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Melliferous woody crops for improving arable crops pollination

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Ecological Focus Areas (EFA) proposed by the Regulation 2017/2393 for the CAP 2014-2020 period include land lying fallow for melliferous plants. Although only melliferous herbs are considered as EFA in Poland, it is worth noting that large number of melliferous trees and bushes can be incorporated to increase pollen availability period and to provide a higher number of Ecosystem Services. On the other hand, hedgerows are also part of the EFA but without a link to the pollination activity.

For improving pollination under Central Europe conditions, we recommend planting strips of woody crops in a form of strip including melliferous herbs mixed with flowering shrubs and trees with seasonally long and varied blossom period:

(1) species blooming in the early spring e.g. hazel, goat willow or basket willow (30 days of blooming).

(2) species blooming during the spring, e.g. sycamore, Norway maple (20 days), black locust (14 days), mountain-ash (15 days), mahaleb cherry (20 days), dog rose, cherry plum, native species of *Spirea*, Siberian peashrub (14 days), native hawthorns (12 days)

(3) species blooming in spring/summer, e.g. alder buckthorn (120 days); common snowberry (90 days); limes *T. cordata* and *T. platyphyllos* (53 days);

The species should be selected to flourish during the time when neighboring crops do not do it (rape, legumes, horticultural crops etc.). Some alien woody species are characterized by a long blooming period, for example popular Himalayan goji (*Lycium barbarum*) (even 150 days!), but due its high invasiveness and toxicity is not recommended. List of potentially invasive melliferous woody crops include: *Rosa rugosa*, steeplebush, red osier and black cherry. Some of these species are forbidden to plant, among others care should be taken.

Planting melliferous hedgerows 3m wide improves biodiversity at landscape scale and facilitate pollination of neighboring crops. Considering fragmented land use structure, hedgerows help to fulfill greening requirement.

Figure 1. Mid-field fruit tree (Pixabay_Maria-Anne)

Figure 2. Flowering hedges (K. Konieczny)

Futher reading:

Zajączkowski J., Zajączkowski K (2013). *Trees outside Forests* [in Polish]. Powszechne Wydawnictwo Rolne i Leśne, Warszawa.

Horticulture against alien invasive plants. Code of good practices (2016) [in Polish]. General Directorate for Environmental Protection, Warszawa. https://www.gdos.gov.pl

Robert Borek

Institute of Soil Science and Plant Cultivation – State Research Institute (IUNG-PIB)

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