




**AMAZONE**



# AMAZONE 4.0

Meeting agricultural challenges  
with intelligent solutions!





Agriculture will have  
to feed **MORE** people  
from **FEWER** resources





## **Feeding more people from less land**

Professional agriculture faces major challenges today. On the one hand, agriculture must produce high-quality food to feed the world population. Whilst the world population is steadily growing, the amount of arable land on which food can be produced is decreasing due to increased urbanisation. Once again, higher yields are the key objective for agricultural production.

However, the efficiency of crop production cannot be increased by simply increasing the size of machinery. It is therefore necessary to improve the efficiency of production processes through automation and to treat the plants as precisely as possible. To make matters worse, climate change with extreme weather conditions poses new challenges for agriculture and does not always ensure that there is a constant level of yield.

## **Reducing the use of inputs on a sustained basis**

On the other hand, environmental regulations such as the new Fertiliser Regulations, or the requirement to reduce the usage of plant protection agents, as well as the elimination of many individual plant protection agents, further restricts potential production. At the same time, increasing biodiversity must continue to be the primary goal of modern agriculture, so that it offers good prospects for future generations in the long term. In addition to saving resources for reasons of environmental protection or public acceptance, it goes without saying that the optimum use of inputs is also of enormous economic importance for agriculture.

The available resources must be applied even more precisely today. Whereas a uniform application rate was applied to the full area in the past, this now has to be done more and more by part-area and even by individual plant in the future. This means that the precision of sowing, fertilisation and crop protection machinery must increase.

## **Digitalisation supports agriculture**

The ongoing digitalisation of production processes will significantly support agriculture in overcoming these enormous challenges and also in supplying the world population with high-quality food in the future.

AMAZONE wishes to make a decisive contribution to digitalisation and help our customers to secure their future with innovative technologies. We therefore combine our digital expertise under the keyword AMAZONE 4.0 and look to provide farmers and contractors with optimum solutions for precision farming.

## Contents

## Page

1. A look at the modern and digital agricultural technology available from AMAZONE. ....	6
2. Digital solutions on the farm .....	8
3. AMAZONE 4.0 – the right digital technology for sustainable agriculture. ....	10
4. ISOBUS as the basis for intelligent communication .....	12
5. Perfectly developed machine operation from AMAZONE .....	14
6. Software licences and AMAZONE ISOBUS terminals .....	16
a   GPS-Maps&Doc. ....	16
b   GPS-Track parallel guidance aid .....	16
c   GPS-Switch automatic part-width section control. ....	17
d   AmaTron 4 ISOBUS terminal. ....	18
e   AmaTron Connect. ....	19
f   AmaPad 2 high-end ISOBUS terminal .....	22
g   ISOBUS terminals from Amazone – intuitive, comfortable, better. ....	23
7. Intelligent machine technology. ....	24
• Examples from the sector of fertilisation .....	24
• AutoTS border spreading system .....	26
• ProfisPro spread rate regulation. ....	27
• Part-area, site-specific application – on-line/off-line. ....	28
• HeadlandControl headland shut-off .....	29
• GPS-Switch and DynamicSpread automatic part-width section control .....	30
• ArgusTwin spread fan monitoring system .....	31
• WindControl – reduction in the influence of the wind .....	32
• mySpreader App. ....	33



**Digital version:**  
[www.amazone.net/digitalisation](http://www.amazone.net/digitalisation)

**Download version:**  
[www.amazone.net/digitalisation-pdf](http://www.amazone.net/digitalisation-pdf)



## Contents

## Page

● <b>Examples from the sector of crop protection</b> .....	34
• Part-area, site-specific application – on-line/off-line .....	36
• GPS-Switch automatic headland and part-width section shut-off down to a 50 cm part-width section .....	37
• SmartCenter operator station with Comfort-Pack plus .....	38
• AmaSwitch and AmaSelect individual nozzle control .....	40
• ContourControl and SwingStop .....	42
• AmaSelect CurveControl .....	44
• AmaSelect Row .....	45
• AmaSelect Spot .....	46
• UX SmartSprayer .....	48
● <b>Examples from the sector of hoeing</b> .....	50
• Automatic part-width section control .....	52
• Fully automatic row guidance .....	53
● <b>Examples from the sector of seeding and soil tillage</b> .....	54
• GPS-Switch automatic headland and part-width section shut-off .....	56
• Part-area, site-specific sowing on the basis of application maps .....	57
• Automatic coulter pressure adjustment on the basis of application maps .....	58
• SmartForce automatic coulter pressure regulation in precision seeding .....	59
• Precise application of multiple materials .....	60
• AutoPoint switch time optimisation .....	62
• Seed pipe monitoring .....	62
• FertiSpot precision fertilisation .....	63
• mySeeder App .....	64
• Cenius-2TX ZoneFinder with exatrek .....	65
● <b>8. Digital services</b> .....	66
a   SmartLearning .....	66
b   SmartInstruction .....	67
c   SmartSupport .....	68
d   SmartTraining .....	69
e   FertiliserService .....	70
● <b>9. What are the benefits of AMAZONE 4.0 for your farm?</b> .....	72





my**AMAZONE**

Agricultural trade

App providers

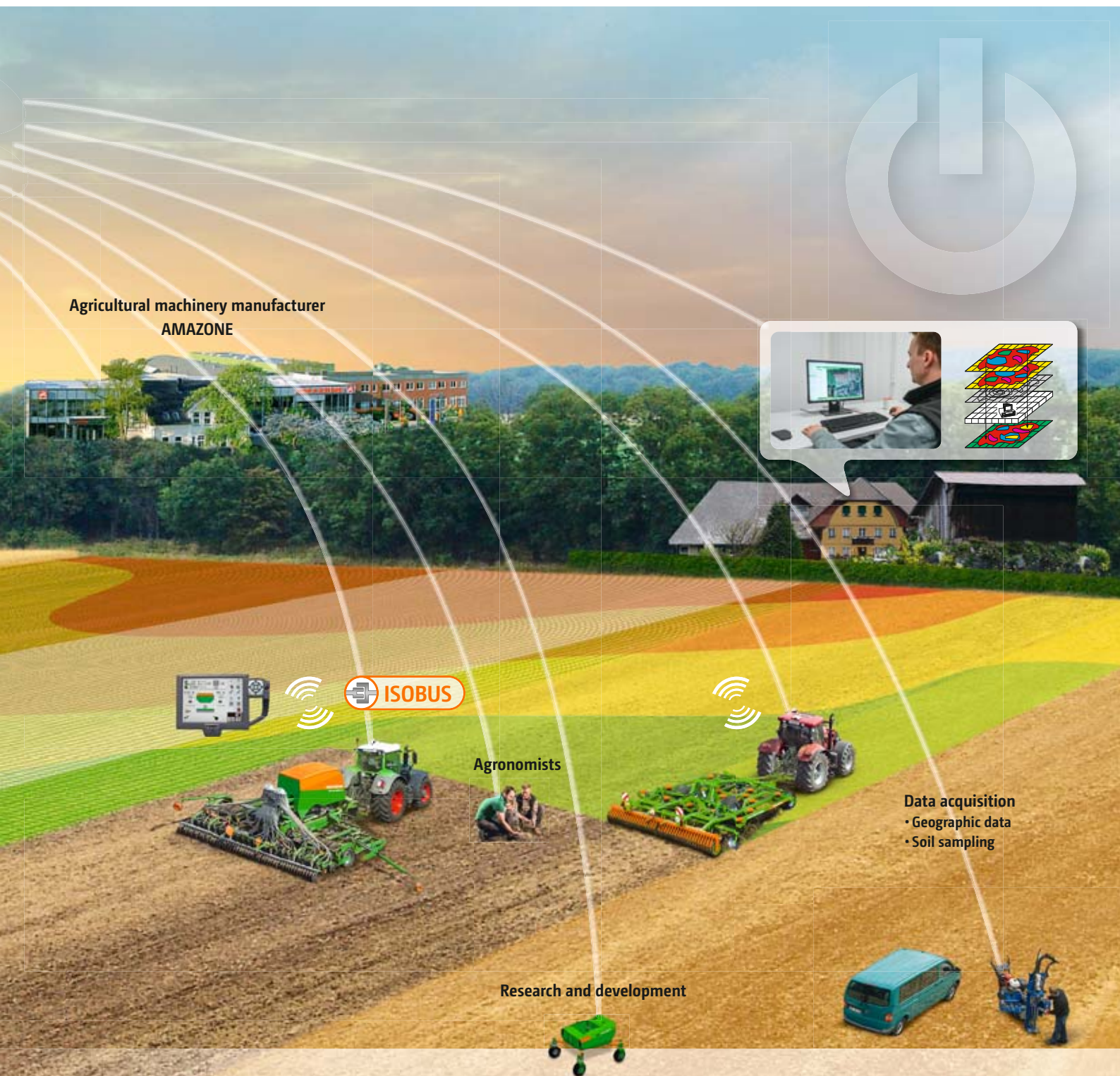
Agricultural  
machinery industry

ISOBUS

ISOBUS

1. A look at the modern and digital  
agricultural technology available  
from AMAZONE





## Fundamental principles for precision agriculture

- Precise position determination for steering, part-width section control and for part-area, site-specific application
- Standardised communication between the tractor and a connected implement via ISOBUS
- Sensor systems for monitoring and automatic control
- Acquisition, interpretation and further processing of data
- Networking and processing of all data according to one standard, for example to one cloud



## 2. Digital solutions on the farm

### GPS satellites



- Basis for steering, switching, metering
- Yield mapping
- Remote sensing
- Soil sampling
- Weather data



### Hoeing



- Automatic part-width section control
- Fully automatic row guidance

### Plant protection



- Part-area, site-specific application – on-line/off-line
- GPS-Switch automatic headland and part-width section shut-off down to a 50 cm part-width section
- AmaSwitch and AmaSelect individual nozzle control
- ContourControl and SwingStop
- AmaSelect CurveControl
- AmaSelect Row
- AmaSelect Spot
- UX SmartSprayer

**Information exchange  
between machine and  
the digital farm**

### Farm PC



- Compilation of all data
- Documentation
- Job management
- Machine evaluation



### Service



- myAMAZONE for farmers
- SmartService 4.0

### Tractor and ISOBUS terminal



- Automatic steering
- Job management and documentation
- Software licences: GPS-Maps&Doc, GPS-Track, GPS-Switch basic, GPS-Switch pro and AmaCam
- AmaTron 4 and AmaPad 2 ISOBUS terminals
- AmaTron Connect: Connectivity to agrirouter and the AmaTron Twin display enhancement





## Fertilisation



- AutoTS border spreading system
- ProfisPro spread rate regulation
- Part-area, site-specific application – on-line/off-line
- HeadlandControl headland shut-off
- GPS-Switch and DynamicSpread automatic part-width section control
- ArgusTwin spread fan monitoring system
- WindControl – reducing the influence of the wind
- mySpreader App

## Spreading hall



- Spreader application Center
- FertiliserService

## Soil tillage



- Cenius-2TX ZoneFinder with exatrek

## Drilling



- GPS-Switch automatic headland and part-width section shut-off
- Part-area, site-specific sowing on the basis of application maps
- Automatic coulter pressure adjustment on the basis of application maps
- SmartForce automatic coulter pressure regulation for precision seeding
- Precise application of multiple materials – multi-boom and multi-bin
- AutoPoint switch time optimisation
- Seed pipe monitoring
- FertiSpot precision fertilisation
- mySeeder App

» Data is correlated  
» Data is made available for use with added value for the farmer

## Service providers/agricultural software

- Advice
- Farm Management Information System
- Utilising application maps
- Documentation



## Robotics

- Crop monitoring, plant protection, sowing etc.

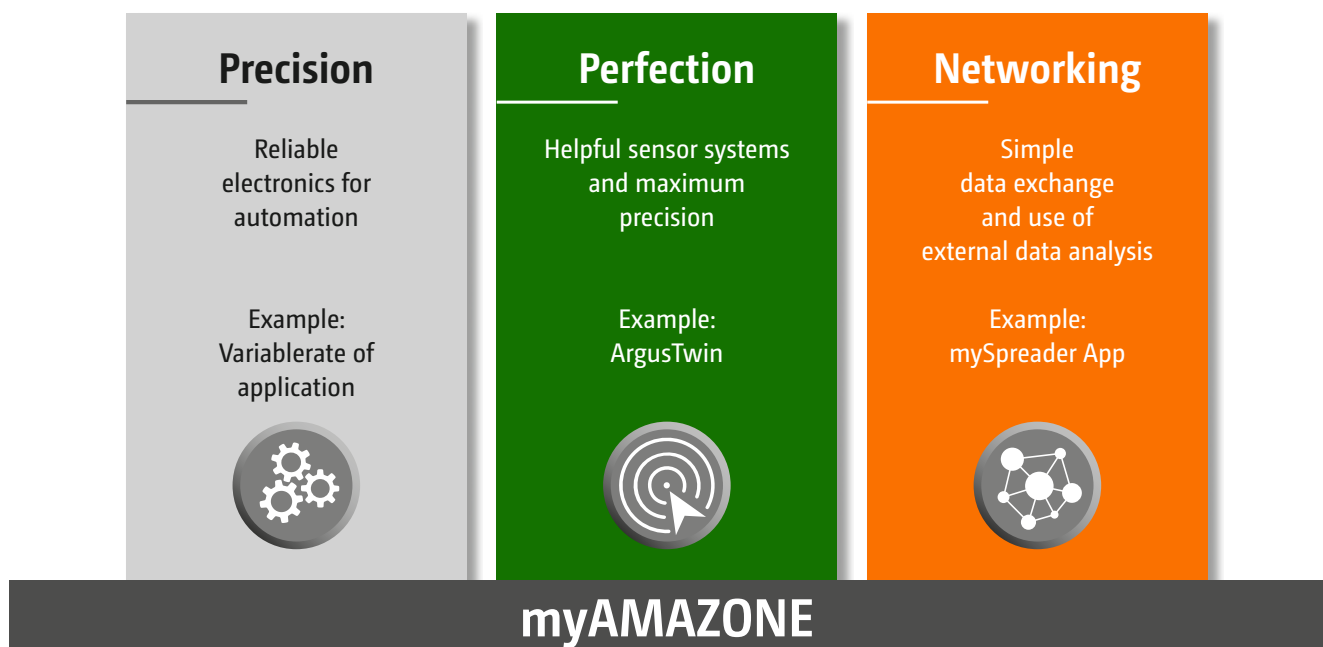
### 3. AMAZONE 4.0 – the right digital technology for sustainable agriculture

#### AMAZONE 4.0

AMAZONE has always pursued the goal of being able to offer our customers digital technologies which ensure optimum crop development with secure yields and quality whilst at the same time reducing the use of plant protection agents and fertilisers. AMAZONE 4.0 is therefore a keyword for customer-oriented, digital solutions which enable intelligent crop production. Clever AMAZONE technology optimises operational systems, ensuring a high level of operational comfort and helps farmers work more efficiently,

conserve resources and, above all, work much more precisely. From ISOBUS communication to perfect, error-free spreader adjustment via Bluetooth by means of the mySpreader App, AMAZONE 4.0 offers suitable solutions from the sectors of software, electronics, service and networking thus meeting every customer requirement.

To give you a better idea of our digital technologies, we have divided them into the following 3 segments:



#### Definition of AMAZONE 4.0

Our current and future contribution from the areas of software, electronics, service and networking with suitable digital solutions for every customer requirement





### Precision

**Precision** includes our digital solutions, which already enable very precise work with the help of automated control of the machine and ISOBUS electronics. This includes, for instance, automatic control of the fertiliser spreader application rate, automatic part-width section control via GPS, or the option of part-area, site-specific application on the basis of application maps. This segment provides the customer with a high degree of time saving as well as an increase in operational comfort, whereby the work processes run automatically and can be adapted to the local conditions.



### Networking

**Networking** stands for the digital networking of our machines and the resulting benefits for our customers. In conjunction with our AMAZONE Apps, data can be exchanged on-line quickly and securely between AMAZONE machinery and the Apps, thereby improving the quality of work. Simple on-line data exchange via agrirouter is also ensured with our machinery. The added value of external data analysis via service providers, e.g. through artificial intelligence or soil and yield maps, can be harnessed by our machinery and the application of operational resources optimised.



### Perfection

**Perfection** is the extension of precision. This area comprises the digital solutions used to control our machines even more precisely and optimise the work result even further. These digital solutions meet the highest demands of precision agriculture by enabling the machines to constantly perfect the quality of work via additional intelligent sensor systems, or to apply inputs to the smallest part-areas in an even more targeted manner.



In the following, we would like to present some examples of the digital solutions available under AMAZONE 4.0 and look at the specific added values they offer for practical application. For easier orientation, the digital solutions in the area of electronics and machine technology are divided into the Precision/Perfection/Networking segments as described above.

### myAMAZONE

myAMAZONE gives us the opportunity in the future to offer our customers a portal which bundles all digital services under one roof providing added value through personalised customer specific content.

## 4. ISOBUS as the basis for intelligent communication

### What does an ISOBUS system consist of?

A modern ISOBUS system consists of various components, including the tractor, terminal and implement. It always depends on what the terminal and implement are capable

of – and last but not least, which equipment options have been installed. Functions have been defined for the sake of clarity.


**TECU**

#### Tractor ECU Basic

Tractor ECU is the "Job Computer" of the tractor. Information such as the speed, PTO speed, etc. is centrally provided here. In addition, an implement connector socket on the rear of the tractor and a terminal connector socket in the cab are required for certification of this function.


**UT**

#### Universal Terminal

Offers the possibility of operating an implement on any terminal or using one terminal to operate different implements.


**AUX-N**

#### Auxiliary Control

##### AUX-N – Auxiliary Control (new)

Additional operating elements which are designed to facilitate the operation of complex implements such as a multi-function joystick or the option of controlling functions on the implement side via an additional operating element.

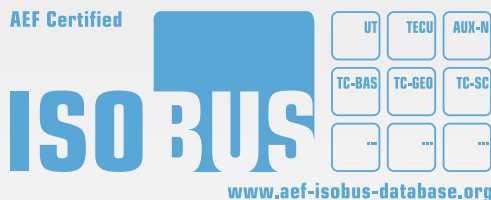




MEMBER OF



AEF Certified


[www.aef-isobus-database.org](http://www.aef-isobus-database.org)
**TC-BAS****Task Controller basic (totals)**

Documents the total values giving an overview of the amount of work done. The implement provides the values. Data exchange between the Farm Management Information System and the Task Controller takes place in the ISO-XML format. As a result, jobs can be easily imported to the Task Controller and/or the finished documentation can be exported afterwards.

» **GPS-Maps&Doc**

**TC-SC****Task Controller Section Control**

Carries out the automatic switching of part-width sections, e.g. in crop protection sprayers, seed drills and fertiliser spreaders depending on the GPS position and desired degree of overlap.

» **GPS-Switch**

**TC-GEO****Task Controller geo-based (variables)**

Offers the additional option of collecting location-based data or planning location-based jobs, e.g. with application maps.

» **GPS-Maps&Doc**

**One language, many benefits!**

Each ISOBUS-enabled machine from AMAZONE comes with the latest technology and almost unlimited possibilities. It makes no difference whether you use an operator terminal from AMAZONE or an ISOBUS terminal fitted directly in the tractor. ISOBUS is an internationally recognised standard for communication between the operator terminal, tractors and connected implements on the one hand and Farm Management Information Systems on the other.

## 5. Perfectly developed machine operation from AMAZONE

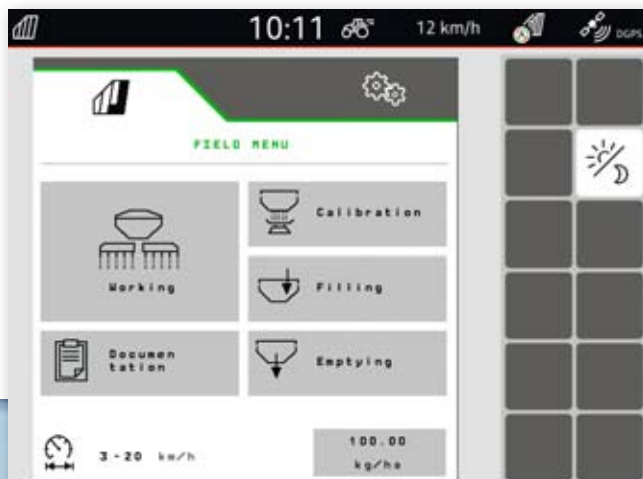


All the machine software is developed by AMAZONE in its in-house electronics department with a high degree of practical relevance, in order to increase the operational comfort and to achieve significant added value for machine operation.

As a result, the farmer or contractor receives software which is **tailored** to his or her machine and scores highly for its extremely user-friendly and simple operation.

### Advantages of the AMAZONE machine software:

- ✓ User-oriented and intuitive
- ✓ Tailored to the machine
- ✓ Function range beyond the ISOBUS standard



Clear display of the work menu in the AMAZONE machine operation

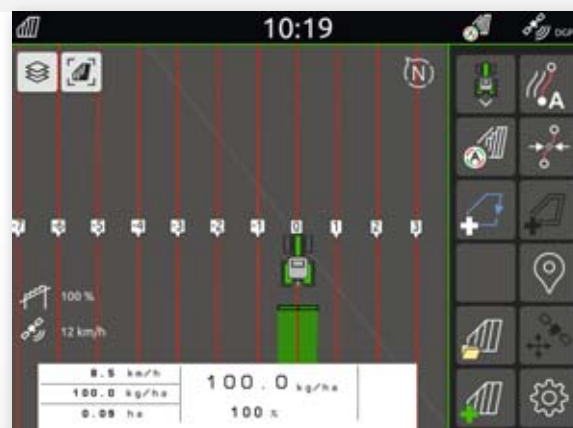




Clearly structured AMAZONE machine operation

AMAZONE machinery and operating terminals offer a range of functions **beyond the ISOBUS standard**:

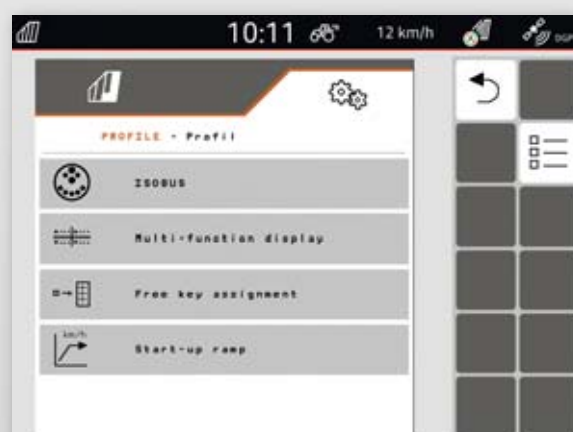
- Highest compatibility and operational reliability of your ISOBUS equipment
- No additional modules on the machine side. All ISOBUS machinery from AMAZONE comes ready equipped with the necessary ISOBUS functions as standard
- Practice-oriented machine software and logical menu structure
- MiniView display with all AMAZONE terminals and additional ISOBUS terminals. See, for example, the machine data in the map view.
- Possibility of operating the machine via the tractor terminal or a twin terminal solution
- Flexible assignment of the map and machine view between the tractor terminal and the operator terminal
- Unique operating concept. Freely-configurable displays and individual user interfaces for each driver
- **Useful additional functions** such as automatic boom lowering on AMAZONE crop protection sprayers
- Integrated TaskController data logger function



MiniView - the most important machine information at a glance, even in the map view



The operator can individually assign functions to each button



Clear display of the settings in the AMAZONE machine operation





GPS-Maps – part-area, site-specific application during seeding

## 6. Software licences and AMAZONE ISOBUS terminals

### a | GPS-Maps&Doc – for documentation of the work done and the ability to use application maps



#### Task Controller (Doc)

A needs-based and part-area, site-specific management of the crop as well as complete documentation are becoming more and more important in the wake of the stricter regulations, such as the current Fertiliser Regulations or the reduced use of plant protection agents. The AMAZONE ISOBUS terminals with the standard Task Controller function enable part-area, site-specific documentation of the data as well as data exchange with a Farm Management Information System (FMIS), in order to ensure that the measures are not only planned in advance but also precisely documented during work. The standardised ISO-XML format is used for this purpose. Job data can be conveniently imported to the terminal and/or the finished documentation can be exported after the job is completed.

#### GPS-Maps

GPS-Maps make it easy to carry out part-area, site-specific management of seed, fertilisers or plant protection agents. Application maps in an ISO-XML or Shape file format can be utilised for this purpose.

#### The GPS-Maps&Doc licence offers the following practical advantages:

- Easy creation, loading and processing of jobs
- Start a new task immediately and then decide later whether the data needs to be saved or not
- Import and export jobs in ISO-XML format
- Job summary via PDF export
- Intuitive system for utilising application maps in Shape file format and ISO-XML format
- Automatic part-area, site specific regulation of the application rate
- Indication of inactive field boundaries and automatic field detection when driving in the field

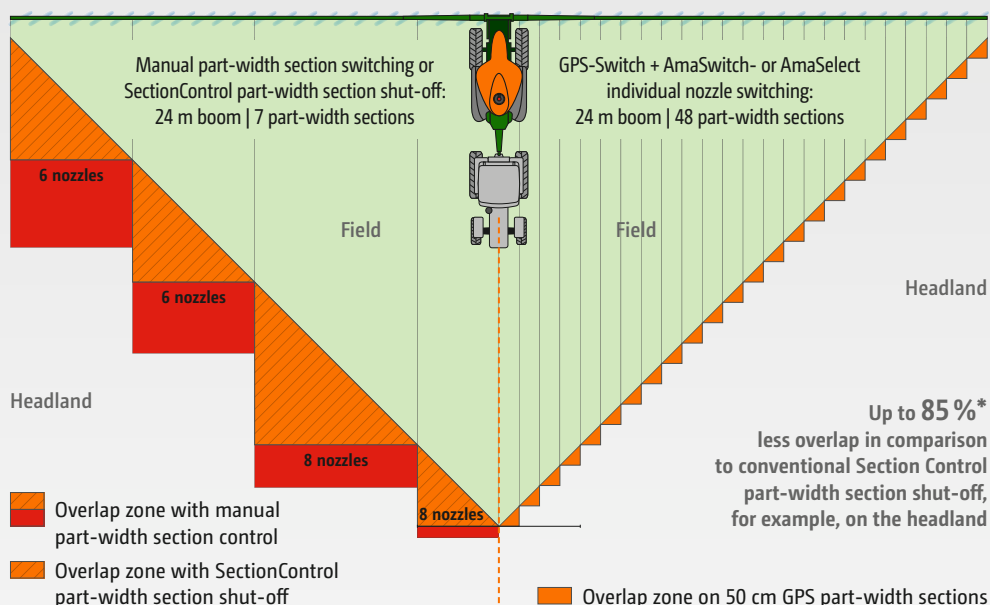
### b | GPS-Track parallel guidance aid

#### GPS-Track

The GPS-Track parallel guidance greatly helps with orientation in the field, especially on grassland or in areas without tramlines.

- With a virtual light bar in the status bar
- Automatic tramline control via GPS for seed drills
- Various track modes such as A-B lines or contour travel





Automatic part-width shut-off on the headland and in wedge shaped fields

**GPS-Switch**

**5 %\***

Savings in crop protection agent usage



Electric individual nozzle control  
**AmaSwitch or AmaSelect**

**5 %\***

Additional saving in crop protection agent usage

Example: 24 m working width (6-6-8-8-8-6-6 = 48 nozzles)

\* Values dependent on field size, working width and the number of part-width sections

## c | GPS-Switch automatic part-width section control

If the operating terminal facilitates Section Control, e.g. GPS-Switch part-width section control from AMAZONE, the part-width sections are activated completely automatically and in relation to the GPS position. Once a field has been created, the driver can concentrate fully on operating the vehicle in automatic mode, since the part-width sections are switched automatically in wedge shaped fields and on headlands.

### Benefits of automatic part-width section control:

- Relieves the stress on the driver
- Increased precision, even at night or at higher speeds
- Fewer overlaps and gaps
- Reduction in the use of inputs
- Less crop damage and environmental impact

### GPS-Switch

With GPS-Switch, AMAZONE offers GPS-based, fully automatic, part-width section control for all AMAZONE operator terminals and ISOBUS-compatible fertiliser spreaders, crop protection sprayers or seed drills.

#### GPS-Switch basic

- Automatic part-width section control with up to 16 part-width sections
- Creation of a virtual headland
- Automated boom lowering with an AMAZONE crop protection sprayer

#### GPS-Switch pro

(as an extension to GPS-Switch basic)

- Automatic part-width section control with up to 128 part-width sections, particularly for crop protection sprayers with individual nozzle control
- Marking of obstacles, e.g. water holes, pylons
- Auto-zoom when approaching the headland



Overlaps on the headland or in wedge shaped fields are prevented via precise switch points with GPS-Switch.





AmaTron 4 ISOBUS terminal

## d | AmaTron 4 ISOBUS terminal

### Manager 4 all

#### Intuitive and user-friendly actuation

Why not handle a terminal as intuitively as a tablet or a smartphone? With this in mind, AMAZONE has developed the user-friendly AmaTron 4 ISOBUS terminal, which offers a noticeably smoother operational process, especially when it comes to job management. The AmaTron 4 with its 8" multi-touch colour display meets the highest demands and offers maximum user-friendliness. A swipe of the finger or use of the App carousel allows quick changes between applications and the simple and clearly structured operating menu. A useful MiniView, a freely configurable status bar as well as a virtual light bar make the use of the AmaTron 4 particularly clear and convenient.

#### Benefits of AmaTron 4:

- Automatic full screen mode when not being touched
- Automatic control of the button display via a proximity sensor
- Practical MiniView concept
- Actuation via multi-touch colour display or soft keys
- Particularly intuitive and user-friendly
- Field-related documentation
- Practice-oriented and intelligent menu navigation
- Practical quick-start menu with import and export of job data, help windows, day/night mode and the AUX-N assignment
- One camera input and automatic reversing detection
- Free trial period for all chargeable licences
- AmaTron Connect – for optional entry into the digital age

#### Equipped as standard with:

- GPS-Maps&Doc



Machine operation (UT, Universal Terminal) in day-night mode



Map view with AmaTron Twin – Clear display of the machine and its part-width sections, as well as buttons on the right-hand side of the tablet display

## e | AmaTron Connect

### New ways of comfortable networked operation

#### Communication in real time

With AmaTron Connect, AMAZONE provides a digital interface to a smartphone or tablet. The mobile device is simply connected to the AmaTron 4 as a hotspot. AmaTron Connect

enables use of the AmaTron Twin App as well as data exchange via agrirouter and the myAmaRouter App.

### AmaTron Twin App

#### Clear display enhancement

The AmaTron Twin App offers the driver even more comfort in work, as GPS functions in the map view can also be operated via a mobile device (e.g. a tablet) in parallel with machine operation in AmaTron 4.

#### Advantages of the AmaTron Twin display enhancement:

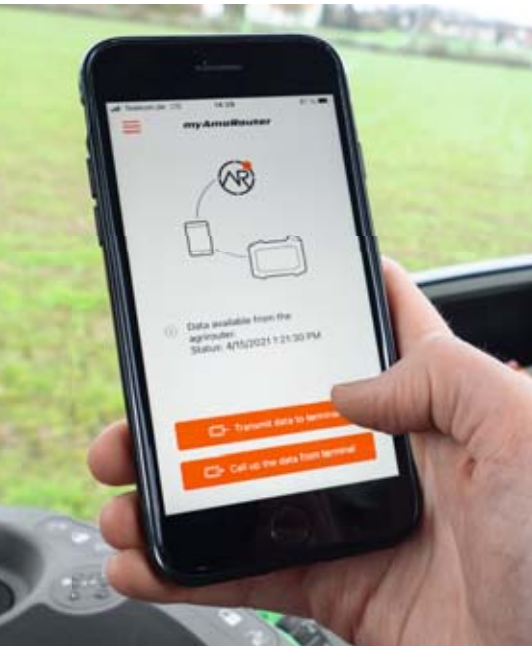
- Use of an existing mobile device
- Greater clarity – all applications in sight
- Comfortable control of GPS functions in the map view in parallel via the mobile device
- Clear, authentic representation of the working machine and its part-width sections



AmaTron Twin App







ready for  
**agrirouter**

## e | AmaTron Connect

### agrirouter and the myAmaRouter App

For simple and secure data exchange

agrirouter is an independent data exchange platform for farmers and contractors. It enables simple and cross-manufacturer data exchange between machines and agricultural software applications, thereby reducing administration. The user retains full control over the data at all times.

The myAmaRouter App enables data to be exchanged between the AmaTron 4 ISOBUS operator terminal and the agrirouter manufacturer-independent data exchange platform. If an AMAZONE machine is to be used to carry out a task with job data (e.g. application maps), the data can be easily transmitted from a Farm Management Information System (FMIS) to AmaTron 4 via agrirouter and the myAmaRouter App. After the work has been completed, the job can be sent back and is available for documentation in an agricultural software application.

#### The following practical advantages are provided:

- Simple data exchange between the AmaTron 4 ISOBUS terminal and the manufacturer-independent agrirouter data exchange platform
- Easy and rapid transfer of job and task data without the need for a USB stick
- More flexibility for data exchange and documentation



Uncomplicated data transfer. Transparent and secure!



myAmaRouter App



Machinery manufacturers



App providers



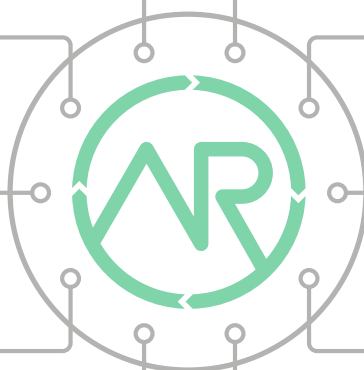
Equipment manufacturers



Food industry



External data exchange platforms



Farmer



Contractors



Dealer



Consultant



External service providers



SEE MORE – VIDEO

[www.amazone.net/myAmaRouterApp](http://www.amazone.net/myAmaRouterApp)







**AmaPad 2 ISOBUS terminal:**  
The most important information at a glance –  
in full screen mode or in the MiniView

Two cameras enable continuous  
monitoring of the surrounding areas  
during field work or on the road

## f | AmaPad 2 high-end ISOBUS terminal

### The new dimension of control and monitoring

With AmaPad 2, AMAZONE offers a particularly high-quality operator terminal. The 12.1" multi-touch colour display is particularly convenient and fulfils the highest demands from Precision Farming. AmaPad 2 is operated solely via touch.

With the practical MiniView concept, applications which are not being actively operated but need to be monitored are clearly displayed at the side. When needed, these can be enlarged using "a finger swipe". The possibility of individualising the "dashboard panel" with a choice of display rounds off the user ergonomics.

#### Benefits of AmaPad 2:

- High-end ISOBUS terminal with a large touch display
- Extended MiniView concept enables the simultaneous display of a maximum of four menus
- Quick-start button and integrated light bar
- Two camera inputs
- Day-night mode

#### Equipped as standard with:

- GPS-Maps&Doc
- GPS-Switch basic
- GPS-Switch pro
- GPS-Track

## AmaPilot<sup>+</sup>

All from one source!

Thanks to the AUX-N feature, you can operate multiple functions of the machine via AmaPilot<sup>+</sup> or any other ISOBUS multi-function joystick.

#### The benefits of AmaPilot<sup>+</sup>:

- Almost every function directly controlled via 3 levels
- Adjustable palm rest
- Freely-programmable, individual key layout



## AmaCam



Software licence for the display of one camera image on AmaTron 4 and up to two camera images on AmaPad 2.

- Automatic display of the camera image on AmaTron 4 when reversing

Automatic display of the camera image on AmaTron 4 when reversing



## g | ISOBUS terminals from AMAZONE – Intuitive, comfortable, better

Overview of ISOBUS terminals	AmaTron 4 	AmaPad 2 
Display	8" multi-touch colour display	12.1" multi-touch colour display
Mode of operation	Touch and twelve soft keys	Touch
Interfaces	Serial interface for GPS Two USB ports	
Sensor connection, e.g. nitrogen sensor	via SCU-L adapter	via SCU-L adapter or PeerControl
Job management and processing of application maps (ISO-XML and Shape file format)	GPS-Maps&Doc *	
Automatic part-width section control (SectionControl**)	GPS-Switch basic * with up to 16 part-width sections or GPS-Switch pro * with up to 128 part-width sections	GPS-Switch basic + pro with up to 128 part-width sections
Parallel guidance aid	GPS-Track * with virtual light bar	GPS-Track with virtual light bar
Automatic track guidance	–	Steer Ready Set * for the Pantera self-propelled sprayer
Camera connection/licence *	Single camera connection / AmaCam * with automatic reversing detection AmaCam	Twin camera connections / AmaCam *

\* = optional / \*\* = Note the max. no. of machine part-width sections

## 7. Intelligent machine technology

### Examples from the sector of fertilisation

#### Precision

- AutoTS border spreading system
- ProfisPro spread rate regulation
- Part-area, site-specific application – on-line/off-line
- HeadlandControl headland shut-off
- GPS-Switch automatic part-width section control



#### Perfection

- DynamicSpread automatic part-width section control
- ArgusTwin spread fan monitoring system
- WindControl – reduction in the influence of the wind



#### Networking

- mySpreader App











AutoTS – Setting for normal spreading

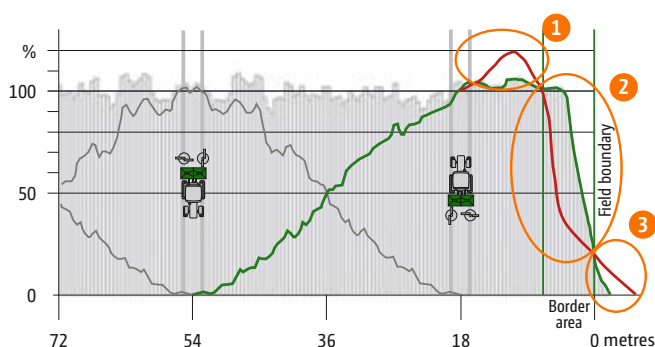


AutoTS – setting of the delivery vane for border spreading

## AutoTS border spreading system

### For comfortable and precise border spreading

The disc-integrated AutoTS border spreading system can be used for comfortable activation of the various border spreading techniques such as side, border and water course spreading independently to each side from the tractor cab via the terminal. Sharp cut-off border spread patterns are made possible, thereby creating optimum growing conditions right up to the field boundary. The throwing distance of the fertiliser is limited by a shorter spreading vane, so that it is optimally distributed up to the field boundary without damage.



### The following practical advantages are provided:

- Increased yields compared with standard border spreading techniques
- Time saving through remote activation



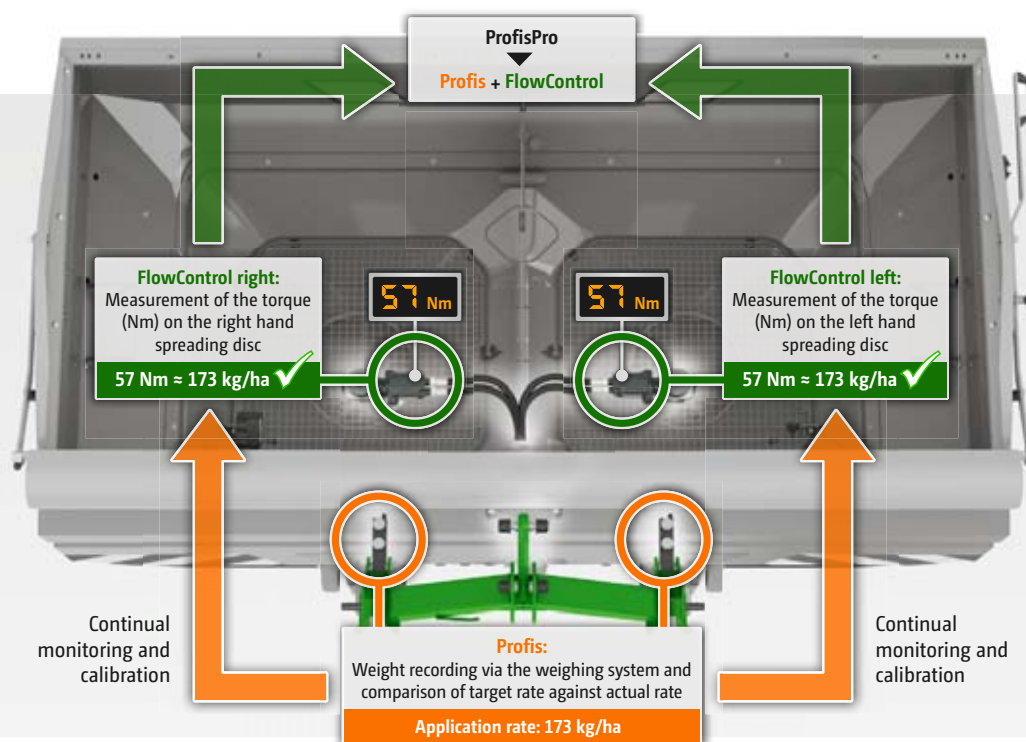
	AutoTS border spreading system	Conventional border spreading systems
1	A shorter spreading vane restricts the throwing distance of the fertiliser.	The mechanical deflection of the fertiliser causes damage to the granules, which then drop beside the tramline.
2	The fertiliser is protected and optimally distributed up to the field boundary.	The damaged granules are not spread out to the border area, resulting in under-fertilisation.
3	Only a few granules end up beyond the field boundary due to the lower throwing speed of the fertiliser.	Not all fertiliser granules are mechanically deflected, meaning that the fertiliser is spread well beyond the field boundary.



### Calculate the extra revenue: with the AMAZONE Border Spreading Calculator

With AutoTS, an average increased yield of about 17% can be achieved around the field boundary compared with other well-known systems. Calculate it for yourself now!

[www.amazone.net/border-spreading-calculator](http://www.amazone.net/border-spreading-calculator)



ProfisPro: Perfect combination of the Profis weighing system and the FlowControl torque measuring system

## ProfisPro spread rate regulation

### For optimised application rates from the very first second

The ProfisPro intelligent weighing system includes the interaction of the Profis weighing system with the new FlowControl torque measuring system. This enables permanent control of the theoretical application rate of the fertiliser spreader via torques. The Profis weighing system monitors the actual quantity spread every 25 kg, which causes FlowControl to recalibrate itself at regular intervals.

The ProfisPro intelligent weighing system means that the spread rate is optimised from the very first second of the spreading process. In addition, the driver has an overview of the actual quantity remaining in the hopper at all times as well as the possibility to display the remaining travelling distance until empty. The spread rate regulation between the Profis weighing system and the FlowControl sensors is unique on the market.

### The following practical advantages are provided:

- Absolute operational reliability
- Optimum application rates even when side, border and watercourse spreading







Part-area, site-specific fertilisation  
with N-sensor

Part-area, site-specific fertilisation based  
on application maps



## Part-area, site-specific application – on-line/off-line

For variable application rates based on application maps or via on-line sensors

Systems for part-area, site-specific nitrogen fertilisation have been known for years. Some service companies now offer soil sampling with GPS support. The results can be used to create an application map which serves as a basis for part-area, site-specific fertilisation in combination with an ISOBUS terminal. This method balances the nutrient supply and therefore creates optimum part-area, site-specific conditions for plant growth from a nutritional standpoint.

Apart from application maps, sensor systems can be used to exploit further yield potentials. Biomass, plant height, chlorophyll content and green colouration are used as indicators for determining the quantities of nitrogen already absorbed or the nitrogen requirement. This data is determined with the aid of sensor systems and the target values are transmitted directly to the implement, e.g. via ISOBUS terminals. The application of the fertiliser is tailored to the individual part-areas in this instance.

### The following practical advantages are provided:

- Automatic part-area, site-specific usage of application maps and sensor data as well as regulation of the application rate
- Optimum crop management via needs-based fertilisation
- Fertilisers are used in a more targeted and environmentally-friendly manner
- Relieves the stress on the driver





- HeadlandControl
- Normal spreading
- Border spreading

HeadlandControl – optimum lateral distribution on the headland

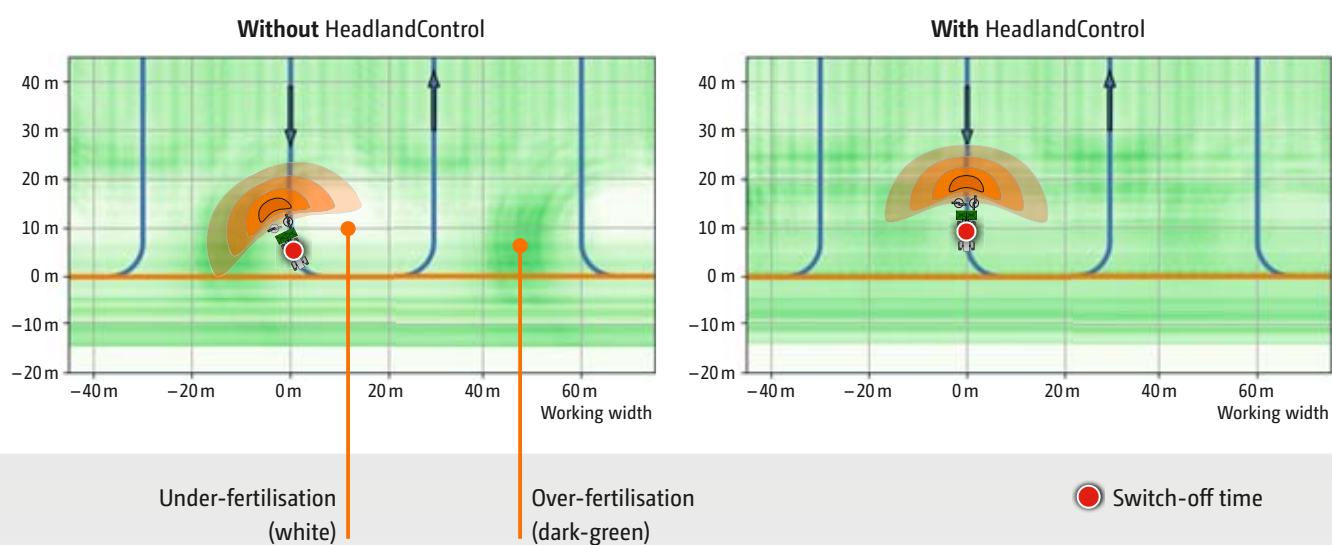
## HeadlandControl headland shut-off

### For optimum lateral distribution on the headland

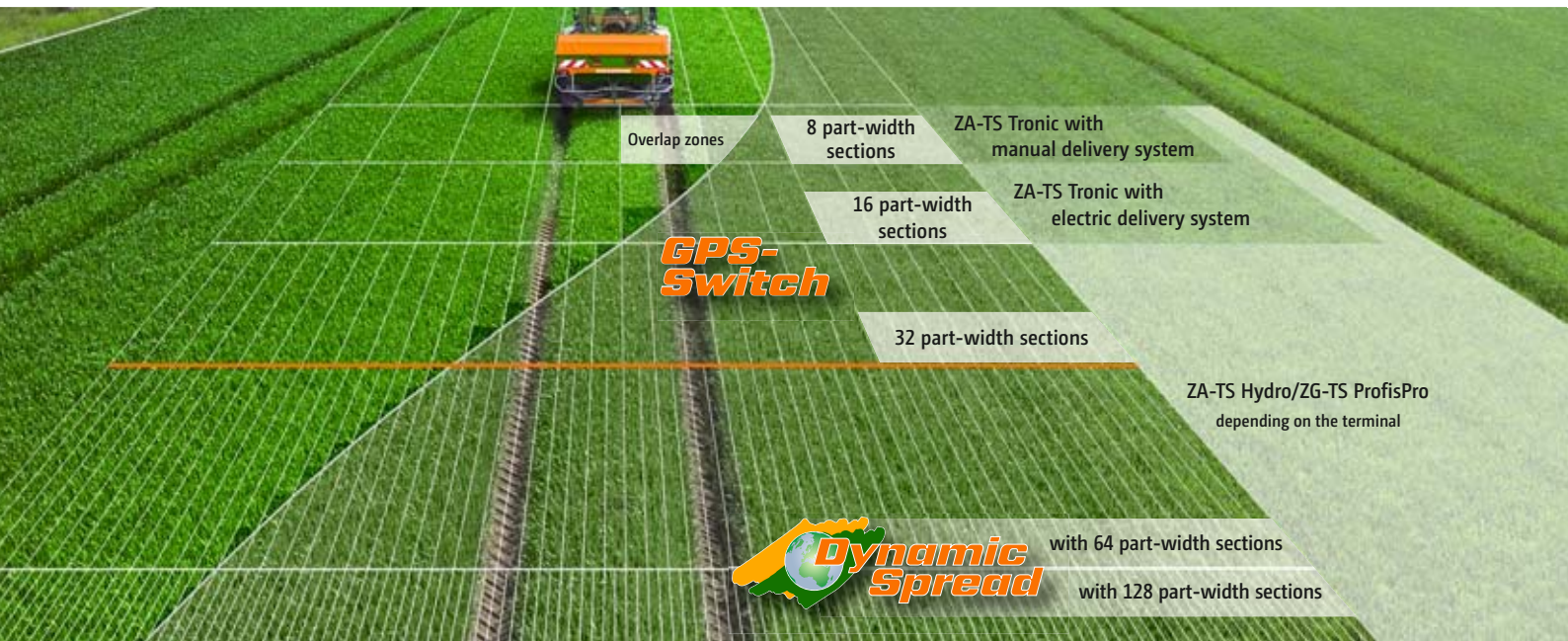
Different fertilisers have different switch-on and switch-off points. In practice, the switch-off points are usually only achieved when the tractor is turning onto the headland. The arc of spread behind the tractor swings round to the side creating areas that are either over- or under-fertilised. The HeadlandControl function enables the spreader to throw fertiliser on the headland towards the inside of the field and beyond the normal working width. This means that the spreader can switch earlier when it arrives at the headland. The tractor can follow the tracks of the sprayer yet still achieve optimum lateral distribution.

### The following practical advantages are provided:

- Over- and under-fertilisation at the headland are avoided
- More uniform crops across the headland







DynamicSpread – automatic part-width section control with up to 128 part-width sections

## GPS-Switch and DynamicSpread automatic part-width section control

For precise fertilisation without overlaps

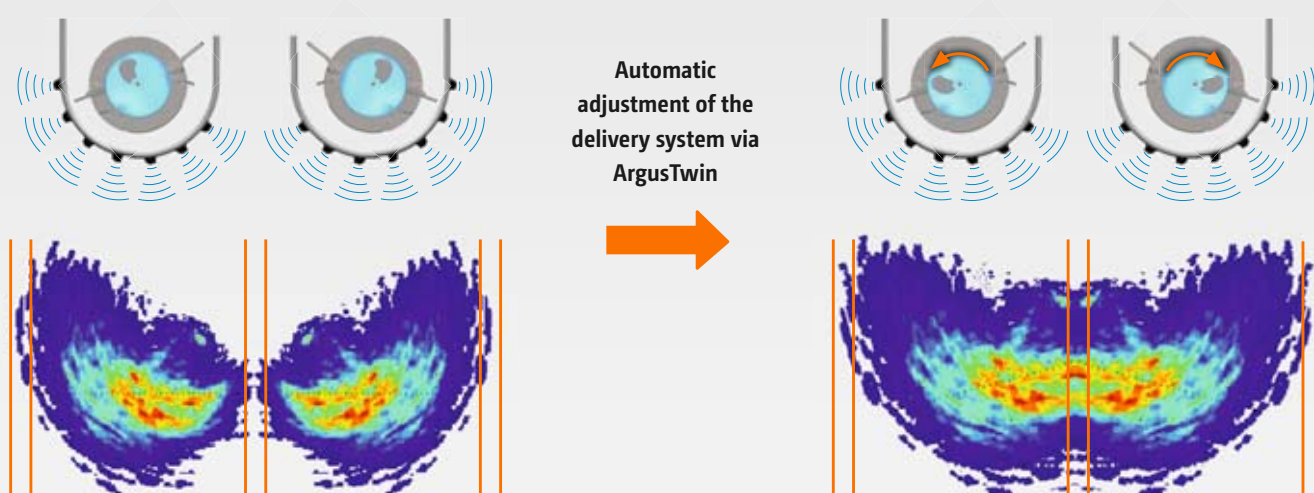
Up to 16 part-width sections can be automatically switched in the form of a kidney-shaped pattern by means of the GPS-Switch automatic part-width section control and an AMAZONE ISOBUS terminal. The DynamicSpread dynamic part width section control for the ZA-TS and ZG-TS spreaders can be used as an extension for GPS-Switch. DynamicSpread automatic part-width section control offers up to a maximum of 128 part-width sections. This allows very precise working in wedge shaped fields or on head-lands. Outer part-width sections can also be controlled. The working width and spread rate can be quickly and precisely adapted to different field sizes thanks to the delivery system adjustment and hydraulically-driven spreading discs with individual speed adjustment to either side.

The following practical advantages are provided:

- Maximum precision when switching part-width sections
- Reduction in the use of fertilisers
- Environmentally-friendly application







Problem found in practice – poor lateral distribution, e.g. due to a change in fertiliser properties

Perfect lateral distribution enables uniform crops, even with varying fertiliser quality and properties

## ArgusTwin spread fan monitoring system

### Permanent monitoring of the spread fan for optimum lateral distribution

ArgusTwin uses 14 radar sensors to monitor the lateral distribution of fertiliser from both the left and right hand spreading discs. The electric delivery system of the fertiliser spreader is automatically corrected to ensure optimum lateral distribution at all times in the event of deviations from the target values. Since the radar technology works regardless of dust and dirt, it delivers very reliable results.

This also applies to variable fertiliser quality, working across slopes, starting off and braking behaviour or worn spreading vanes.

#### The following practical advantages are provided:

- Optimum lateral distribution of the fertiliser at all times, even with variable fertiliser qualities
- Higher fertiliser efficiency
- Automatic slope compensation of the spread pattern
- No restrictions on border spreading or part-width section control



! "ArgusTwin optimises the lateral distribution in a matter of seconds."

("profi" – Test report Amazone ArgusTwin · 01/2016)



## Without WindControl

Asymmetrical spread pattern

Extended throwing trajectory

Extended throwing trajectory

Heavily-shortened throwing trajectories

Heavily-shortened throwing trajectories

**Response:**  
Reduce the speed and rotate the spread pattern inwards

## With WindControl

Unaffected spread pattern

Cross wind

Cross wind

Cross wind

Cross wind

**Response:**  
Increase the speed and rotate the spread pattern outwards

Automatic compensation for the effect of the wind according to Prof. Dr. Karl Wild of the University of applied Sciences, Dresden

## WindControl – reduction in the influence of the wind

For an optimum spread pattern in difficult wind conditions

WindControl enables the effect of the wind on the spread pattern to be permanently monitored and automatically compensated for. A high-frequency wind sensor mounted on the machine records both the wind speed and the wind direction and transmits this information to the job computer. The delivery system and the spreading disc speed are then automatically adjusted. WindControl thereby extends the time windows for fertiliser spreading under the effects of the wind.

The following practical advantages are provided:

- Compensation for the effects of the wind under difficult wind conditions
- Larger time windows for spreading
- Warning to the driver in particularly strong winds and when compensation is not possible



Wind speed and wind direction are displayed in the terminal





Photographing the test mats via the mySpreader App



mySpreader App



## mySpreader App

### For perfect spreader adjustment

The free mySpreader App enables AMAZONE fertiliser spreaders to be optimally adjusted and the lateral distribution checked. The wide variety of fertiliser types as well as variable properties of an identical fertiliser (due to storage or restacking) make it difficult for the user to find the perfect setting for a fertiliser. The mySpreader App helps to determine the perfect spreader setting for any fertiliser or blended fertiliser via the FertiliserService, EasyCheck and EasyMix functions.

For fast and error-free transmission, the setting values can be optionally transmitted to the spreader via Bluetooth with the Spreader Connect licence.

### Put simply:

Open App and select the fertiliser – Transfer/send setting values to terminal – Put out the EasyCheck digital test kit – Spread onto mats – Photograph mats with the App – Transfer/send corrected setting values to terminal – It couldn't be simpler.

### The following practical advantages are provided by the mySpreader App:

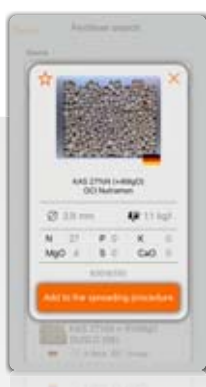
- Comfortable determination of the correct spreader settings – without tedious reading from setting charts
- Simple optimisation and testing of the lateral distribution
- Quick evaluation of the spreadability of certain blended fertiliser mixes
- Free use of the FertiliserService, EasyCheck and EasyMix functions



Functions



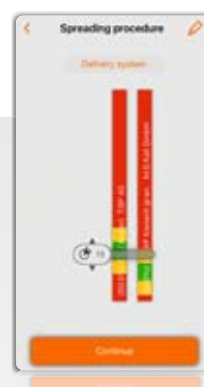
Fertiliser search



Setting recommendations can be sent directly to the machine via Bluetooth



Delivery system setting for blended fertiliser





## Examples from the sector of crop protection

### Precision

- Part-area, site-specific application – on-line/off-line
- GPS-Switch automatic headland and part-width section shut-off down to 50 cm part-width sections
- SmartCenter operator station with Comfort-Pack plus



### Perfection

- GPS-Switch automatic headland and part-width section shut-off down to 50 cm part-width sections
- AmaSwitch and AmaSelect individual nozzle control
- ContourControl and SwingStop
- AmaSelect CurveControl
- AmaSelect Row



### Networking

- AmaSelect Spot
- UX SmartSprayer









Part-area, site-specific application via an application map

## Part-area, site-specific application – on-line/off-line

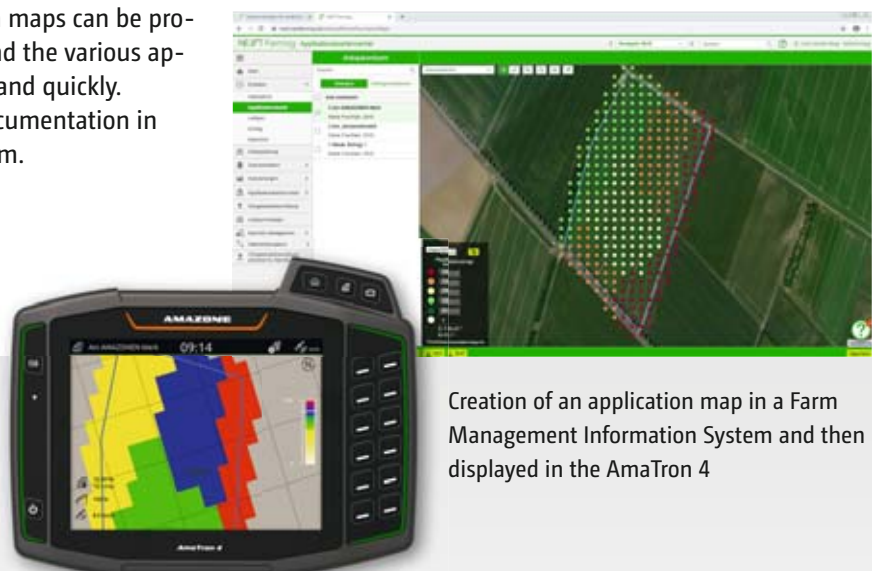
For variable application rates based on application maps or via on-line sensors

If everything were the same, it would be easy. However, since hardly any field is homogeneous and delivers the same yield potential everywhere, individual part-areas must be considered and managed on a targeted basis. Using suitable application maps, which are derived from, for example, biomass maps, areas with a lower crop density and areas with a higher crop density can be supplied with plant protection agents or liquid fertiliser more in line with those needs. The same applies to sensor-based applications, whereby the different part-areas are directly identified via sensors during the measure and treated according to the needs.

Part-area, site-specific management is possible as standard with all AMAZONE ISOBUS terminals with the aid of the GPS Maps & Doc function. The application maps can be processed in ISO-XML or shape file format and the various application rates can be documented easily and quickly. The job can be exported and serves as documentation in the Farm Management Information System.

The following practical advantages are provided:

- Automatic part-area, site-specific usage of application maps and sensor data as well as regulation of the application rate
- Optimum crop management via needs-based application
- Reduction in the use of plant protection agents and fertilisers, since only the required amount is applied
- Prevention of resistance and damage to plants
- Relieves the stress on the driver



Creation of an application map in a Farm Management Information System and then displayed in the AmaTron 4





UF 2002 mounted sprayer

## GPS-Switch automatic headland and part-width section shut-off down to 50 cm part-width sections

For a reduction in the amount of crop protection agent used in wedge shaped fields and on the headland

If the operating terminal features Section Control, such as GPS-Switch part-width section control from AMAZONE, the part-width sections can be switched completely automatically and in relation to the GPS position. Once a field has been established by the driver, then, in the automatic mode, they can fully concentrate on handling the vehicle whilst the switching of the part-width sections in wedges and on the headland is carried out automatically.

The following practical advantages are provided:

- Relieves the stress on the driver
- Fewer overlaps and gaps
- Improved environmental protection
- A reduction in the use of plant protection agents of approximately 5 to 10% depending on the conditions
- Increased precision, even at night or at higher speeds





SmartCenter with Comfort-Pack plus and LED lighting, safely protected under the cover



UX 5201 Super trailed sprayer

## SmartCenter operator station with Comfort-Pack plus

**Fully automated filling and cleaning procedures for maximum comfort.**

Comfort-Pack plus offers the operator extremely comfortable operation of the spray agent circuit as a result of its pressure-sensitive touchscreen. After entry of the desired functions, the sprayer automatically adjusts itself via electric valves. In addition, individual filling profiles can be stored for different operators or applications. As soon as the hose is coupled, the machine fills itself to the desired level. It is even possible to work with individually adjustable filling pauses for time-intensive input mixtures. Fully automatic cleaning of the entire machine, including the induction bowl, rounds off the functional scope of Comfort-Pack plus.

**The following practical advantages are provided:**

- Extremely simple and time-saving operation
- Maximum comfort thanks to individual filling profiles and filling pauses
- Added safety through fully automatic cleaning
- Automatic quick filling via the venturi enables maximum filling performance
- Automatic agitation regulation for maximum application rates and to avoid foaming at low fill levels

### An end user praises the SmartCenter operator station with Comfort-Pack plus

"With very clear graphics for the tank, connections and liquid circuits, the operator is guided through the filling menus for the fresh water tank, spray agent tank and induction bowl – unique"

("profi" – Test report AMAZONE UX 5201 Super · 10/2017)



Comfort-Pack plus operator terminal



**An end user praises the SmartCenter operator station with Comfort-Pack plus**

"The touch display - which can even be operated with gloves (!) - is ingenious."

("profi" – Test report Amazone UX 5201 Super · 10/2017)





AmaSwitch triple nozzle body



AmaSelect with quad nozzle body with LED individual nozzle lighting

## AmaSwitch and AmaSelect individual nozzle control

For precise and automatic switching in 50 cm part-width sections

AMAZONE offers two extremely precise solutions for 50 cm part-width section control in the form of AmaSwitch and AmaSelect. The overlap is significantly reduced with up to 85 % less overlap compared with conventional part-width section control. The combination of GPS-Switch and individual nozzle control provides considerable savings compared to usual crop protection techniques, depending on the field size, working width and number of part-width sections.

### AmaSwitch – the affordable alternative

The AmaSwitch electric individual nozzle control consists of a manually-operated triple or quad nozzle body. In addition to the automatic 50 cm part-width section, it is possible to freely configure the part-width sections.

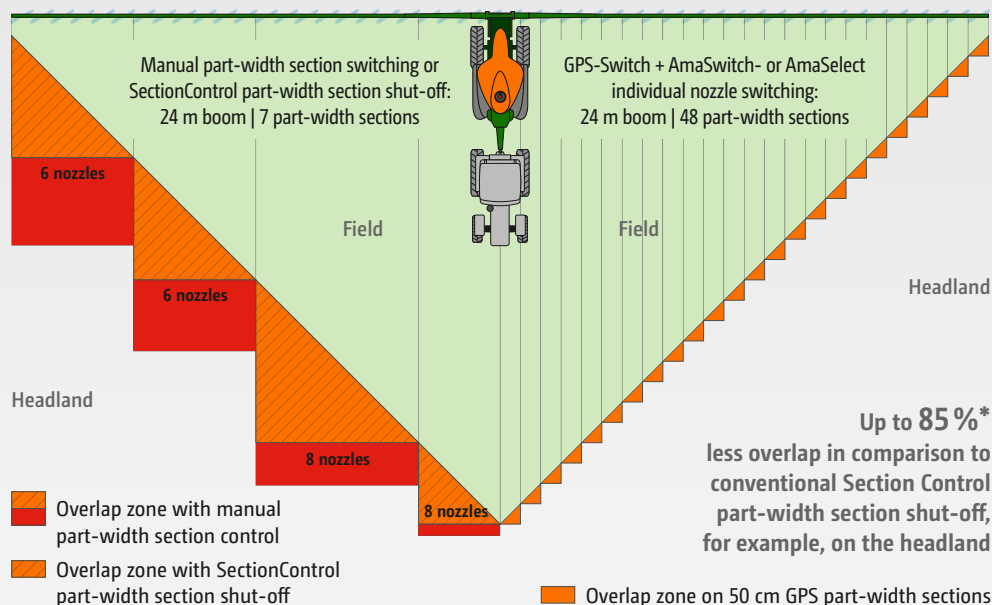
### AmaSelect – for versatile use

The electric AmaSelect individual nozzle control consists of a quad nozzle body with electric on/off control plus the additional switching over of either a nozzle or a combination of nozzles. In addition to the 50 cm part width section, the system offers electrical switching between the four nozzles via the operating terminal or even completely automatically. This makes it possible, for example, to add a second nozzle or switch to a larger nozzle when the optimal pressure range of a nozzle is exceeded. Furthermore, **HeightSelect** enables the target surface distance to be automatically adjusted depending on the active nozzle.



AmaSelect with quad nozzle body and extension kit for a true 25 cm nozzle spacing





Automatic part-width shut-off on the headland and in wedge shaped fields

**GPS-Switch**

**5 %\***

Savings in crop protection agent usage



Electric individual nozzle control  
**AmaSwitch or AmaSelect**

**5 %\***

Additional saving in crop protection agent usage

Example: 24 m boom width (6-6-8-8-8-6-6 = 48 nozzles)

\* Savings are dependent on the field size, boom width and the number of part-width sections

In addition to the 50 cm nozzle spacing, AmaSelect and AmaSwitch (quad nozzle body) can provide a **25 cm nozzle spacing**. In combination with special 80 ° nozzles, this offers the advantage of reducing the target surface distance to less than 50 cm, thereby minimising drift during application. The driver can switch between 50 and 25 cm nozzle spacing during the application, e.g. from a coarse-droplet, low-drift 05 calibre nozzle for use at the field boundary to two fine-droplet 025 double flat fan nozzles for use inside the field, and vice versa.

**The following practical advantages are provided by AmaSelect:**

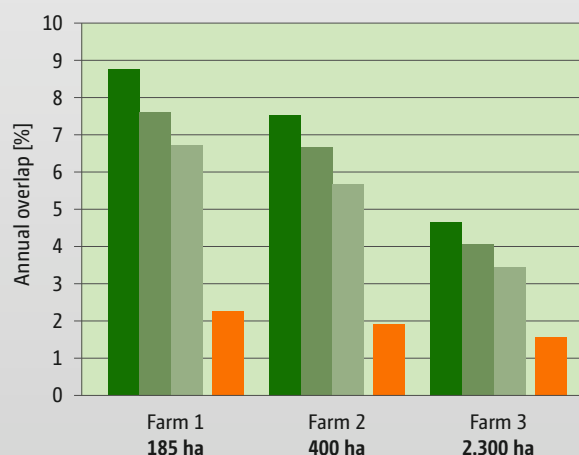
- Optimum automatic adjustment of the nozzle size to variable forward speeds and application rates
- Flexible switching of nozzles from the cab in variable weather conditions or between the field boundary and interior of the field
- Time saving and more comfort for the driver
- Wide range of applications

#### Calculated example:

Annual average overlap of **conventional part-width sections vs 50 cm part-width sections in combination with Section Control**.

#### Important knowledge for field analysis

- Average overlap with 50 cm part-width sections only 1.92 %
- Average overlap with 9 part-width sections 7 %
- Short payback period for larger farms due to annual saving potential
- Due to smaller field sizes, smaller farms save proportionally more
- When growing crops with a high plant protection requirement, such as potatoes and sugar beet, 50 cm part-width sections are particularly worthwhile



#### Level of equipment on crop protection sprayers:

- 9 part-width sections
- 11 part-width sections
- 13 part-width sections
- 50 cm part-width section individual nozzle control



ContourControl with negative boom angling

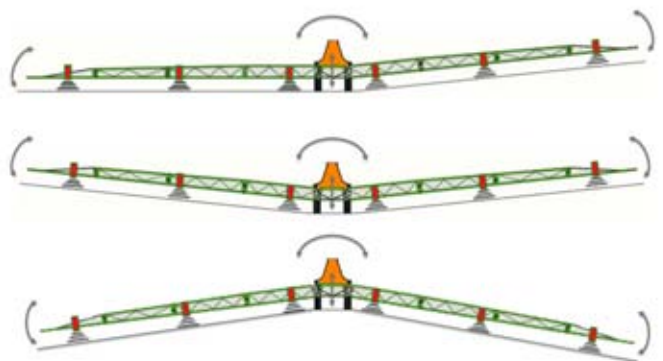
## ContourControl and SwingStop

For precise boom guidance under the most difficult conditions.

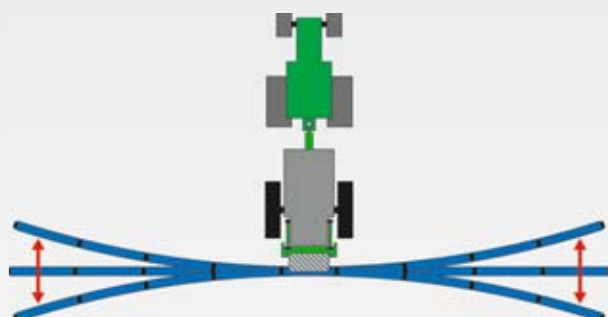
**ContourControl** active boom guidance is a ground-breaking, fully automatic system for reducing vertical boom movements. This allows an extremely flexible and precise adaptation of the boom to the respective terrain and crop conditions. Even negative angling of each side of the boom is possible, i.e. the booms can e.g. drop below the level of the centre boom on the left and right when driving over a hill-top. This ensures that the desired application height is precisely maintained under all conditions – even with a target surface distance of less than 50 cm. There is no better way for a boom to follow the contours.

The following practical advantages are provided:

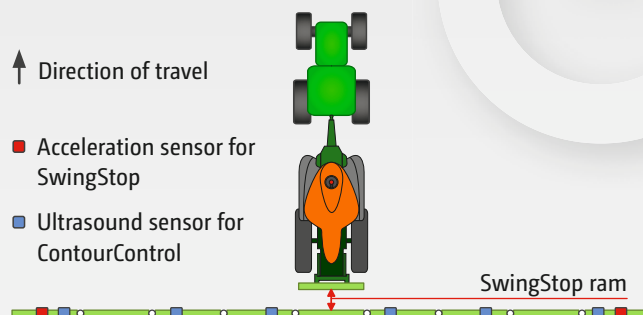
- Best possible fully automatic vertical boom guidance – even at low working heights, high forward speeds and undulating terrain.
- Very fast folding
- Full protection of the boom







Horizontal boom movements



AMAZONE boom with SwingStop for excellent horizontal boom guidance

Increasing demands for the horizontal boom ride are also met with the **SwingStop** active vibration damping system. By external influences, such as ground undulations, driving round bends, acceleration and deceleration and increasing operating speeds the boom is under extraordinary strain in the horizontal plane. This may result in the boom ends swinging up and down, thereby negatively affecting the lateral distribution of the plant protection agent at the outer end of the boom. This movement is actively compensated for by SwingStop. This ensures a very smooth horizontal ride and uniform application over the entire boom width. Under- or over-application at the outer end of the boom is reduced.

**The following practical advantages are provided:**

- No swinging back and forth of the outer boom ends
- Uniform application over the entire boom width
- Very fast, elegant and precise system



AmaSelect CurveControl – optimised application when cornering

## AmaSelect CurveControl

### For uniform application when negotiating bends

Up to now, over-dosing and under-dosing has occurred when applying plant protection agents during cornering. This can ultimately manifest itself in yield losses. With the CurveControl function, the AmaSelect individual nozzle control offers automatic nozzle changes for uniform adjustment of the application rate across the entire working width when cornering. Depending on the nozzle equipment, AmaSelect CurveControl provides an enormous range of application rates, thereby enabling the rate to be automatically optimised when negotiating bends. The application rate in the specified pressure range is taken into account for each individual nozzle, in order to ensure functionality and drift reduction, especially in the field boundary area.

### The following practical advantages are provided:

- Almost constant application rates over the entire boom width
- Resistance and plant damage are avoided
- Reduction in the use of plant protection agents
- Optimum crop management
- Extremely wide range of application rates depending on the nozzle equipment

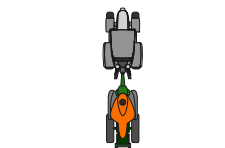


SEE MORE – VIDEO

[www.amazone.net/AmaSelectCurveControl](http://www.amazone.net/AmaSelectCurveControl)



**Without AmaSelect CurveControl –**  
uneven application rate when negotiating bends

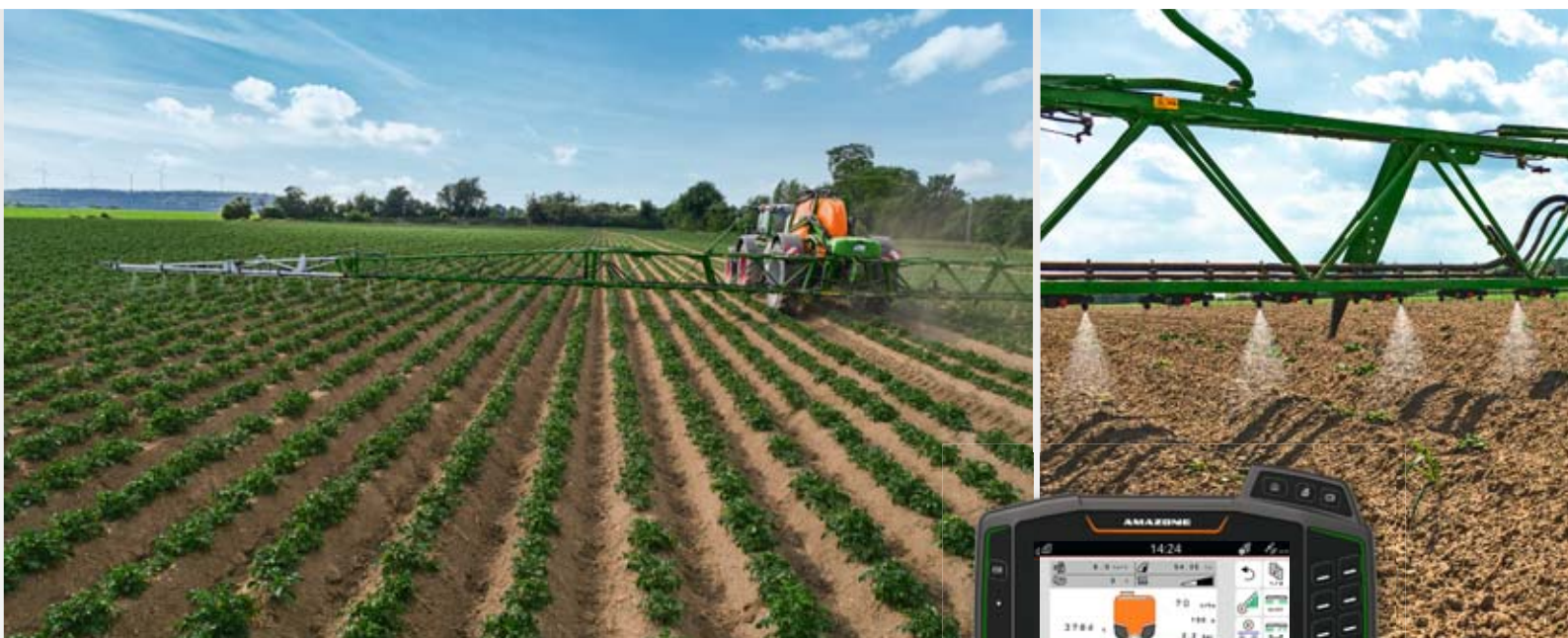


Desired application rate

**With AmaSelect CurveControl –**  
a more even application rate when negotiating bends



Desired application rate



AmaSelect Row – precise band spraying for a reduction in the use of plant protection agents

## AmaSelect Row

Highly-efficient row spraying at the press of a button to reduce the use of plant protection agents

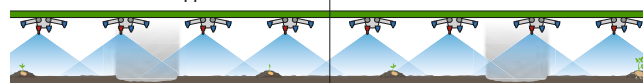
The AmaSelect individual nozzle control and the optional AmaSelect Row function enable row-specific band spraying with a standard AMAZONE crop protection sprayer. At the touch of a button on the ISOBUS terminal in the tractor cab, it is possible to switch between band and full-width spraying and significantly reduce the use of plant protection agents by up to 65%. Band applications in crops with a 50 cm row spacing (e.g. sugar beet) can be implemented very easily without any further retooling. Band applications can also be carried out with a 75 cm row spacing in potatoes, maize and carrots by means of the extension kit with a 25 cm nozzle spacing. In addition to band application in the row, application between the rows is possible, in order to reduce the amount of herbicide applied in this respect.

The following practical advantages are provided:

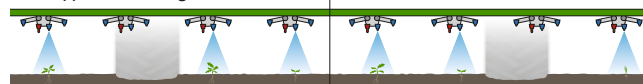
- Extended range of applications for the crop protection sprayer
- Highly efficient band spraying in row crops at the touch of a button
- Integrated filling menu with quantity calculation for ease of use
- No time-consuming conversion work required, just a change of nozzles
- Reduction in the use of plant protection agents by up to 65% depending on the row width and stage of development



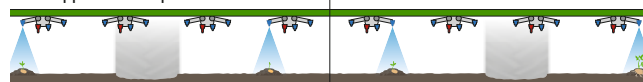
Traditional full-width application



Band application in sugar beet 50 cm



Band application in potatoes 75 cm



AmaSelect Row: Uniquely flexible options in plant protection

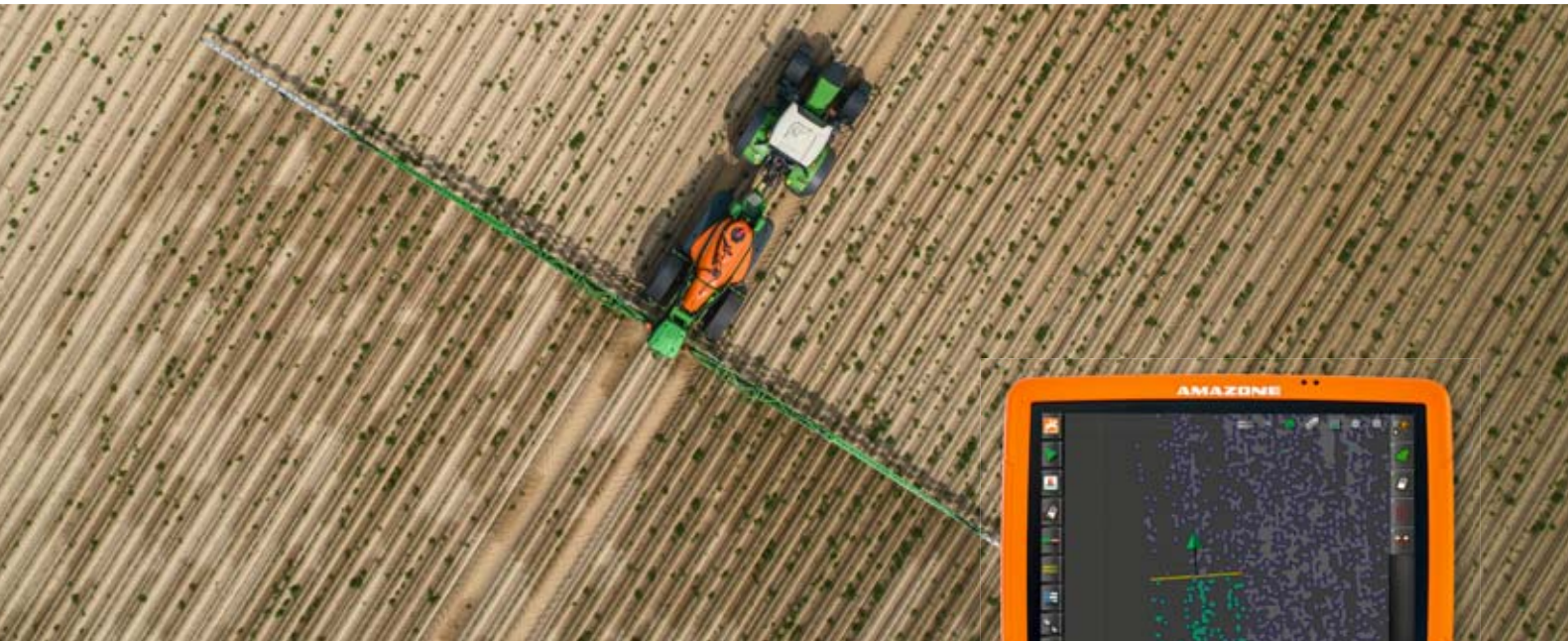


SEE MORE – VIDEO

[www.amazone.net/AmaSelectRow](http://www.amazone.net/AmaSelectRow)







Utilising the application maps  
in AmaPad 2

## AmaSelect Spot

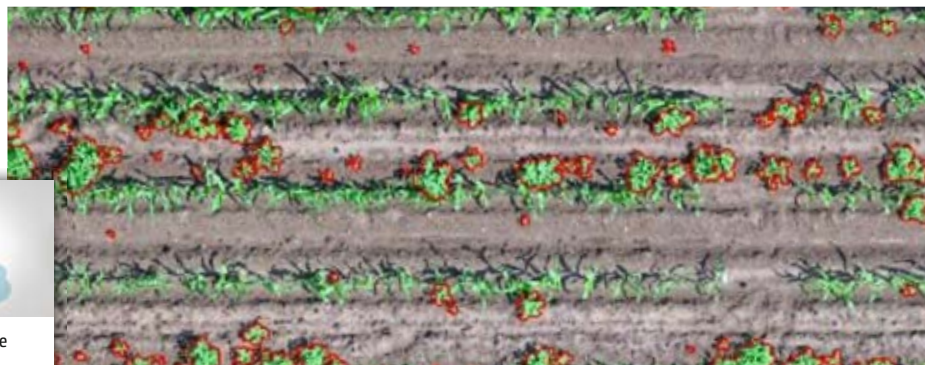
**Part-area, site-specific weed treatment based on spot application maps to reduce herbicide use**

Weeds are spread heterogeneously over the field and can often be found in patches or in strip distribution patterns which alternate with largely weed-free field areas. Part-area, site-specific weed control enables measures to be tailored to the weed distribution situations within the field. This allows a significant reduction in the use of herbicides without having to accept a reduction in the control success.

In combination with the AmaSelect individual nozzle control, AmaSelect Spot enables AMAZONE to offer part-area, site-specific weed treatment based on highly accurate spot application maps. The field to be treated is first flown over with a drone for this purpose. Artificial intelligence differentiates between the crop and the weed to be treated. The resulting spot application map, together with a standard



Images are recorded by drone  
using a special RGB camera



DroneWerkers is a provider from the Netherlands that creates the spot maps. The fields to be treated are flown over with drones and then analysed by means of artificial intelligence, in order to create a spot application map.



AMAZONE crop protection sprayer and AmaSelect individual nozzle control, enables high-precision spraying of the analysed weed spots. Herbicide is therefore only applied where it is really needed.

**The following practical advantages are provided:**

- Precise spot application on the weeds in a field
- Reduces the use of plant protection agents by up to 80% depending on the weed cover
- Prevention of resistance problems caused by under-dosing
- No residual amounts due to precise planning of the application rate
- Protection of the environment through reduced herbicide use



**SEE MORE – VIDEO**

[www.amazone.net/AmaSelectSpot](http://www.amazone.net/AmaSelectSpot)







SmartSprayer in use on sugar beet

## AMAZONE UX SmartSprayer

Spot Farming at the highest level now in field use

### SmartSprayer technology for more sustainability

The AMAZONE UX 5201 SmartSprayer trailed sprayer integrates camera technology and AI image processing from Bosch and crop establishment know-how from xarvio™ in a unique crop protection system. With field-specific threshold values and simultaneous full-width and spot application in a single pass, herbicide costs can be reduced by 70 %.

### Successful field use

The UX 5201 SmartSprayer integrates three main components for spot application: scanning, decision-making and

application. The camera and image processing technology, developed by Bosch, scans the entire field, regardless of environmental influences, by day and by night, thanks to the integrated light module. The sensor systems distinguish between growing crops and weeds at working speeds of up to 12 km/h. xarvio™ selects an application in real time, based on the weed density. The xarvio™ agronomic decision-making engine takes into account the crop, the timing of application and the customer and field-specific weed treatment strategy. Pulse-wide frequency modulation valves (PWFM) with SpotFan nozzles spaced 25 cm apart enable maximum savings.



**BOSCH**  
Scanning



Decision-  
making



Application







Spot application via the spot nozzle bodies

### SmartSprayer dual tank system

The UX 5201 SmartSprayer is a spot spraying system that can be used pre- and post-emergence, enabling greater savings. In addition, farmers can save on the number of passes and costs using the innovative dual tank system in combination with the FT-P 1502 front tank. A second spray line enables the simultaneous full-area application of ground-applied herbicides, insecticides or fungicides. As well as improved cost-efficiency and multifunctional utilisation, a major advantage of the system is its environmental friendliness.

### The following practical advantages are provided:

- Instructions for action are based on the enormous volume of data held by the xarvio™ agronomic decision-making engine
- Real-time system with extremely small application zones
- Maximum precision even at large boom widths in conjunction with active boom guidance and active swing damping
- Technology ready for practical use
- Enormous potential for savings on plant protection agents



Extremely small application zones



SEE MORE – VIDEO

[www.amazone.net/yt-smartsprayer](http://www.amazone.net/yt-smartsprayer)





## Examples from the sector of hoeing

### Precision

- Automatic part-width section control



### Perfection

- Fully automatic row guidance











SCHMOTZER Hacktechnik – the perfect addition to the AMAZONE plant protection range

## Automatic part-width section control

**For precise working right down to the tip**

Part-width section control systems are a familiar standard in chemical plant protection and fertiliser application. They are also used for mechanical weed control. The use of hydraulic cylinders on all parallelograms ensures that the soil engaging metal is lifted with pinpoint accuracy here. This function is of particular benefit in the headland area and in wedge-shaped fields.

The system documents the area being worked during the hoeing process. In this way, it documents each worked section for future operations, e.g. if the hoe was to pass over this area again, it would lift the corresponding parallelogram fully automatically.

The system is controlled via the AmaTron 4 terminal as standard or alternatively via any other ISOBUS-compatible terminal.

### The following practical advantages are provided:

- Minimal weed growth due to maximisation of the hoed area
- Higher forward speeds on the headland
- Less strain on the driver through automation of the lifting
- Full documentation of the work process





Precise camera and control technology leads to an enormous increase in output

Breaking up of soil encrustation by the hoe

## Fully automatic row guidance

For precise guidance along the crop rows

Maximum precision is required for mechanical weed control in row crops. Inaccurate machine settings or operator steering errors can cause damage to crops. To make work easier for man and machine, camera-based row guidance systems have been developed which keep the machine optimally on track. In this respect, cameras monitor the crop. The system uses the colour, size and arrangement of the plant to distinguish where to steer the hoe.

The following practical advantages are provided:

- Minimisation of the unhoed area through precise guidance of the hoe along the row at all times
- Reliable row guidance even in difficult situations, such as slopes or heavy weed infestation
- Efficient working due to higher forward speeds
- Fatigue-free work due to minimal control effort
- Extension of working time into the night thanks to the lighting system on the camera





## Examples from the sector of seeding and soil tillage

### Precision

- GPS-Switch automatic headland and part-width section shut-off
- Part-area, site-specific sowing on the basis of application maps
- Automatic coulter pressure adjustment on the basis of application maps
- SmartForce automatic coulter pressure regulation in precision seeding technology
- Precise application of several materials



### Perfection

- AutoPoint switch time optimisation
- Seed pipe monitoring
- FertiSpot precision fertilisation



### Networking

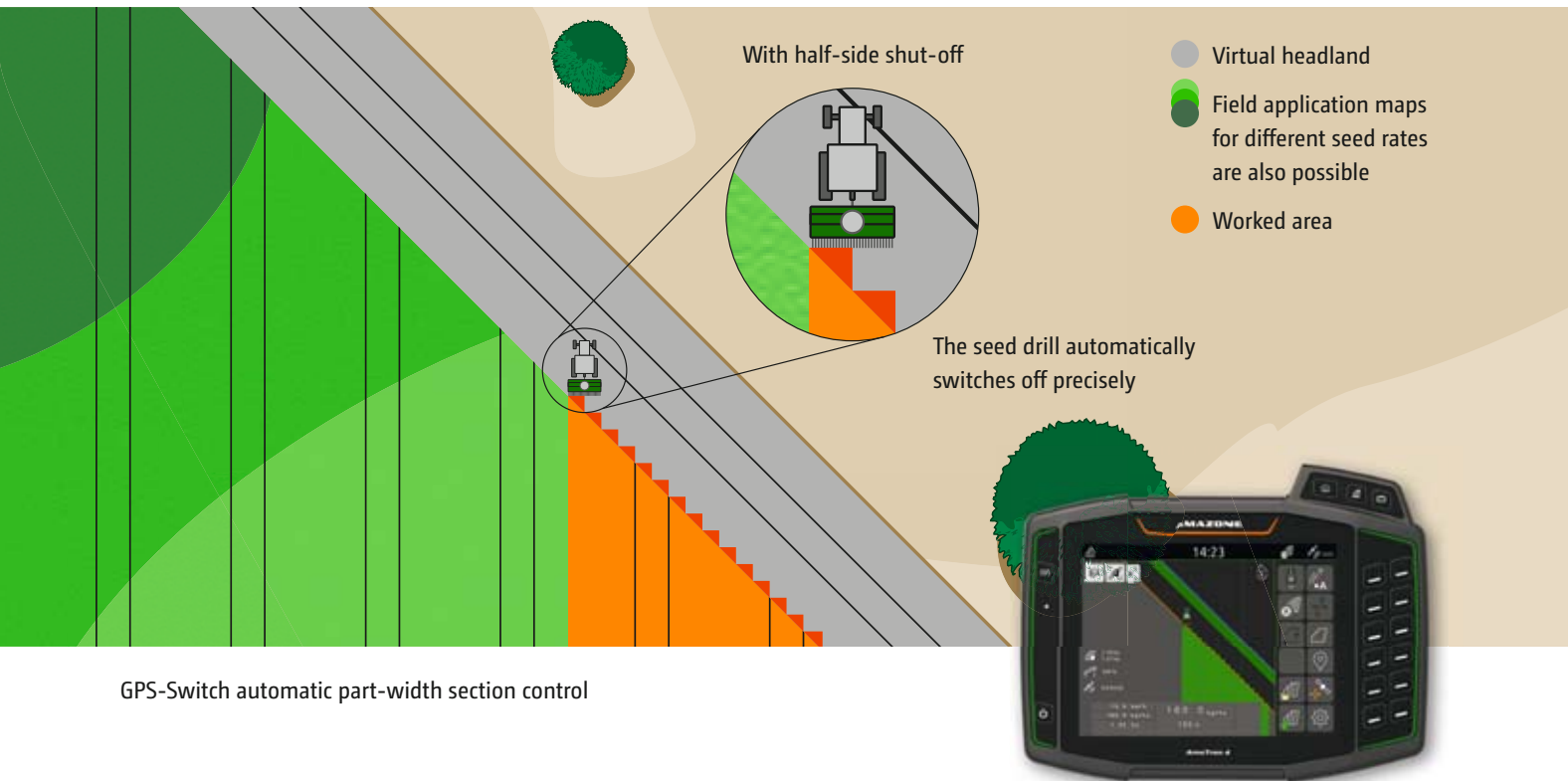
- mySeeder App – comfortable and simple calibration and emptying
- Cenius-2TX ZoneFinder with exatrek











## GPS-Switch automatic headland and part-width section shut-off

### For minimal overlapping

GPS-Switch and the half-side shut-off can be used to reduce the respective working width by half, in order to provide a significant reduction in the number of misses and overlaps in wedge shaped fields and on the headland during sowing. The two halves of the drill each correspond to one controllable part-width section.

#### The following practical advantages are provided:

- Seed saving due to fewer overlaps in wedge shaped fields and at the headland
- Less strain on the driver through automatic switching
- Reduction in fungal diseases through optimum plant distribution





Part-area, site-specific application

## Part-area, site-specific sowing on the basis of application maps

### For an increase in yields

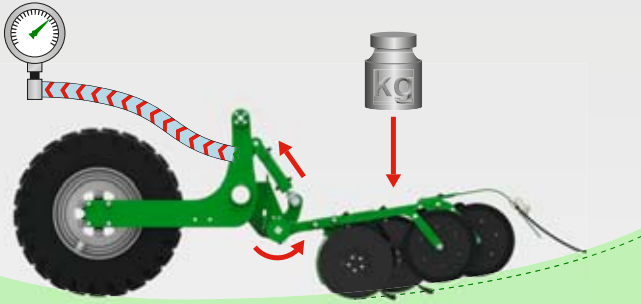
Since the soil conditions, water availability and therefore also the yield potential can sometimes vary greatly within a field, it makes sense to tailor the seed rate to these conditions. Field-specific yield maps or soil maps are used to produce application maps which can be utilised via the standard GPS-Maps&Doc function. Apart from sowing via application maps, under-root fertilisation via application maps has also gained in importance, particularly in maize sowing. The multi-bin function allows several application materials to be controlled independently of each other via application maps.

#### The following practical advantages are provided:

- Application of seed and fertilisers tailored to the soil quality and as and when required
- Part-area, site-specific documentation
- Increased efficiency through a reduction in the use of inputs
- Targeted use of seed and fertilisers conserves resources and protects the environment

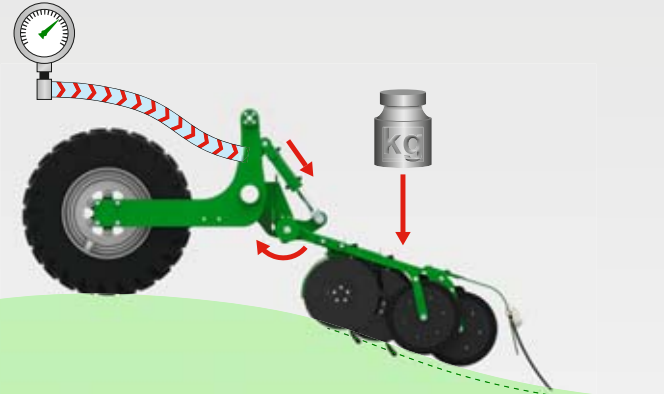






**Hollow:** When passing through a hollow, the coulters are pressed against the ground. This creates an overpressure in the coulters pressure cylinder which is transferred directly to the oil circuit. The coulters pressure remains constant.

Passing through a hollow



**Hilltop:** The coulters are lowered when going over a hilltop. This results in an under-pressure in the coulters pressure cylinder which is immediately compensated for with additional oil from the circuit. The coulters pressure remains constant.

Going over a hill

## Automatic coulters pressure adjustment on the basis of application maps

### For uniform seed placement

In addition to part-area, site-specific sowing, the coulters pressure can also be adjusted depending on the soil quality on the basis of application maps. Undulating ground is compensated for and optimum continuous coulters pressure adjustment is enabled.

### The following practical advantages are provided:

- Optimum tailoring to the ground conditions
- Less strain on the driver at night when working in fields with varying soil types and conditions



The coulters pressure can be varied within a field via application maps.



Hydraulic coulters pressure **without** automatic operation



Hydraulic coulters pressure **with** automatic operation

## SmartForce automatic coulters pressure regulation in precision seeding technology

### For optimum plant growth

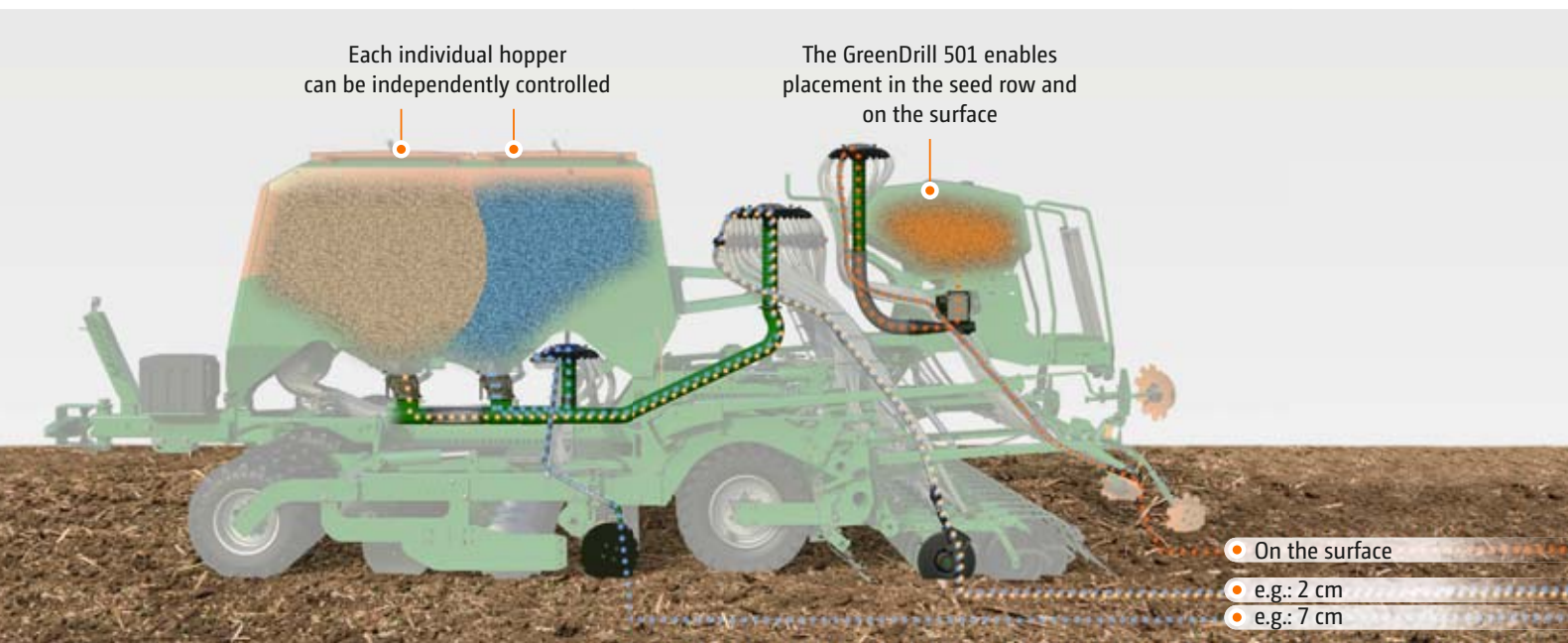
High forward speeds combined with ever increasing working widths present the drivers of precision air seeders with responsible tasks. The SmartForce coulters pressure regulation on the precision air seeders automatically adjusts the coulters pressure to the soil conditions irrespective of the soil type. In this regard, the contact force is set on the coulters and the hydraulic system keeps this constant for the different soil types when passing over the field.

The following practical advantages are provided:

- Even plant growth
- Relieves the stress on the driver







Sowing without limits with the Cirrus-CC trailed drill combination

## Precise application of several materials

### Seed and fertiliser flexibly combined

The Cirrus-CC trailed drill combination used in conjunction with the GreenDrill 501 universal catch crop seeder box means that up to three different materials can be simultaneously applied independently of each other at various placement depths. The **multi-bin** function enables all three hoppers to be controlled via three different application maps, and the seed rates of the respective materials can be varied independently of each other in the part-area.

**There are a large number of options for combining seed and fertiliser, for example:**

- **Single-shoot:** Starter fertilisation in the seed furrow
- **Double-shoot:** Fertiliser deposited between the rows
- **Triple-shoot:** Sowing two seed types with fertiliser at three different placement depths

### Multi-boom – for precise switching of individual metering units at the headland

When applying several materials, as with the Cirrus-CC, the different media are metered via two independent metering units and placed at two different points using the double-shoot method. As the fertiliser coulters run in front of the roller and the sowing coulters behind the roller, the two metering units must switch at different times via GPS-Switch. The multi-boom function automatically switches each medium on and off at the headland with a time stagger, in order to achieve optimum switch-on and switch-off times. If a GreenDrill is also present, the under-sowing can also be controlled on the basis of time.

### The following practical advantages are provided:

- Time-staggered switching of the metering units at the headland
- Different materials are switched as precisely as possible
- There are no overlaps or misses
- Reduction in the use of seed and fertiliser



Cirrus 6003-2CC with GreenDrill 501



Double-shoot in undersowing



Triple-shoot in undersowing



### Undersown crops for the protection of plants and yields

Weed pressure can be minimised and erosion control increased by undersowing companion plants via the double- or triple-shoot method. The simultaneous sowing of legumes for nitrogen fixation is also interesting in this respect.

#### Double-shoot in undersowing:

e.g. sowing spring cereals/oats in combination with clover

- Clover suppresses weeds through early soil coverage
- Spring cereals grow through the clover
- Clover can be harvested after the cereal harvest

#### Triple-shoot in undersowing:

e.g. sowing rape together with field beans and a companion crop mixture of phacelia and buckwheat

- Rape in the upper horizon as a main crop
- Field beans sown deeply via the fertiliser coulters as a nitrogen fixer
- Companion plants sown on the surface for weed suppression

### The following practical advantages are provided by undersown crops or companion crops:

- Greater biodiversity
- Less soil erosion
- Better protection against moisture loss
- Improved soil structure
- Improved nutrient availability
- Fewer crop protection measures
- CO<sub>2</sub> fixing, humus formation
- Increase in photosynthetic activity

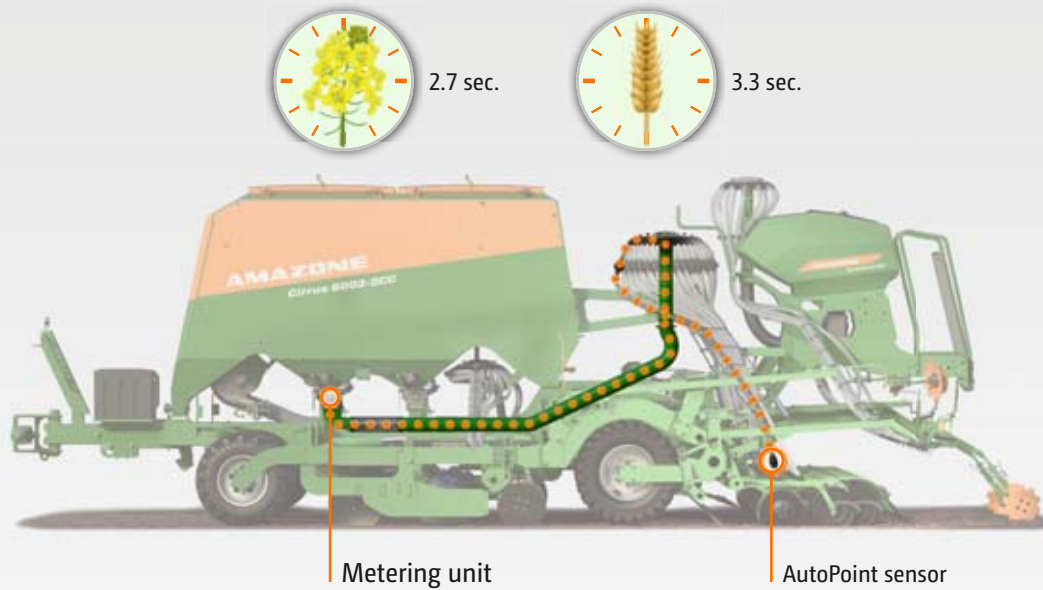
### Praise from end users Sven and Robin G rth, who run an organic farm with mixed crops near Wittenberg

"I also want to be able to sow the seed at different depths and that works out quite well with the individual four-way adjustment of the RoTeC coulter."

"This gives us the option of sowing two seeds at different depths. However, the double seed delivery system also allows us to sow two components at the same depth via the first and second row of coulter."

("agrarheute" - 10/2020)





SEE MORE – VIDEO

[www.amazone.net/Cirrus6003-2](http://www.amazone.net/Cirrus6003-2)



GPS-Switch with AutoPoint

## AutoPoint switch time optimisation

For optimum switching points on the headland

Determination of the exact switch-on and switch-off times is significantly more complicated in pneumatic seed drills than in fertiliser and crop protection application due to the long seed delivery route from the metering unit to the coulters. AMAZONE offers the AutoPoint system for pneumatic seed drills to further improve automatic switching via GPS-Switch. A sensor on the coulter enables AutoPoint to determine the actual seed flow and therefore the exact delay time as well as the exact switching points for starting and stopping the metering unit on the headland.

The following practical advantages are provided:

- Automatic determination of the conveying time of various seed types from the metering unit to the coulter
- Minimisation of misses and overlaps for good field hygiene
- Minimisation of disease pressure ► Fewer plant protection measures needed and costs reduced at the same time



## Seed pipe monitoring

For the prevention of sowing errors

Optional seed pipe monitoring immediately detects blockages at the coulter and in the pipe. Mounted directly behind the distributor head, sensors monitor the seed flow in the seed pipes. The system automatically detects when the drill is tramlining.

The following practical advantages are provided:

- Comfortable monitoring of the drill performance, especially on long working days
- Rapid intervention in the event of blockages





Precea 4500-2C Super in operation



## FertiSpot precision fertilisation

**For pin-point fertiliser application: Higher yields, save costs, protect the environment**

Current precision seeder methods often use a separate coulter to apply fertiliser alongside the seed, in order to support seedling development. The conventional method is to place the fertiliser slightly below the seed in a laterally offset band. In this case, however, it cannot be completely absorbed by the plant, as the entire placement area is only explored by the roots at a late stage. Owing to increasing legal requirements, however, it is important to use the available fertiliser even more efficiently. With FertiSpot, the fertiliser is not placed completely in the form of a band but is also applied to the areas where the seed is located with pinpoint accuracy. Targeted placement leads to significantly improved nutrient utilisation, since the availability to the plant increases. The higher availability means that the total

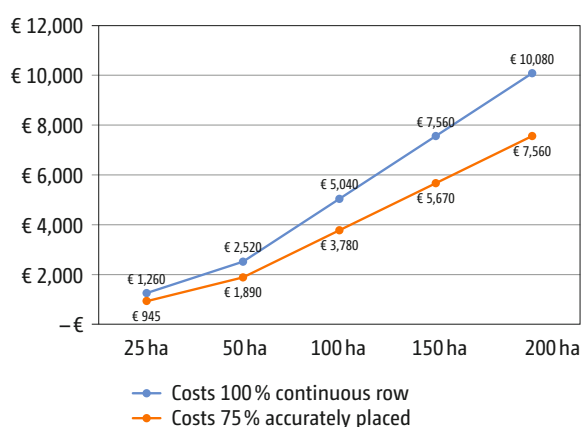
fertiliser application per hectare can be reduced, which has positive effects on environmental protection, business management and labour management.



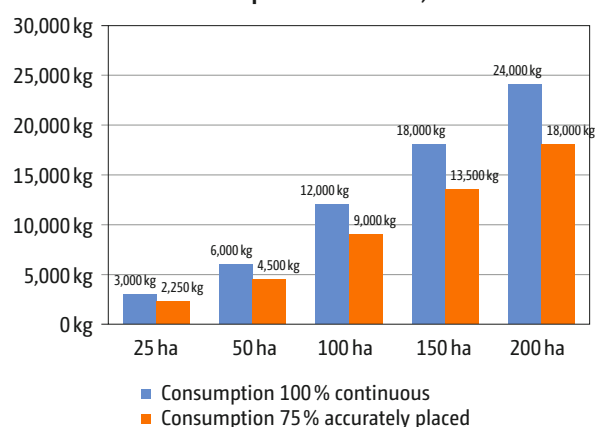
**The following practical advantages are provided:**

- Targeted fertiliser placement allows a reduction in the total amount of fertiliser
- Fertiliser savings of 25 % with the same yield level
- Protects the environment
- Cost savings due to reduced amounts of fertiliser and higher productivity during sowing due to 25 % fewer breaks for filling

**Costs of under-root fertilisation**

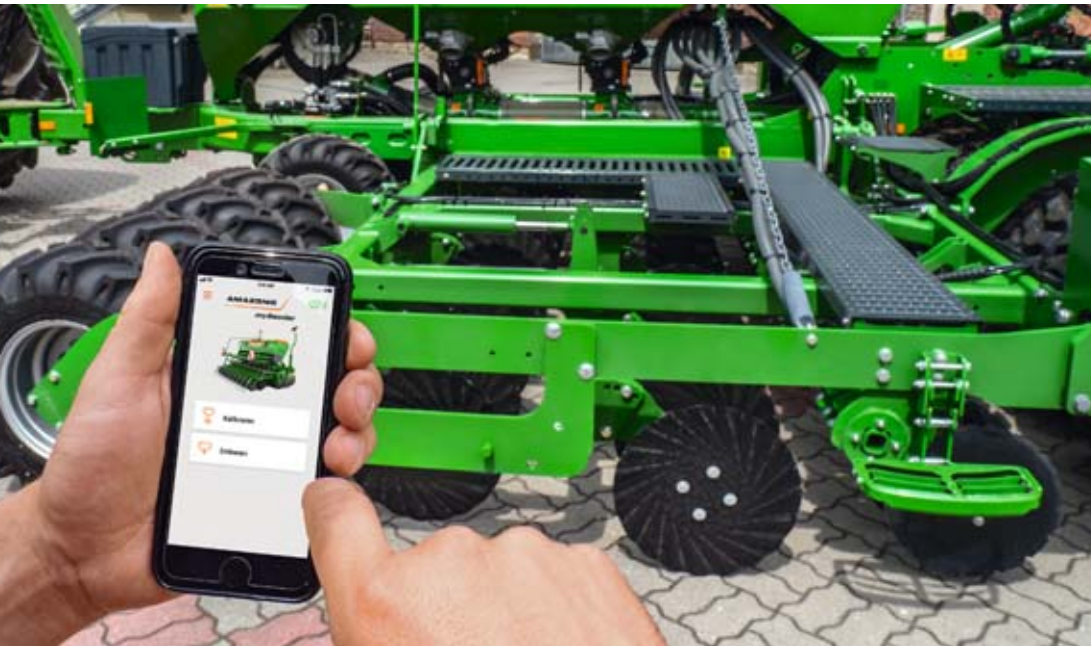


**Consumption DAP 18 % N, 46 % P<sub>2</sub>O<sub>5</sub>**



Effects of savings – assumption: 100% continuous row corresponds to a usage of 120 kg DAP per ha





mySeeder App



## mySeeder App

For comfortable and precise calibration

The mySeeder App from AMAZONE offers the user an easier and more flexible way of calibrating AMAZONE seed drills. For this, the driver connects the mySeeder App and the seed drill via Bluetooth. The seed drill must be equipped with the Seeder Connect licence for this. The driver can then use any smartphone to perform the calibration with the mySeeder App. Parameters such as the seed rate, calibration area and forward speed can be entered and monitored directly via a smartphone with the mySeeder App. The calibration sack or calibration tray can then be positioned and the machine can be calibrated using the smartphone.

The following practical advantages are provided:

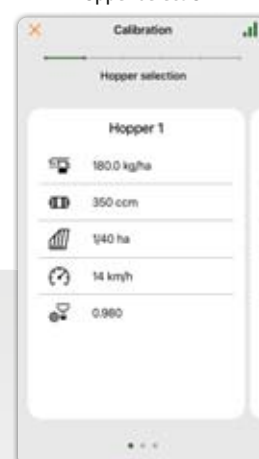
- Very easy calibration even with several metering units
- Flexibility during calibration – the driver can move freely around the machine



Start screen



Hopper selection



Calibration progress





Control unit on the cultivator

## Cenius-2TX ZoneFinder with exatrek

### Cultivator for detecting small-scale soil differences

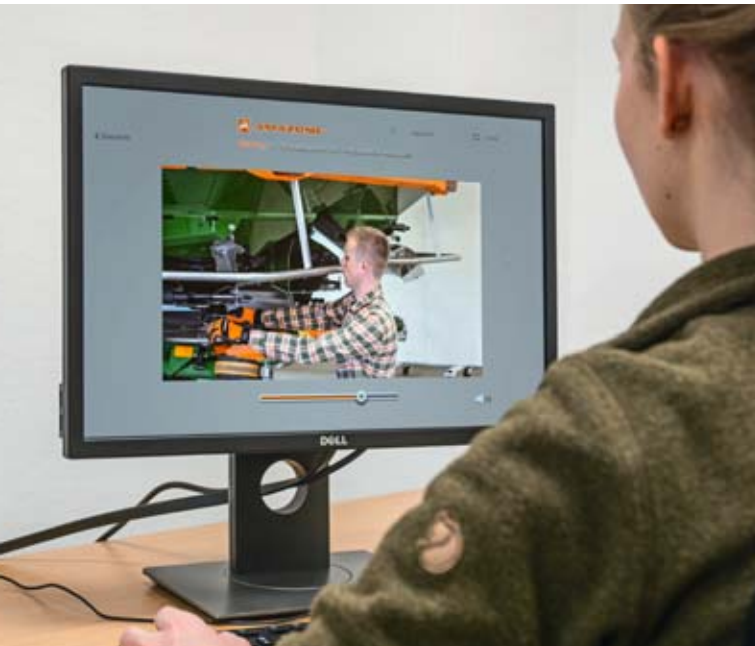
In cooperation with the exatrek, small-scale differences in the soil structure can be recorded during tillage with the cultivator, processed into an application map and used later, e.g. for part-area, site-specific sowing. The main element of the Cenius ZoneFinder is the exatrek telemetry module with data logger. This module transfers the collected data to the exatrek cloud. The data logger registers the forward speed, traction, fuel consumption and slip data from the CANbus of the tractor on the one hand and the working position, working depth and slope inclination of the hooked-up Cenius-2TX cultivator on the other. The data collection via the cultivator results in soil density maps, which can be subsequently used for the cultivation measures to follow. As a result, fuel consumption can be reduced by means of part-area, site-specific soil tillage, or a part-area, site-specific seed rate adjustment can be implemented by interfacing with other information systems.

#### The following practical advantages are provided:

- Targeted consideration of soil differences
- Cultivation adapted to local conditions
- Reduction in the use of inputs, e.g. fuel, seed
- Optimisation of the operational processes via telemetric data







Practical SmartLearning videos on the PC or as an App for training directly on the machine

## 9. Digital service offers

### a | SmartLearning

For the safer use of your AMAZONE machinery

AMAZONE SmartLearning provides interactive driver training where the user can independently practise operating a complex machine on a PC or smartphone without working in the field. SmartLearning includes numerous film clips and video tutorials which explain the technical interrelationships of the machines with a commentary and simulations. This means that drivers and engineers are given the opportunity to familiarise themselves with the machine in advance with the help of the modules and to learn the basics. Experienced end users can refresh their knowledge and thereby increase their performance potential. This enables optimum preparation before the season, so that the performance spectrum of the machine can be exploited to the full on the first day.

The following practical advantages are provided:

- Helpful information for the correct use and adjustment of the machines available within a few minutes
- Easy preparation for the new season
- Video tutorials provide assistance if you are unsure of how to operate the machine
- You can familiarise yourself with the operation of a machine before you buy it

Learn more about operating the machine  
Click here to go to SmartLearning:

[www.amazone.net/smartlearning](http://www.amazone.net/smartlearning)

Get the SmartLearning App  
directly on your smartphone:



SmartLearning App





Service technician carrying out a SmartInstruction on the AmaSelect nozzle body

## b | SmartInstruction

### Repair or maintenance instructions using Augmented Reality (AR) and mobile devices

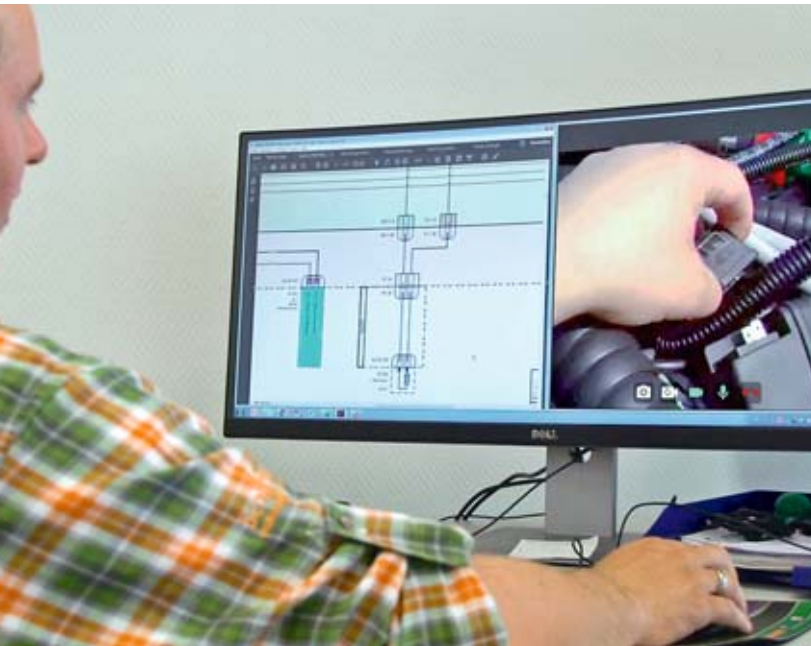
With the help of guided step-by-step instructions, service technicians can practise recurring routine tasks individually and flexibly and thereby prepare for their work assignments. The modular maintenance and repair instructions created by service specialists, e.g. for the maintenance of a Pantera, can be accessed both via mobile phone and tablet. It is also possible to use SmartInstruction via AR glasses.

In future, the recorded maintenance and repair instructions will be made available to all sales partners for download via a database in the AMAZONE dealer portal. In addition, end customers will be provided with selected maintenance instructions in SmartLearning free of charge.

#### The following practical advantages are provided:

- Practical step-by-step instructions for service technicians for recurring maintenance and repair work
- Individual and flexible practice of work procedures prior to a service call





Real-time multimedia support from a service specialist



Real-time multimedia support for a service technician

## c | SmartSupport

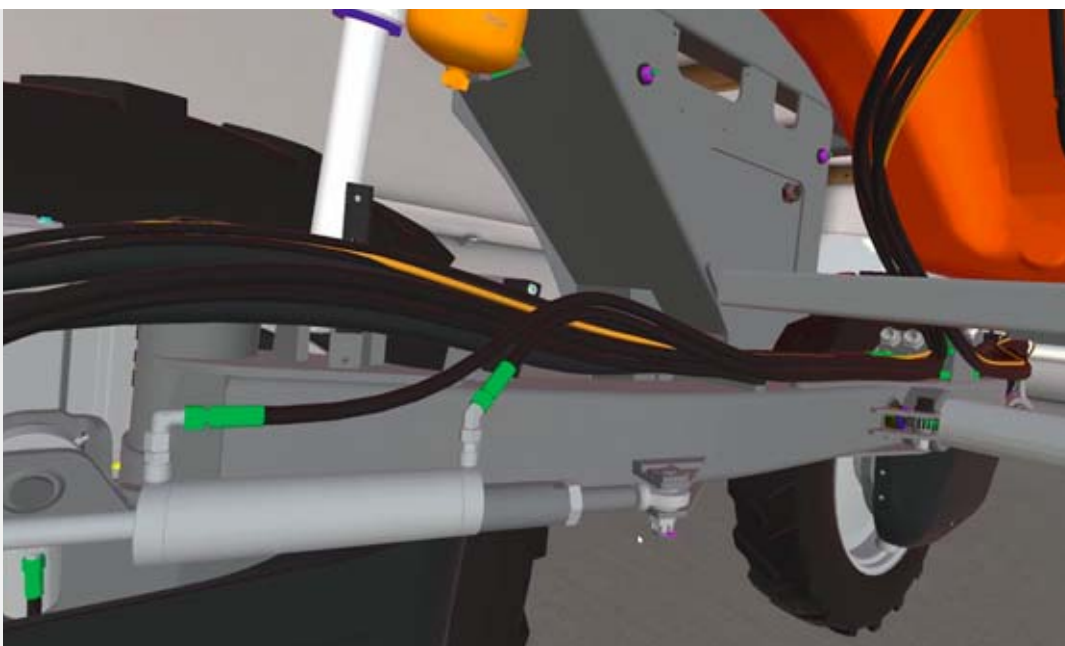
### Direct local support from the service technician via Augmented Reality (AR) and a mobile device

AMAZONE offers the possibility of extended communication with the aid of special software. This can be used worldwide for a wide range of end devices, such as Android or iOS devices. This means, for instance, that the service technician of a service partner who is carrying out a complicated repair can be connected digitally and in real time with a service specialist in the office via tablet, smartphone or AR data glasses. The service specialist can now view the service technician's repair field via the camera in the service technician's mobile device and give appropriate instructions based on this. If necessary, the service technician can also see what the service specialist sees on his or her screen, in order to derive measures from this. Video, audio, image and text files, e.g. images with markings and sections of a hydraulic diagram, can be exchanged in this way.

The system also provides the end customer with the same technical possibilities, in order to clarify questions from the area of application technology with the service advisor.

#### The following practical advantages are provided:

- Multimedia tool for enhanced live support
- Efficient communication and solution finding via various functions specially developed for the needs of the technical service: Markings, chat, excerpts from hydraulic diagrams.



Service training on the virtual Pantera

## d | SmartTraining

### Training and instruction in the use of complex machinery by means of Virtual Reality technology (VR)

In virtual training, virtual training scenarios are created on the basis of 3D CAD data, enabling service technicians to learn maintenance or repair procedures, so that they can later apply the acquired skills in practice. In this way, even complex procedures, such as the assembly of components inside a Pantera spray agent tank or inside a Profihopper, can be learned. This also enables infrequent service cases or assembly procedures to be learned and perfected in advance, so that the knowledge can be called upon when needed. As the system is easy to transport, the training can be carried out both at AMAZONE and even at a service partner.

#### The following practical advantages are provided:

- Service technicians learn about complex or infrequent maintenance and repair procedures using VR technology
- Flexible and targeted learning possible





Modern fertiliser spreader testing hall



Precise spreading made easy

## e | FertiliserService

### Comprehensive advice for optimum spreader setting

The spreader test hall in the Spreader application Centre is the central facility for research, development and series production support at AMAZONE. When a new spreading material is to be included in the setting chart, it is tested in the spreader test hall. The Spreader application Centre is also in close contact with the fertiliser manufacturers, in order to be able to inform our customers at an early stage about new spreading materials with reliable setting recommendations.

We offer comprehensive advice as part of our FertiliserService, in order to provide our customers with the best possible support in the application of fertilisers and other spreading materials. The extensive fertiliser database already contains the appropriate setting recommendations in most cases. If this is not the case, a customised setting recommendation can be provided by sending in a 5 kg of fertiliser sample, which is then examined in our fertiliser laboratory.

The FertiliserService works across borders, but not only geographically. Because no matter whether your fertiliser spreader is 1 or 50 years old, we will always be able to provide you with expert and reliable advice.

### Contact details of the FertiliserService

FertiliserService  
Am Amazonenwerk 9–13  
D-49205 Hasbergen-Gaste

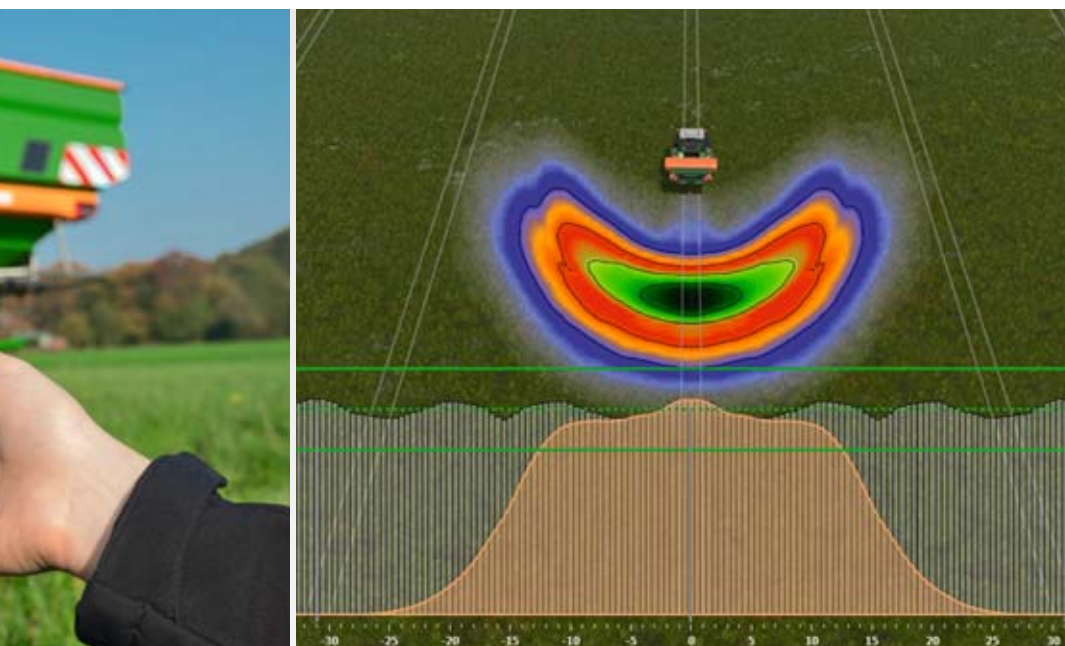
Email: [duengeservice@amazone.de](mailto:duengeservice@amazone.de)  
Telephone: +49 (0)5405 501-111  
Telefax: +49 (0)5405 501-374  
WhatsApp: +49 (0)175 4889573



### On-line FertiliserService

The on-line FertiliserService enables you to request the current setting recommendations for the optimum lateral distribution of your AMAZONE fertiliser spreader from our database at any time.

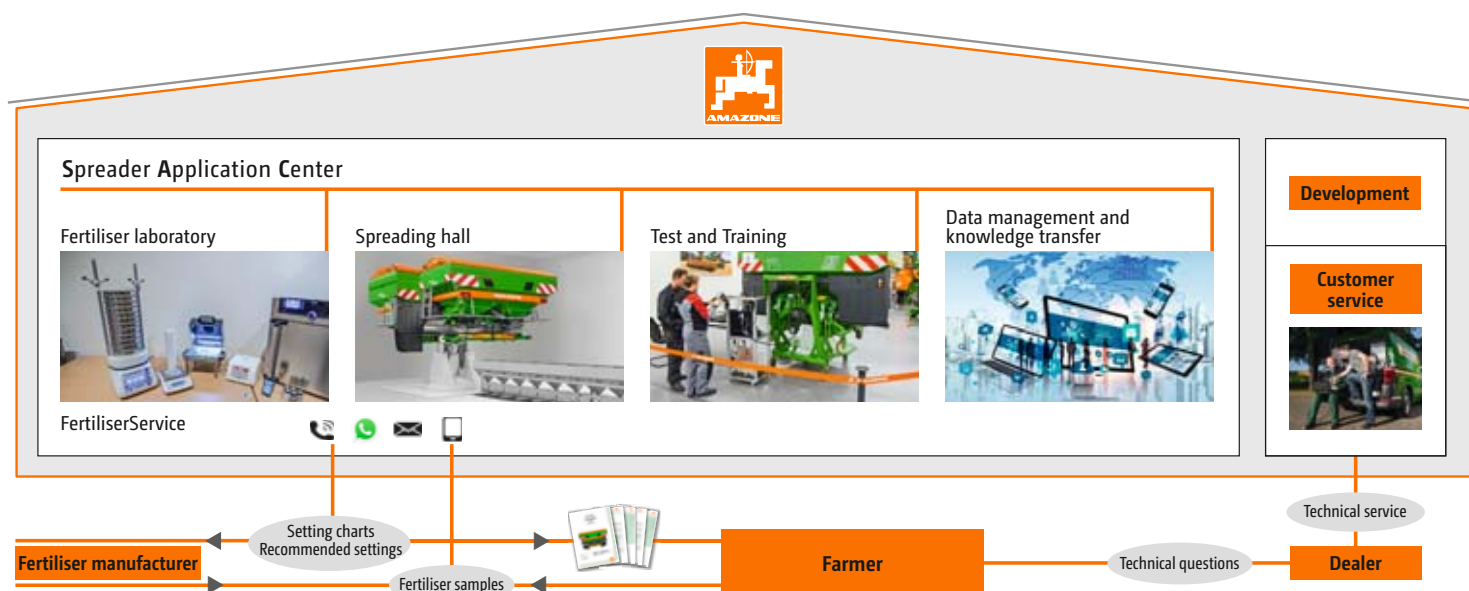
[www.amazone.net/duengeservice](http://www.amazone.net/duengeservice)



Optimisation of the lateral distribution

AMAZONE is providing even better customer service with the Spreader Application Centre. In addition to the already well-established fertiliser laboratory and spreading hall, the Spreader Application Centre now also includes the areas of "Test and Training", "Data management" and the associated "Knowledge transfer".

The last two areas are accompanied by a restructuring to address the increasing globalisation and digitalisation of agriculture. The aim of the new Spreader Application Centre is to offer customers an even better service covering all aspects of fertiliser application.



### Get precise setting recommendations directly in the field: with the mySpreader App

The precise setting recommendations for your AMAZONE fertiliser spreader can be easily called up from the fertiliser database in the mySpreader App directly in the field via a mobile device according to the machine type, working width, fertiliser type and application rate.





Precea precision air seeder



ZA-TS mounted spreader

## 9. What are the benefits of AMAZONE 4.0 for your farm?

### Optimum utilisation of the yield potential

An important pillar in successful arable farming is the exploitation of the possible yield potential of farmland. The potentials can vary greatly within a field. These differences must be identified through small-scale analysis, e.g. soil sampling and yield maps, and reacted to with part-area, site-specific sowing, fertilisation and crop protection measures. As a result, the crops can be managed in micro-areas. The yield potential can thereby be optimally exploited and the total yield of the farm increased.

### Precise application – reduction in the use of inputs

Unnecessary overlaps, e.g. in wedge shaped fields and on headlands, are avoided thanks to automated control. This significantly reduces the use of inputs. The application of crop protection products and fertiliser can range from full-area treatment and part-area treatment to individual plant treatment. Plant protection agents and fertiliser are therefore only applied where they are needed and only in the quantity required for an effective yield. This means that the use of inputs can be reduced in the long term, which significantly improves the economic efficiency of production.



UX 5201 Super trailed axle sprayer

#### **Environmentally-friendly use of resources**

The high-precision application of seed, plant protection agents and fertiliser not only increases the profitability of the farm but also protects the environment. Targeted application to micro-areas cuts down the use of input materials and significantly reduces avoidable impacts on the environment. Modern machinery which is operated and monitored automatically has brought about a significant improvement in longitudinal and lateral distribution as well as a reduction in unnecessary overlaps and drift. This automation ensures that seed, fertiliser and plant protection agents are placed exactly where they belong and are metered in the quantities required. Thanks to modern technology, there is no contradiction between environmental protection and maximum yields.

#### **Efficient farm management**

In order to optimise farm management, it is essential to accurately record the operating processes. Thanks to modern technology, the sequences of machine use can be permanently recorded and subsequently evaluated by the farm manager. This enables things like unproductive downtime and set-up times to be determined, the operating processes to be optimised and, finally, the overall productivity increased.

#### **Higher capacity utilisation of the machine**

Machine capacity utilisation plays a key role in the profitability of a farm. The machine can always be run close to its optimum performance by automating processes. Regardless of whether the machine is working early in the morning or late at night, it shows no signs of fatigue and always delivers its full performance.

#### **Comfortable machine operation**

The automation of the processes and machines relieves the driver, as he or she only has to concentrate on monitoring the processes during field work and not on controlling the machine. This also makes a long working day in the field much more relaxing. The work can also be documented with minimal effort. For example, the data is transferred directly from the machine to a Farm Management Information System at the touch of a button via an App.













Illustrations, content and technical data are not binding and may differ depending on the level of equipment. Country-specific road traffic regulations apply and must be complied with, meaning that special approval may be required. The permissible axle loads and total weights of the tractor have to be checked. Not all the listed combination options are possible with all tractor manufacturers.



**AMAZONEN-WERKE H. DREYER SE & Co. KG**

P. O. Box 51 · 49202 Hasbergen-Gaste/Germany

Phone +49 (0)5405 501-0 · Fax +49 (0)5405 501-193