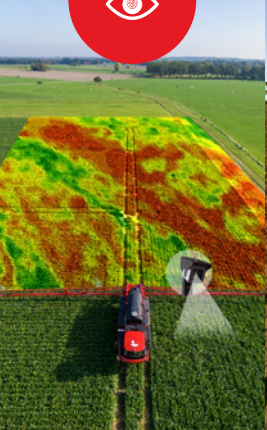


Spraying on plant level

Camera spot spraying with AiCPlus 2021





Agrifac makes sustainable agriculture approachable

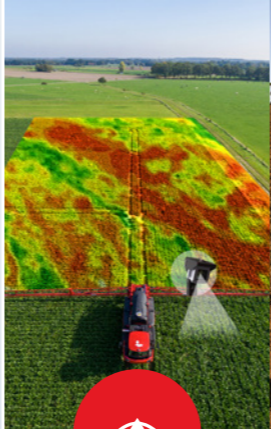
Now more than ever, agriculture faces political, environmental and economic challenges. According to the UN, over 600 million people worldwide are underfed and the world population continues to grow rapidly. The challenge we face is to feed all these people, even when the amount of available farmland is limited. Agrifac believes that the long term solution is to increase yield on existing farmland using more sustainable methods and specially developed technology. In short: use solutions that provide your crops with the best care and protection, but do it in the most sustainable way possible.

For many years, Agrifac has been involved in this challenge and we will not stop. It is our mission to provide innovative and sustainable solutions to enable farmers to produce as much safe and nutritious food as possible, while simultaneously lowering their ecological footprint.

One of the tools we developed is our camera spraying system AiCPlus. In this whitepaper we will inform the latest developments of this groundbreaking technology.

Roeland Coopman
CCO
Agrifac Machinery B.V.





Join us

Working together on higher yields and less chemicals with Agrifac AiCPlus

Producing food is about to get even more challenging, but with a smart approach, there is no reason why we shouldn't be able to produce sufficient, nutritious and safe food for everyone. Agrifac wants nothing but the best for both farmers and plants. This means that we want to increase yield while reducing the use of chemicals at the same time.

With AiCPlus we can dose specifically for each plant. This means that we can do the best for each individual plant while using less pesticides, liquid fertiliser and water at the same time.

Agrifac is now ready for the next step. We are looking to work together on developing together with farmers, contractors and corporate farms the algorithms for AiCPlus to reach even higher savings on chemicals and higher yields.

AiCPlus is Agrifac's camera system with integrated artificial intelligence that interprets what it sees. The intelligent AiCPlus cameras are mounted on the boom from where the system processes and analyses the crop. The desired amounts can be applied immediately.

For next year, Agrifac has AiCPlus algorithms available for

- Green on brown
- Maize
- Sunflower
- Wheat
- Grasslands

Join the meeting on and learn what AiCPlus can mean for you for next season. Please join our online meeting where we will talk about the developments, results and chances. Also we can answer your questions.

Date: Link: QR code



SCAN ME



PWM Spraying **StrictSprayPlus**

Farmers need the certainty that a desired amount of chemicals is sprayed where it is needed. This ensures that the chemicals can do their work and the right plant can be fed and protected at the right time.

StrictSprayPlus has three features that contribute to the application of the precise amount of chemicals.

1. Sections with one nozzle
2. Turn compensation
3. Pressure-independent speed control



Task map spraying **DynamicDosePlus**

While StrictSprayPlus ensures that you can spray the same amount of liquid, DynamicDosePlus ensures each plant gets the precise amount it needs. You no longer have to decide what the best treatment is for all plants but can spray each plant with precisely what it needs. The machine uses an application map to determine the right dose and ensure the right amount is sprayed in the right place.



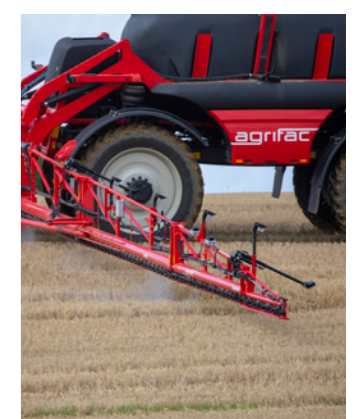
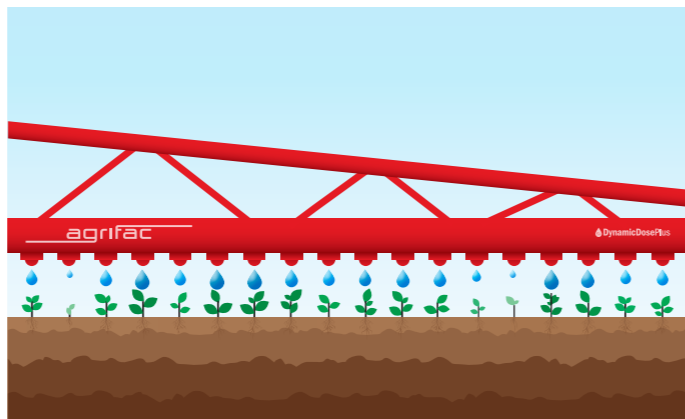
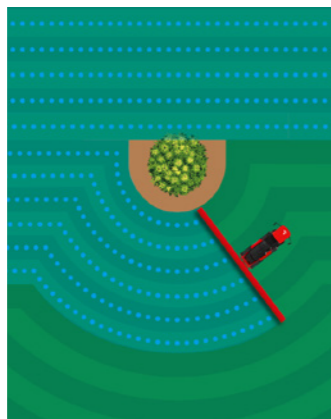
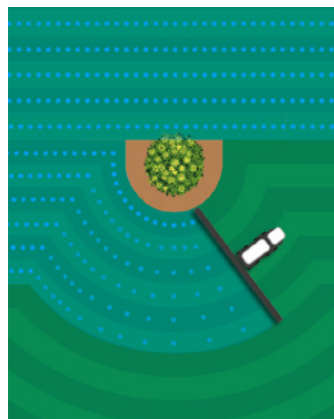
Camera spraying **AiCPlus**

The intelligent AiCPlus cameras are mounted every three metres on the boom and the system processes and analyses the crop in real time. Where spot spraying uses infrared technology and is only capable of detecting biomass, AiCPlus uses RGB cameras that are mounted on the boom to detect weeds in the crops. The desired amounts are being applied immediately.

The artificial intelligence software recognises and distinguishes between:

1. Shape
2. Structure
3. Contrast.

The rule of thumb for AiCPlus is that an algorithm can be developed for each weed that can be seen in the field with the naked eye. A database is created for plant recognition.





Available algorithms



Green on brown

Detects and sprays all weeds in fallow, bare soil and stubble.

Performance

- Maximal speed: 20km/h
- 90% of weeds with a max. ferret diameter \geq 30mm
- 95% of weeds with a max. ferret diameter \geq 50mm
- Offset and overspray: Adjustable in increments of 125mm (over and before)

General

- One camera per 3 m (With max. deviation of 250mm)
- Largest possible boom: 48m boom (16 cameras)
- Camera height: 1000mm above nozzle

Conditions

- Available on Condor 36m, Condor Endurance 36m & 48m equipped with AiCPlus, StrictSprayPlus and StrictHeightPlus.
- Usable at daytime only
- Max external temperature: 30°C (Sunny)
- Storage conditions: -20°C to +60°C, humidity < 90%



Maize

Detects and sprays weeds in maize until full canopy.

Stage 1

Gathering data



Sunflower

Detects and sprays weeds in sunflower until full canopy.

Stage 1

Gathering data



Cereals

Detects and sprays all weeds in cereals until full canopy.

Detects wild radish in grain, also in later stages.



Rumex in pastures

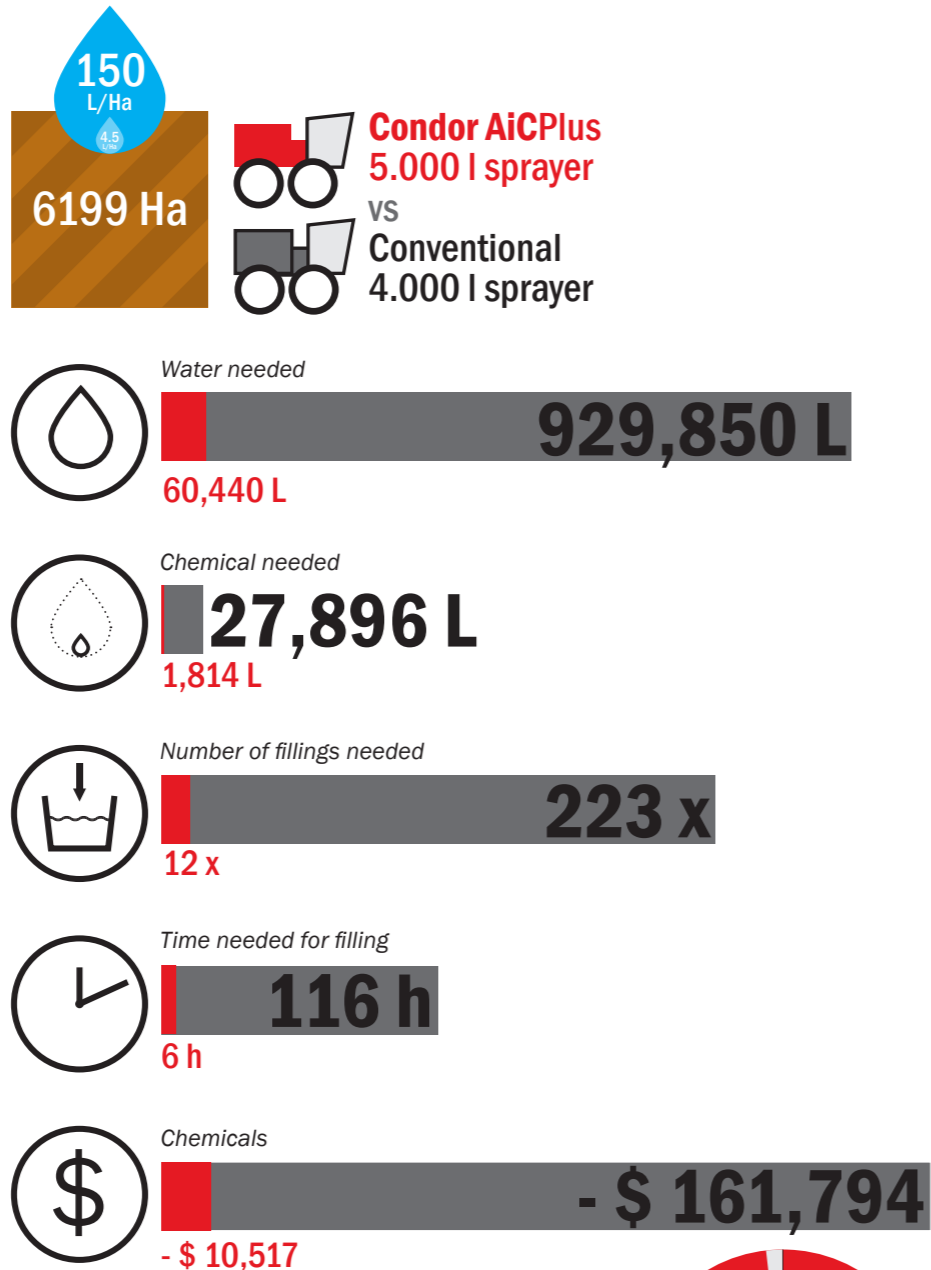
Detects and sprays Rumex in grasslands. Does not differentiate clovers and dandelion from rumex.

Accuracy

- 95% of weeds with a 2 cm ferret diameter



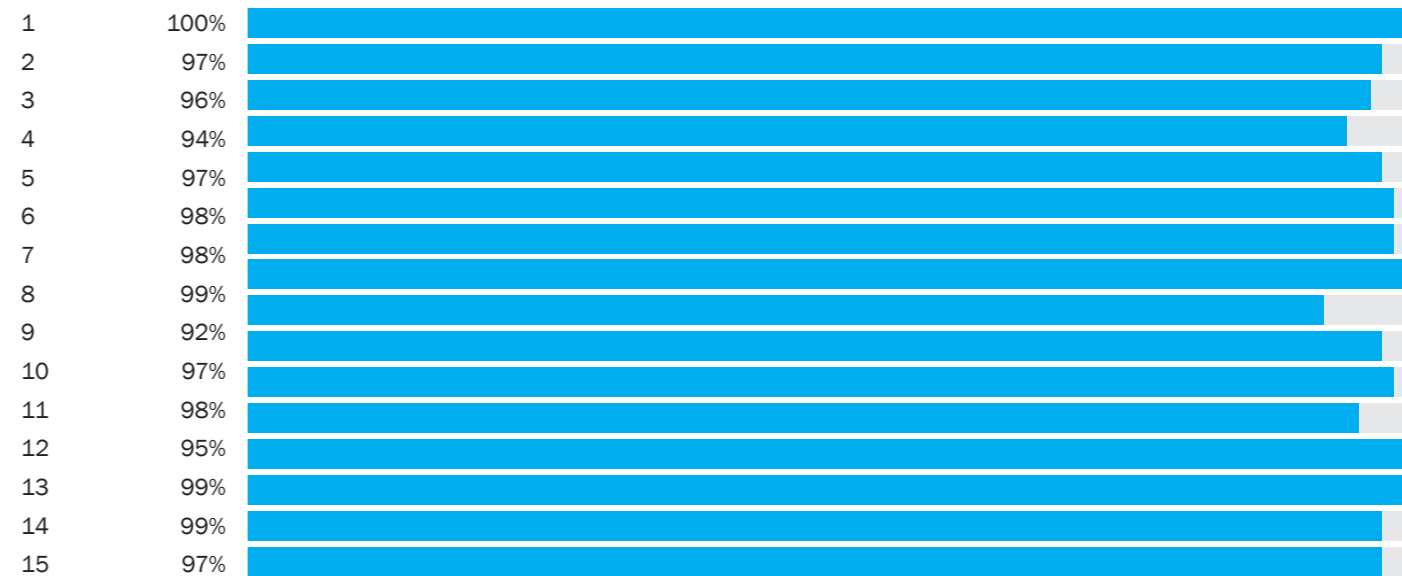
AiCPlus Green on Brown Results



AiCPlus: Total savings of



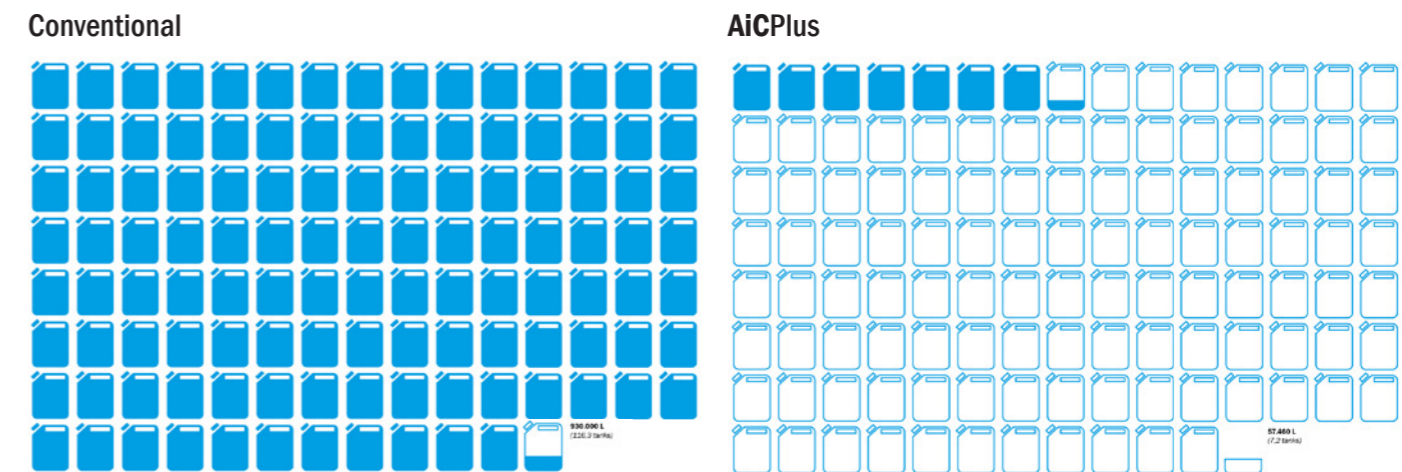
1. Hit ratio *



Total 97%

* Note: these tests are made on the straight end without any turns

2. Chemical-mix usage



Total:	Conventional	AiCPlus
Total amount of hectares:	10.907,75	10.907,75
Total sprayed liters:	1.564.329	112.469
Amount of tank loads:	196	14
Average saving:		92%



With AiCPlus we achieve about 90% reduction in chemicals and water

"We have been working with the AiCPlus technology for more than one year. Before we have been using one of the leading existing spot spray systems."

"With the AiCPlus system, I am able to achieve the desired spot spraying during summer spraying (Green on Brown) and achieve about 90% reduction in chemicals and water. With only one fill it is easy to cover 1000 ha in one day of 12 to 13 hours."

"I would recommend the AiCPlus Spot spraying for all farmers who want to work more efficiently and achieve higher net earnings. I look forward to reducing our costs further."

"I expect that in the near future for economic and environmental reasons farmers can't afford not having the AiCPlus system. Agrifac is now working on the in-crop algorithms, which will take spot spraying to the next level."

Gerrit Kurstjens
Beefwood Farms

