



Transition paths to sustainable legume-based systems in Europe

## Grafting technique in common bean cultivation

Common bean (*Phaseolus vulgaris* L.) is the most widely cultivated legume for human consumption as fresh pods or dried seeds. It serves as an important nutritional source of proteins, vitamins, fibers and antioxidants.

Grafting is a common technique used to protect plants against the adverse effects of biotic and abiotic stressors as well as to increase yield and fruit quality. A grafted plant is a combination of two different genotypes: the scion (upper) and the rootstock (lower). The factors for successful grafting are the compatibility of scion and rootstock, the alignment of upper and lower their vascular systems, appropriate growth stage, and the healing of the grafted plant afterwards. In common bean, grafting is conducted when the two primary leaves are partially expanded. The rootstock is excised below the primary leaves and a vertical slit is made on the stem. The scion (the apical part including the primary leaves) is taken from the donor plants by cutting the stem under the primary leaves.

The lower part of the scion stem is cut in V-shape and is inserted in the vertical slit of the rootstock. A grafting clip secures the union, and a stick keeps the grafted plant stable. The plants are then placed in a healing chamber at 26 °C and relative humidity of 90%. These conditions minimise foliar water loss and promote the survival rate of the plants. After the cut ends are permanently united, the relative humidity in the healing chamber is gradually reduced to acclimate the plants.

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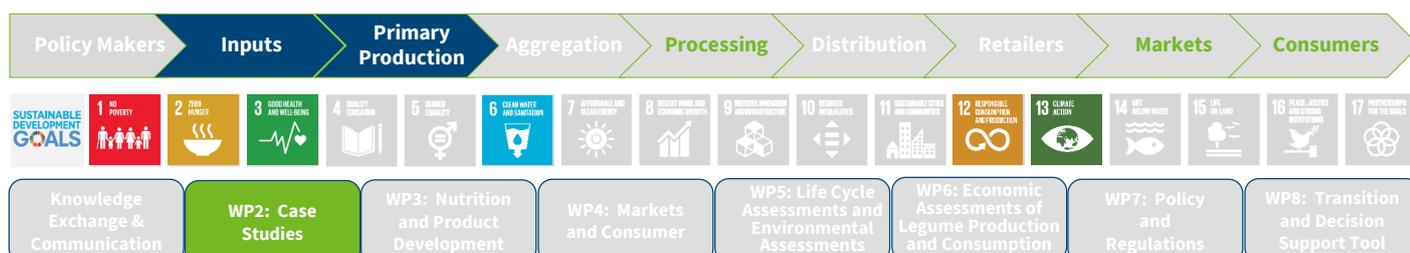
Greece

### Keywords

legumes, rootstock, scion, *Phaseolus vulgaris* L.



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Figure 1. Grafting of a common bean plant. Photo credits ©: Vasiliki Vougeleka



About TRUE

The EU funded project "TTransition paths to sUustainable legume based systems in Europe" (TRUE) is a balanced practice-research partnership of 24 institutions, which aims to identify the best routes, or "transition paths" to **increase sustainable legume cultivation and consumption across Europe** and includes the entire legume feed and food value chains.

April 2017 – September 2021



TTransition paths to sUustainable legume-based systems in Europe (TRUE) has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 727973

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