



AMAZONE

EnviroSafe

Designing sustainably, acting responsibly



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Sustainability is living responsibility for the future

Sustainability is a much-used term today. At AMAZONE, we understand sustainability as "living responsibly for the future". This way of thinking determines our long-term actions. It is our aim to operate efficiently, precisely and in an environmentally friendly way and to meet the economic and social requirements - both today and in the future for the benefit of the coming generations.

With a history going back more than 135 years and 1,900 employees at the present time, the AMAZONE Group stands for sustainability in several respects: for a sustainable strategy in our own company, for sustainable progress in agricultural machinery and for our enduring social commitment.

As a manufacturer of agricultural machinery, AMAZONE is aware of its responsibility to provide machinery and processes for "intelligent crop production" for the agricultural sector throughout the world which enable farmers and

contractors to work as efficiently and sustainably as possible. In this way, we all make a decisive contribution to ensuring that the world's population is fed today and in the future.

In our plants and in our supply chain, we are aware of our responsibility to organise our production in the most efficient and environmentally-friendly way possible. In doing so, we aim for steady progress.

Beyond the bounds of our company, we wish to create additional benefits for society by supporting social projects both nationally and internationally.

Sustainable goals can only be achieved collectively – together with our employees, our suppliers, our distributors and our customers. This is what we intend to work on, and we look forward to exchanging ideas with you, in order to get even closer to these goals in the future.

Christian Dreyer
Managing director

Dr. Justus Dreyer
Managing director



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Guidelines for our sustainability strategy

We work on all stages of our value chain, in order to live up to our responsibility for the environment and society. We integrate sustainability into our company.

Our work should create a common benefit for AMAZONE and for society. In doing so, we focus on the following topics:



These topics form the guidelines for our sustainability strategy and therefore the basis for the AMAZONE EnviroSafe concept.



1. Our products and our environment

We offer machinery, digital solutions and services for precision farming which are both efficient and environmentally-friendly. Continuous innovation protects the environment and reduces costs.



2. Our supply chain and production

The highest quality standards, a cost-effective and environmentally-friendly production and a cooperative partnership with our suppliers form the basis for our products.



3. Our customers

We are a reliable partner for our customers and are constantly striving to develop innovative solutions which enable them to work more economically and in a more environmentally-friendly manner.



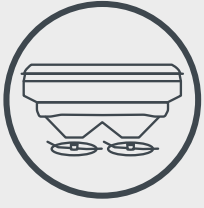
4. Our employees

We offer our employees attractive and motivating working conditions.



5. Our society

As part of the national and international community, we actively participate in the further development of society.



1. *Our products and our environment*

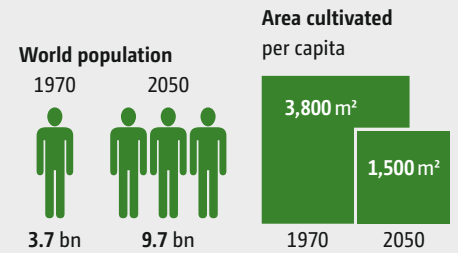
The growing world population with a diminishing amount of arable land and increasing environmental protection are global challenges for agriculture and agricultural machinery.

Our goal is to offer machinery and services which are both efficient and environmentally-friendly.

At the same time, we need to develop climate-adapted arable farming concepts which enable us to conserve soil, water, air, biodiversity and climate to the greatest possible degree.



1.1 Sustainable agriculture – the challenges



Sources: FAO/USDA (2016)

The challenges for agriculture with regard to a more efficient and environmentally-friendly method of cultivation will be growing significantly in the coming years:



Growing enough food

While the world population is increasing, the amount of arable land per capita is diminishing. Each person currently has 0.21 ha at their disposal; this will drop to 0.15 ha of basic food resource per capita in 2050. Our machines enable us to help ensure that yields per hectare, e.g. for wheat and feed grain, continue to rise. After all, a large proportion of the world's crop production comes from the targeted use of fertilisers and plant protection.

The current world population will grow to an estimated 9.7 billion people in 2050. In this respect, arable farming is the cornerstone of food security. Agriculture and agricultural machinery are therefore systemically important.



Climate change

Climate change can lead to weather extremes worldwide. In some regions, lower rainfall will lead to periods of drought, meaning that the amount of land which was previously adequately supplied with water is reduced.



Resources

Climate protection, soil protection and water conservation form part of sustainable agricultural practices. CO₂, methane and nitrous oxide emissions should therefore be reduced, ground water and bodies of surface water protected and erosion and harmful compaction avoided.



Loss of usable land

In Germany, around 60 hectares of usable agricultural land are lost every day to alternative uses for industrial and residential development. The remaining land must therefore be used more efficiently.



Political and legal requirements

Increasing political requirements for a reduction in the use of plant protection agents and fertilisers as well as the loss of certain plant protection agents necessitate modified cultivation methods in crop production.



Energy

Agriculture is playing an increasingly important role as a producer of renewable energy. Bioenergy for electricity, heat and fuel can help offset significant amounts of emissions from agriculture.



Pressure on cost and efficiency

Pressure on cost and efficiency for farms will continue to increase in many regions due to falling commodity prices, stricter environmental regulations, reduced public subsidies and rising costs for rents and wages.

1.2 Goals as an agricultural machinery manufacturer

As a manufacturer of agricultural machinery and partner of farmers and contractors, AMAZONE is aware of its responsibility to provide machinery and processes for the agricultural sector throughout the world which enable farmers to meet these challenges in their region in an ever more environmentally-friendly, climate-friendly and economical manner.



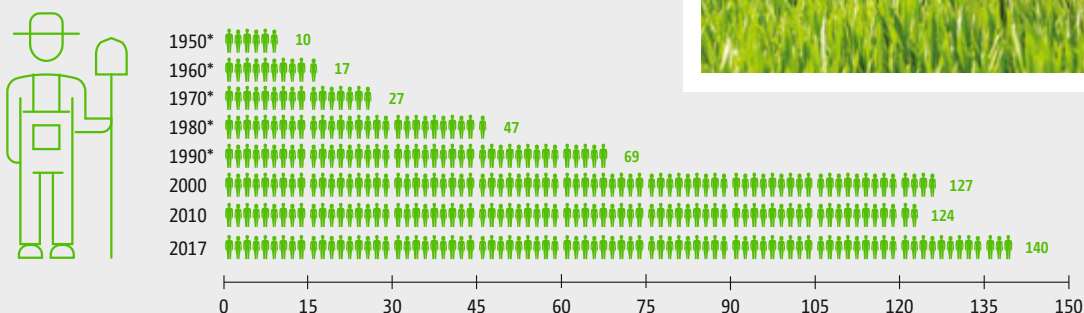
| The growing world population ... | A reduction in agricultural land area, energy from the land ... | Production at world market prices ... | Sustainable working practices | | |
|--|---|---------------------------------------|---|---|--|
| ... require more efficiency: <ul style="list-style-type: none"> • Cost cutting and higher productivity • Saving of energy, resources and time | | | Climate protection Reduction in CO ₂ , methane and nitrous oxide emissions | Soil protection Less erosion and harmful compaction | Water conservation Protection of groundwater and bodies of surface water |

| | | |
|--|---|--|
| Intelligent management: Economic, ecological and social | Intelligent production machinery: Resource-saving and precise | Intelligent agricultural machinery: Efficient and environmentally friendly |
| The “Intelligent Crop Production” concept – specific system solutions for the farm. | | |
| “Intelligent Crop Production” is the most important component of AMAZONE’s “EnviroSafe” concept. Close cooperation with farms forms the basis for this. For example, AMAZONE cooperates internationally with many farms and tests new machines on trial sites around the world; covering currently a total area of 850 ha. | | |

Together with agricultural practitioners and contractors, AMAZONE develops application-optimised concepts for a wide variety of farm sizes on the basis of these trials results and in cooperation with the scientific community and consultants. The individual farm manager – with expert knowledge of that location – derives the best specific system solution for their operation from this.

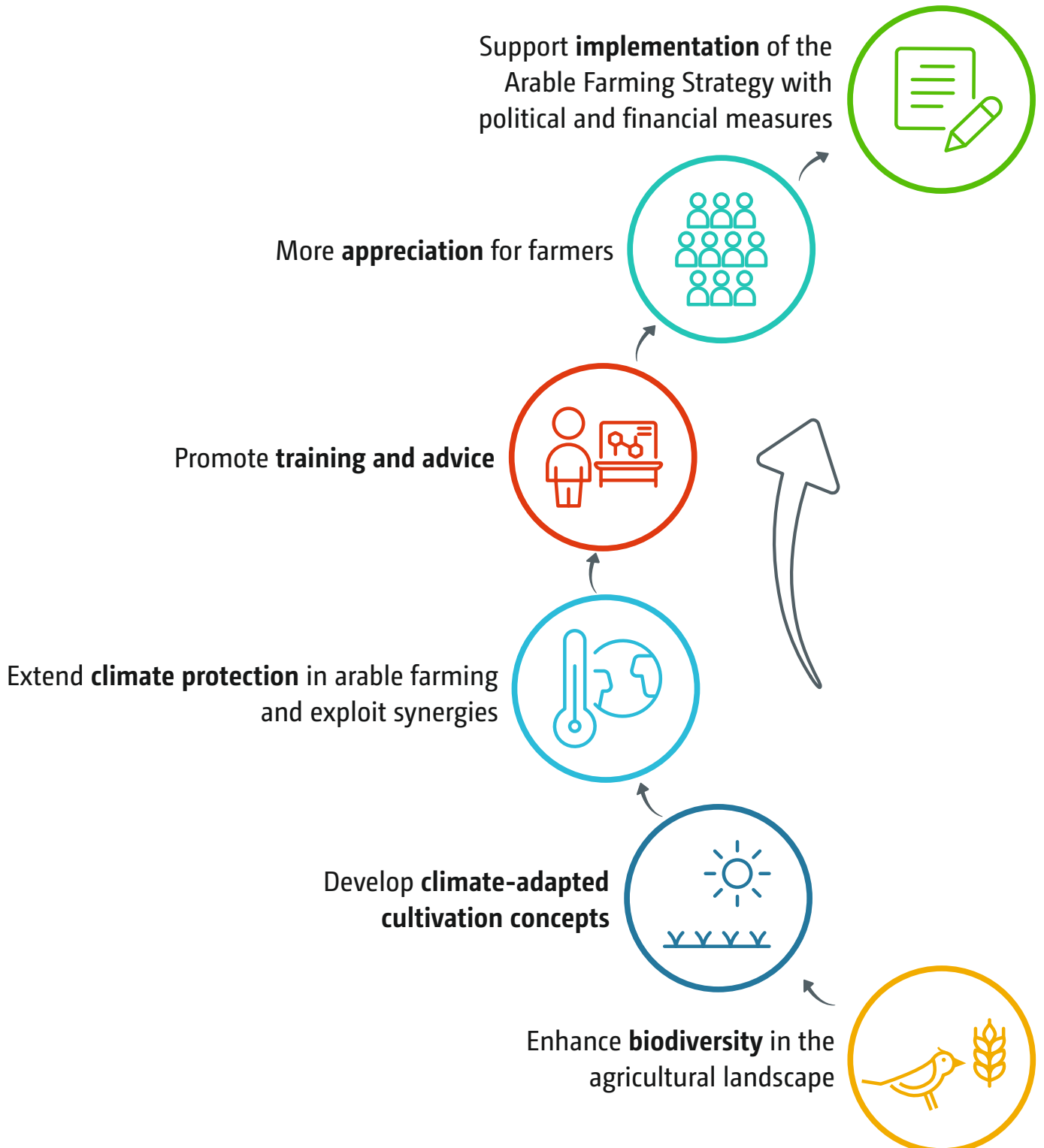


How many people a farmer feeds

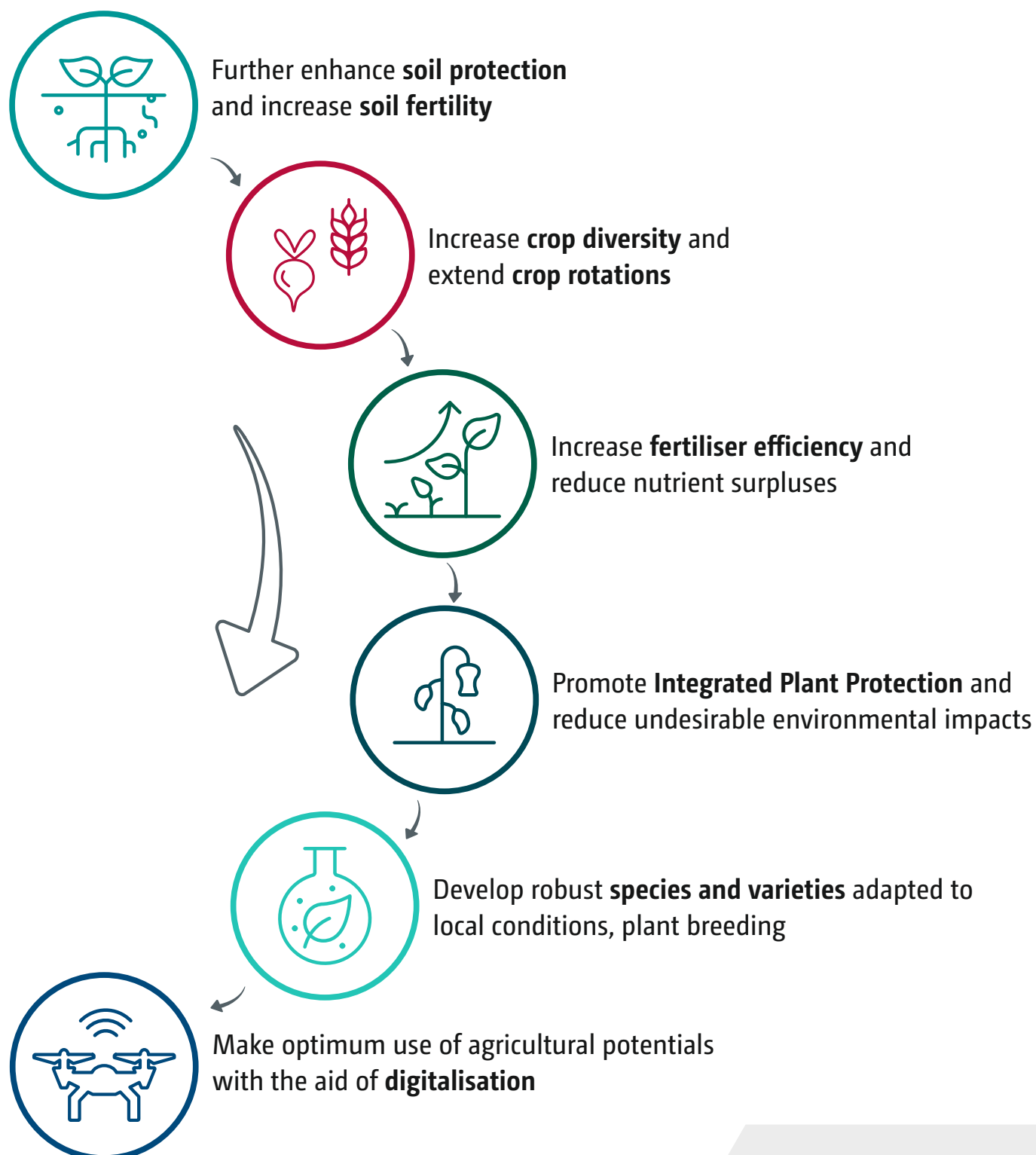


Source: Federal Office for Agriculture and Food (2017)

1.3 The areas of action of the Arable Farming Strategy 2035 of the BMEL (Federal Ministry of Food and Agriculture)



The Arable Farming Strategy is intended to identify options and paths that encompass sustainable arable farming, i.e. ecologically-compatible, economically-viable and socially-oriented, in the future, also with a view to greater social acceptance. Ecological balance and economic incentives should go hand in hand.



1.4 Solutions in the area of soil protection and crop diversity

► Examples from the AMAZONE Group

Soil protection, soil fertility

Agricultural production processes as part of integrated crop production:

- 3C crop establishment concept for reduced soil tillage and mulch and direct sowing systems (www.cost-cutting-concept.com)

Further development of the conservation soil tillage and the mulch and direct sowing process in a changed plant protection situation:

- Process chains with Catros compact disc harrows, Cenius mulch cultivators and Cirrus mulch seed drill combinations or Primera DMC direct seed drills
- Water-conserving and weed-reducing strip till with Minimum TillDisc with Cirrus mulch seed drill combinations

Promoting year-round soil coverage:

- Cirrus-CC sowing combination with GreenDrill seed-er box for the simultaneous application of seed and undersown crops or catch crops in the triple-shoot process (www.triple-shoot.com)

Protective mechanisms against soil compaction:

- Lightweight design with profiles e.g. for chassis and booms of crop protection sprayers
- Use of wheel mark following systems such as steering axles on trailed spreaders and sprayers

Crop diversity, crop rotation

- As part of the 3C crop establishment concept, trials are being carried out globally across 850 ha with partner farms
- Tests and research into precise row-specific cultivation are being carried out at the AMAZONE trials centre in Wambergen as part of the CRF (Controlled Row Farming) arable farming project (www.controlled-row-farming.de)
- Undersown crops, binary seeding, seed mixtures



Catros 12003-2TS

Mulch and direct sowing reduce emissions and erosion

With the 3C Cost Cutting Concept, AMAZONE has developed a concept for the correct use of mulch and direct sowing methods to meet the requirements of sustainable, efficient crop production. On the basis of the 3C Cost Cutting Concept, different combinations of machinery and methods depending on the regional requirements are used which enable, for example, soil tillage, to be carried out according to the principle of "as little as possible, as much as necessary".

Depending on the local conditions, AMAZONE's range of cultivation machinery and seed drills provides different variants for mulch and direct sowing. The range starts with the combination of an active rotary cultivator and a seed drill and extends to the use of the Primera DMC direct seed drill without prior soil tillage.

1.5 Solutions in the area of climate-adapted cultivation concepts

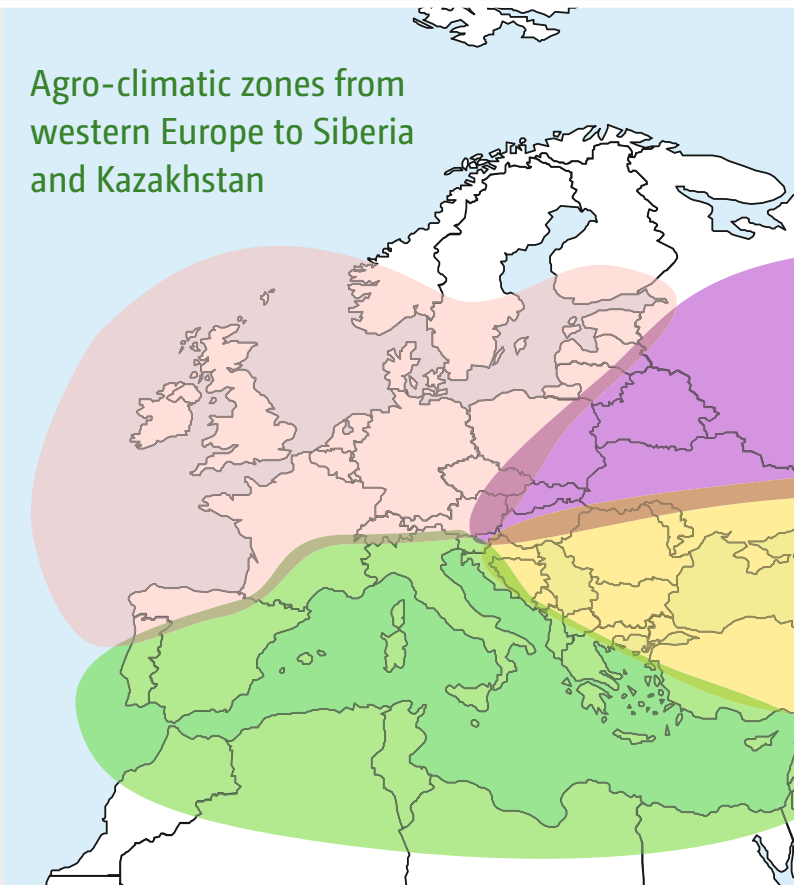
► Examples from the AMAZONE Group

Climate-adapted cultivation concepts

Region-specific recommendations for arable farming adapted to climate change (cultivation methods, soil tillage, erosion control):

- e.g. in the 3C crop establishment concept (www.cost-cutting-concept.com)
- Saving water
- Optimum water supply, even in the event of heavy rain after sowing

Agro-climatic zones from western Europe to Siberia and Kazakhstan



From stubble cultivation to sowing

Example of three different process chains, climatic regions and farm structures

Stubble cultivation

Soil tillage



AMAZONE establishment chains in the climatic regions

The establishment chains used in the various climatic regions depend on (a) the productivity of the soils and (b) the historically developed farm structures. In this respect, a range of different demands are made on the soil tillage and sowing technology depending on the amount of precipitation, temperature gradients and availability of water. The AMAZONE product range offers the right solutions for all conditions here.

1.6 Solutions for fertiliser efficiency and integrated plant protection

► Examples across the AMAZONE Group

Fertiliser efficiency

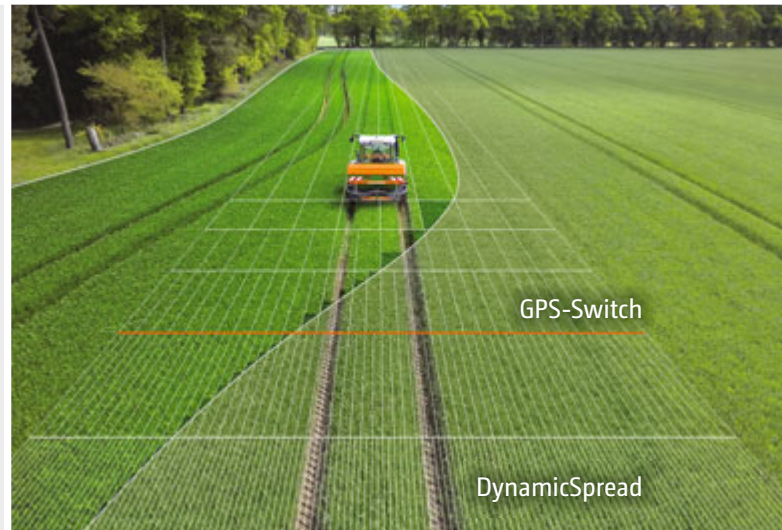
Innovative technology for needs-based, precise, part-area, site-specific fertilisation:

- ZA-TS fertiliser spreaders and ZG-TS bulk fertiliser spreaders with ArgusTwin radar system for automatic optimisation of the lateral distribution
- Cirrus-CC pneumatic seed drill with a twin outlet hopper and conveying system concept for the application of seed and fertiliser
- Precea precision air seeder with FertiSpot for pinpoint fertiliser application

Integrated plant protection

Alternative and reliably effective crop protection methods for erosion-reducing conservation soil tillage:

- Innovative technology for a reduction in the use of chemical plant protection agents - from conventional area treatment and part-area treatment to individual plant treatment
- Increased use of mechanical weed control using Schmotzer hoeing technology (www.schmotzer-ht.de)



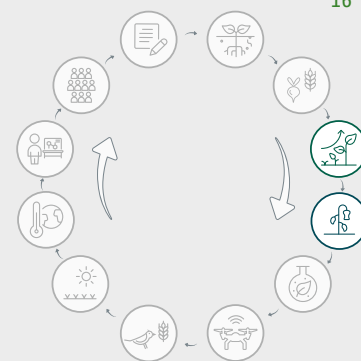
Precision Farming

for an increase in climate and water protection

Fertilisation and crop protection methods must also meet the requirements of sustainable land management hand in hand with soil tillage and sowing. For example, all measures which improve the economic efficiency of N fertilisers, i.e. reducing the use of fertiliser, also serve to reduce nitrous oxide emissions. Effective measures here include, for example, the cultivation of catch crops, the selection of the optimum fertilisation timing and the right fertilisers.

AMAZONE offers innovative fertiliser spreaders and crop protection sprayers for the protection of groundwater and bodies of surface water. These provide greater precision in metering and application and significantly reduce the requisite amount of fertiliser and plant protection agents thanks to electronic control and regulation technologies.

This brings significant increases in efficiency and cost savings for agricultural production, and yield potential can be exploited more effectively at the same time. Simultaneously, these machines meet environmental requirements to better effect, as only as the



AmaSelect Spot



AmaSelect Row

amounts of fertiliser and crop protection agent actually required by the plant are applied. As in the case of soil tillage, the following principle also applies here: as little as possible, as much as necessary.

Furthermore, AMAZONE offers forward speed-related application rate regulation systems, in order to provide high-precision metering of fertiliser and plant protection agents. GPS-Switch is another development which provides cost savings and environmental effects when using fertiliser spreaders and crop protection sprayers. This is because the system enables position-accurate, automatic start and stop of the part-width sections on the headland, at the field boundary or when negotiating obstacles.

Automated side and border spreading systems for fertiliser spreaders as well as electric single nozzle control systems for crop protection sprayers are designed for optimum water protection. These include, for instance, the AMAZONE ZA-V fertiliser spreaders in combination with the Limiter border spreading system, which conform to European environmental standard EN 13739 for fertiliser spreaders. AmaSelect Row offers the option of switching from

full-area application to row-specific band spraying remotely. The AmaSelect Spot nozzle switching system enables part-area, site-specific weed treatment on the basis of highly accurate drone photographs.

Another example is the coupling of fertiliser spreaders and sprayers to online sensor technology, which enables part-area, site-specific nutrient supply to the fields.

AMAZONE has invested in a state-of-the-art test hall for fertiliser spreaders for research and the further development of fertiliser spreaders. Thanks to innovative test equipment, AMAZONE can therefore offer its customers an even faster and more precise FertiliserService. In this way, AMAZONE provides additional support to ensure that not only the requirements of environmental protection are met during spreading, but also to make sure that fertiliser is delivered to the plants as and when required and with absolute precision.

For more information: www.cost-cutting-concept.com

1.7 Solutions in the area of digitalisation



► Examples from the AMAZONE Group

Digitalisation

Innovative digital technology for use in intelligent crop production:

► Examples of innovative technologies in the sector of:

• Soil tillage

- Cenius-2TX ZoneFinder with exatrek – Cultivator for detecting small-scale soil differences

• Fertilisation

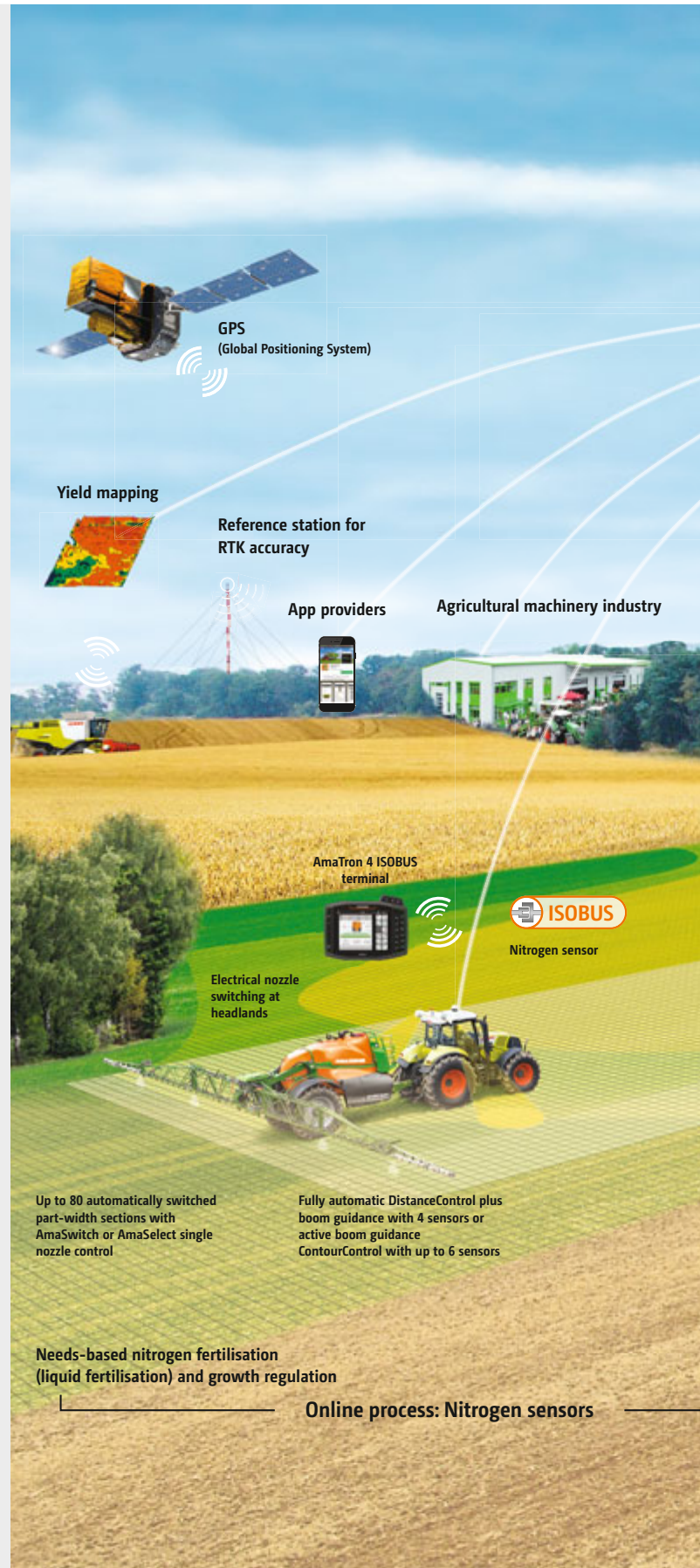
- WindControl, in accordance with Prof. Dr. Karl Wild of the University of Applied Sciences, Dresden
- ArgusTwin radar system – permanent monitoring and optimisation of the lateral distribution
- GPS-Switch – automatic part-width section control with up to 32 part-width sections
- Dynamic Spread – dynamic part-width section control with up to 128 part-width sections
- Disc-integrated AutoTS border spreading system
- mySpreader App for perfect spreader adjustment

• Crop protection technology

- AmaSwitch and AmaSelect electric single nozzle control systems for 50 cm part-width sections
- ContourControl for optimum vertical boom guidance
- SwingStop for optimum horizontal boom guidance

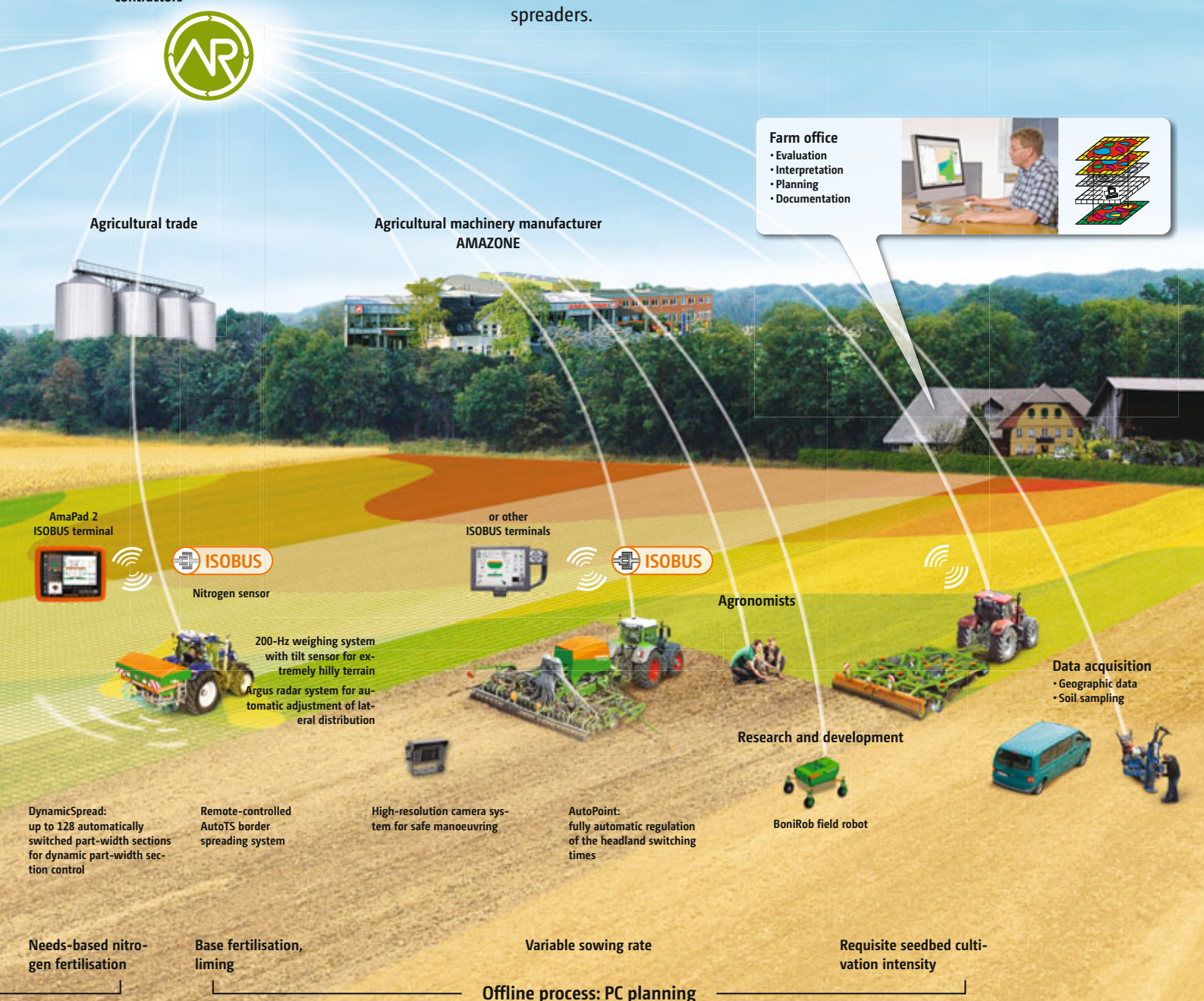
• Sowing technology

- GPS-Switch – automatic half-side shut-off
- mySeeder App – Seed drill calibration via smart-phone for optimum operational comfort



agrirouter

Precision farming technology turns our ISOBUS terminals into universal terminals for operation, rate control, monitoring, automatic control with application maps and documentation for seed drills, sprayers and fertiliser spreaders.



1.8 Solutions in the area of training and advice

► Examples from across the AMAZONE Group

Training and advice

- Training sessions, seminars, field days and demonstrations with regard to reduced soil tillage, better fertiliser efficiency, reduced chemical plant protection ingredients, erosion control and digital products and services
- Permanent exchange of ideas with agricultural partner companies for further development of the 3C crop establishment concept and intelligent crop production







2. Our supply chain and production



The highest quality standards certified to DIN ISO 9001, efficient production and a cooperative partnership with our suppliers form the basis for our products.

When selecting suppliers, the AMAZONE Global Sourcing Team takes great care to ensure that our suppliers always comply with the applicable environmental and safety regulations as well as social standards and continuously monitors the supply process.

We also use almost every production technique in the manufacture of our machines in our production process, in order to produce as efficiently and economically as possible and therefore in a sustainable and environmental-friendly manner.

This maintains the availability of resources for future generations. In doing so, we aim for steady progress. Automation of manufacturing ensures consistent production processes at a high level of quality. We consistently rely on digitalisation here. This begins with CAD design and continues in all areas of production.

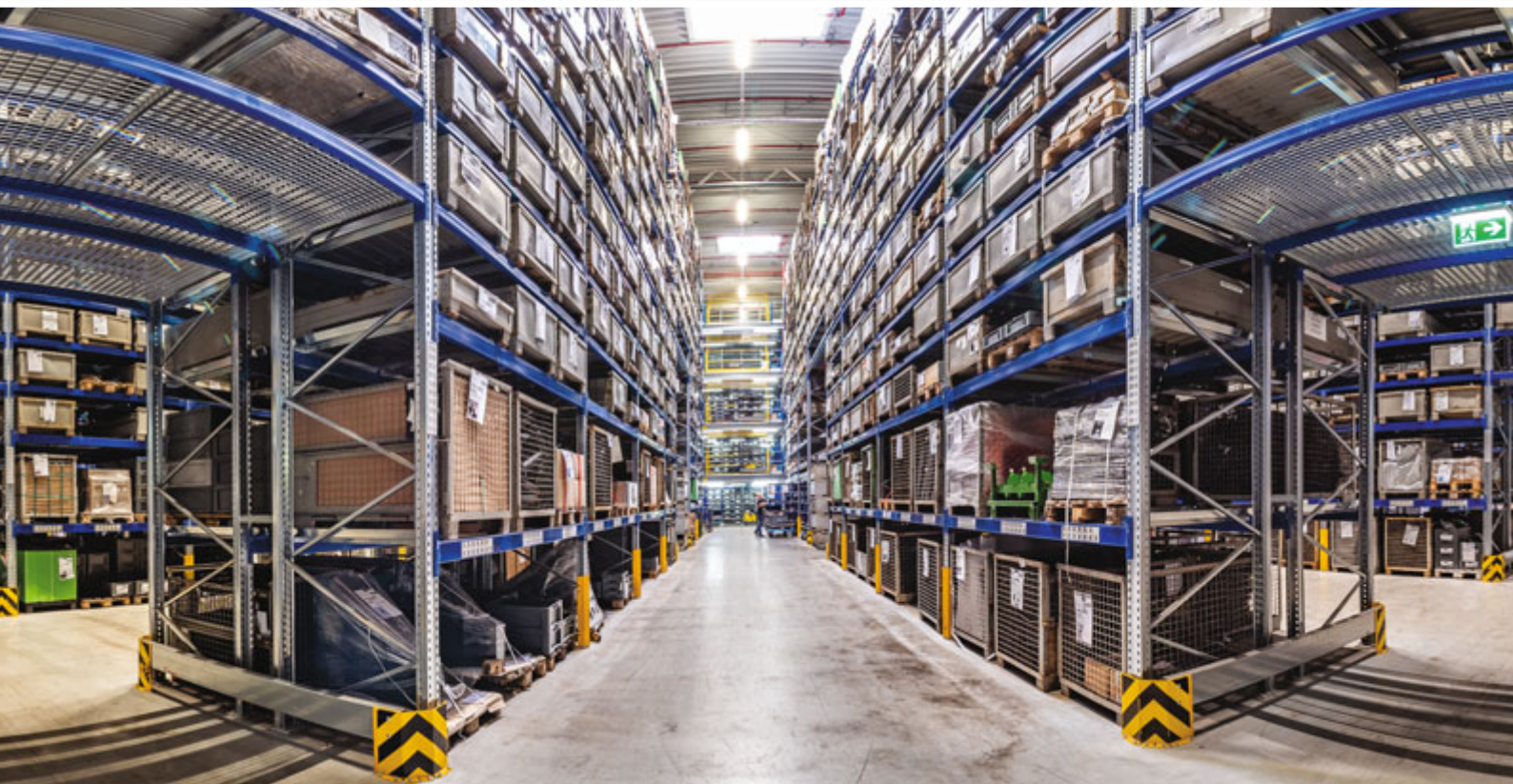
Use of materials:

We reduce material consumption by paying attention to the optimum use of materials at the design stage and later in production and painting, as well as to efficient cutting with minimal scrap and the recyclability of offcuts or unusable parts.

- We save a total of 2,000 t of steel annually
- Steel and sheet metal scrap are recycled by a local steel works
- Plastic scrap is completely avoided by recycling unusable parts
- Optimum paint yield of 99 % via a water-based cathodic dip painting process
- Optimised painting process saves 200 t of paint per year



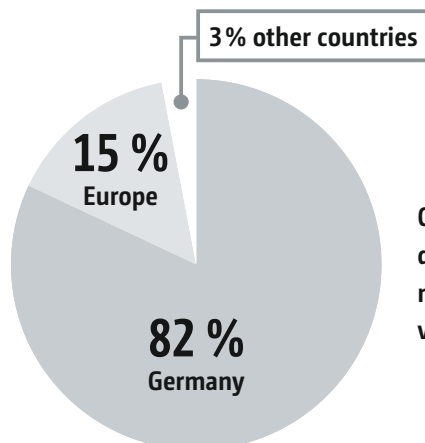
In contrast to conventional spray coatings, our cathodic dip painting process provides an optimum paint usage and therefore saves resources and costs. This type of painting provides the highest corrosion protection and guarantees a long service life.



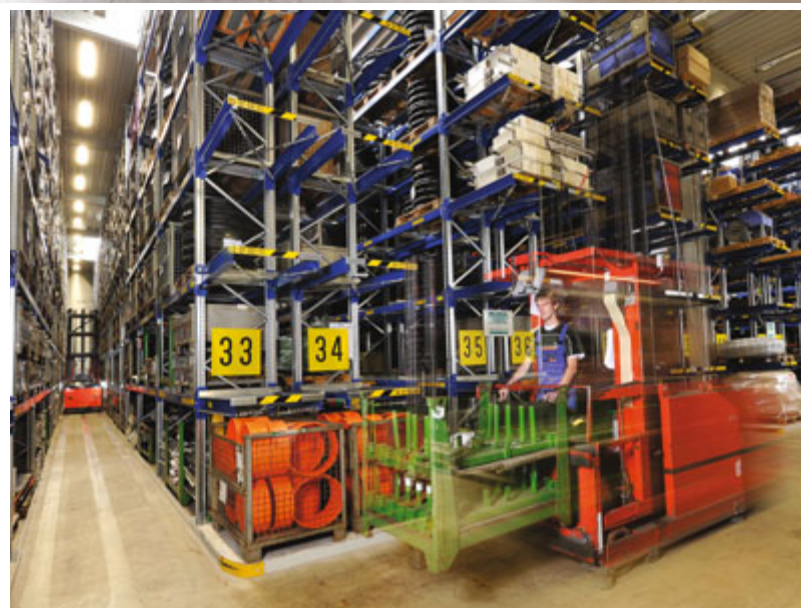
Transport distances:

We are also reducing transport distances in internal production logistics. The material is stored close to the production area and transported to the installation site by the shortest route.

We use the shortest possible transport routes in our supply chain, in order to reduce the burden on the environment.



Countries of origin of the production material (suppliers) measured by the delivery volume in euro



Global Parts Center central spare parts warehouse



Combined heat and power plant

Energy use:

AMAZONE operates two combined heat and power plants with an electrical output of 600 kW in Gaste and Altmoorhausen which produce both electricity and heat. The electrical energy is used to power the machine tools, and the heat is used as process heat for the paint shop. This results in an efficiency level of more than 90 % – hardly any other power plant can achieve this.

We were awarded a certificate for energy management according to DIN ISO 50001 in 2014. The primary objective here is an annual energy saving of 3 %, which we have always been able to achieve or exceed so far.

Our trainees take part in the **Energy Scouts** project from the Chamber of Industry and Commerce and thus contribute to the efficiency and sustainability of our company at an early stage. In 2015, they received an award for their campaign “Ohne DICH geht es nicht” (“It won’t work without YOU”) as part of a competition organised by the Mittelstandsinitiative Energiewende und Klimaschutz (SME initiative for energy transition and climate protection).

- Lighting has been converted to LED technology
- Power consumers with a high stand-by consumption have been replaced

The result: We save a total of 2 million kW/h a year.



Certified since 2014



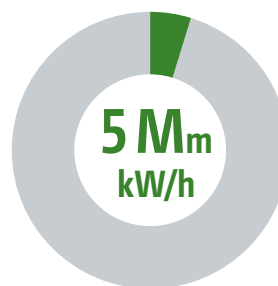
Solar power system in Bramsche with an output of 750 kW/h

Solar power systems:

Our solar power systems enable us to use large roof areas to generate electricity for our own consumption. We deliberately do not do this on open spaces, as these are better used for agricultural purposes and large roofs are suitable for solar systems in any case.

An electrical output of up to 2,500 kWp is achieved from the five active solar power plants.

Generating energy ourselves:



We produce 5 million kW/h of electricity per year through our combined heat and power plants and solar power systems at the Hasbergen-Gaste, Hude-Altmoorhausen, Bramsche, Leeden and Leipzig plants.

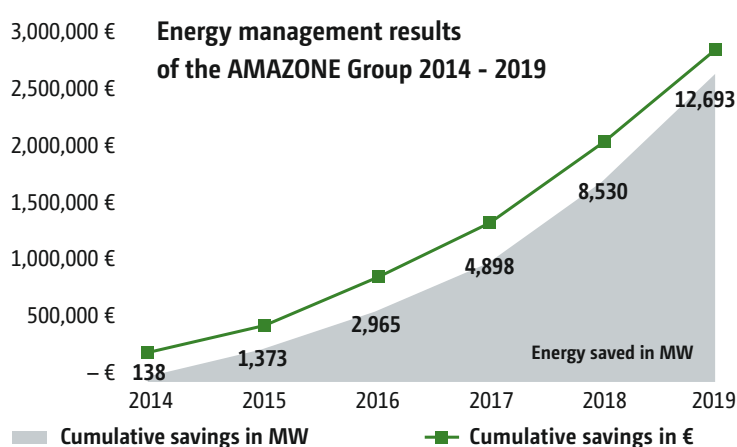


AMAZONE energy team (from left to right): Heinrich Buddenberg, Helmut Ostkamp, Tommy Helbig, Frank Kleine, Daniel Bolte.

More than 200 measures have been implemented as a result of the activities of AMAZONE Energy Management in the last five years.

These measures involved investments of more than €1.6 million, which have now saved more than 12 million kWh. These large energy savings not only avoid the use of fossil fuels, and therefore CO₂, but also result in cost savings of more than €2.8 million. Sustainable environmental protection and cost optimisation are not a contradiction in terms and benefit everyone.

The savings correspond to the energy requirements of 3,000 3-person households per year.



System audit:

All environmental and occupational health and safety laws and regulations are reviewed for compliance by an external consultant together with the waste and environmental officer in an annual "system audit". A database of all legal regulations is regularly updated and compared with the operational conditions for applicability. Deviations are systematically recorded, evaluated and immediately corrected, if necessary.

Participation in the ISO 9001 and 50001 management systems means that these procedures are examined and validated by the external accredited assessor once again.

AMAZONE is fully committed to its role as an environmentally conscious company: **We also produce and sell our products in an ecologically responsible manner.**

Over the years, we have saved more and more on the amount of resource used by optimising the use of materials, reducing the variety of materials, and cut primary and secondary energy consumption. The modular product range development and new parts production methods are evidence of the increased environmental awareness at AMAZONE.

Our environmental management ensures that our factories have as little impact as possible on people and the environment.



3. Our customers



We are a reliable and long-term partner for our customers. This applies to our sales and service partners and also to farmers, contractors and machinery rings. We are constantly striving to develop innovative solutions which enable farmers, contractors and machinery rings to work more efficiently, more cost-effectively and in a more environmentally friendly manner. Long-term customer satisfaction is our most important goal after the machine has been purchased.

Customer focus is not only firmly anchored in our actions as a corporate value, but also in our sustainability strategy.

Together with our sales partners, we provide comprehensive know-how and service to ensure that our end customers receive the right AMAZONE machine for their farm and can use it in the best way possible. We offer them the following for this:

Examples of customer focus

On-site support

We work with reliable, professional sales partners who advise our customers on site during the purchasing process and are also the first point of contact for farmers, contractors and machinery rings in service matters after purchase. The AMAZONE service team is available to assist the service partners in particularly complex tasks.

Spreader Application Center (SAC)

Our Online-FertiliserService, the mySpreader App, the fertiliser sample service and the spreading hall enable us to support our customers by sharing our extensive know-how about fertiliser sorts and their spreading behaviour, so that they can optimally adjust their fertiliser spreader and always spread accurately.

www.amazone.net/duengeservice

Field trials

We conduct many years of plant cultivation trials in conjunction with the scientific community at various locations around the world, so that we can offer our customers the best possible advice on the use of the various soil tillage and sowing methods. These trials sites are selected in such a way that they represent the various farm structures, soil types, climate conditions and crop rotations.

SmartService 4.0

We use digital VR (Virtual Reality) and AR (Augmented Reality) technologies in our AMAZONE SmartService 4.0 concept, in order to be able to support the learning, training and repair processes in the technical customer service department, independently of the location and reducing the need for long journeys where possible.



It goes without saying that our machines should not only operate sustainably but also offer the operator maximum **safety at work and on the road**.



4. *Our employees*



With food consumption increasing as the world's population grows, the agricultural machinery sector will be one of the world's most important industries in the long term. A career in agricultural engineering promises potential for the future.

The AMAZONE team includes around 1,900 employees worldwide. We manufacture at eight different locations in Germany, France, Russia and Hungary. As an owner-managed family business, AMAZONE attaches great importance to the satisfaction and well-being of all employees.



Corporate culture and values

We attach great importance to a corporate culture which creates cohesion and thereby promotes mutual success. Openness, fairness and development are important elements of the daily work at AMAZONE.

Working environment/conditions

Our employees benefit from attractive and motivating working conditions. We offer flexible working hours as well as part-time positions to help our employees balance family and career.

Training and dual course of study

We attach great importance to apprenticeships for young people as the next generation of the AMAZONE team. We offer industrial/technical and commercial training courses as well as dual courses of study for this purpose. At AMAZONE, all new colleagues are supported by a mentor from the beginning and are prepared for entering the world of work at AMAZONE in our in-house development programme. We place particular emphasis on networking and the exchange of knowledge and experience from day one.

Further training and development

The knowledge and skills of our employees are the key to the success of our company. We attach great importance to continuous further training and offer the AmaTrain personnel development programme for this purpose with various topics. In addition to this, targeted promotion both in the management and the technical career path is another key component for us.

Health

The occupational health and safety of our employees is very important to us. We offer comprehensive health management and a company fitness programme with AmaFit.



5. *Our society*



As part of the national and international community, we assume social responsibility outside of the bounds of AMAZONE. We actively participate in the positive further development of society. That is why we support projects which serve this purpose:

AMAZONE foundation

The AMAZONE foundation supports research, teaching and science as well as training and further education in the areas of agriculture and agricultural machinery.

Responsibility

In addition to their duties at AMAZONE, employees also participate in industry associations and professional institutions. Many employees are involved locally in bodies which serve the public good such as the fire brigade, relief organisations and social institutions.

Regional projects

At AMAZONE, we are committed to the regions surrounding our factories and support regional social projects both organisationally and financially.

International projects

We are involved in international projects which serve to further develop sustainability in local agriculture. The Welthungerhilfe projects "Sustainable Agriculture in India" from 2014 to 2018 and the new project "Seed drills for Ethiopia" are examples of this.



Development aid project "A seed drill for Ethiopia"

As part of a development aid project, four AMAZONE trainees designed a special seed drill for use in Ethiopia and tested it on site.







AMAZONE



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