



# BCPC Weeds review

## Application Technology-

The past, the present and the future

Harry Fordham



3D  
ninety



NEW FARM  
TECHNOLOGIES



The past

syngenta®

# History Of Spraying



Started c. 1958 – 10 gals/acre (110 l/ha)

Product Registration -1986 – voluntary industry code

# Farm Sprayer 1978

- 200 l/ha
- 6 km/h
- 03 FanJet
- Med/fine spray



W FARM  
TECHNOLOGIES

# Flat Fan



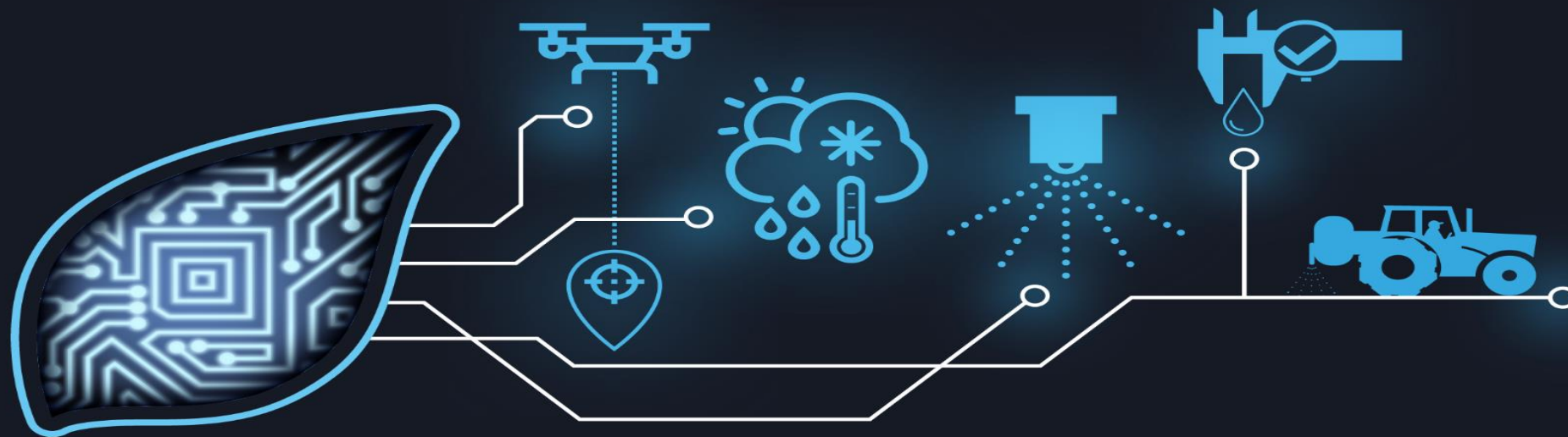
- Spray Drops 1-1000 $\mu$ m (.001 – 1mm)
- Drops leave nozzle at 50 m.p.h.
- Smallest drops stop within 10 cm
- Largest drops slow to 25 m.p.h. after 1m



## Ai Nozzle



- Drops leave nozzle at 25 m.p.h.
- Drops contain air which acts as shock absorber
- Coverage important for biological activity



**NEW FARM**  
TECHNOLOGIES

The present

**syngenta**<sup>®</sup>



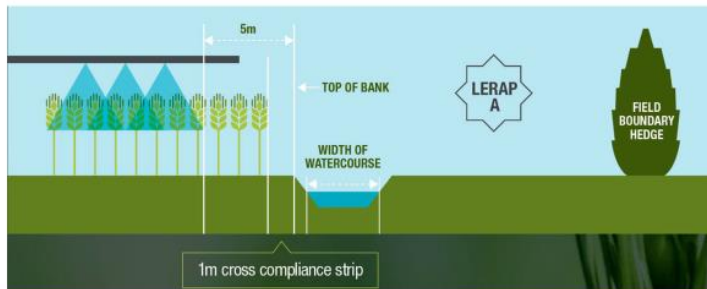
# Over time - the goalposts have shifted...



## Category 'LERAP A'

Buffer zone 5m non-reducible  
Cannot be reduced, unless:

- Ditch is dry – to 1m



syngenta.

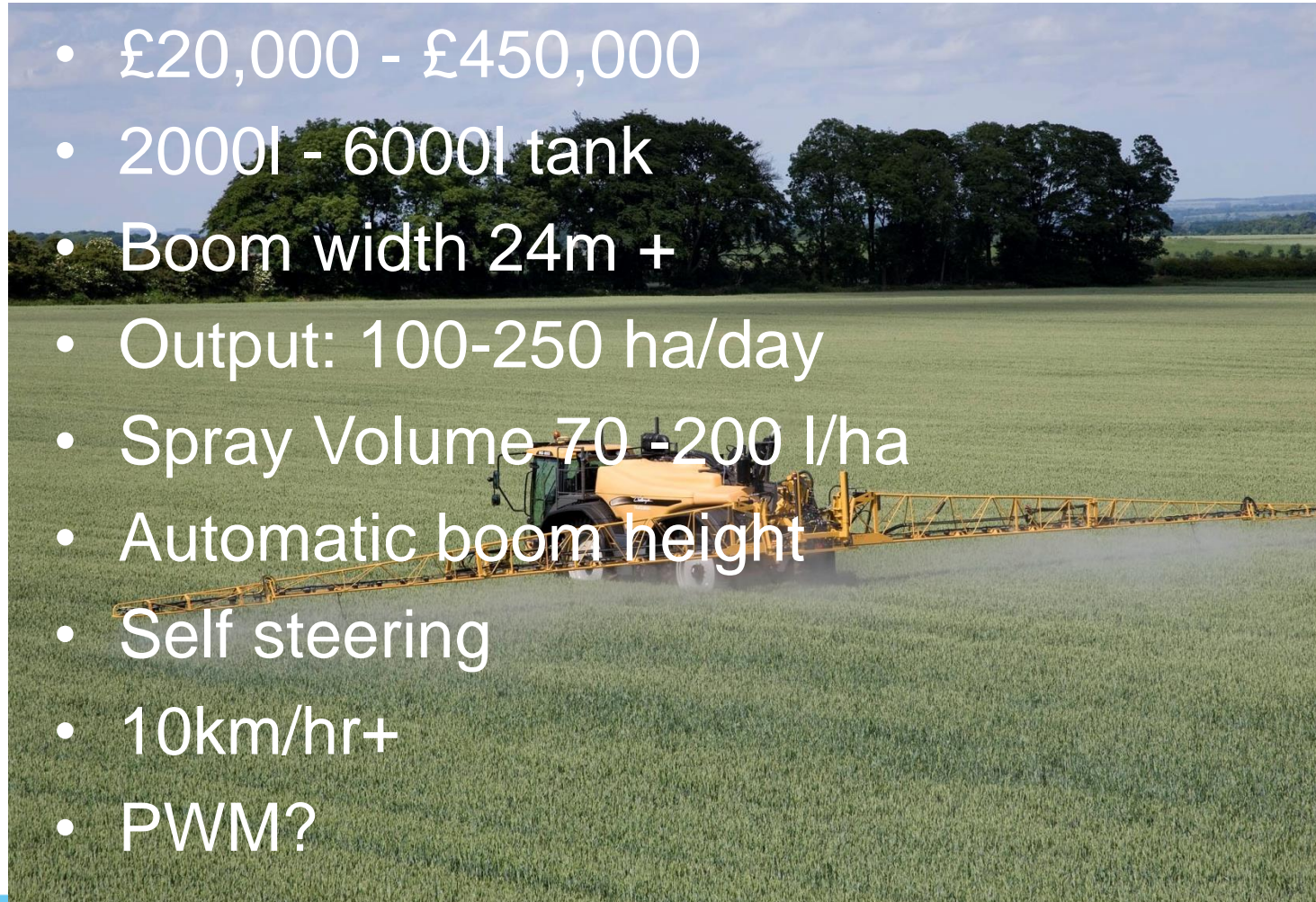
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# The influence of nozzles on drift reduction



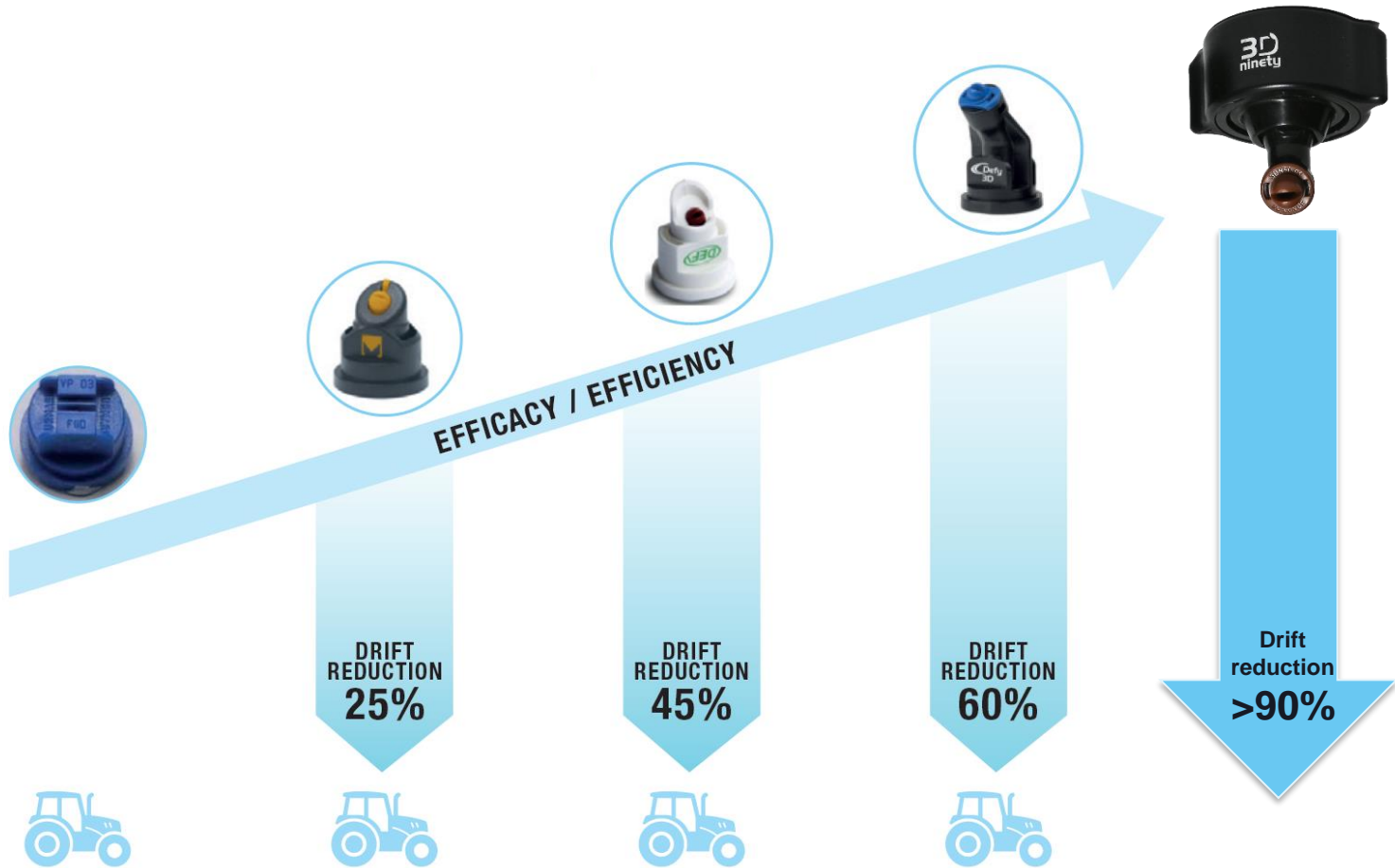
BCPC 110-03 3 bar No drift reduction	IDKT 120-03 1,5 bar 90% drift reduction

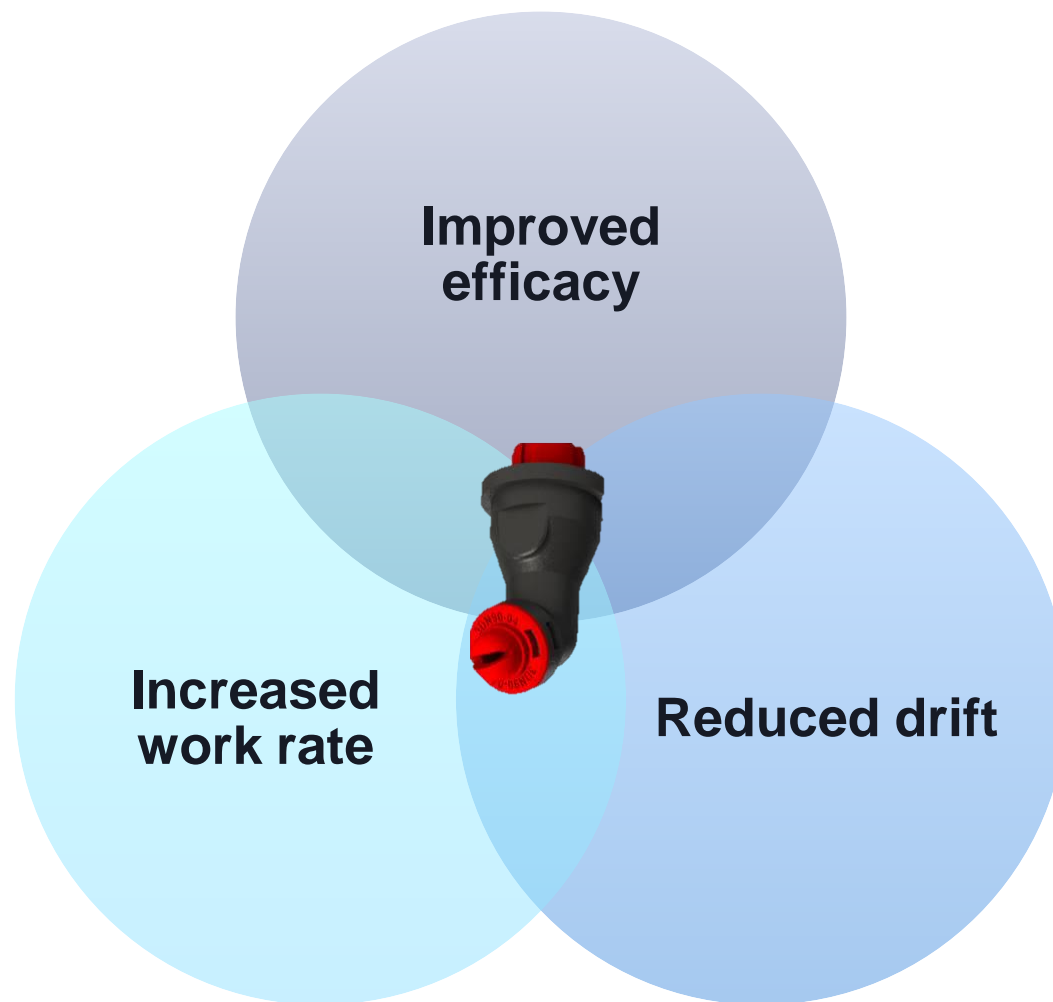
# Farm Sprayer 2023



# Syngenta Angled Nozzles range

The Next step in 3D Technology



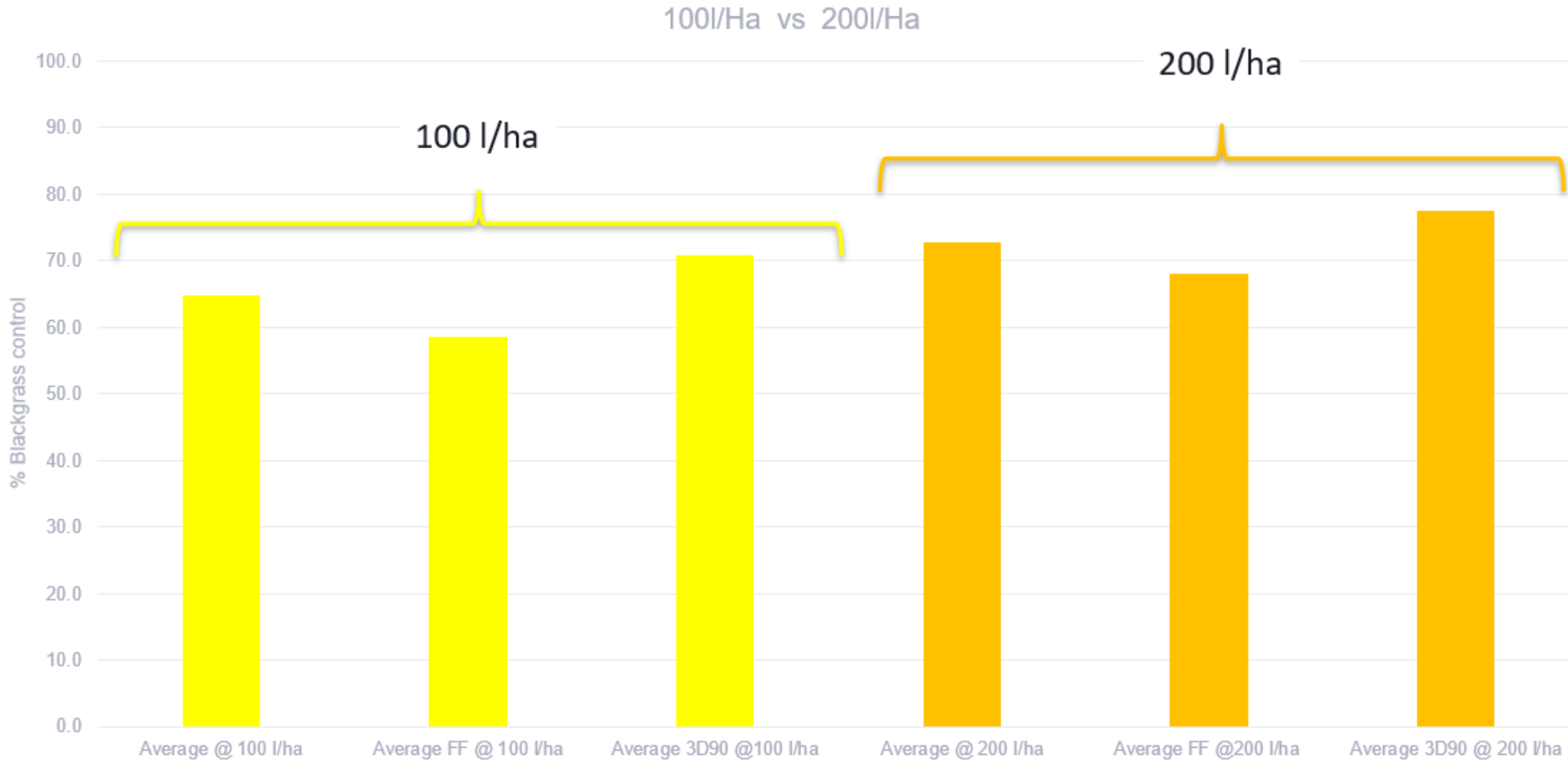


## WHAT IS



- 90% drift reducing/4\* LERAP up to 5 bar
- 55° nozzle – optimises deposition on back of targets
- Field trials confirm maintain efficacy vs 3D and exceed other 90% DRT
- Sizes: 05, 06, 08 (03, 035, 04 to follow shortly)
- Pre-em herbicides
- Potato fungicides
- Spring post-em herbicides, T0 and T3 cereals,
- Pre-orifice nozzle
- PWM Compatible
- Integrated Snaplock cap

# Even with various products we get benefits



# What does it look like at application?



3D ninety 05

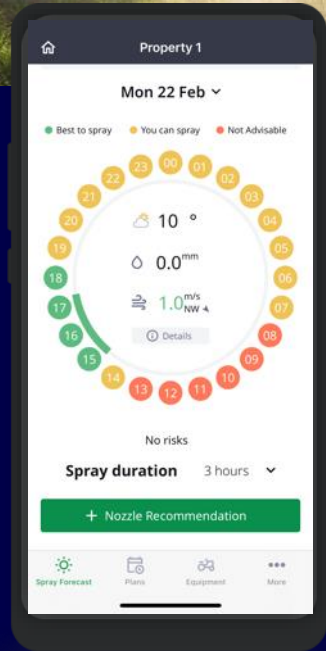


Flat Fan 05





NEW FARM  
TECHNOLOGIES



## What is Spray Assist?



### **Spray Timing & Alerts**

5 day weather with hourly spray timing guidance and alerts if conditions change



### **Spray Plans & Recommendations**

Plan your sprays and get recommendations on nozzles and parameters



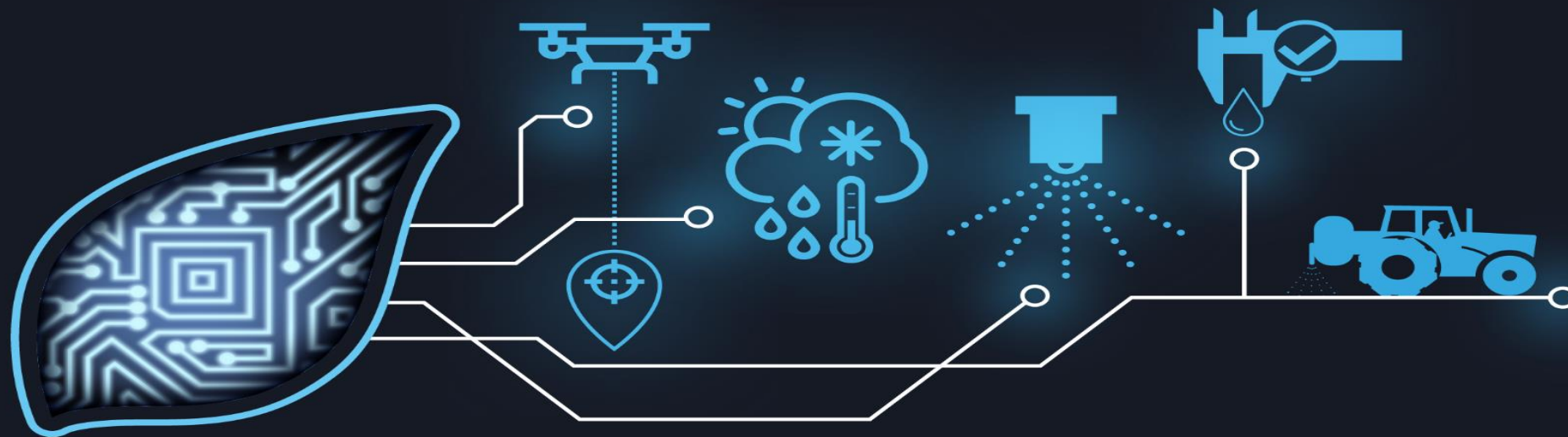
### **Equipment Management**

Register the equipment and nozzles you use to receive optimised recommendations



### **Syngenta Digital Farm Set-up**

Create and connect your Farm for enhanced localisation



**NEW FARM**  
TECHNOLOGIES

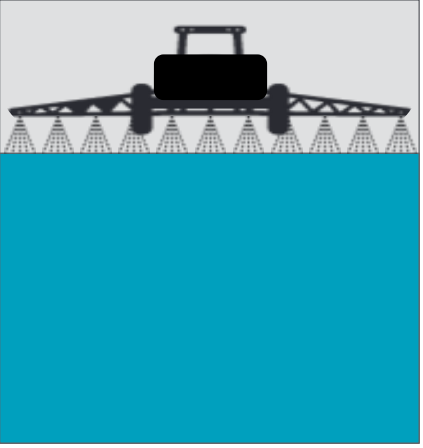
The future

**syngenta**<sup>®</sup>

# What is Precision Application (PA)?

## Precision Application

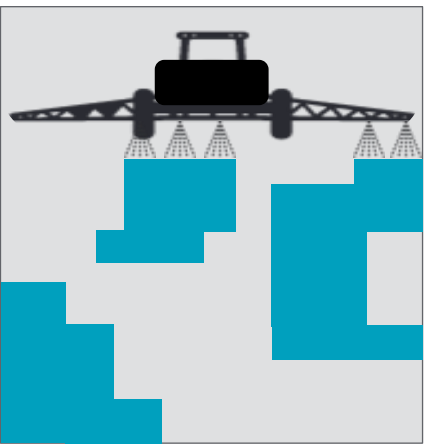
Broadcast



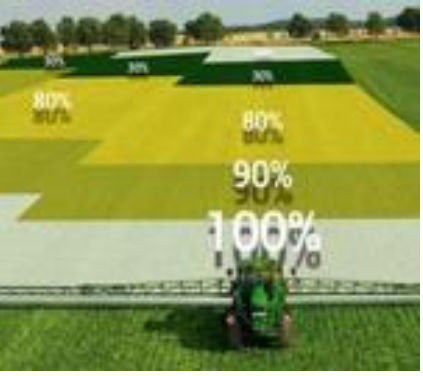
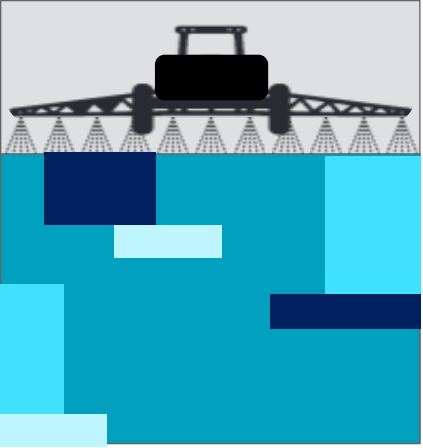
Banded



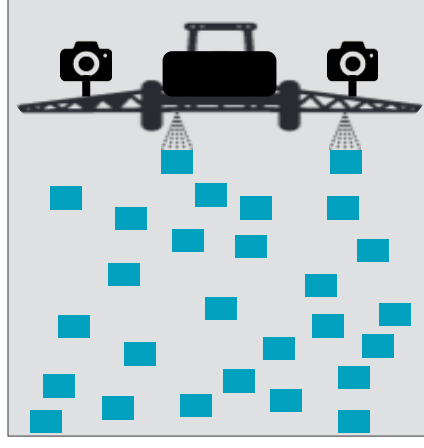
Patch prescription



VR prescription



Optical Spot Spray



 = sprayed area

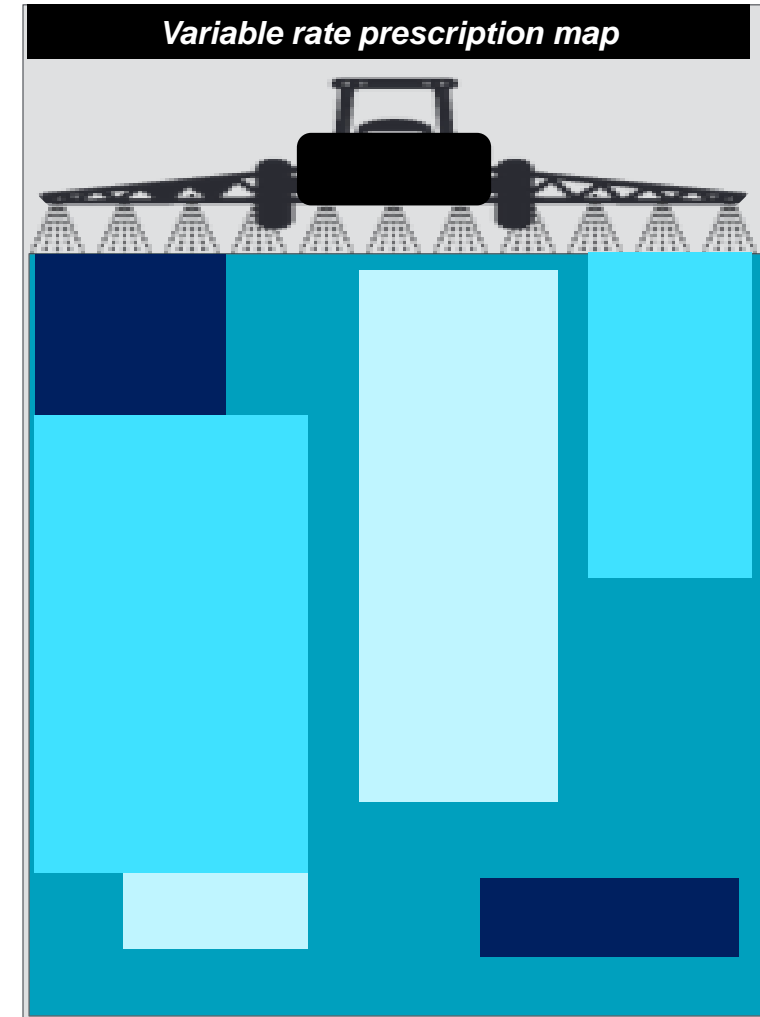
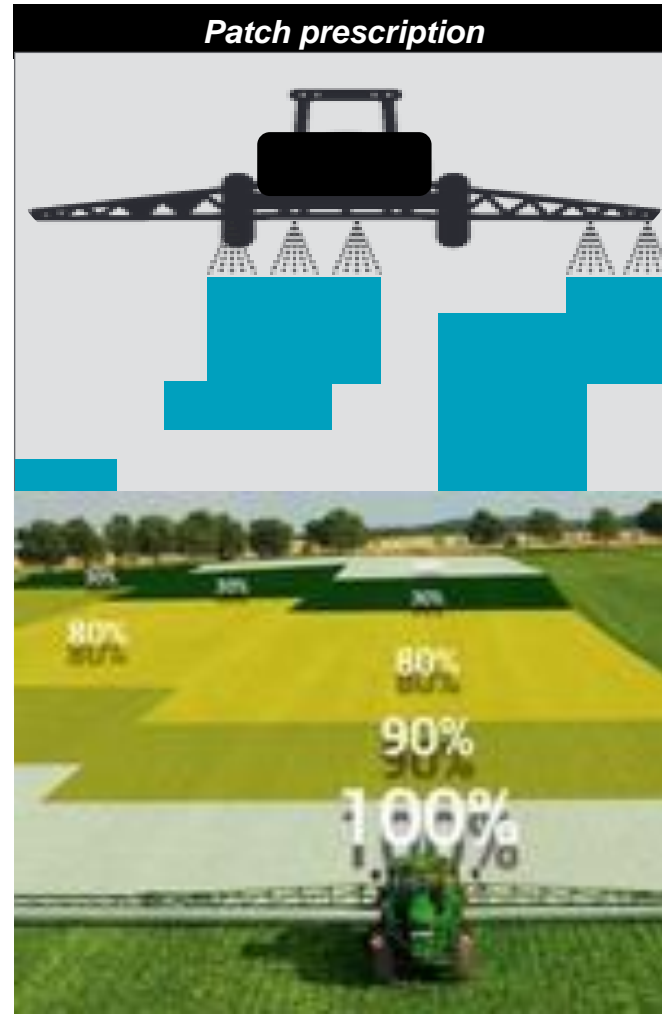
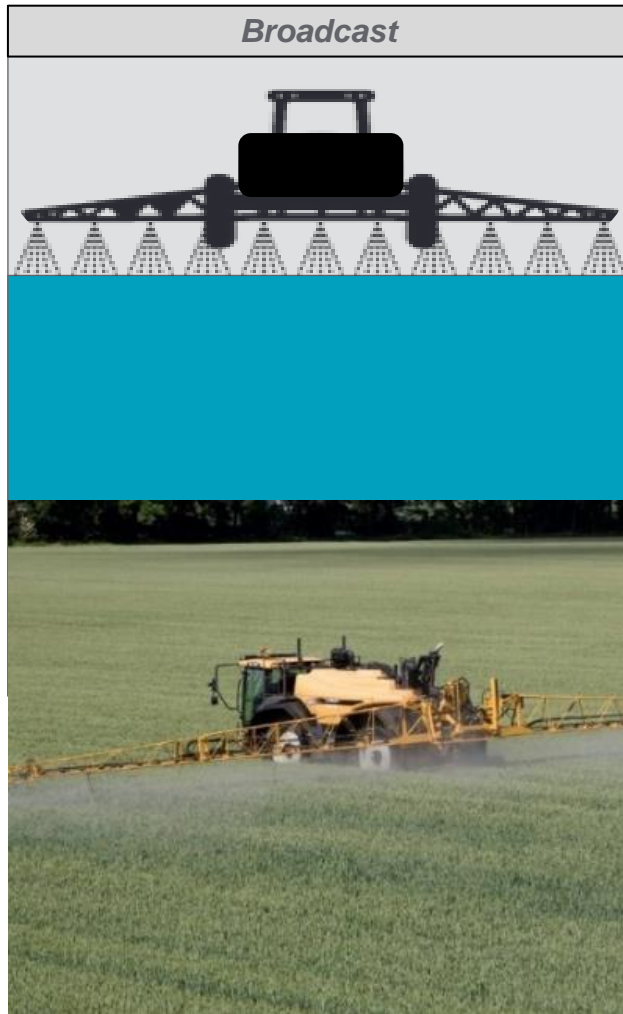
# Technical approaches for a banded application



Amazone 2020



# Prescription Application

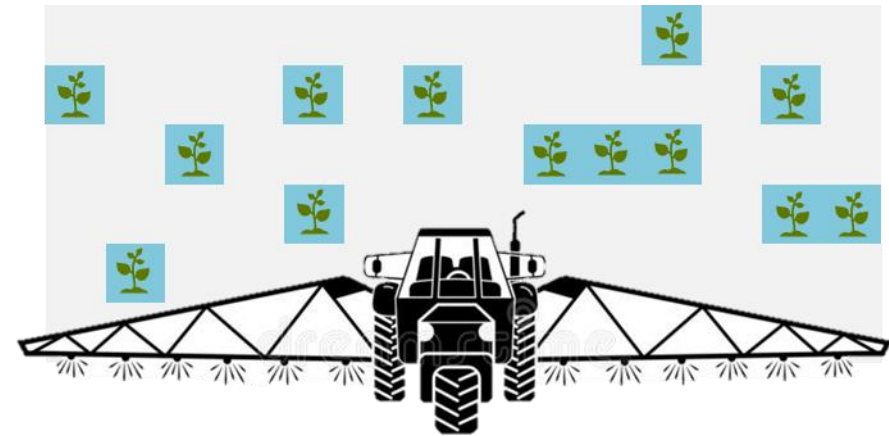
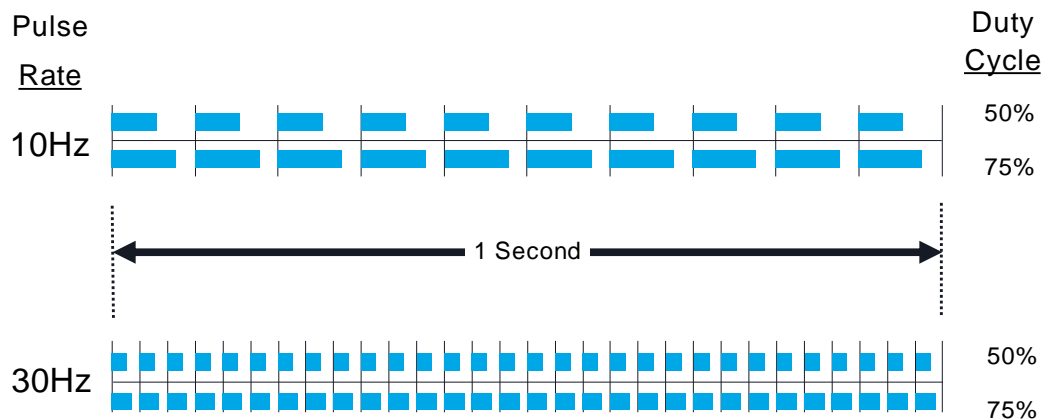


# Advanced application technologies

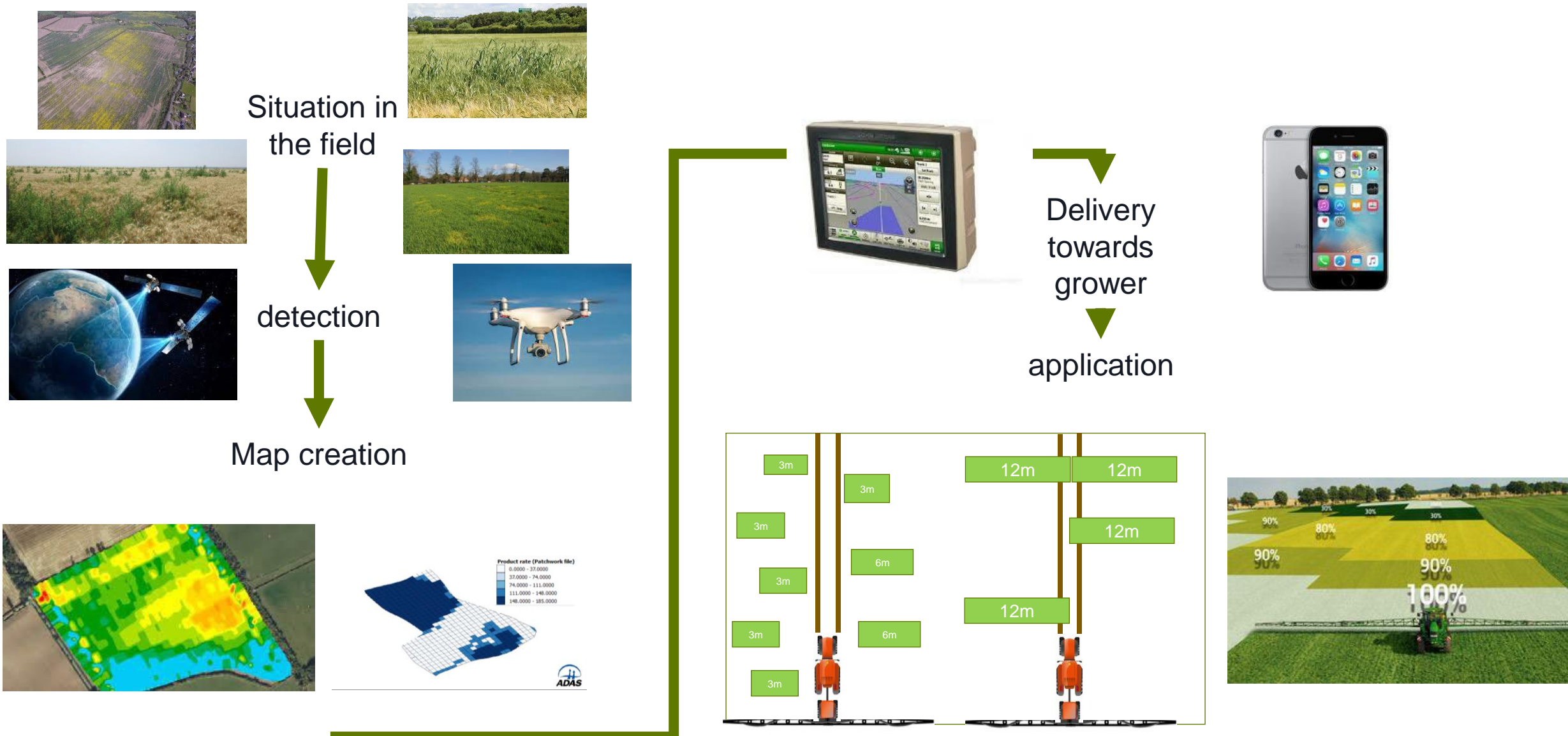
## Pulse Width Modulation



- Enabled by a valve in the nozzle body that rapidly opens and closes
- Nozzles can be controlled individually: a key enabler for more precise and variable rate applications
- Regulation currently out of step with technology evolution: nozzles lose their LERAP rating if used with PWM systems



# Flow chart for prescription map creation



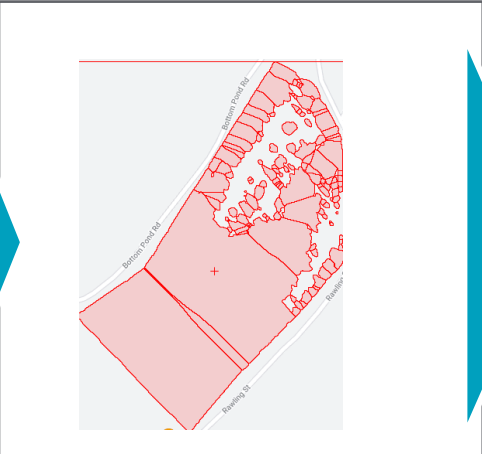


# Prescription Application building from drone imagery

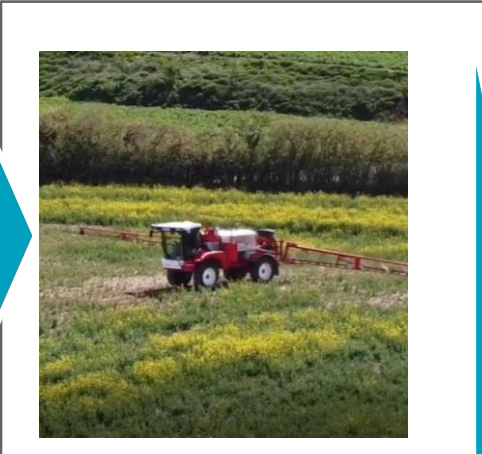


**Drone**

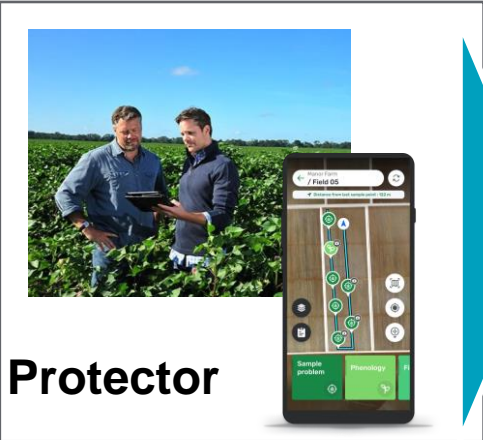
**Map pest**



**Make prescription map**



**Apply with precision**



**Protector**



**Grower benefits**

- Higher ROI on CP use
- Reduced use of CP
- Higher sustainability

# Green-on-Brown and Green-on-Green detection



GoB

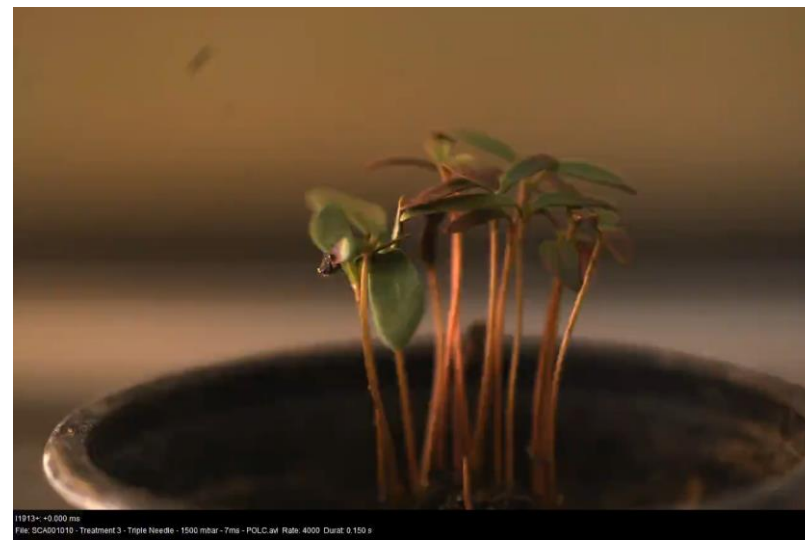


GoG



# A new generation of application & product technologies

## *Plant-by-Plant Optical Spot Spraying*



*Bringing plant potential to life*