Optimizing verge mowing management along navigable waterways in Flanders

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Introduction
In Europe the area of semi-natural grasslands reduced dramatically in post-war decades (Stoate et al., 2009). Verges and other small habitat patches can have an importance for the maintenance of semi-natural grassland species (plants: Auestad et al., 2011 and Cousins & Lindborg, 2008; invertebrates: Saarinen et al., 2005) and in improving ecological processes in landscapes dominated by cropland (Tscharntke et al., 2011). This emphasizes the importance of applying an appropriate management for these landscape elements.

A decade ago, verges along several Flemish navigable waterways (managed by Waterwegen & Zeekanaal NV) were mowed 2 times per year: half June and half September. In Flanders, these dates are part of a legislative regulation. Mowing took place with flail mowers and cutting material was partly removed.

Optimizing mowing management
Recently, verge mowing management was optimized according to vegetation and structure:
• Non-productive verge vegetations: **one cut** per year (half September).
• Productive and species-poor vegetations (figure 1): **two cuts** (half June and half September).
• Moderately productive and species-rich vegetations (figure 2):
  • Without ecologically important early flowering species: **two cuts** per year (half May and half September).
  • With ecologically important early flowering species: **two cuts** per year (half July and half September).
• Broad verges: **differentiated management** (partly one cut, partly two cuts per year).
• Preferably, mowing machinery that produces **coarse-structured** cuttings are used.

Verge mowing can be optimized by performing **future research**:
• Adjustment of cutting dates in the context of climate change.
• Research of mowing date (first cut) to optimize the degree and duration of flowering.
• Expanding the knowledge concerning effects of mowing machinery (figure 3).
  • Research of nutrient leaching to soil and the structures of cutting material.
  • Research of the relation between mowing machinery and the effects on plant propagules and invertebrate density.

References

Figure 1. Productive and species-poor vegetation.
Figure 2. Moderately productive and species-rich vegetation.
Figure 3. Flail mowers produce fine cuttings that are difficult to remove thoroughly.