



INSTALLATION OF SHELTERBELTS (HEDGE LAYING)

DEVELOPMENT OF SHELTERBELTS AND THEIR IMPACT ON THEIR ENVIRONMENT

BEST PRACTICE OBJECTIVE



The shelterbelt is a plantation used to protect adjacent agricultural areas. Crop yields can be increased by planting shelterbelts. Planting and protection of agricultural areas and crops from the adverse effects of the wind and of providing shelter to wildlife, livestock and other agricultural holdings. An important feature of forest strips is their width, which depends on the number of rows. However, the number of rows depends on the species of wood used, the objective (protection of croplands, snow-shield) and the place of production.

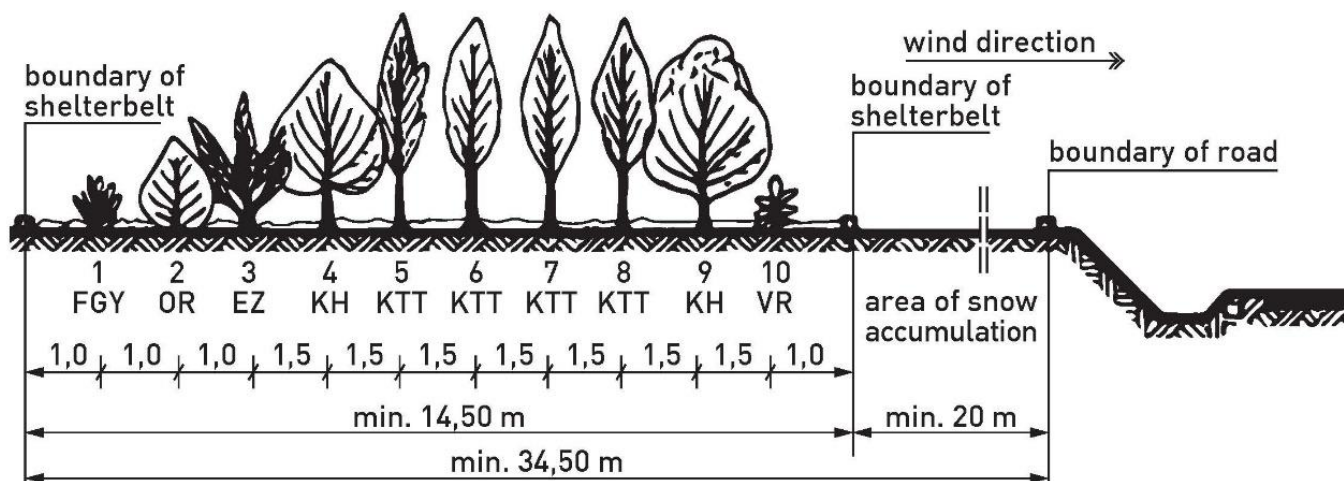
THE ESSENCE OF THE PRACTICE



Within shelterbelt systems, two bands are distinguished: the main band and the secondary band. The main lane is formed perpendicular to the prevailing wind direction and the secondary lane is formed parallel to the prevailing wind direction. The distance between main lanes is determined by the height of the trees and the soil conditions of the area to be protected. In the case of soils with erosion, the distance between the bands is smaller. They grow taller on better soil, giving a wider protected zone. The distance between the secondary lanes is 1.5-2 times the distance of the main lanes. Placing of shelterbelts must be adapted to the boundaries of the agricultural fields. Do not change the boundaries of existing agricultural fields in the interest of woody strips. Agricultural fields are usually bordered by dirt roads or public roads. Care must be taken to keep the dirt road on the sunny side of the shelterbelt on hard soil or marsh soil. On sandy soils, the lane is laid so that the road is shadowed. On main traffic roads, along hard paved roads, snow-shield forest strips must be placed on the side of the prevailing winter wind and at least 20 m from the road crown edge, otherwise snow will accumulate on the road. In flat terrain, with moderate wind conditions, the main and side lanes consist of 3-5 rows. In windy areas or on poor soil the snow-shield consists of 6-8 rows.

Placement:

- Untreated strips on both sides
- Protected distance from high voltage lines; the crown does not approach the wire closer than 3m
- Shrubs planted at least 1m, trees 2m away from underground pipelines and 5m from petroleum pipelines
- To be planted 3 m from the edge of the road crown and 1 m from the outer edge of the road ditches.





TOOLS AND MACHINERY



Establishment:

- Complete soil preparation (deep rotation, deep plowing, rigol plow, root-rake, smooth roller, harrow);
- Select rows: manually or by machine;
- Pothole planting (machine planting, planting bar);
- Seedling - sapling planting or we can improve efficiency with container seedlings.



Enjoying the protection of the shelterbelt, despite the spring drought, the corn is developing well (Great Plain, Hungary) (photo by Vityi A.)

PERIOD OF TIME AND PERIODICITY



The best time for planting forest strips is during the autumn and the spring months after frost, but it is advisable to do so by the middle of October, when the plant has time to heal the wounds and the soil settles down, thus protecting the roots from frost and dehydration. Bands are planted using viable seedlings. The big advantage of planting in autumn is that this way the vegetation starts faster in spring, the buds pop out in time, the shoots will grow much more vigorously.

ECONOMIC DATA



Shelterbelts are important for crop cultivation in many ways. On the one hand, shelterbelts with the right structure and direction, through mitigation of the wind, result in micro- and meso climatic changes that are beneficial to the crops and thus their yield is higher. Reduced air movement will result in less evaporation of plants and of soil, resulting in better water management, less energy to be used for water uptake and water loss to be compensated. At the same time, the distribution of precipitation will be more favorable, resulting in a more even distribution of the crop yield. Wind can cause mechanical damage, but with the help of tree lines, deflation can be suppressed, preventing i) the loss of valuable topsoil and seed cover and ii) prevent windbreaking and "laying down" of wheat through wind pressure. As a result, the area provides better crop conditions and higher crop yields.



PRACTICAL EXAMPLE



Valaha-tanya

The protective zone around the whole area is of mixed composition. In addition to the ecological benefits, diversity also serves to reduce the function of the buffer zone due to environmental and human impacts. Among the tree species, black locust is the main constituent of the stock while oak, beech, linden and flowering ash is used as associate tree species. Adequate protection (e.g. against chemicals drifting) is provided by multi-level vegetation; at the shrub level, the lilac and elder are typical. The lilac was chosen because of its relatively dense deciduous crown and the local tradition of having an organ everywhere along the roads.

The protective belt is multipurpose:

- Flowers and fruits of trees and bushes are used in syrups (black locust, elderberry)
- Fully meets the farmer's fuel needs. After shredding, the fuel is burned in a mass furnace.
- A variety of species provide a constant source of nutrients for bees and higher fruit production due to pollination.
- The green pruning material and a portion of the waste wood resulting from any wind damage will be used as complementary feed for animals in the farm.



Collection of flowers for bio-syrups from black locusts forming the buffer zone (photo by Balázs Kulcsár)

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Products of the multipurpose windbreaks and orchards at Valaha-tanya



Multipurpose use of hedgerows and windbreaks |

http://agroforestry.net.eu/wp-content/uploads/2019/10/20190804_factsheet_36_en_web.pdf



Ms Klaudia Kovács and Ms Andrea Vityi
University of Sopron, Co-operational
Research Centre Nonprofit Ltd.

9400 Sopron, Hungary

Bajcsy-Zs. u.4.

klaudivovacs@gmail.com |

vityi.andrea@uni-sopron.hu

agroforestrysystems.eu



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