

***LOLIUM PERENNE TERMINAL FLOWER 1* GENE EXPRESSION IN ALFALFA AND TOBACCO DOES NOT AFFECT FLORAL TRANSITION**

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Understanding and controlling the flowering process is extremely interesting for its important agronomic implications. In forage crops, like alfalfa, the delay or the suppression of flowering could have a positive effects on forage quality. In addition, the manipulation of flowering transition could allow to prevent gene flow and dispersal of transgenes from genetically engineered alfalfa. Genetic and molecular analysis have shown that several genes are involved in the control of the switch from vegetative to reproductive growth. Recently, the *TERMINAL FLOWER 1* gene of *Lolium perenne* (*LpTFL1*) has been isolated and overexpressed in *Festuca rubra* and *Arabidopsis thaliana*. In some transformation events, the complete suppression of flowering was reported. We have evaluated the *LpTFL1* GENE as a possible candidate to control the flower transition process in two genetically distant plants: alfalfa and tobacco. The two species have been transformed via *Agrobacterium tumefaciens* using the original binary vector pCAMBIA3300-*LpTFL1* (kindly provided by C.S. Jensen), in which the *LpTFL1* gene was placed under the control of the *Zea mais Ubiquitin* promoter (*ZmUBI*) and the *Nos* terminator (*Nos*). Furthermore, to ensure a high level of expression of the gene, a second expression cassette was developed replacing the promoter *ZmUBI* with the cauliflower mosaic virus (CaMV) 35S dual-enhancer promoter. The transformation with the binary vector pCAMBIA3300-*LpTFL1* produced 13 and 12 transgenic plants in alfalfa and tobacco respectively. RT PCR analysis performed on the positive transgenic plant confirmed the expression of *LpTFL1* gen in both species. No effect on floral transition or flowering was observed. Alfalfa and tobacco transgenic plants were phenotypically normal throughout the growth cycle, and set seed normally.

Transformation with the 35S-driven gene is underway to confirm whether *LpTFL1* can influence the floral transition of alfalfa and tobacco.