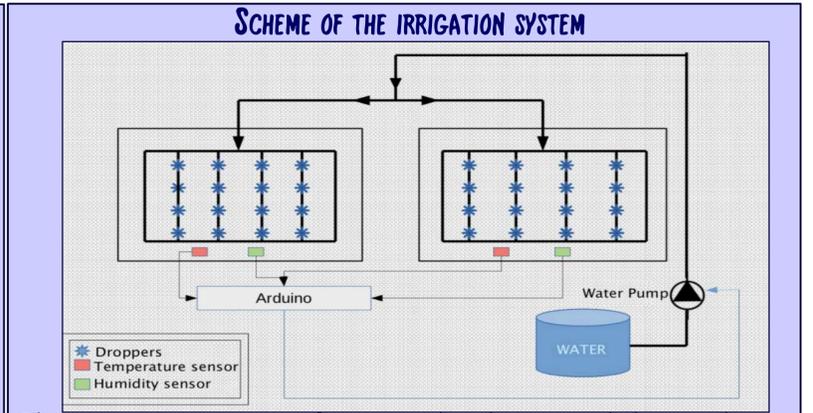
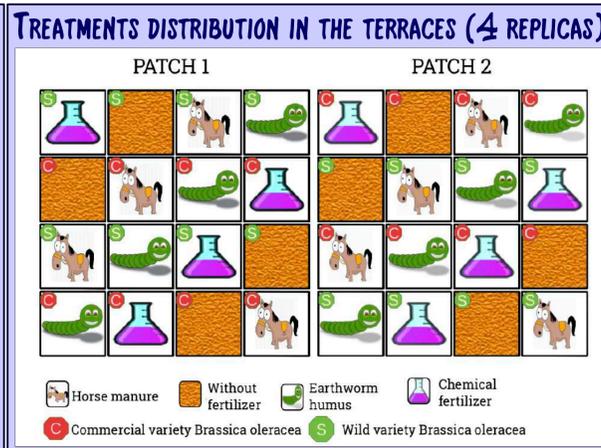
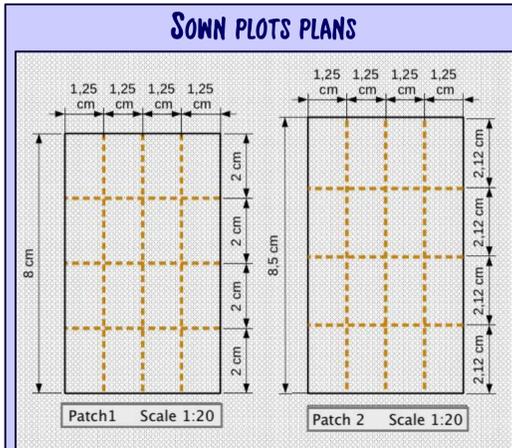


WHAT IS THE MOST EFFECTIVE FERTILIZER?

OBJECTIVE

The aim of this work is to find out, which is the best fertilizer in a *Brassica oleracea* plantation. For this purpose, two varieties of *Brassica*, a commercial one and a wild one, will be used along with four types of fertilizer: horse manure, earthworm humus fertilizer, chemical fertilizer and non-fertilizer.

EXPERIMENT DESIGN



The irrigation system consists of a water tank and a pump, which moves the water through all the system. Each plot receives the same amount of water. The pump is controlled by the Arduino board, which has been programmed to turn on the pump every day.

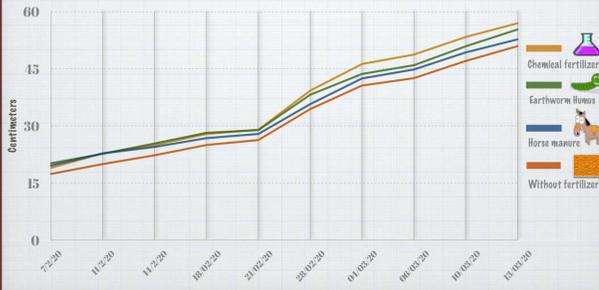
We sow 2 patches, one had 1,7m² and the other one 1,6m². In each plot we sow 4 plants.

Two terraces divided into 32 plots that have 8 treatments, the result of combining the 2 varieties and the 4 fertilizers.

RESULTS

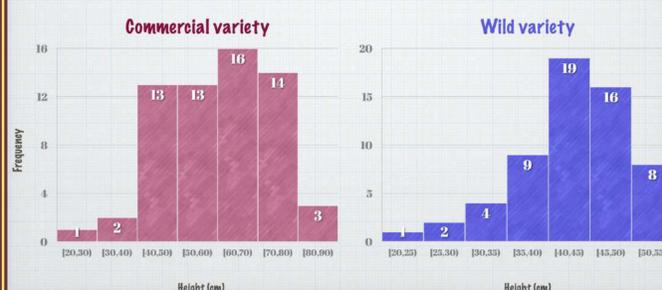


Mean height evolution



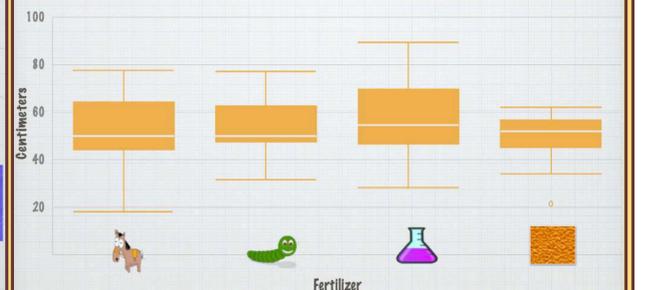
The plants with chemical fertilizer reach the highest height.

Height histogram by variety (last day)



The highest concentration of plants in the commercial variety is between 40 and 80 cm, and in the wild variety is between 30 and 65 cm, which are much lower values.

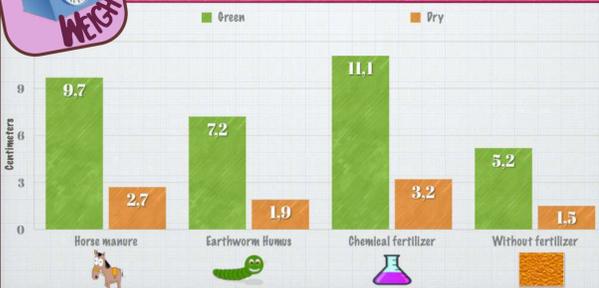
Plants height according to fertilizer (last day)



There is a big variability between fertilizers. However, the chemical fertilizer has both best values and median.



Mean weight of roots: green and dry



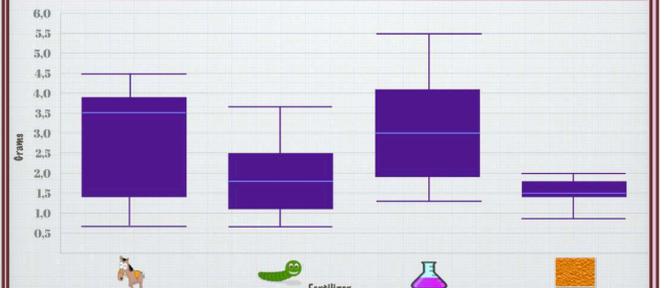
There is a significant difference between green and dry roots weight.

Mean of dry roots weight according to fertilizer and variety



There is a big difference between commercial and wild variety. Also, the chemical fertilizer has the best values in both varieties.

Dry plants weight according to fertilizer



There is a lot of variability between fertilizers. The horse fertilizer has the best median although the chemical fertilizer has the best values.

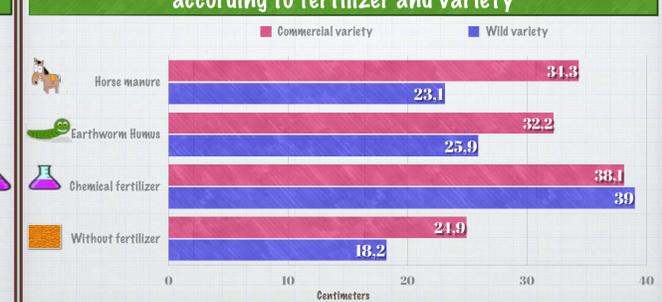


Mean perimeter of the stems



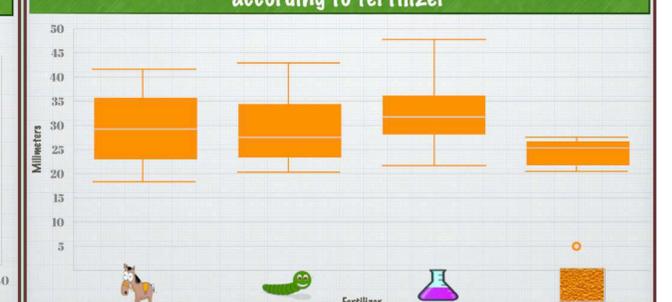
Once again, the chemical fertilizer has the biggest mean.

Mean perimeter of the stem according to fertilizer and variety



Regarding the mean stem perimeter, there is again a big difference between commercial and wild variety. The chemical fertilizer has also the best values in both varieties.

Stem perimeter according to fertilizer



Again, there is a big variability between fertilizers. However, the chemical fertilizer has both best median and values.



Mean chlorophyll values



There is a slight difference between fertilizers, regarding the chlorophyll values.

CONCLUSIONS

- ✿ The fertilizer favoured the development of our plants regarding the height, the roots weight and the stems perimeter.
- ✿ As regards to fertilizers, the chemical one was the most effective in mean or median in both varieties.
- ✿ The study has shown a great variability among the four types of fertilizers. However, the chemical one has not shown a significant difference regarding the organic fertilizers.