 Vario and 300 Vario with SCR technology are presented.

Photos in box: AGCO FENDT



Josef Mägele is pleased with his test-drive of the new Fendt 942 Vario—"the perfect tractor."

employs 150 specialists to develop software solutions. The company attracts these IT experts to Marktobendorf from around the world. Thanks to the high quality of life in the area, this is not too difficult. Paffen is sometimes amazed at the speed with which the experts develop new products and updates. "There's absolutely no comparison between this and the pace of development cycles on the hardware side," he remarks. Another significant advantage is that the "smart farming" approach also opens the door to the introduction of completely different business models. Similar to car sharing, some farmers will no longer own their own combines or forager harvesters. Instead, they will purchase harvesting capacities as services, directly from the manufacturers.

In addition, many machines will work autonomously day and night. Technical advances have already made driverless agricultural machinery possible today. One job where this is

helpful is the application of crop protection agents—an activity best done at night because the bees are not out and there is generally less wind and no sun to evaporate the relevant substances. This alone shows that the glorified image of farmers as cheerful field workers wearing straw hats and chewing cornstalks has long since lost any semblance to reality. "Today's farmers are managers who need an extensive command of high-tech as well as agriculture," observes Paffen.

Electromobility only with fuel cells

In contrast to the automotive world, electromobility is not expected to take over farming in the foreseeable future, says Paffen. For one thing, the requisite batteries would make tractors or combines much too heavy and thereby damage the soil. In addition, it would take too long to charge them. To operate efficiently, machines need to be used as much as

possible. But agriculture will be electrified with the help of fuel cells. As soon as the technology is ready for mass production, AGCO Fendt will be on board. This will bring significant changes to the machines—which will have electric motors on every wheel, for example, in order to move effectively on uneven ground. The efficiency and precision with which farming is pursued both now and in the future will also make room for niche products. In addition to large-scale enterprises, small providers with new business models will also appear on the scene.

In densely populated areas, farmers will be able to earn good money on small plots of land that are used judiciously, for example by growing special medicinal plants or herbs. Vertical farming, in the form of greenhouses right next to supermarkets where end consumers can harvest their own vegetables and take them home perfectly fresh, will become profitable on a sustainable basis. AGCO Fendt wants to have solutions ready in these areas too—in perfect keeping with its company motto: "We provide solutions to feed the world."

JOSEF MÄGELE TESTS FENDT'S NEW 942 VARIO

"I'm a farmer, born in 1976 in the southern German town of Gebenhofen, an hour's drive northwest of Munich. I grow mainly corn, wheat, barley, rapeseed, and sugar beets on my 350 hectares—where I've tested Fendt's new €340,000 942 Vario. My conclusion: the tractor is the perfect machine. Thanks to GPS satellite signals it moved autonomously and accurately across the fields. We used to have track overlaps of up to a meter. But on my run it was ten centimeters at most. That saves a lot of seeds and fertilizer. The "Fendt Connect"



on-board telematics register all data in real time and send various types of information—for example, crop protection agent amounts—straight to the office for the required documentation. I spent the majority of my time in the cabin, which reminded me of an aviation control tower—complete with displays on the screen and tablet just in case I had to intervene in an emergency.

When I took the wheel once, the special steering system took less effort to operate. Together with GPS control it enables a very tight turn radius and made maneuvering nearly superfluous. That saves you a considerable amount of time. I could cover around 10 percent more ground. The MAN engine with its nine-liter displacement and 415 hp was useful too. To avoid erosion, I only rarely use a plow, and the 942 Vario loosened the soil with its "digger" function. For that you need a high-powered machine—which is what the 942 Vario is."

