

Germinating *Trillium nivale*

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Objective

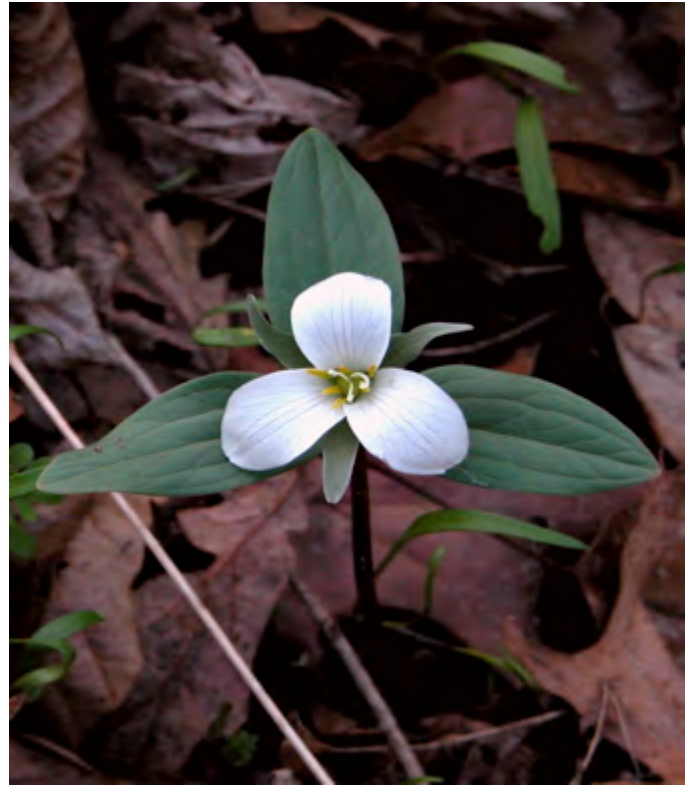
This project seeks to successfully germinate *Trillium nivale* from seed using a combination of mechanical and plant hormone treatments

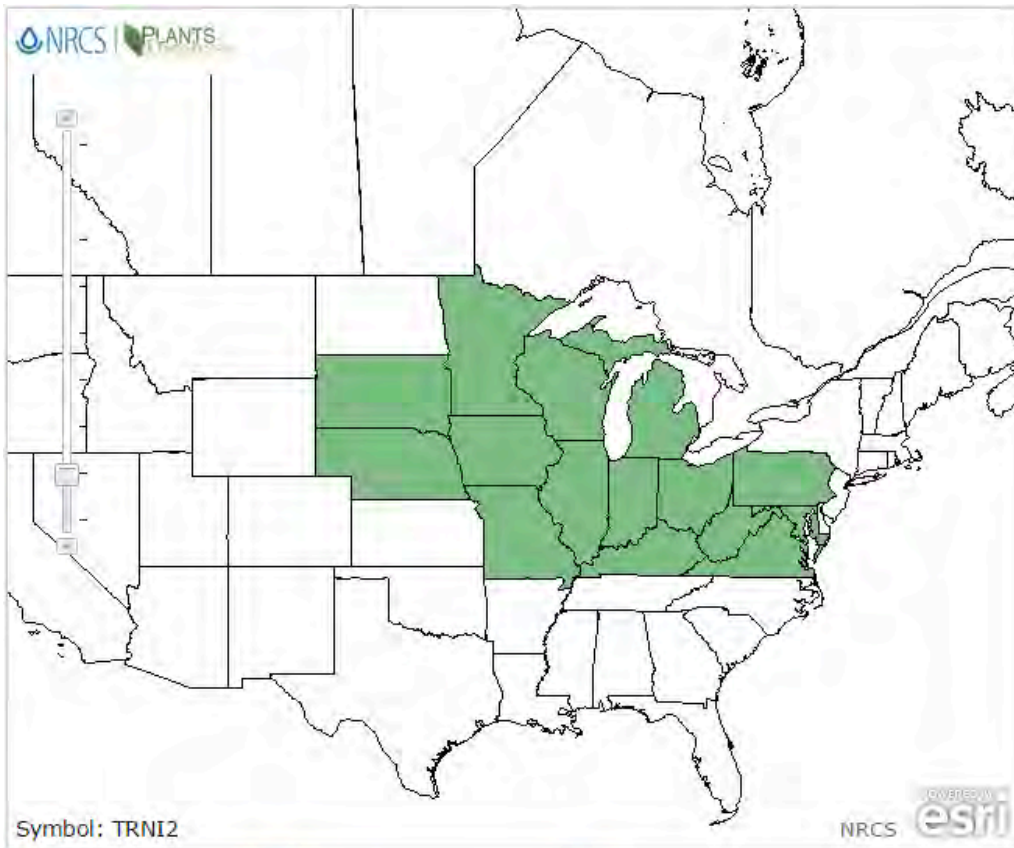
Trillium Background

Spring Ephemeral

Rare across
Midwest (special
concern in MN)

No published in vitro
studies





Spring Ephemerals

Ephemeral Plant -
Quickly Fading
Life cycle occurs in
a brief window of
time

Desert, Mud-Flat,
Spring Ephemerals



Why Snow Trillium?

Expand knowledge
base of a lesser-
known rare plant
Understanding how
to grow for future
restoration



Initial Experiment

Preliminary research suggested a very long wait for germination - dormancy to be overcome

Experiment developed using research from the Atlanta Botanical Gardens

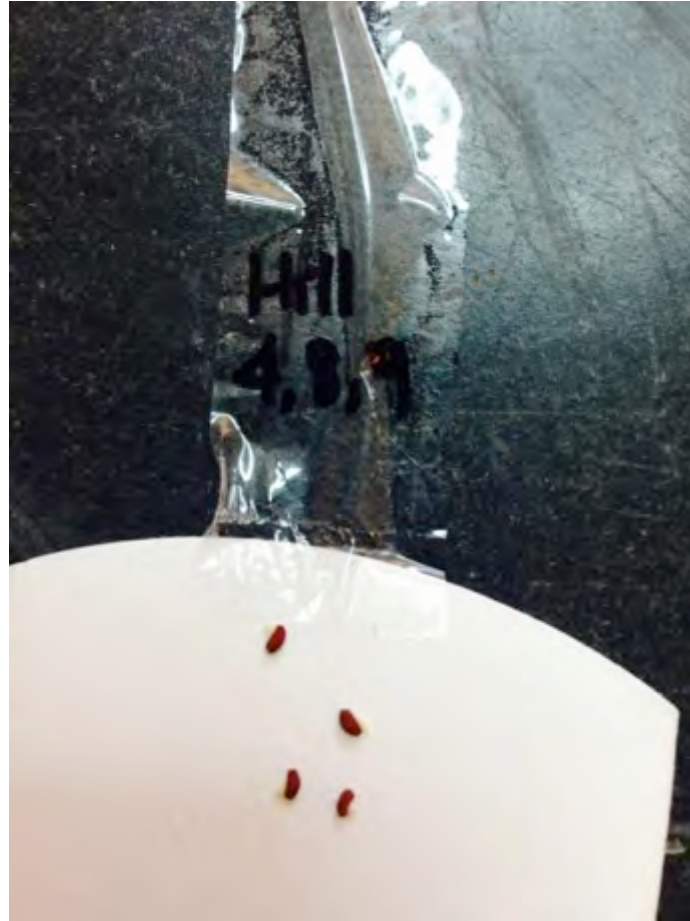
Initial experiment to test effectiveness of hormone treatment

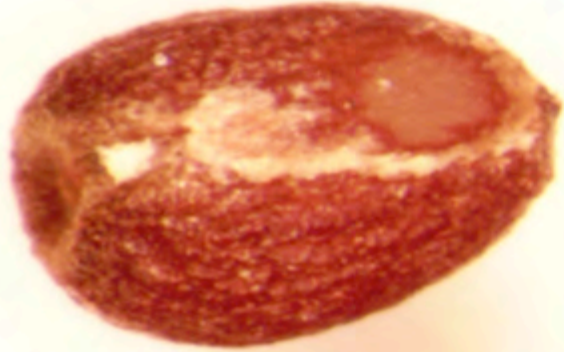
Initial Experiment (setup)

Small subset of seeds had elaiosomes clipped
Seeds cleaned and sterilized with a bleach treatment

Plated on 2M media (adapted MS mixture)

Treatment group supplemented with BAP and NAA solutions after plating

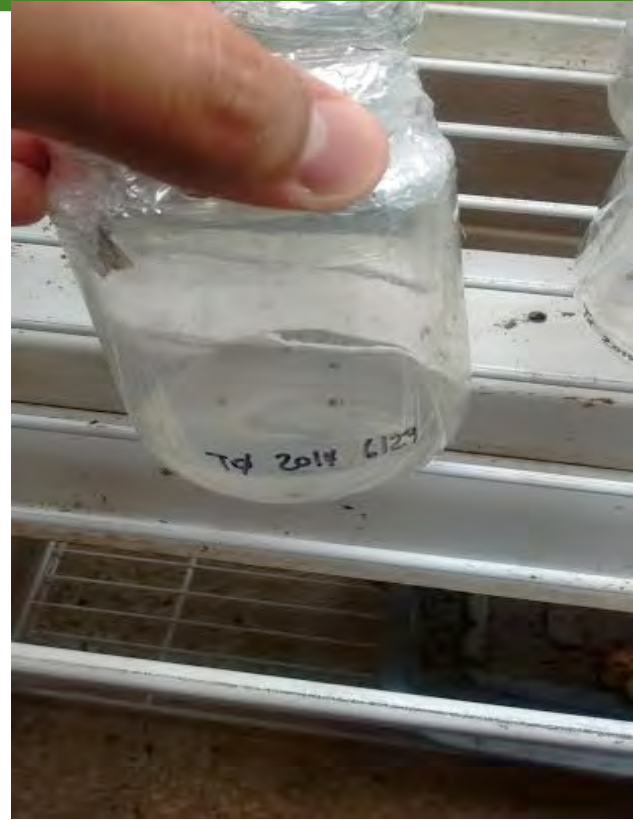






Results

...nothing so far
6-12 weeks
documented
germination time
Seeds to be
followed till week
15



Looking Forward

Three new experiments to continue the project - new seed sets

Initial experiment as template

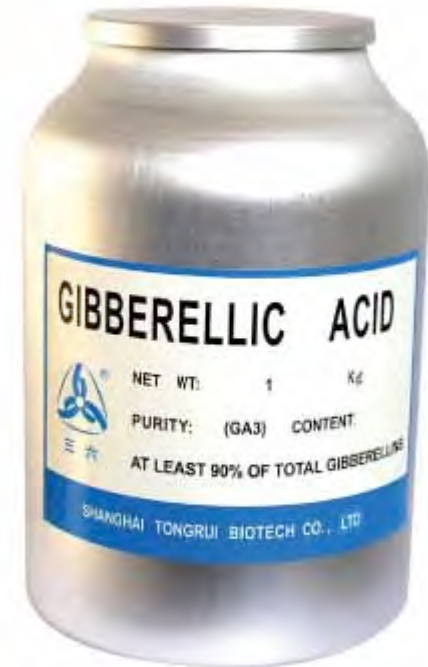
Clipping of ALL seed - Matt Richards ABG

Hormones in the media

Cold dormancy?

Proposal 1 - Gibberelins

Treatment with
gibberellic acid can
overcome
dormancy in seeds
Norman Deno -
Seed Germination



Proposal 2 - Cold Storage

Trillium nivale has a winter/spring life cycle, dormancy of some kind in seeds
Freezer storage for 1 year could induce germination



Proposal 3 - Adolescent Seed

Could using
immature seed
skip dormancy
requirement?
Consequences?
Technique used in
sunflowers



Final Thoughts

Using tissue culture is important for long term projects

Repeated failure *in vitro* could mean a soil component