

Assignment 4: Becoming an Independent Data Scientist

1 Region and Domain

Denmark, Poland

Agriculture, Pesticides use

2 Research Question

When it comes to healthy agriculture, is Denmark, Europe's Democracy Benchmark, really using fewer pesticides than Poland, Europe's Rising Economic Powerhouse?

3 Links

I have used 2 different datasets from this link

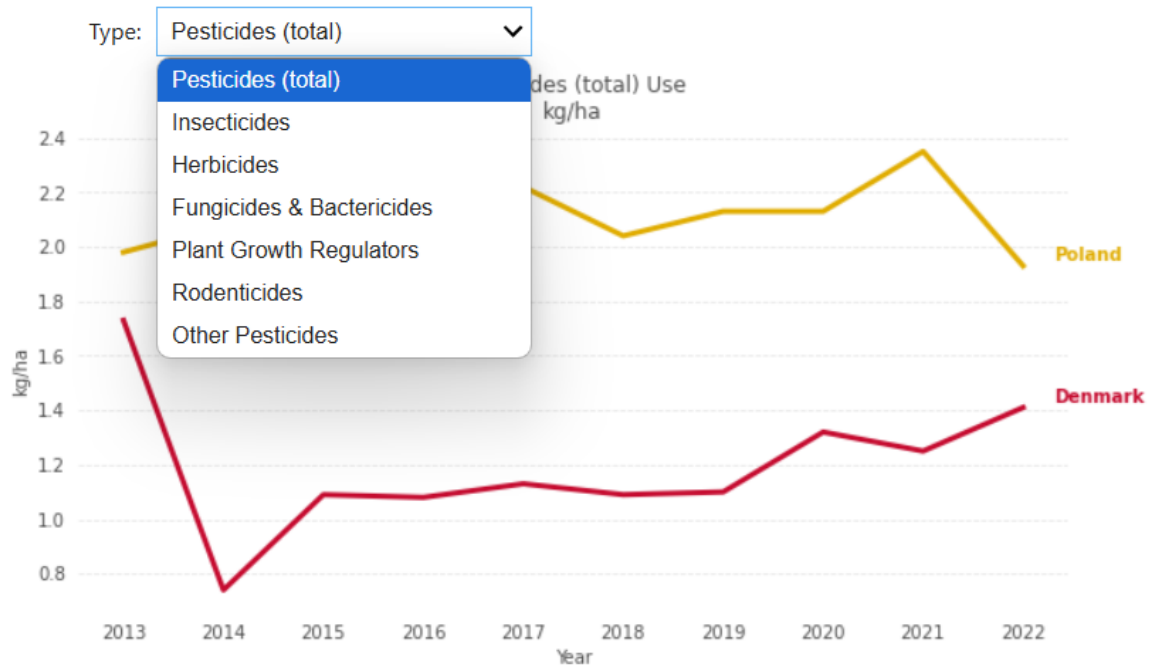
(Dataset for Poland, Dataset for Denmark)

- <https://www.fao.org/faostat/en/#data/RP>
- https://ec.europa.eu/eurostat/databrowser/view/tps00001/default/table?lang=en&category=t_demo.t_demo_pop

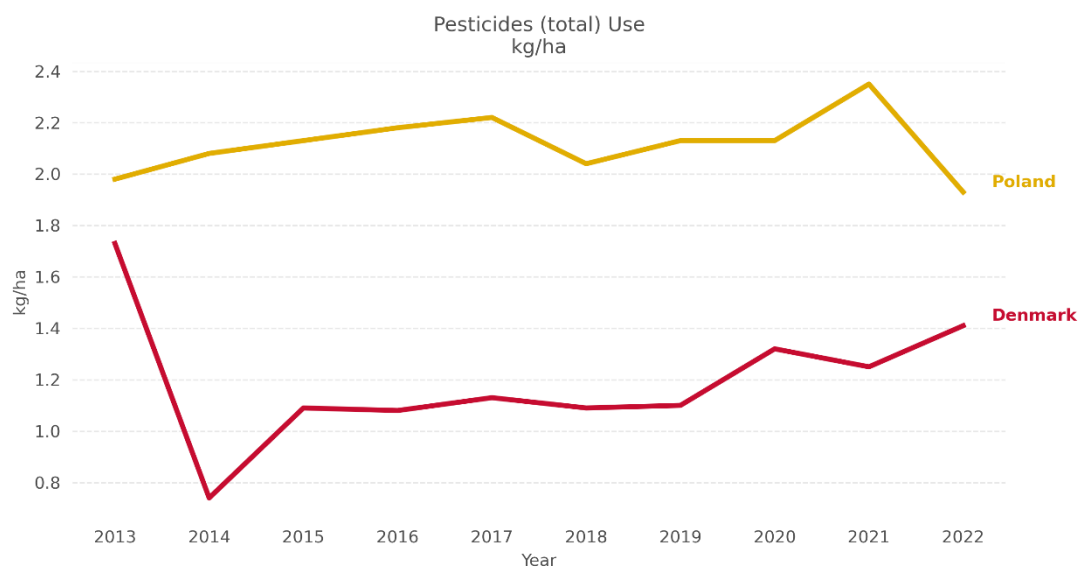
4 Images

Careful – total use is in kg/ha, other graphs are in tones

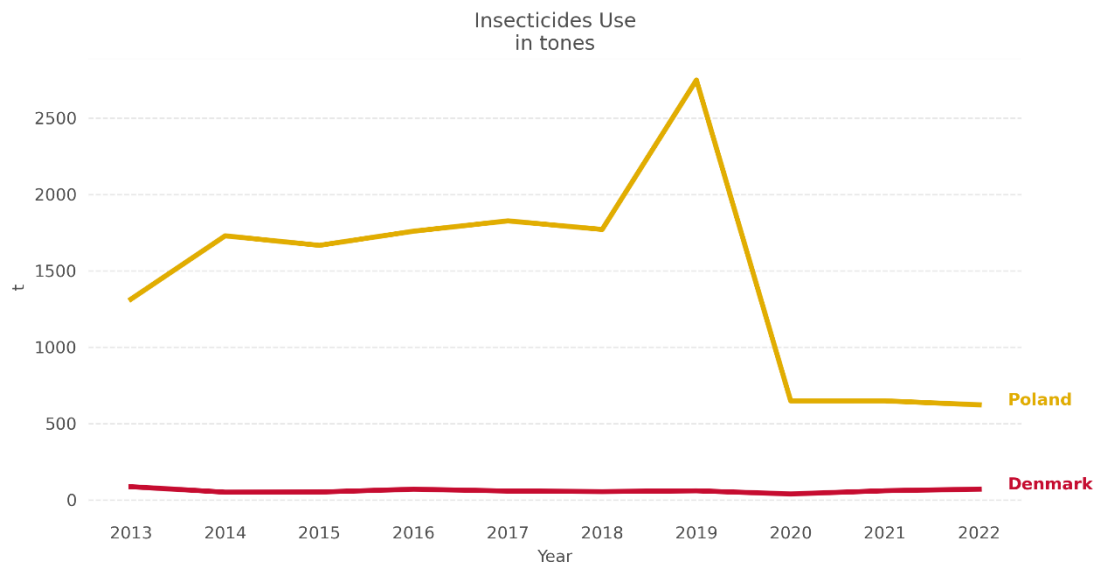
- Dropdown Menu



- Pesticides (total)



● Insecticides

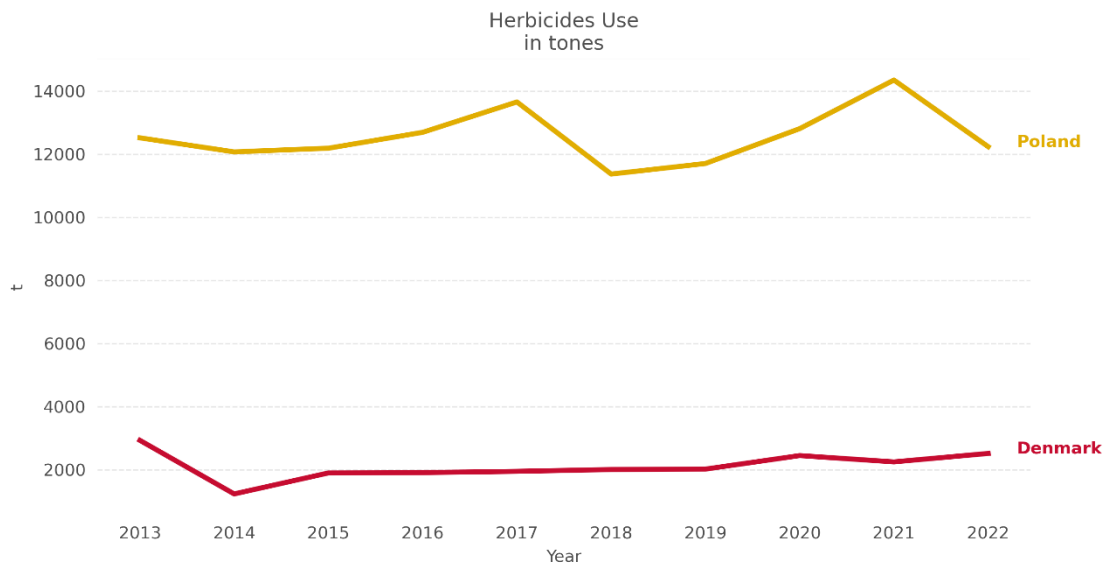


Insecticides are toxic substances used to kill insects, classified by their chemical structure or how they enter the insect's body—through ingestion, contact, or inhalation.

The widespread use of synthetic insecticides has significantly boosted crop yields and improved public health but has also led to serious issues like environmental contamination and insect resistance. Persistent chemicals such as DDT and neonicotinoids can accumulate in ecosystems, harming wildlife, pollinators like bees, and even humans. To address these challenges, modern pest control increasingly relies on integrated control, combining limited pesticide use with biological and ecological methods.

<https://www.britannica.com/technology/insecticide>

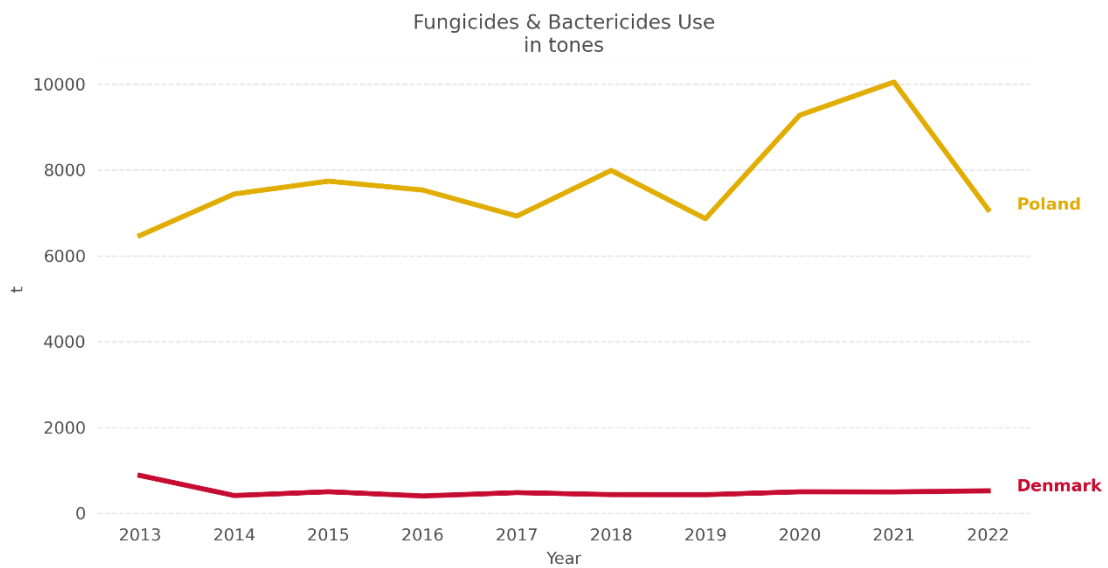
● Herbicides



Herbicides are chemical substances used to kill or suppress the growth of unwanted plants, such as weeds and invasive species, offering a more efficient alternative to manual removal. However, they can harm the environment—for example, by destroying non-target plants and affecting beneficial insects like pollinators. Some herbicides may also pose risks to human health if used improperly or over long periods.

<https://www.britannica.com/technology/glyphosate>

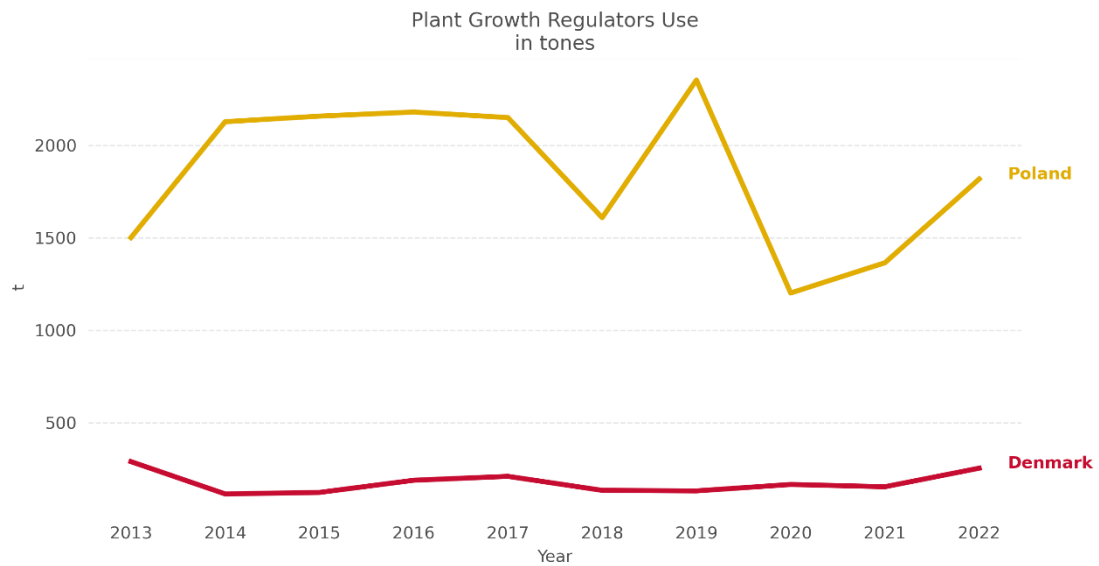
● Fungicides & Bactericides



Fungicides and bactericides are chemicals used to protect plants from fungal and bacterial diseases, helping maintain crop health and yield. Some modern products, especially those targeting a specific metabolic pathway (single-site inhibitors), are at risk of resistance development when overused. Resistance can lead to reduced effectiveness in disease control and may require changes in treatment strategies or farming practices.

<https://resistance.nzpps.org/index.php?p=fungicides/introduction>

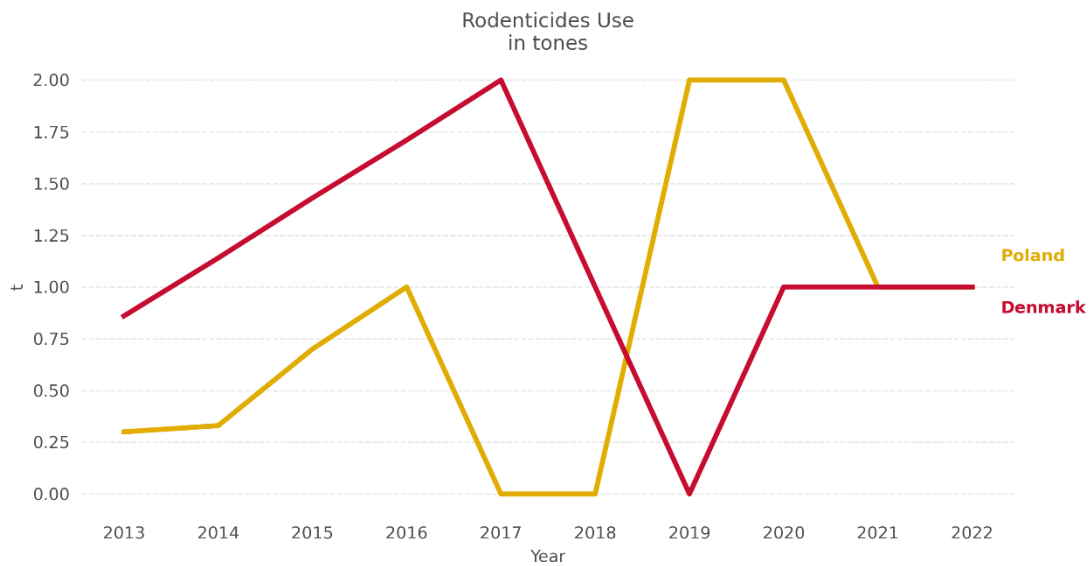
- Plant Growth Regulators



Plant growth regulators (PGRs) are chemicals that influence plant growth processes such as increasing branching, controlling shoot growth, enhancing bloom, thinning fruit, or altering the timing of fruit ripening. Negative effects of PGRs can include disrupting the natural growth of plants, reducing fruit quality, or causing undesirable changes in growth patterns that may harm overall yield.

<https://www.ontario.ca/page/plant-growth-regulators>

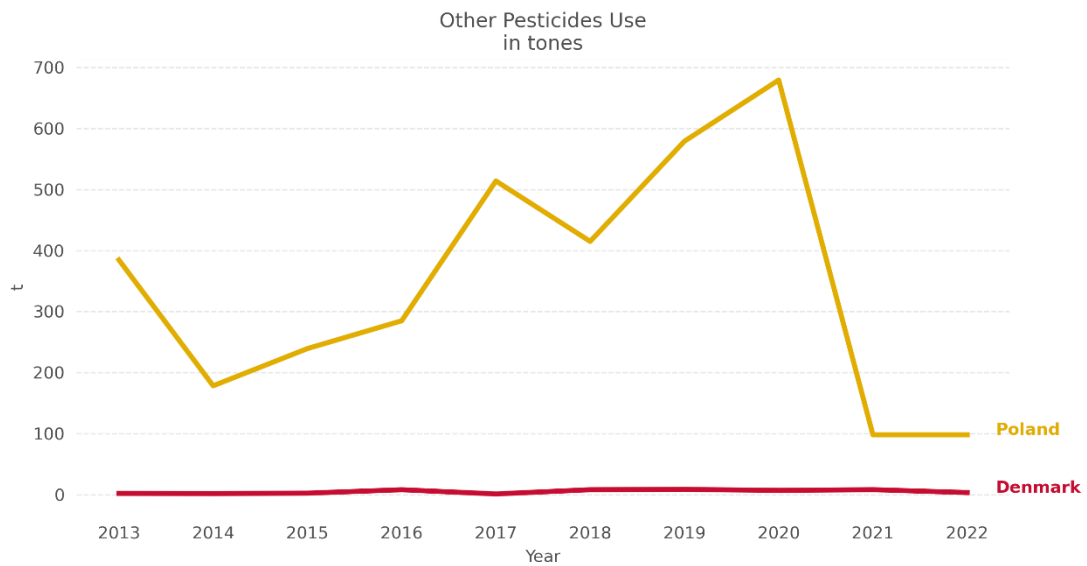
- Rodenticides



Rodenticides are chemicals used to kill rodents such as rats and mice. They work by disrupting the normal physiological processes of the rodents, leading to death. However, these substances can be highly toxic to non-target animals, including pets, livestock, and wildlife, posing significant environmental and health risks. Overuse or improper application of rodenticides can also contribute to resistance in rodent populations.

<https://www.britannica.com/animal/rodent>

- Other Pesticides



5 Discussion

With this assignment I have wanted to draw attention to usage of pesticides in agriculture and their impacts on environment and human health. We are not aware enough about what food we consume everyday and how it is grown.

Furthermore, I have chosen comparison between Poland and Denmark, because they are very different countries. Poland is country with rapidly raising economy and Denmark is well-developed country with focus on equality and ecological impact. In this side-by-side comparison Denmark took more ecological and healthier path in agriculture production. However, even though the economy of Poland is dramatically increasing, they do not devastate the human health and our planet more than before and they are partially aware of the impact of their decisions in growing food.