

HÜGELKULTURS



What they are, why to use them, and how to design them



What is a hügelkultur?

A hügelkultur is a permaculture technique wherein one creates a mound of soil and biomass with a core of woody material to be used for growing herbaceous plants, shrubs, or small trees. A traditional hügelkultur is built directly on the ground surface creating a mound but can also be created below ground level to be flush with the surface. With a traditional hügelkultur, a depression is dug (approximately 1 foot deep) with the topsoil set aside, then dead or rotting woody material in the form of small logs and branches is piled up in an interwoven pattern. Adding a layer of grass clippings next will provide nitrogen early on. Finally, the mound is topped with compost (introduces soil microorganisms) and soil. Ideal timing would have a hügelkultur constructed in the fall which would allow it to settle over winter and be ready for planting in the spring. Hügelkultur size is quite variable with no specific height or width, but typically range from 1/3 of a metre high to 1-2 metres tall. The width of the hügelkultur can vary too and will depend on how steep you want the slope of the hügelkultur to be. A 1 metre tall hügelkultur could have a 1 metre width.

The later on
this month's issue:

Important distinction



Hügelkulturs are not swales and should not be used as/with swales! Because Hügelkulturs are filled woody debris they have a very buoyant core. If placed on contour to act as the berm for a swale, water pressure from a full swale will infiltrate the loosely packed hügelkultur and cause the wood core to float and burst from the embankment.

Why use a hügelkultur?

Use up woody debris

- If you have leftover woody debris or slash from harvest, tree removal, or fallen trees, you can use that wood in the construction of a hügelkultur



Carbon storage

- By burying woody debris rather than burning it you end up storing carbon in the soil

Great growing environment for vegetation

- Hügelkulturs provide great growing conditions for herbaceous plants and small woody plants
- As the wood core breaks down, nutrients are released, soil is loosened and aerated, and beneficial soil microorganisms inhabit the substrate
- Energy release from the decomposition of the wood generates heat that stimulates root growth and can extend the growing season
- The rotting wood core also acts as a sponge, absorbing and storing water and slowly releasing it for surrounding plants to use



Where to put a hügelkultur?

Hügelkulturs can be placed anywhere you would create a garden or orchard or anywhere the soil is low in nutrients and moisture. Hügelkultur can be built as standalone structures of shorter length or as a series of longer running mounds along relatively flat terrain.

What wood to use and what to plant?

It's ideal to use cuttings of tree species that will break down easily. In Alberta, poplar, willow, and birch trees are good sources of wood for building hügelkulturs and are readily available throughout the province. Hügelkulturs are most effective as a raised garden bed for shallow-rooted herbaceous plants to produce vegetables and fruits. Work with the shape of the hügelkultur when choosing where to plant certain species:

- Depending on orientation, one side may receive more sunlight and the other more shade
- The top of the mound will have better drainage and drier conditions
- The bottom sides of the mound will have moist conditions
- Choose plants that will flourish in the different site conditions

Did you know?



Hügelkulturs will also shrink with time (potentially half or more of its height) as the wood decomposes and breaks down into soil. The woody core material will tie-up nitrogen as it decomposes.

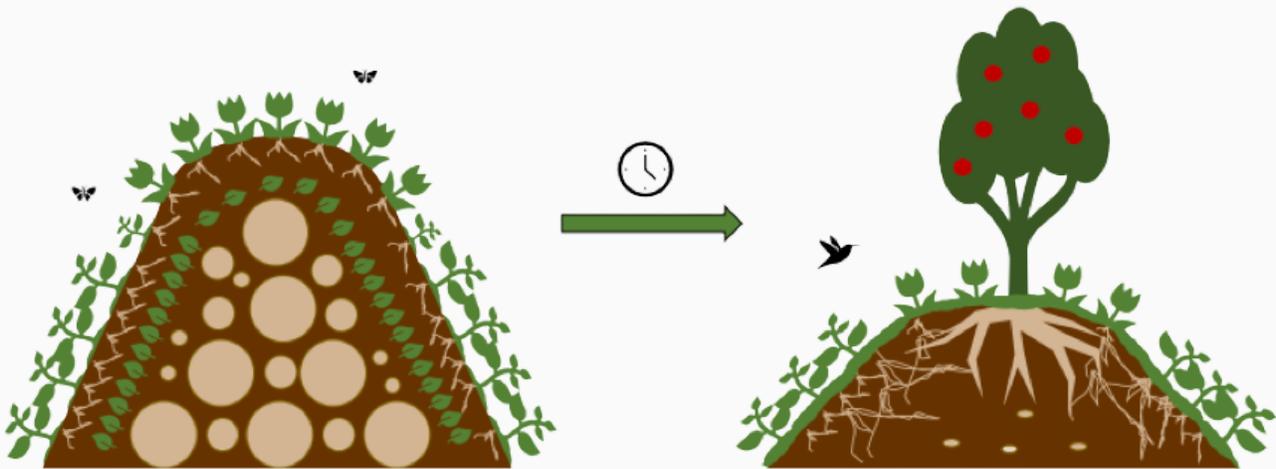


Figure 1. The transition of a hügelkultur

As mentioned earlier, adding green plant material like grass clippings in the construction phase can help improve nitrogen levels; however, planting nitrogen-fixing plant species can help raise nitrogen levels as well. Once the wooden core breaks down more and is replaced by nutrient-rich soil, you can plant woody bushes and small trees whose roots will take advantage of the deeper soil for stability.

References and Useful Resources

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This project was undertaken with the financial support of:
Ce projet a été réalisé avec l'appui financier de :



Environment and
Climate Change Canada

Environnement et
Changement climatique Canada