

# SPNA Agroresearch

Stichting Proefboerderijen Noordelijke Akkerbouw

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# Last week....

- ▶ An overview from SPNA and the location
- ▶ Spreading straw for reducing aphids
- ▶ Spreading pellets as fertilizer

# NBS IN THE NETHERLANDS

Cover crops in a potato based crop rotation

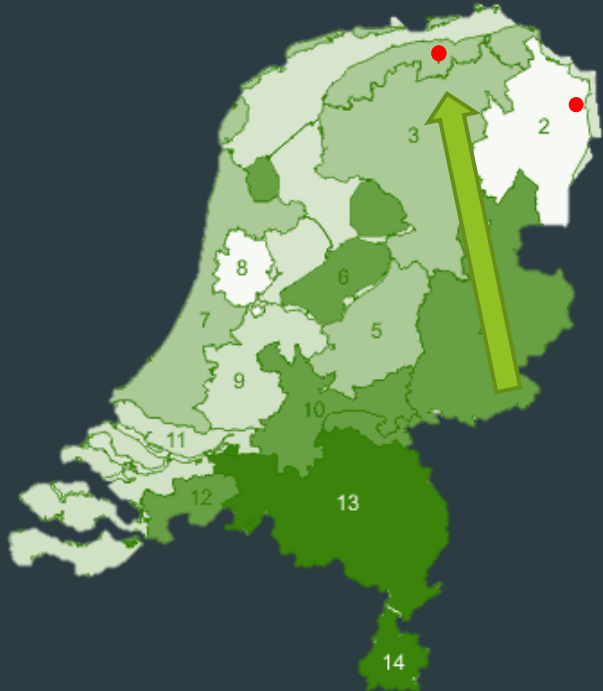
Grassclover fertilizer in organic winterwheat

Zero pollution long term plant based crop rotation



# Cover crops in a potato based crop rotation

- ▶ In what amount can covercrops provide the nitrogen the main crop needs



# Farmers goal

- ▶ Preventing scab through complete decompose of the cover crop? Which cover crop?
- ▶ Early seeding to catch all nutrients from previous crop
- ▶ Late destroying to keep the field green and maintain as many of the nutrients possible
- ▶ Timing is everything!





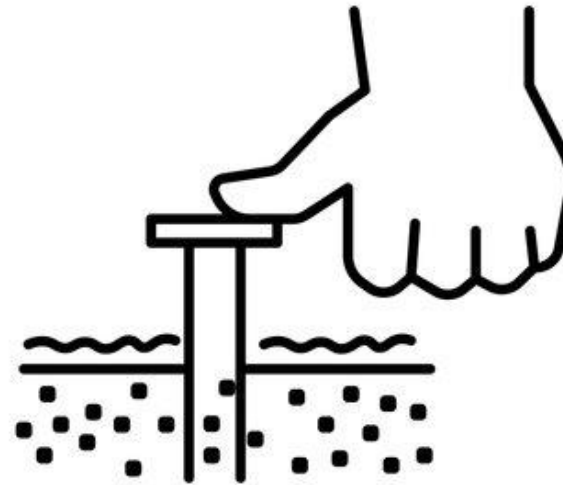
# Farmers questions

- ▶ How through the winter?
  - ▶ Handle frost?
- ▶ How to manage?
  - ▶ Busy time of the year (spring and autumn)
  - ▶ Mechanisation
- ▶ How to destroy it/ keep the minerals available for the next crops
  - ▶ Which machinery?
  - ▶ Chemical/ biostimulants/ additives?
- ▶ Which cover crop before and after each crop?
  - ▶ Which type/mixture?
  - ▶ When to seed
  - ▶ When to destroy



# Measurements

- ▶ Nutrients availability in soil after harvest main crop, by destroying cover crop
- ▶ Leaf samples when growth of the following crop is started
- ▶ Covercrop before seed potato
- ▶ Sowing as soon as possible direct after harvest of the main crop
- ▶ 1 mixture
- ▶ Multiple times for destroying in spring



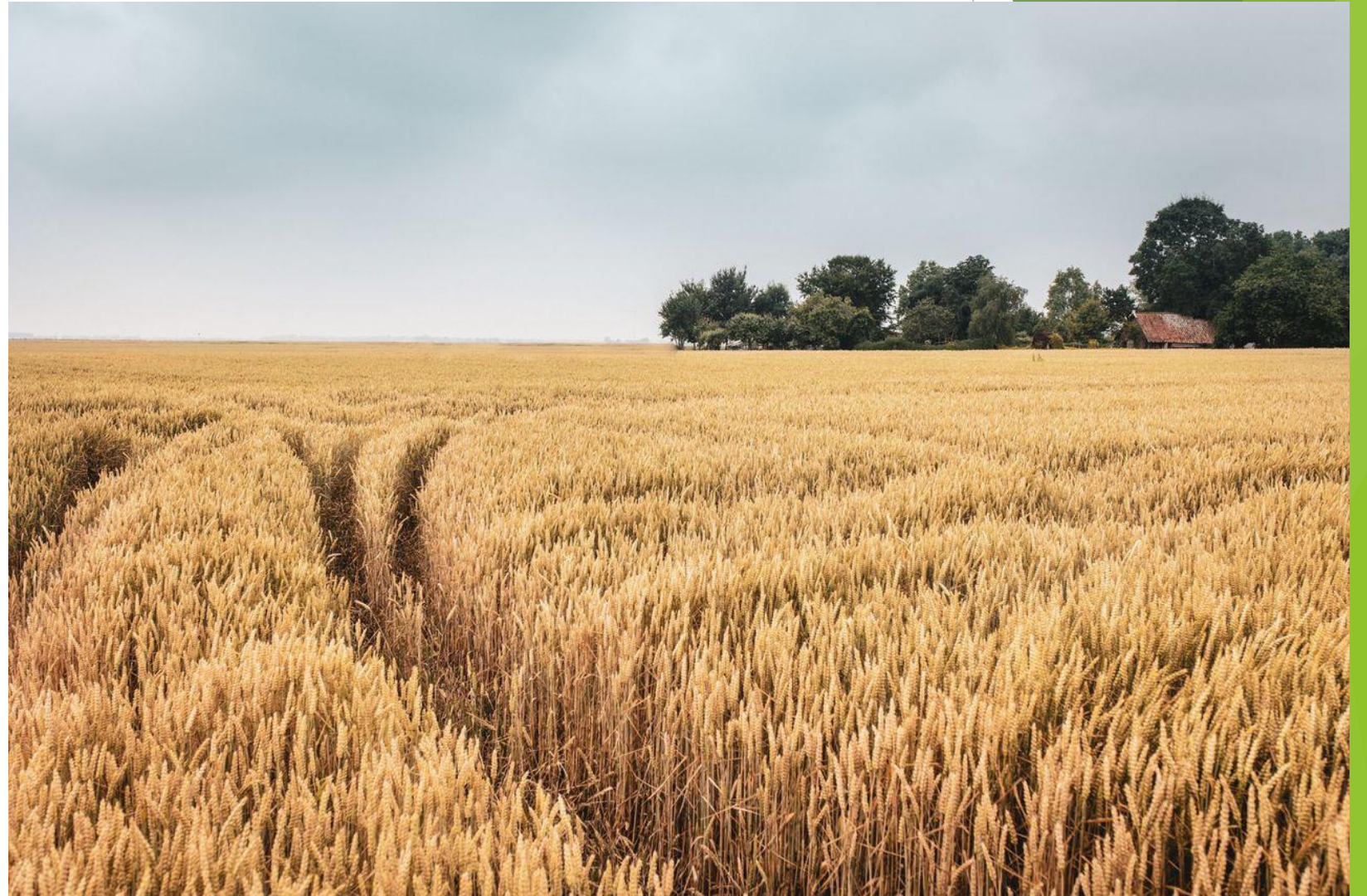
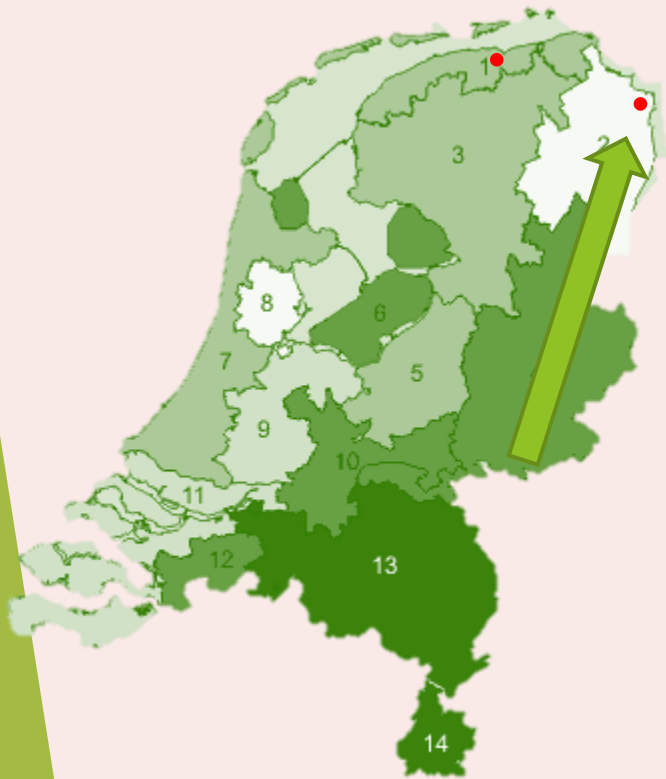
# Grassclover Compared to organic manure in organic winter wheat

- ▶ Using grassclover as organic manure





# LOCATION





# Fertilizer

- ▶ Grassclover
- ▶ Calculate amount of nutrients out of analysis of the product
- ▶ Calculate dose for fertilisation



# Why?

- ▶ Natural materials to use
- ▶ Non productive field edges CAP (Common Agricultural Policy)
- ▶ Optimal use of nutrients
- ▶ Less market for grass clover as feeding in the area





# Measurements

- ▶ Analyses of applied grassclover
- ▶ Soil samples
- ▶ Yield per applied object
- ▶ General crop overview
- ▶ General quality analyses of the harvested product: protein, starch, zeleny-number and hecto-litre weight.
- ▶ Availability of nitrogen in following crop

# Planty organic/ Zero polution long term plant based crop rotation

- ▶ Grass clover
- ▶ Compost
- ▶ Growing nitrogen
- ▶ 12 year allready
- ▶ 2 years with compost

20		19		19		19		20		20	
	1F	1E			1D	1C			1B	1A	
zonder	met compost	met compost	zonder	zonder	met compost	met compost	zonder	zonder	met compost	met compost	zonder

# Crops

- ▶ Clover
- ▶ Pumpkins
- ▶ Oats
- ▶ Carrots
- ▶ String beans
- ▶ Seed potatoes

## 1.2 Crop sequence and fertilization

The crop sequence has been in general the same during these nine years. Since 2015 no changes have occurred and the fertilizer strategy is stabilized. This is shown in Figure 1.

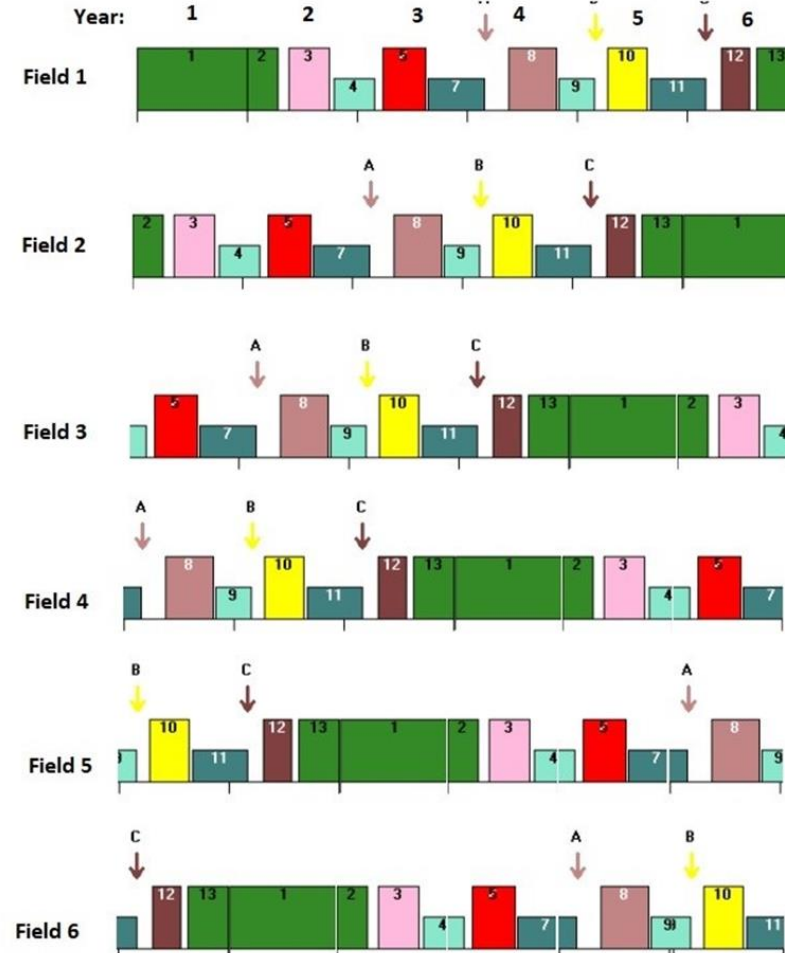


Figure 1. Crop sequence and fertilization

1, 2, 13: Leguminous crop mixture ; 3: Pumpkin ; 5/6: Wheat/Field bean ; 8: Winter carrot ; 10: Oats ; 12: Seed potato .

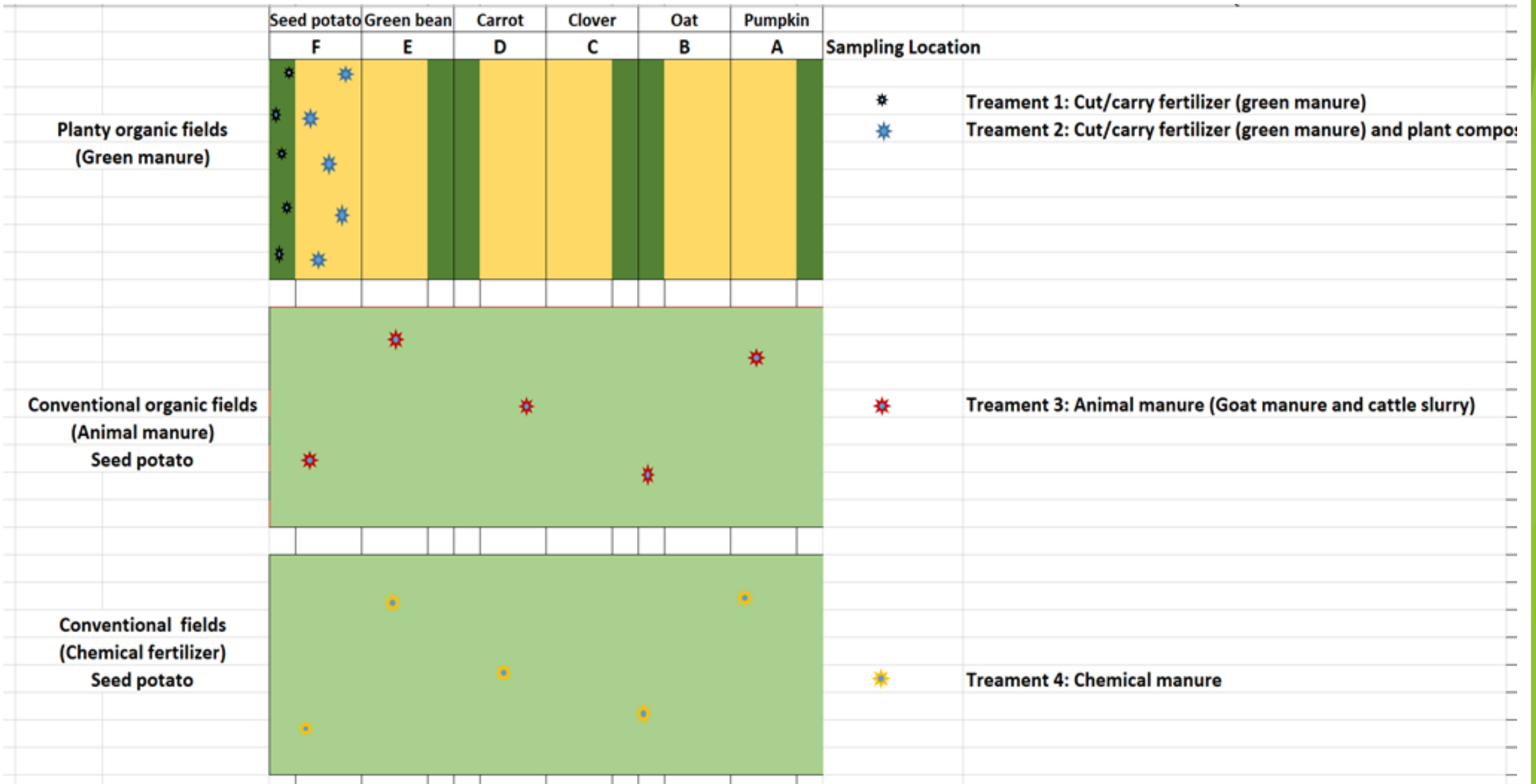
4, 9: Green manure without leguminous plants ; 7, 11: Green manure mixture with leguminous plants.

A: Cut&Carry fertilizer, about 20% of last years' stock . B: the same, about 30% ; C: the same, about 50%.



# Planty organic in Trans4Num

- ▶ In coöperation with Wur extra measurements
- ▶ Different layers of the soil
- ▶ Several years
- ▶ Comparison with conventional and conventional organic



	Treatment	Depth (0-10, 10-20, 20-40, 40-80 cm)	Replicates	Total amount
Planty organic field	T1: cut/carry fertilizer	4	5	20
	T2: Cut/carry fertilizer with compost	4	5	20
Converntional organic field	T3: Animal manure (Goat manure and cattle slurry)	4	5	20
Converntional field	T4: Chemical fertilizer	4	5	20
				80

Potatoes



# Questions

The background features abstract, overlapping geometric shapes in various shades of green, ranging from light lime to dark forest green. These shapes are primarily located on the right side of the slide, creating a modern, layered effect. The rest of the slide is a plain white background.