Natural lucerne populations of Estonia: yielding ability, herbage quality and prospective ways of use

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Introduction
Approximately 150 years ago were lucerne in Estonia introduced and started to be used as cultivated crops. Over the years more resistant imported lucerne forms have acclimatized and naturalized in Estonia and formed semi-natural grasslands of lucerne - red fescue (Medicago - Festucetum rubrae) association. According to the latest inventory that was performed in 1978-1981, the above association was spread on 185 ha in North- and West-Estonia.

The aim of the present research was to determine the yielding ability and herbage quality of yield of natural lucerne populations collected from unexplored habitats and to estimate their breeding value.

Results and discussion
Among the natural populations a sample from Reigi exceeded significantly the standard variety 'Jõgeva 118' in total DMY of four years, but not in the total CPY (Figure 2, 3). The population exhibited fast initial development in the year of sowing and good regrowth in late summer. Its DM yields by cuts were 46.5; 33.3 and 14.5%, respectively.

The plant structure analysis indicated that the share of stems in the second and third cuts of this population was higher than that of the standard variety but the CP content of leaves and stems was lower than that in standard variety in all cuts (0.8-2.6% and 1.7-2.9%, respectively).

The other studied natural populations were inferior to the standard variety in DMY by 8.0-52.0% and in CPY by 13.8%-50.4%. Based on the trial results these populations can be divided into two groups.

1. *M. falcata* L. populations Padaong, Ridal and Lasnamäe were characterised by slower development in the year of sowing and smaller aftermath growth in the years of use. These are prospective in landscape design in particular for growing along the roadsides, on ditch banks and mountain slopes. Their plant cover is very decorative during flowering and because of modest aftermath the costs of cutting are also low.

2. The remaining yellow- and multicolour-flowered populations of *M. moschata* Pers. (total yield of dry matter and crude protein in comparison with the standard variety 65.8-92.0% and 64.5-86.2%) are valuable because of their longevity. Among them there are vegetatively spreading forms that are important initial material for breeding pasture varieties of lucerne. In order to increase the yielding ability of seminatural grasslands and improve the yield, top sowing of seeds of natural lucerne populations growing in Pühalepa, Sutlepa and Hanila can be recommended. Their yielding ability remains below the standard variety, but it is compensated by the fact that the plant cover maintains its yielding ability for a long time. The research so far has indicated that the top sowing of lucerne is successful and the plant cover persists and retains its competitive ability only in growth places that are suitable for the species. Preferable are neutral or alkaline soils, light texture and drying of soils during the vegetation period.