

Video transcript EM 9030 -*Using Seed Moisture as a Harvest Management Tool*

(Tom Silberstein)

Hello. I'm Tom Silberstein with the Oregon State University Extension Service. I'd like to welcome you to an Extension video publication on how to sample for seed moisture content in grass seed crops. This is a companion video presentation to the printed Oregon State University publication:
Using Seed Moisture as a Harvest Management Tool.

Seed moisture content is the most reliable indicator of seed maturity and harvest timing in grass seed crops. Swathing and combining are two important times during harvest that knowledge of seed moisture is critical.

Knowing the seed moisture content of your crop can help maximize seed yield and provide a tool to help prioritize swathing operations during the busy grass seed harvest. This video will demonstrate the basic principles of obtaining an accurate sample in the field and show several methods for drying the seed samples to determine the seed moisture content.

(Nicole Anderson)

Hi. I'm Nicole Anderson from the Oregon State University Extension Service. Taking seed moisture samples three to five days before you expect to swath will help you determine which fields are closest to swathing. The first step in sampling a field is to look over the field and identify areas of uniformity. Samples should represent the largest area of maturity. If some areas of your field are a lot greener or dryer, sample each of these areas separately. *Avoid sampling too early in the day while the dew is present.* If you plan on sampling the same field more than one time to track seed moisture loss, try to sample at the same time each day.

Once you are in a field, walk in a "W" or "Diamond" pattern throughout the field collecting enough seed to fill approximately $\frac{1}{4}$ to $\frac{1}{2}$ of a cup. In perennial ryegrass, *this will require at least 30 to 50 seed heads.* While walking through your field, randomly reach down at equally spaced intervals and remove two to three stems at a time. It is important to randomly choose heads to avoid biasing your sample toward a specific seed maturity.

Strip the seeds from each spike. This can be done in the field or at your shop. When stripping off seed, be sure to remove all seed from each seed head to provide an accurate sample. *Place the sample in an airtight bag or container labeled with the field location.* To minimize seed moisture loss keep the sample cool while transporting.

When panicle type crops like tall fescue are sampled, seed can be easily stripped from the plant. *Use a sturdy toothed comb or your hand to strip the seed from the panicle.* It is important when stripping seed in the field to remove all the seed from

each inflorescence to ensure representative samples. Once sampling is complete, package, label and transport as shown previously.

(Tom Silberstein)

Now that you have your sample, we will demonstrate three methods for drying seed samples to measure seed moisture: a Koster tester, a microwave oven, and a convection oven.

You will need a scale with accuracy to 0.1 g. If you're using a convection oven you will also need a metal can with a tight fitting lid...you can obtain at lab supply stores...a hot pad when you pull the samples out of the oven and a cooling tray to cool samples on. If you're using the microwave oven you also need paper towels and something to stir the seed when you bring it out of the oven.

Using a convection oven is convenient for drying many samples at the same time. Prepare the sample by placing 10-15 grams of collected seed in a labeled metal container. This will be the *wet weight* of the sample. If you have enough seed, process the two sub-samples from each main field sample to provide an averaged value. *Preheat the oven to 265°F (130°C).* And place the open containers in the oven for 2 hours. Remove the samples from the oven and place the covers on the containers immediately to minimize weight gain from the air. Allow the samples to cool then measure the dry weight...7.9 grams for the dry weight.

If you choose to use the microwave method, three or four samples may be dried at the same time. Place your sample in a folded paper towel. Record your weight and location on the paper towel. Place in the microwave for two minutes. Dry the samples with two to four minute cycles until there's no change in weight.

To prevent inadvertent scorching, stir the sample between cycle times...and gradually reduce cycle cooking time as the sample becomes dry. Be careful no to touch the sample. It can be very hot when the steam's coming off of it. Place the sample back into the oven and run for another cycle.

Once the sample has cooked on the Koster tester for 30 minutes, take the sample off and take a weight. Record your weight...and then put the sample back on to cook for another 10 minutes.

Once you've run the Koster tester for additional 10 minutes, turn off the Koster tester and re-weigh the sample. If the sample isn't changed from the previous weighing then you can go ahead and record the weight. This one is 52 grams.

To calculate the seed moisture content, subtract the dry weight from the wet weight. This is the amount of moisture loss from the drying process. Divide the moisture loss by the original wet weight and multiply by 100 to determine moisture content.

As you can see we calculated 48 percent.

With the seed moisture content calculated, use the table in the publication to determine if your field is within the recommended range for swathing. If the seed moisture is above the recommended range, the table also provides an average seed moisture loss per day that you can use to estimate how many days until your field will be ready to swath. Seed moisture loss may vary depending on the weather, so it is important monitor fields accordingly. Hot windy days can lower seed moisture rapidly.

In conclusion, swathing within the correct range of seed moisture content will maximize seed yield and minimize seed losses during harvest. Taking an accurate measurement of seed moisture content is a key component of high yield grass seed crop management.

(end)