

## Growth dynamics of *Solidago canadensis*

Christina Birnbaum

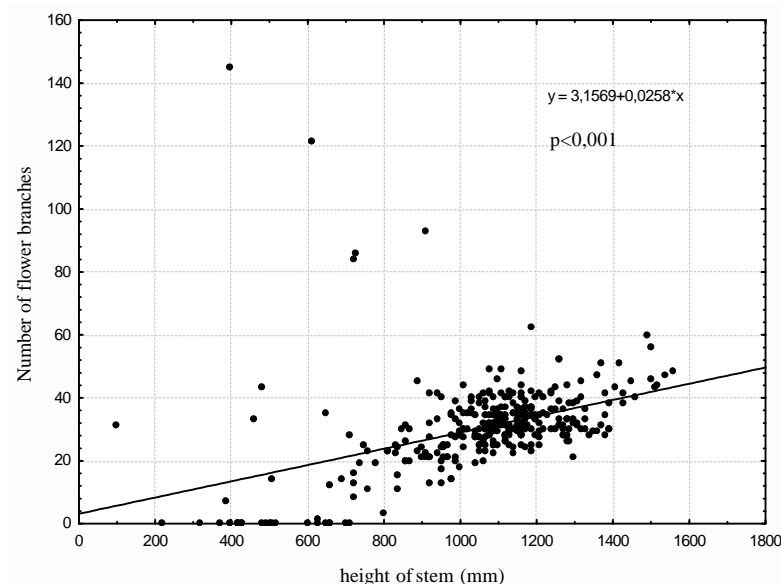
University of Life Sciences, Institute of Environmental and Agricultural Sciences, Riia 181, 51014 Tartu, Estonia; Christina.Birnbaum@emu.ee

*Solidago canadensis* is a (new) dangerous invasive species, which has already established in the local flora. The present study was conducted over five years in the vicinity of Tartu (South-Estonia) and focused on the growth dynamics of *S. canadensis*, with focus on possible growth limitations to the distribution on local scale and trade-offs between reproduction and growth.

*Solidago canadensis* is a perennial herb which can dominate vegetation and reach a high shoot density. Thirty genets were excavated in order to analyze (i) the age of genets, (ii) genets circumference, (iii) number of shoots and (iv) flower branches, (v) annual growth of rhizomes and (vi) the relations between these parameters. The results showed that taller plants had greater number of flower branches, which indicates their higher contribution to the next generation (Figure 1). No trade-off between the size and number of offsprings was found.

The size of genets was positively correlated with the number of vegetative offsprings. Mean number of offspring per genet was 16. To predict the growth changes of *S. canadensis* during the next twenty years, genets growth dynamics was modelled using two parameters: annual rhizome growth and rate of vegetative reproduction. The results showed that genets increased considerably in size with increasing annual rhizome growth.

*Solidago canadensis* is a stout herb with very efficient vegetative reproduction and annual rhizome growth. Therefore, there are no growth constraints to the establishment in resident plant communities. The results of the present study suggest that further spread of *S. canadensis* in Estonia should be followed and eradication, if the negative effect on local biodiversity continues, may be needed.



**Figure 1.** Height of stems and number of flower branches of excavated genets.