

[w3] bio/agrizero: paper summary

chosen research paper:

Current Status of Agro-biodiversity in Lebanon and Future Challenges

This research paper goes over the agro-biodiversity in Lebanon and some future challenges. It starts by giving an overview of the geographical features and attributes of Lebanon's area, going over the 5 different geomorphological regions and the biodiversity that inhabits these regions. It explains how the presence of microclimatic conditions and biological reshuffling allows the cohabitation of a wide array of different crops in relatively small distances ranges.

The paper proceeds to explain the importance of plant genetic resources and showcases the several main challenges that are threatening the preservation and sustainability of these genetic resources. The paper also acknowledges and cites the efforts (in-situ and ex-situ) that are done as attempts to limit the decrease of these genetic resources. Some of these attempts include new market efforts to promote local wild species and their sustainable uses, renewing interest in the activities of local foraging, raising awareness on eco-destructive agricultural activities that threaten to homogenize the biodiversity due to consumer interest and market demand, and others. Finally, the paper reminds of the major threats that are still standing in the way of the local biodiversity ranging from socio-political factors to economic and environmental abuse.

2. IGEM intervention

[w3] bio/agrizero: iGem

Since the Bio Zero seminar, I dedicated a big chunk of time trying to think of one thing I would like to genetically modify, what is one thing that I need to hypothetically change in a complex system of genes and DNA.

Do I want to feed my house plants something that doesn't attract insects? What if these insects are actually good for the plants?

Do I want to find a way to speed-up the compost process, by genetically modifying fruit flies to lay more eggs? No, that might produce catastrophic consequences of overpopulation. What about finding a way to have the pill bugs digest and consume more wood, leaves and feces? This will probably cause some digestive damaging side effects for the insects.

Do I want to decrease/increase the odor of an herb? Do I want to change the color of a flower? Do I wanna remove the spines from a cactus? No, these things help the cacti prevent water loss and can help these plants spread and produce.

I have thought about so many ideas, and all of them seem useless or counter-effective if I try to assess the consequences. I kept asking myself if there was something I would like to change in the natural world using genetic biology and the answer was always no. Which is why I decided to not go through with this assignment. I do not think that, with my background, I am eligible to speculate on modifying some aspects of genetic orders due to my very limited knowledge in the subject.

I do not wish to genetically modify anything, as I believe that I can approach problems and inconveniences using different resources with less backfiring consequences and easier kill-switches.

I do not think any person should genetically modify (DNA writing) anything without a huge understanding of the subject matter AND a necessity for them to do so.

Apologies for being unable to follow through with this assignment.