

# Get the full benefit of VRA spraying by combining VRA map with an on/off map for boom control

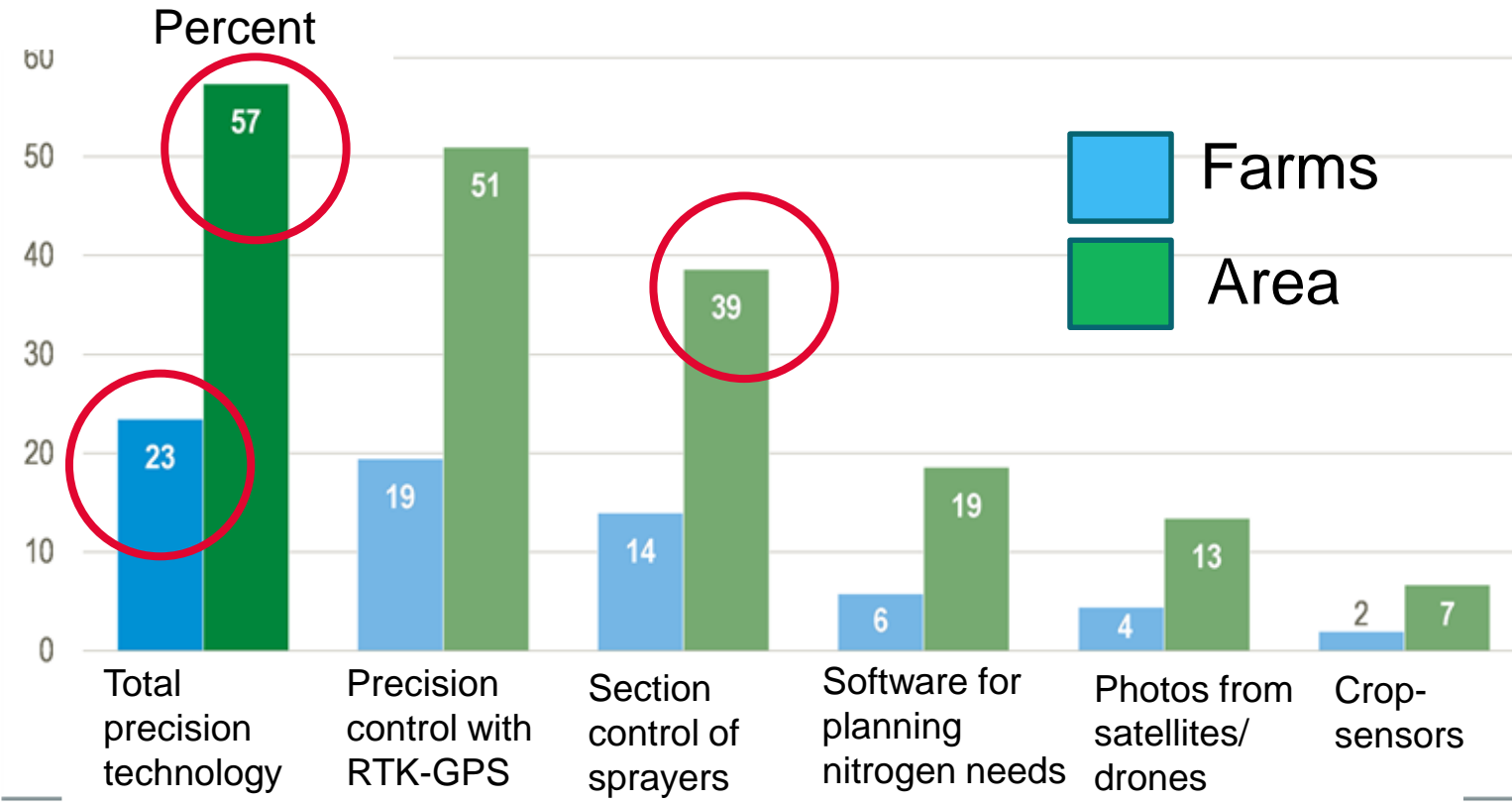
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SEGES

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2018

## Precision Agriculture – distribution by farm and area



# Challenge for field sprayers.

Most sprayers can only vary the Variable Rate Application (VRA) +/- 25% of the average dosage.

It is therefore **not** possible to apply **0** liter per hectare

Consequently, the full benefit of precision spraying is not gained for neither the farmer nor the environment

## Question

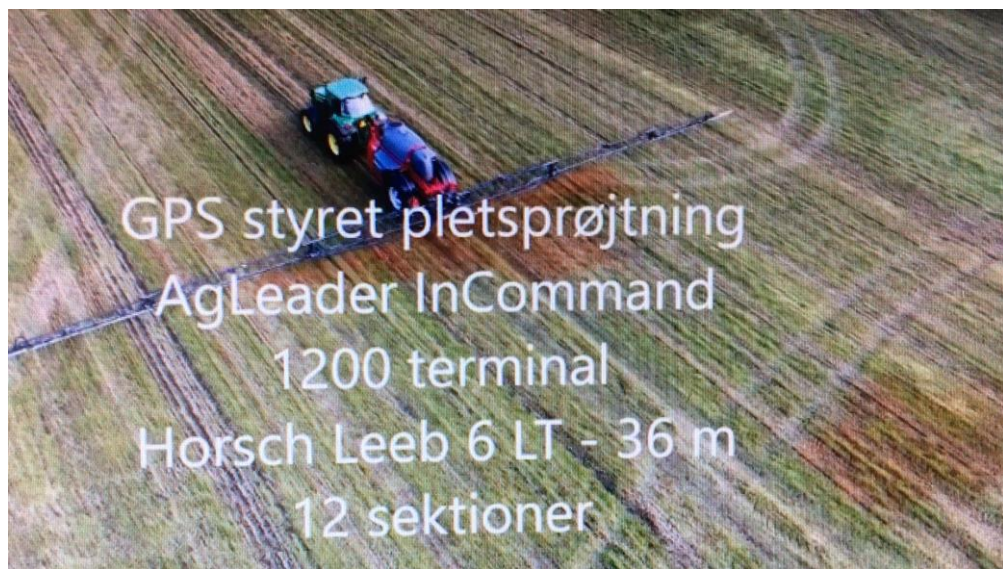
Can a tractor terminal read two different maps (VRA and on/off) on-the-go during the drive?



# Differens between on/off and VRA application

## On / off application

- Bomsection of 3 meter turns on/off



## Variable Rate Application

- VRA in the driving
- Uniform application in boom





# Field demonstration

## Demonstration:

- 4 fields with oilseed rape
- 10-39 hectare
- Growth regulator applied d. 25/9 2018
- Terminal TopCon X30 / TopCon X35
- Sprayers:
  - MGM trailer sprayer
  - Amazon Pantera

MGM trailersprøjten



Amazone Pantera

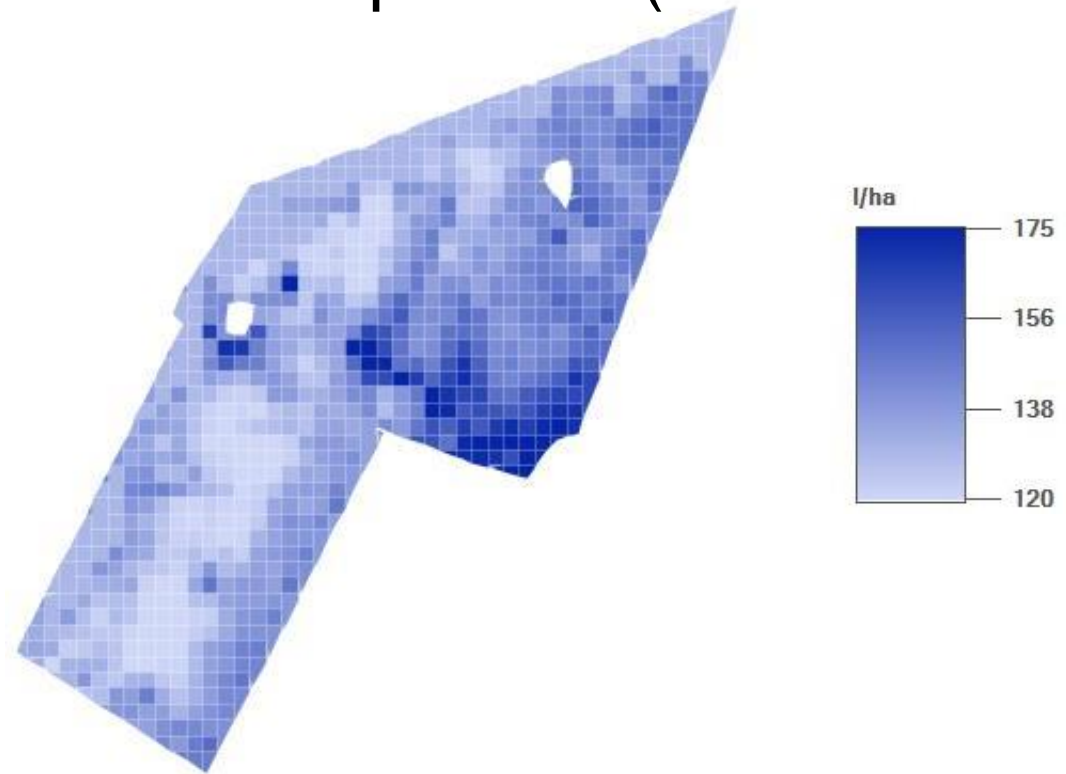
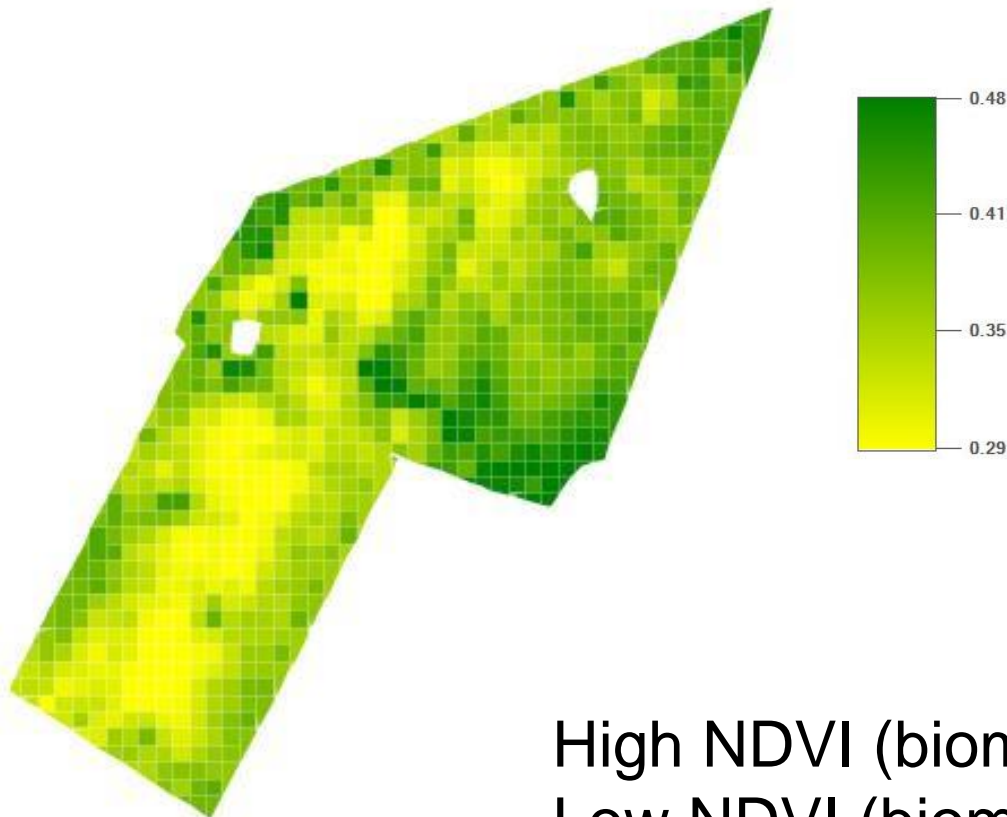


# Variable Rate Application maps

## Recommendation is based on Sentinel-2 data, NDVI

Biomass 21. September 2018

VRA map growth regulator  
+ / - 25 percent (120-175 liter/ha)

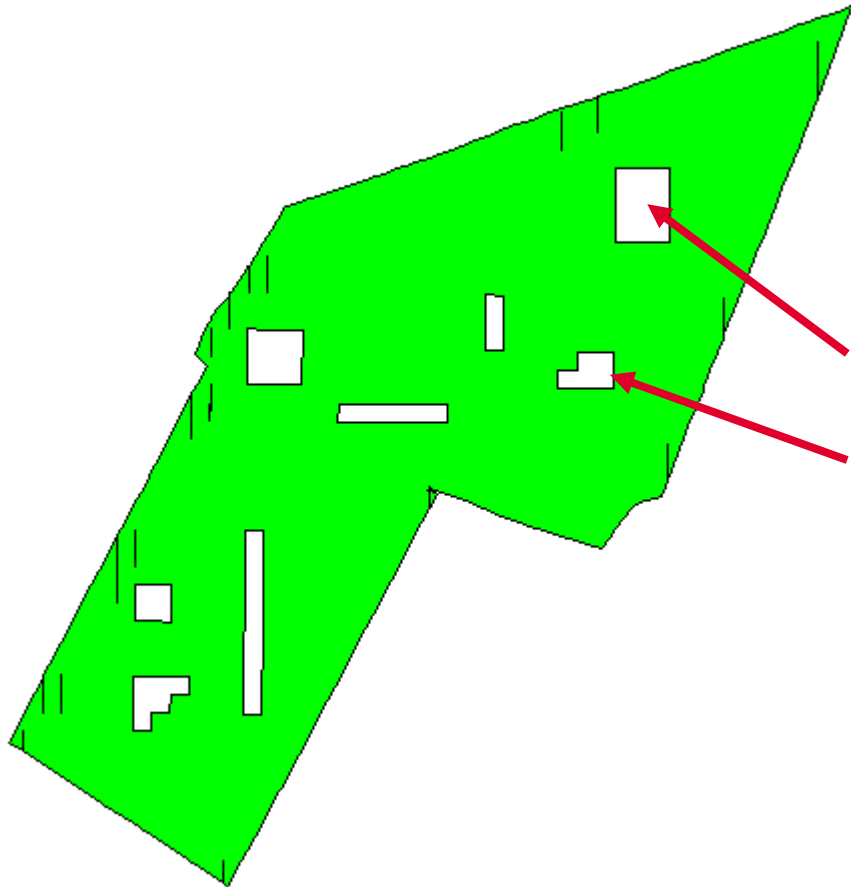


High NDVI (biomass) = high dose of growth regulator  
Low NDVI (biomass) = low dose of growth regulator



# An "On /off map" controls the boom section

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## **Green map:**

Open up the nozzles on the boom section

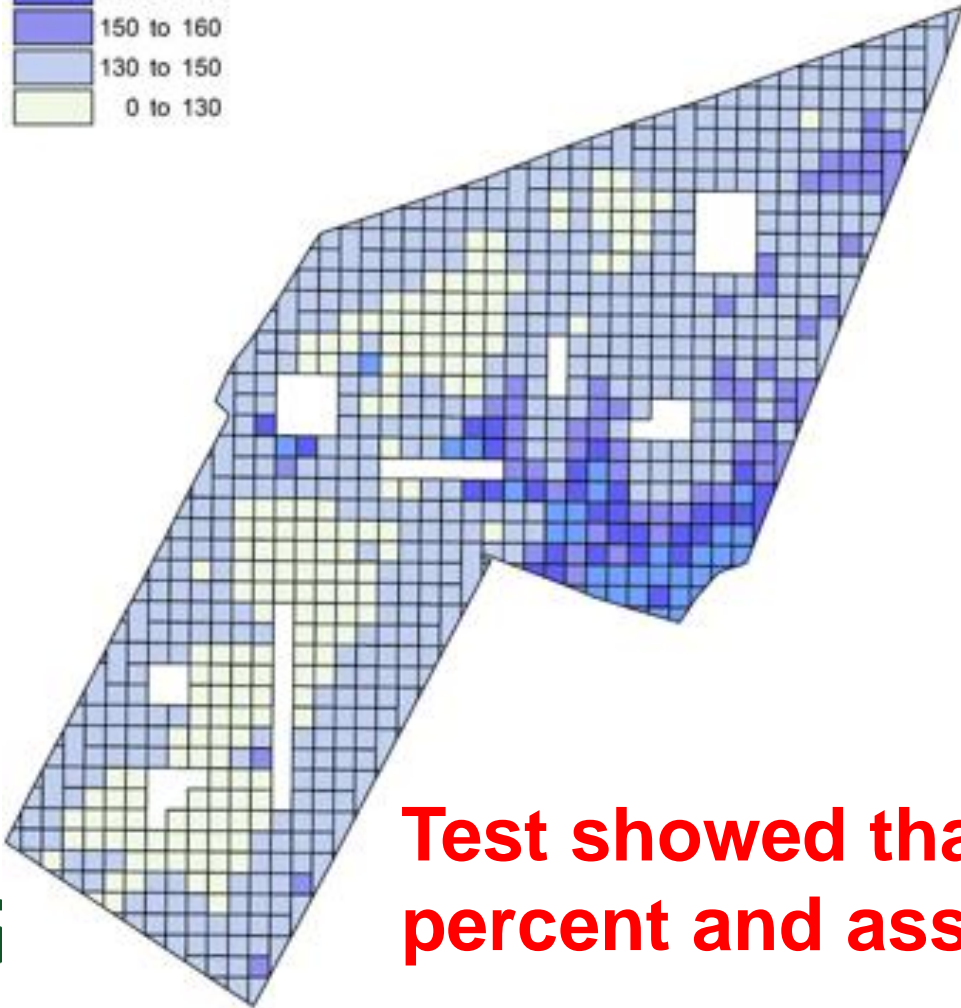
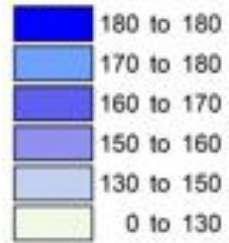
## **Holes in the card:**

Close the nozzles on the boom section

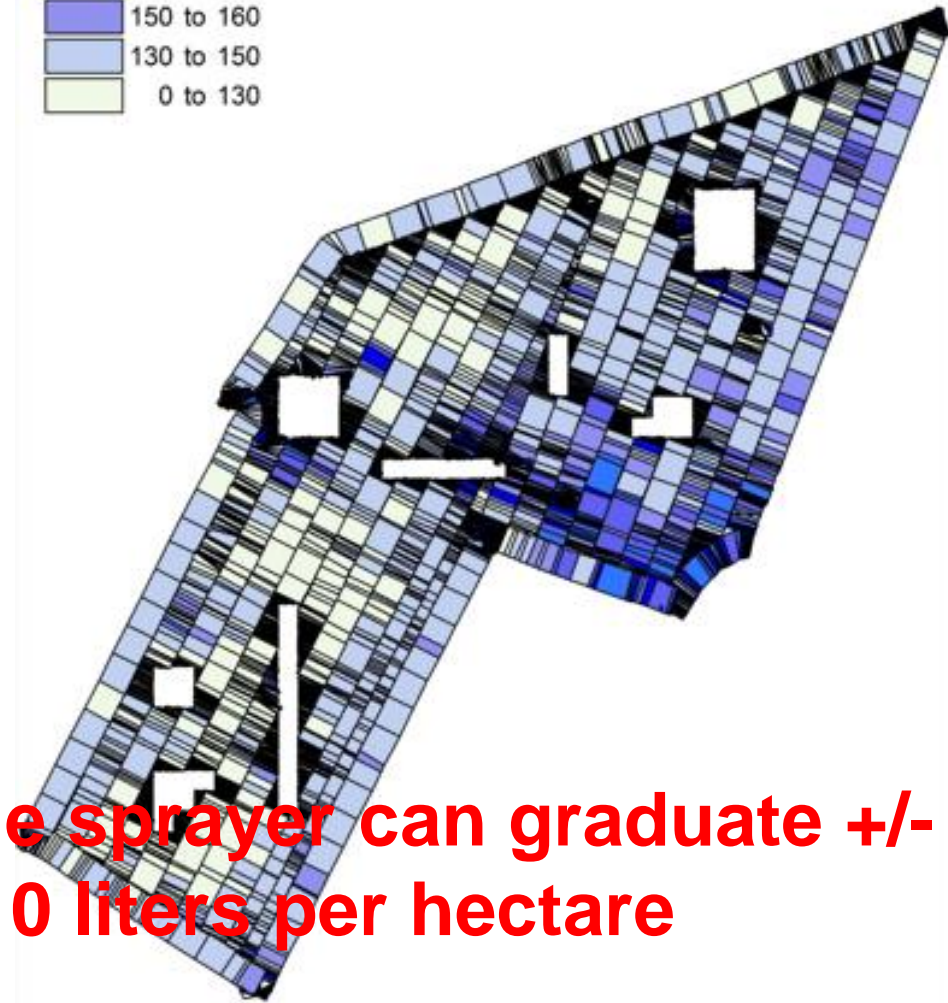
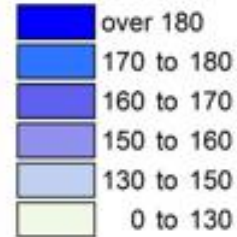


# Comparison between planned and actual allocation

Mark 7-0 VRA + OnOFF



As-applied kort fra terminal



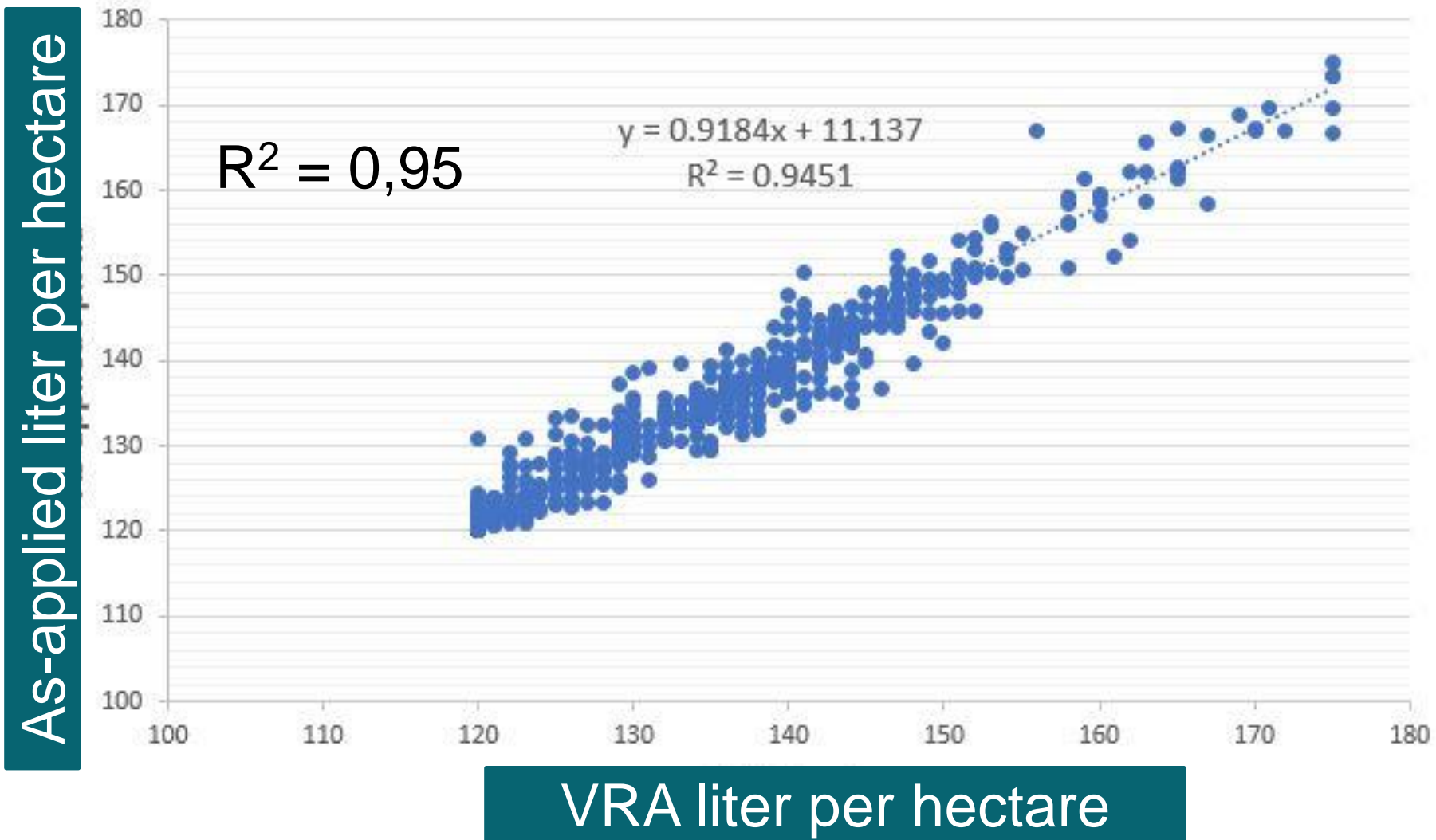
**Test showed that the sprayer can graduate +/- 25 percent and assign 0 liters per hectare**



# Correlation between the allocation cards and the as-applied card



# Correlation between planned and current allocation

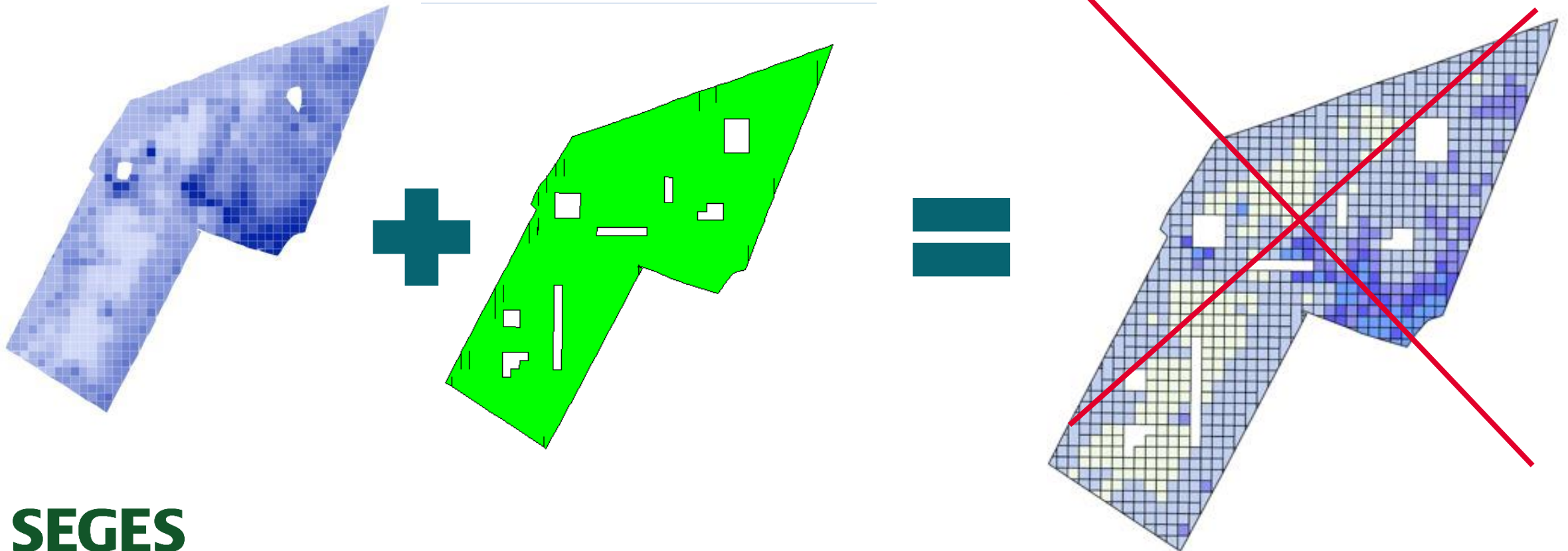


# Can the terminal read the combination card?

VRA map

On/off map

Combination card



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# Conclusion

- TopCon terminal can read 2 cards at a time and thereby allocate 0 l per unit. ha AND graduate + / - 25 percent
- The farmer and the environment thereby receive full benefit from a graduation
- There is a good correlation between the planned quantity and the quantity supplied (as-applied card)
- TopCon terminal cannot read the 2 cards (VRA and on/off maps) combined into 1 card.