Seed yield potential of wild vetch (*Vicia* spp.) species

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The flora of Serbia is rather rich in vetch (*Vicia* spp.) species. Many of them bring an essential contribution to the quality of pasture and meadow communities and soil fertility. Among such are narrow-leafed vetch (*V. sativa* subsp. *nigra* (L.) Ehrh.), large-flowered vetch (*V. grandiflora* Scop.), hairy vetch (*V. villosa* Roth) and Hungarian vetch (*V. pannonica* Crantz). With the potential for 50 t ha^{-1} of green forage and 12 t ha^{-1} of forage dry matter in hairy vetch and more than 40 t ha^{-1} of green forage and nearly 14 t ha^{-1} of forage dry matter in large-flowered vetch, as well as with a forage dry matter crude protein content of more than 200 g kg^{-1}, these vetch species are richer in nitrogen content than other forage legumes such as lucerne or pea and are able to answer the demands for a quality source of both forage and green manure.

One of the crucial tasks of all breeding programs of annual forage legumes is an improvement of seed production, making a newly developed variety able to be successfully commercialized. Vetches are perhaps the most difficult of all annual forage legumes for this job, being notorious for its excessive and indeterminate growth, non-uniform maturity and large seed losses due to a prominent pod dehiscence. The best example of a wide discordance between forage and seed yields is hairy vetch, in which the seed yields in rainy seasons are less than 500 kg ha^{-1}.

The potential solutions for the enhanced seed production of diverse annual vetch species may be achieved by certain modifications of plant architecture, like in pea, with the identification and the introgression of the genes responsible for determinate stem growth and a more uniform maturity. At the same time, an increased seed yield may be achieved by the selection and the development of multi-pod genotypes, such as reported in large-flowered vetch, where only two or three fertile nodes with three of four pods each, maturing at the same time, may provide reliable seed yields without having a negative impact on forage yields. In the end, it is Hungarian vetch that often has higher seed yields than common and many other vetches due to a less prominent pod shattering.