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Interspecific hybridization in Lotus.

In 1969 I began to carry out interspecific crosses between Lotus uliginosus Schk. and L. corniculatus, the aim of which was reported in Lotus Newsletter 1: 6, 1970.

At first it was necessary to obtain tetraploid L. uliginosus (4x), as the diploid has 12 chromosomes and the diploid chromosome number of L. corniculatus is 24. This we obtained by colchicine treatment.

Carrying out 100 reciprocal crosses of L. uliginosus (4x) x L. corniculatus we obtained 14 seeds from two plants. In both cases the female parent was L. corniculatus. These 14 seeds gave only four F_1 plants (n. 1, 2, 3 and 4) from one of the L. corniculatus plants. The others gave no progeny. Perhaps the unseccessful crosses, L. uliginosus 4x x L. corniculatus, were caused by morphological changes after polyploidisation of L. uliginosus. It is possible that the pistils of the polyploid plants were too long for the diploid pollen tubes which could not get through to the ovules.

At present we are investigation the F_2 generation from the four F_1 seedlings. In the seedling stage there were:

- 26 F_2 plants from the F_1 plant nr. 1
- 74 F_2 plants from the F_1 plant nr. 2
- 211 F_2 plants from the F_1 plant nr. 3
- 70 F_2 plants from the F_1 plant nr. 4

We intend to determine in the F_2 generation the yield of green matter, seeds, drought resistance, and protein content. The same features will be investigated in the F_2 crosses.