

ANIMAL BIOSCIENCES DEPARTMENT
Plant Grinding Facility Room 174
Standard Operation Procedure

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Purpose: Ensuring personnel using equipment are informed & understand the operating procedures.

Hours of operation (Mon to Fri 9:00 am to 4:15 pm)

1) Getting the PPE (personal protective equipment) safety box and keys

- once training has been received the materials can be signed out Mon to Fri (**Rm. 254 ABS**)
- **DO NOT REMOVE** the blue safety box from the building - leave in grinding facility but **take the keys with you.**

2) Returning the PPE safety box and keys

- the material is signed out on a DAILY basis - **return everything to Room 254 by no later than 4:30 pm**
- sign the duo-tang (blue soft cover book) that you have returned the materials and keys
- if there are any problems we need to be aware of - seek out Manfred before leaving

Training, Fees, Designated individuals & Emergencies

- Posted inside facility, and at the entrance to the facility - emergency contacts

Manfred Hansel (Rm. 254 ext 53700)

1) Training

- **all** individuals (includes helpers) **must receive training** (by the designated trainer) prior to use of the facility
- training sessions are run mid month at the beginning of every semester (mid Jan, May and Sept)
- As primary users, emails are sent to Plant Agriculture, School or Environmental Science, and Animal Biosciences announcing the date and time of the planned session
- **Planned semester sessions are provided free of charge to anyone wishing to attend**
- **There is a fee of \$50/ session, for every training session requested at other times (by any department)**

2) Fees to use the Facility - NEW MAY 1 2010 - The grinding facility has moved to a “pay for use” system, to help pay for repairs, consumables, cleaning and eventual replacement of equipment. Charges will be set on a per half day basis (rather than per sample) and readjusted annually. **NOTE - a trust number MUST be provided prior to using the facility. Invoicing will likely occur at 3 to 6 month intervals. Currently \$20/half day**

3) Misuse of the equipment/facilities

- misuse of the equipment or facilities, loss of PPE or keys, resulting in replacement and/or repair or clean up costs will be charged back to the supervisor of the individual using the facility

Safety

1) Location of exits and emergency equipment

A **Phone (DIAL 52000)**, **first aid kit**, as well as a **Yellow Emergency Phone** (connects directly to police) are located in the Main Hallway near the building exit (to your right as you leave facility).

A fire extinguisher & eye wash unit are by the door. A washroom is around the corner to your left.

2) Safety Equipment provided - ear protection (ear muffs & plugs), eye protection, respirator masks

Safety Equipment not provided - safety shoes or boots, gloves, hair nets, lab coat or overalls

Use of ear protection, safety glasses, dust masks, lab coats & safety shoes/boots are required.

3) Lock out procedures (applies to all grinders)

A numbered key for the padlock is provided with the bin containing the protective safety equipment. Be sure the power is properly locked out before you leave (if you have problems, seek assistance.)

4) Noise level survey done for facility - Information available in binder with SOP's and Manuals in room 174.

Standard Operating Procedures (SOP) & Manuals:

- In a binder in facility (rm 174) - SOP (not manuals) also included with this handout.

“Hammer and Wiley Mill Plant Grinders ”

“Plant Grinders” # 3 - Christy Norris Mill
 # 8 - Retsch-Muhle Mill (suitable for corn stalks)
 # 4 - Wiley Mills (Thomas) - 1 larger unit
 # 6 - Wiley Mill (Thomas) - small unit
 # 7 - Wiley Mill (Thomas) - small unit

Definition: **Hammer mills/ Wiley mills** are pieces of equipment used to grind plant material.

Task Requirements:

1. Do not operate any mills without prior instruction. If 6 months have elapsed since you last operated equipment in this facility, review instructions with trainer.
2. The grinders WILL NOT operate unless the dust collector is on. Before you start grinding check that the ventilation baffle is open to the grinder you are using (be sure at least 2 baffles are OPEN to prevent ventilation shafts from imploding). A pole with a hook on the end is available to open and close the baffles or use the step stool.
3. Keep feet, hands, loose clothing, jewelry and long hair away from moving parts.
4. Wear proper safety equipment, safety shoes/boots, ear protection, a particle dust mask, gloves and safety glasses or goggles, when grinding feeds.
5. Inspect the mill to ensure that there is no visible damage to it or its components.
6. Do not perform any maintenance on the grinders without proper authorization. Lock off power supply to the grinder, before servicing, performing maintenance or when the grinder is not in use.
7. Be familiar with all the controls before starting the task. Heed all operational instructions posted. If you are unsure of something, ask for help before proceeding.
8. **CLEAN UP** after yourself. Floors can be vacuumed and hosed down (keep the water at floor level and away from the grinders). Clean the safety ear muffs and eye wear.

9. **Housekeeping does NOT clean or empty garbage from this facility - so empty garbage.**
10. Return the Safety Equipment blue bin and keys to the appropriate location.

Trouble Shooting: If a malfunction occurs, IMMEDIATELY discontinue use (shut off the power with the stop button. Lock and tag out the power source.) Report the problem.

1. The following are the “basics” of grinding:

- a) make sure the mill is not running and the blades stopped before opening it
- b) vacuum around the outside of the mill
- c) vacuum around the screen, bag (depending on mill) and the inside of the mill
- d) replace the screen and close the mill
- e) secure the locking device for the mill
- f) attach the bag, bottle or bucket (depending on the mill)
- g) turn the mill on at the labelled switch, (located on the wall near the mill for the Christy Norris and Large Wiley mills, or on the mill for the smaller bench top mills.
- h) feed the plant material, slowly, into the hopper on the mill

Do not overload the mills. Too much sample, too quickly may cause the mill to jam.

- i) when grinding completed, turn off the mill at the switch
- j) make sure the mill is not running and the blades stopped before opening it
- k) remove the bag and collect sample
- l) repeat as necessary until all plant materials are ground

NB. NONE of the mills in this facility are to be used for Soils or Rocks.

Soft plant material only. NO woody stems or tree branches/trunks. Any root material or sand contaminated material must first be washed to remove all sand & stones, as these will chip and damage the cutting knives. Be sure to dry the material before grinding it, as wet material will clog the sieves and stick to the knives.

FAILURE TO FOLLOW THE RULES WILL REVOKE YOUR PRIVILEGES.