

Lesson Plan

When we are able to obtain liquid nitrogen, we try to get all the mileage out of it we can. It seems the dewars that are loaned to us have trouble keeping it in liquid form more than a couple days, so I try to have at least a couple things ready to do with it. It does need to be treated with respect, with all safety precautions observed.

Bull Semen

Bull semen is easily obtained locally through cattle breeders. It is not exceptionally expensive (usually less than \$35/straw), and is sometimes donated. A thorough discussion can precede the lab, talking about why artificial insemination might be done, and the role that liquid nitrogen plays in preserving specimens. Steps to viewing the semen can be found in the link below.

www.teachanr.com/IdeasUnlimitedDocs/Animal_Breeding.doc

Cyropreservation

Here we quick freeze wheat seeds (although it would be good to try other ag-related varieties as well), and then do a germination test to see what survival rates are. Subsequent lectures can discuss conditions in which winter-kill in fall planted crops can occur, and also focus on what vernalization is. Finally, this is a good opportunity to talk about long-term storage of agricultural seeds in gene banks for future use.

Cyropreservation Resources

https://aggie-horticulture.tamu.edu/faculty/davies/pdf%20stuff/ph%20final%20galley/Chap%206%20-%20M06_DAVI4493_08_SE_C06.pdf

<http://www.bbc.com/news/science-environment-42066624>

Dippin Dots

While it is not quite Call Hall ice cream, if you have the liquid nitrogen, you can easily make Dippin Dots! Although you might want to use liquid nitrogen that has not had bull semen stored in it – too much gross-out factor for some kids!

<http://www.thesciguys.ca/Homemade-Dippin-Dots>