

# Life Cycle of Plants

## I. The Campus Farming Project

KASA Sustainability is an association based on the Sophia University campus, aimed at educating people – especially young people from urban settings – about sustainability in local environments. Students are encouraged to ponder their relationship with nature and become aware of their impact on it, all concerning diversity among plants and people. The “Campus Farming” project, which this semester’s Political Ecology students participated in, is part of an effort to build a more sustainable campus. It consists of planting crops in cycles, watering, maintaining, and harvesting them, and finally composting. It is also about learning how to maintain crops in the face of struggles caused by climate change.



November 4, 2023

## II. How this project has been bringing students together

KASA’s projects also emphasize the sustainability of society, of which diversity is a central part. This is why respecting and valuing students’ distinct backgrounds and skills is a priority. Our Political Ecology class being very diverse in terms of individual backgrounds, this project became an opportunity to connect with one another, and conceive a relationship to the nature we were cultivating. While some of us have lived in the city all our lives, others are from more rural areas and already have some experience with gardening. What we all had in common, however, was an interest in learning more, and a fascination with the simple, yet care-intensive task of nurturing plants.



November 7, 2023



November 7, 2023

## III. General observations of the gardening process

Six different plant species have been planted in the garden. Starting from the left, we have two rows of winter rye, then a row of garlic, radish, onion, carrot, komatsuna, and again a row of garlic, carrot, and onion. Thus, we grew grass, bulbs, and vegetables.

They are all known for their resistance against the cold, but it was a relatively mild winter in Tokyo anyway, with an average day temperature of 18.3° in November, 13.8° in December, and 11° in January (as of 27.01). It has also been a quite sunny winter, with 11 sun days in November, 24 in December, and 15 in January.

This has been especially good for winter rye, garlic, radish, and onion, which need full sun exposure for several hours a day. There has been little rain, with only 8 rainy days since the beginning of November. All of the crops need water occasionally to often, and as the patch is partly sheltered by a building, regular watering was necessary. However, each species grows at a different pace.

In the case of winter rye, whose growth stages can be summarized as germination, leaf development, flowering, and finally fruit development, we can estimate that it reached the end of the leaf development stage in January. Flowering can therefore be expected in February or March.

As for garlic, its stages of development are illustrated by the growth of the stem and finally the presence of a flower at the top. We can see that this plant has reached a stage of development in that the stem is very tall, and will probably be ready for harvesting soon.

The radish is at a less advanced stage, though. The leaves have barely begun to develop, and we'll probably have to wait for warmer weather to see flowering, which constitutes the final stage of development.

Finally, for onions, carrots, and komatsuna, all three are at very early stages of development. All three have barely begun to germinate. With the exception of the row of onions on the right, which is at a slightly more advanced stage, we can simply see the beginning of sprouting with small plants.



December 3, 2023



December 3, 2023



December 3, 2023

## IV. Comparison of Both Sides of the Patch

Another learning point of the gardening project is the impact that our surroundings have on progress and expansion. The small diverse garden demonstrates how species heavily depend on their environment to grow and thrive.

Although all the seeds were planted on the left side and right side of building 10 on the same day, the left side had a significant development compared to the right side. As aforementioned, seeds of winter rye, garlic, radish, onion, carrot, and komatsuna were planted in the larger garden on the left side of the building. Meanwhile, the smaller patch of garden on the right side of the building had garlic, radish, and komatsuna. After a month had passed since planting the seeds, the winter rye, carrot, and onion's rapid growth was evident with their leaves showing on the left garden. The growth in the right garden was less apparent, but small leaves could be spotted on November 7th. Therefore, in the first month of this project, the cause of the difference in growth could mainly be attributed to the types of seeds planted but not so much to the area where the vegetables were planted.

However, the contrast between the plants on the right side and the left side of the building became more noticeable in January. The garlic patch could be used as a point of comparison as it was planted on both sides and it had reached a relatively advanced stage of development. While the garlic seeds on the left side had grown into tall and green garlic chives, the garlic seeds on the right side only grew into a couple of small chives. Moreover, the soil on the latter appeared to get drier more rapidly despite both sides being watered at the same time.

We can assume that the patch on the left side was able to develop faster than the right side because it was placed in an environment with more favorable conditions such as good exposure to sunlight and rain. The right side, on the other hand, was placed in a more covered area with shadows, which subsequently hindered its plant growth. This shows that even though the right and left patches were placed in great proximity and cared for in the same manner, the results can be different because of a slight but significant difference in their surroundings.



January 9, 2024



January 9, 2024

## V. Mushrooms and clovers

During the initial month of the experiment, noticeable growth of clovers and mushrooms was observed. Upon further investigation, it was revealed that the front portion of the garden had grown clovers initially, as it had received water from the rain, whereas other parts did not. Interestingly, some mushrooms had also emerged in specific areas of the garden. This observation indicates that the planting process has provided ample moisture, which has likely fostered a symbiotic relationship between the plants and organic matter present in the soil.

## VI. Conclusion

This experiment shows that under similar cultivation conditions within an assemblage, each species has its own growth rate, which must be respected. Observing this assemblage evolve over the months also leads us to wonder, in line with the notion of cooperation developed by Anna Tsing, whether these species might not help each other in their growth by some way.

In this, the relationship between plants has been shown. While the other side had grown abundantly, the side that needed more moisture perhaps shows the differences in the experiment. Nonetheless, it shows how a great progress of nature has occurred in the garden, where mushrooms and clovers have expanded generously.

These findings show how the growth in the garden of Sophia University is rather successful.