

Germination of Woody Legumes from Green Seed®

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INTRODUCTION

Germination of woody legumes from green seed can improve germination percentages, overcome complex dormancies, and eliminate the need to use caustic chemical scarification. Collection must be done by the producer of the plant due to the time constraints of desiccating green seed. This process increases manual labor time and cost, but gives favorable and predictable germination results.

COLLECTION

Seed must be collected as the legume reaches maturity. The seedpod should still be partially green and the seed inside must still be soft enough to cut. Time of year depends on the genus. *Gymnocladus dioica* collection time is approximately from the end of August to the beginning of September. For other species collection coincides with seed maturation.

PROCESSING

The first step is to extract the seeds from the seedpod. Breaking the pod open by hand or cutting with a sharp knife is the typical method. Once the seed is removed the seed coat must be cut away and removed. A sharp knife is important and care must be taken to not damage the embryo inside. Inside the seed coat there is a clear gelatinous layer that is apparently there to prevent the imbibition of water. This must also be removed. Once the appropriate number of seeds has been processed the seed needs to be planted. Seeds are planted in a growing medium in deep-celled containers to allow a deep root system to develop. Plug trays are placed in the greenhouse under standard germination conditions. Cotyledons emerge in about 2 to 3 weeks and can be moved to normal growing conditions in the greenhouse. Once plants have fully rooted in the plug and have several sets of adult leaves they may be hardened-off and sent through dormancy.

RESULTS

The following results are for *Gymnocladus dioica*:

- Mature seed with acid scarification averaged 70%-80% germination.
- Green seed with seed coat still intact: 0%-5% germination.
- Green seed with seed coat cut: 75%-80% germination.
- Green seed with seed coat removed: 95% to 100% germination.

Species. Similar results were obtained and results were repeatable from the other species tested: *Gleditsia triacanthos*, *Amorpha* sp., *Lupinus* sp., and *Cercis canadensis*.