

Guideline  
for Administrators  
of Master  
Calibration  
Samples

## **Guidelines for Administrators of Master Calibration Samples**

### **Purpose**

The uniform blowing procedure (revised June, 2006) depends on the uniformity of the master calibration samples that are used to calibrate each blower and on the accurate determination of the equivalent air velocity (EAV) value for optimum blowing points. The consistency of the blowing procedure is dependent on the first critical calibration step being done properly using reliable calibration samples. For these reasons, both the administrator and the users of master calibration samples are responsible for maintaining the integrity and uniformity of the master calibration samples.

### **Basic responsibilities of the administrator of master calibration samples**

The administrator of master calibration samples manages the following process:

- Availability
- Distribution
- Verification of uniformity
- Record keeping
- Notifying the AOSA office of any master calibration sample that shows a variation of 0.2 m/s or more.

### **Maintenance of sample integrity**

To maintain sample integrity, the administrator shall:

- Develop and keep a record for each master calibration sample (see attachment example). The administrator will also keep the data sheets returned from the user lab with the samples.
- Record the weight of each master calibration sample before and after sending a sample to a user. Assess if the weight is stable. Use the same calibrated scale to make this measurement.
- Verify if the sample agrees with the initial air gate opening and the equivalent air velocity value. Use the same blower each time this quality assurance check is performed.
- If a master calibration sample returns altered to the extent that it can no longer be used (by gaining or losing components), the administrator will notify the AOSA office.
- Master calibration samples shall not be allowed to travel from lab to lab. A Master calibration sample shall only travel from the administrator to a borrowing lab, and

back to the administrator so that the integrity and uniformity can be verified before it is sent to the next lab.

### **Reconstituting a master calibration sample**

- A calibration sample is a biological material that is subject to natural variation in weight between users due to change in moisture and/or losing particles with repeated usage. Minor variation does not warrant a need to reconstitute the sample as long as the sample keeps its original equivalent air velocity value.
- A calibration sample that shows variation of 0.2 m/s or larger than the initial air velocity value would need replacing or reconstituting. The administrator will notify the AOSA office.
- Checking and verifying the integrity of a master calibration sample after each user takes approximately 30 min.

## **Uniform Blowing Procedure Using Air Velocity Calibration**

The following procedures can be used for any crop where a blowing procedure is applicable according to the AOSA Rules. The procedure for orchardgrass and Kentucky bluegrass is given below as an example.

### **Basic conditions for uniform blowing procedure**

The established uniform blowing procedure is valid only for General Blowers. Each blower should be calibrated individually (by master calibration sample and EAV) for each species that will be blown.

### **Procedure to determine the optimum blowing point:**

Determine the optimum blowing point for the species of interest, e.g., Kentucky bluegrass (KBG) or orchardgrass (OG) using the Master calibration samples (provided to you) and using the standard procedure described in the AOSA Handbook 24, Section 4.1. Record the air gate opening setting for the optimum blowing point.

After the optimum air gate opening setting has been determined, measure the equivalent air velocity (m/s) of that point using the procedure described below.

### **Procedure to determine the equivalent air velocity (EAV) value (m/s) for any air gate opening of a General blower**

The anemometer used in calibrating general blowers is Turbo Wind Speed Meter, Model 271, Davis Instruments. To order call 877- 413 - 8800 or visit [www.ambientweather.com/datume.html](http://www.ambientweather.com/datume.html); or contact any other source that carries this model.

- a. Turn on the anemometer and set the digital air velocity display on meters per second (m/s).
- b. Remove the sample cup from the cup holder of the blower. Place the rotary fan anemometer with the digital display facing up over the opening at the base of the air stream column. Align the round anemometer precisely over the round blower opening and hold it in place. Make sure the anemometer is held in place or inaccurate readings will be obtained.
- c. Set the air gate opening of the blower to the desired opening, i.e., the optimum air gate opening setting that has been determined using the Master calibration samples for KBG or OG.

- d. Turn the blower on and wait until the air velocity reaches a steady reading (about 30 seconds after turning on blower). When the blower has reached a steady running level read the air velocity for another 30-60 seconds. The value that appears most frequently on the digital display is recorded as the equivalent air velocity (EAV) value for the air gate opening for KBG or OG. For example, the digital display of the anemometer at the steady running level of the blower may show 2.5 m/s most frequently and fluctuate between 2.4 to 2.6 occasionally. In this case, the EAV value is recorded as 2.5 m/s  $\pm$  0.1. Some blowers may show a different fluctuation. Record the air velocity value including its fluctuation for the air gate opening of KBG and OG.
- e. Turn the blower off and then on. Repeat step 'd' three times for each air opening of KBG or OG to check for consistency. Record the results and keep that record to be used for the every day calibration of your general blower and running your test samples. This EAV is valid only for this particular optimum blowing point (for a particular species, e.g., Kentucky bluegrass) for this particular General blower. Different General blowers within a laboratory must be calibrated independently.
- f. Subsequent General blower calibrations for blowers with an established EAV can be rechecked following steps a through d. Adjust the blower gate opening until the air speed indicated on the anemometer digital display is equal to the original EAV that has been established, based on the master calibration sample, for the kind of seed being tested.

**Calibration of other species.** Other species where uniform blowing procedure is required by the AOSA Rules for Testing Seeds shall follow the above procedure. In case of species that require a factor, adjust gate opening by the required factors as indicated in the AOSA Handbook 24 and measure EAV as described above.

**Recalibration.** Use the above procedure to recalibrate a General Blower that has changed physically (e.g., change of motor, glass column, etc.).

**Special instruction for handling the calibration sample:** To do the count of the misplaced seeds, it is recommended to do it on a purity board, moving the seeds gently side-wise on the board. Do not pick up the seeds with forceps. The seeds that overlap (usually called misplaced seeds) are the most important seeds in every calibration sample; lifting such seeds with forceps damages them and causes physical changes which may cause variation.