Challenge initiated by the Malopolska Region – Let's Compost IT! Hackathon HACKYEAH 2022

THE ISSUE

The citizens' low interest in composting home bio waste.
The lack of information about the amount of bio waste processed as part of household composting.
The lack of a tool for collecting data on composting.
THE TASK

We wish to encourage the citizens, those who have their own gardens, as well as those who do not, to start composting. Biowaste is organic waste generated in our households as leftover food and in our gardens as waste generated during garden maintenance.

Composting biowaste is a natural method for managing it which speeds up the process of natural organic waste decomposition.

The benefits:
- producing compost which serves as a valuable fertilizer,
- reducing the general amount of biowaste and the cost of their processing by installations,
- lower fee for the collection of municipal waste,
- simple technology to be used by each citizen,
- low investment cost and no current outlays.

The challenge:

We need to create an IT solution (an application/a website) which is going to encourage the citizens to compost, both through access to knowledge on how to compost, as well as the possibility to provide information regarding the amount of processed biowaste. The solution is going to allow to assess the amount of biowaste processed in composters.

Examples of further directions of development of the application:

- resale of compost,
- forum for exchanging information on composting,
- other.

Additional material

Composting is the processing of organic matter into compost in the course of natural biochemical processes with the participation of microorganisms. In the EU Member States, having a home composter is popular, and it is also becoming a noticeable trend in Poland, as it is a great way to produce compost – a valuable material for fertilizing the soil, as well as a method for managing organic waste (bio), generated each day at our homes and gardens.

Composting waste allows us to protect the environment, because:

- we reduce the amount of generated waste and the cost of their transport and management in installations – **the active implementation of the 'zero waste' principle,**
- we reduce the amount of methane generated in landfills due to the decomposing waste, which causes global warming when getting into the atmosphere,
- it allows us to obtain a natural and free fertilizer which is safe for humans and the environment – using it makes garden plants grow better, to increase the harvest of vegetables; moreover, compost limits the development of weeds and helps the soil to maintain moisture, thus helping to sustain the periods of drought which occur increasingly more often.

Independent generation of compost is easy and it does not require specialist knowledge, while setting up a composter is possible not only in a garden, but it can also be done at home or on the balcony. A composter can be built independently or we can purchase a ready construction.

When creating a home composter, we must pay attention to what we put inside to make sure that the final product is usable. It must be stressed however that a properly maintained composter does not generate any odour.

What can be composted:

- kitchen waste, for instance peelings, leftover vegetables and fruit, eggshells, coffee/tea grounds, stale bread,
- leaves, sprouts, plant stems,
- cut grass,
- tree bark and fine branches, hay,
- withered flowers and pot plants,
- unprinted and soft paper/cardboard (i.e. paper for wrapping food, tissues, paper towels)

What should not be placed in a composter:

- materials such as ceramics, plastics, metals, glass or fabric – they are not composted,
- organic matter which may contain chemicals, such as printed paper or newspapers, empty cardboard beverage packagings, painted and impregnated wood,
- kitchen waste such as meat, bones, fat, dairy or whole eggs which generate unpleasant odour when decomposing,
- animal faeces, cat litter (for sanitary reasons),
- spoiled food,
- soil, gravel, stones,

- parts of diseased plants or plants attacked by parasites (mushroom spores or parasitic eggs can survive the composting process and be reintroduced to the soil)
- weeds which have created seeds (the seeds are going to survive in the compost and sprout in soil covered in compost)
- thick branches and pine needles – they decompose for a long time, extending the time needed for generating compost,
- plant-based waste which may be contaminated, such as weed with plant protection products or peelings from citrus fruits which contain preservatives.

A significant increase in the amount of bio waste generated in household and gardens has been recorded in the past several years in Poland, including the Malopolska Region. In 2021, the citizens of Malopolska Region have collected as much as 147 thousand tonnes of such waste in baskets and containers, making up 12% of the total mass of all municipal waste. Unfortunately, the statistical data on the quantity of biowaste which makes it to composters has not been collected. This information is exceptionally important, as each Polish municipality is required to achieve a specific level of recycled waste generated in households in a given year, and that number is increasing each year. Waste placed in composters should be taken into account when determining that indicator, and their mass can decide if the municipality is going to achieve the required recycling level or not – subject to a financial penalty.

Out of the municipalities in the Malopolska Region, only the Zieloniki Municipality has assessed, through surveying its citizens, that they have recycled approximately 900 tonnes of bio waste in nearly 2000 composters.

Our challenge is, among others, to determine what mass of biowaste is recycled in composters by the citizens of the Malopolska Region.