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