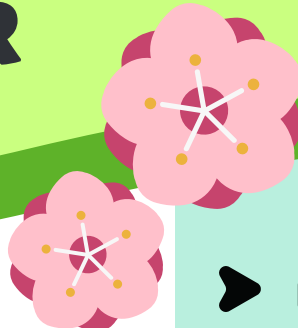


SPRING FREEZER CLEAN OUT!



"Good Management" Practices

► Full Defrost of Freezers

When you cannot easily remove ice from the interior or doors of a freezer, it might be time for a full defrost. To do this, you will need to move all the samples in the freezer to a different freezer unit. See if you can share space with a neighboring lab, or ask your institution if they have a backup freezer for such a purpose. Once you have removed all samples, turn the freezer off, let it completely thaw which might take several days (over a weekend is ideal), clean the interior, then power the freezer back on and put your samples back. Keeping up with brushing the frost out will ensure you don't have to do a full defrost as often.

► Brush Out Frost & Remove Dust from Intake or Coils

When brushing built-up frost from freezers, remember to brush or tap ice off of the gasket around the door seal. Dust removal from the intake and coils can be done with a vacuum.

► Sample Inventory

Having detailed inventories reduce the likelihood of misplacing samples, and can improve sample access speed. Inventories include identifying information about samples (researcher, date, experiment, sample type), and they may be paper or electronic. They are updated periodically to include the most recent sample additions and removals. Even better, have a searchable electronic cold storage inventory system! Searchable sample inventories reduce time spent locating samples, and shorten freezer door opening times, thereby increasing equipment efficiency and workflow.

► Clean Out Unneeded Samples

Freezer clean-outs conducted in labs at UC Davis and the CDC indicate that 10-30% of items stored in cold storage units are no longer need or no longer viable. Try dedicating a bit of time each month to going through boxes, racks, and shelves, eliminating samples that are expired, mislabeled, or unidentifiable. Don't forget to update your inventory!

► High Density Storage

Many labs still use freezer boxes that store only 81 samples (9x9 dividers) or 100 samples (10x10 dividers). In order to maximize existing space, switch to high density storage (13x13 dividers or smaller tubes).

► Temperature Tuning

Simply being mindful of sample storage conditions can have a huge impact on energy use in the lab. One ultra-low temperature freezer can consume as much energy as a single-family home **every day**, so anything you can do in this category will help to significantly reduce energy consumption.

► Adjusting ULT Set Points

Ultra-low temperature (ULT) freezers set to -70°C instead of -80°C use up to 30% less energy. Check to make sure your samples can be safely stored at this temperature. You can find resources about what and why you should "chill" up to -70°C on our Resources Page (bit.ly/FreezerClean).

► Storage at Appropriate Temperatures

Many reagents and samples do not require storage at ultra-low temperatures (-70 C or -80 C). For example, consider storing DNA in a standard -20°C freezer - these freezers consume 80% less energy than ULT freezers.



Retirements & Upgrades

► Retirement

Retiring or unplugging unneeded cold storage units is the ultimate way to save energy and lab space. If you do a great job with your sample clean-out and consolidating freezer boxes/racks, you might be surprised how much space is opened up. Cold storage units must be fully retired or expected to be unplugged for at least one year in order to receive credit. If you have a glass door refrigerator you may count each door as a separate unit when filling out the score sheet - that's how energy-intensive they are!

► Upgrades

It used to be very difficult to find an energy-efficient lab freezer or refrigerator - not so any more. If your lab is in the market for new cold storage units, consider adding energy-efficiency to the list of important criteria. Any new units that use less energy than the units that they are replacing are eligible for credit in this challenge. Use an energy meter to find out how much energy the equipment is consuming, or ask the manufacturer to provide you with the specifications.

Cutting-Edge Practices

Want to go above-and-beyond standard cold storage best practices? Incorporate some of these ideas into your lab's daily routine and watch the points add up... and the time you spend rooting around for samples go down.

► Share Cold Storage Units!

Sharing equipment is an oft-overlooked but extremely effective way of reducing the operating costs of a lab. If you are sharing space in a refrigerator or freezer with another lab you've likely not only saved some money, but you're also going to earn some points in this challenge.

► Barcoded Inventories

Barcodes are an excellent way to keep track of samples. Any refrigeration units that contain barcoded samples should be accounted for in this section on the scoresheet.

► Try Room Temperature Sample Storage (RTSS) for Samples...

RTSS is becoming more common for DNA, RNA and plasmids. It is particularly useful for shipping (eliminating the need for dry ice), or in field collection (eliminating the need for refrigeration). Credit will be given for trying RTSS per well plate or set of 25 tubes.

... or Reagents!

Not only is RTSS becoming popular for samples, it's also being used for reagents and diagnostic kits. Credit will be given for storing reagents or diagnostic kits at room temperature that were previously stored at colder temps.

► Adopting Room Temperature Sample Storage (RTSS)

If your lab has fully adopted RTSS for your samples, congratulations! Let everyone know how much space you've saved in your freezers by filling in the scoresheet. Credit will be given per well plate, set of 25 tubes, or number of 2" boxes.

