PSS Grinder Use: Safety and Training

Plant and Soil Sciences incorporates the use of many grinders, including but not limited to, Thomas-Wiley Mills and Cyclone/UDY Mills for grinding plant samples and a variety of ball/bar mills for soils and other material. These grinders are located throughout the department, spread among multiple buildings, labs, and field locations. Small grinders/mills located in individual labs are typically well regulated by individual P.I.’s, but some of the larger grinders housed in shared-used areas (e.g., Spindletop Farm, Ag North Seed House) are used by multiple programs and are less intensively monitored. Training technicians and students to operate these shared-use grinders correctly and safely is a top priority. Upkeep of the equipment, proper use of ventilation systems, and general courtesy in these shared-use areas is everyone’s responsibility and vital to maximizing the use of these grinders for research purposes.

General Guidelines for Grinder Use:

1. **Do not operate a grinder or mill until you have been properly trained by your supervisor.**
2. Wiley Mills and Cyclone Mills are for plant grinding only (shoots, roots).
3. Ball and bar mills can be used for soil.
4. If it is not plant or soil do not grind it on our general use mills.
5. **Ear, eye, and lung protection should be worn when grinding.**
6. Make certain the ventilation system in the room is turned on and operating correctly prior to grinding (follow specific rules pertaining to each individual location).
7. Always inspect the grinder (cover, blades, screen, safety-cutoff switch) for defects before operating. If something is amiss, do not use and bring to the attention of your supervisor.
8. Grind dried samples only. Wet samples do not grind well and will only gum-up the machine.
9. When grinding plant samples confirm the screen size needed for the particle size desired. Change screens if necessary. For soils, know the grinding time and number of bars/balls required to achieve the desired grind.
10. Before grinding and between samples, open the cover and make sure that the grinder is clean and free of debris. Items such as a Shop-Vac and cleaning brushes should be on hand to assist in the cleaning out process. Minimize cross-sample contamination!!
11. Make sure the cover is securely fastened before starting the grinder. Never open the cover when grinder is running.
12. For plant samples, slowly feed material into the machine remembering that what you put in only comes out once it has reached the desired particle size and can fall through the screen. If you overload the grinder the motor will overheat and shut off.
13. If the motor shuts down due to overheating: Turn off the power switch, clean plant material out of the grinding chamber, let the motor cool down, and press the reset button located on the motor.

14. Never stick your fingers or other foreign object (i.e., stick, rod) into the grinder while feeding in plant material. There are specially designed wooden dowels that can be used if needed. These have a ridge that does not allow them to be pushed down into the grinding chamber.

15. Following use, the grinder should be left clean and closed. Please leave the grinder as clean as you would like to find it.

16. Clean up the work area when done and shut off the ventilation system. Clutter can be dangerous and piles of plant and soil material can lead to errant contamination for the next person that uses the room.

17. Individual locations will have a signup list to track use. Please sign each time you use the facility.

Please bring any problems with grinders to the attention of:

Soil grinders (Spindletop): John Grove, Jim Nelson, James Dollarhide

Plant grinders (Spindletop): Jim Nelson, Ray Smith, Sara Carter, James Dollarhide

(Ag North Seed House): Jim Nelson