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How to Conduct a Seed Germination Test at Home

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Forages

Commercial seed companies provide information for a seed lot on the seed tag including seed purity, percent germination and the date when tested. Seed germination percent can decline over time, especially under less than ideal storage conditions. Sometimes producers may have seed that is held over from prior years, or farm-grown seed may be available that does not have a germination test. How can you determine the viability of old seed or untested seed?

To conduct your own seed germination test at home, follow these steps:

1. Collect a representative sample of seed from the seed lot in question. Representative samples include all types of seed in the seed lot including small, discolored and broken seed.
2. Count out 50 or 100 seeds across the centerline of a paper towel.
3. Fold the towel over to hold the seed, moisten it, roll it up, and place it in a sealable plastic bag. Write the date on the bag.
4. For large seeds like corn, add an extra teaspoon or two of water to the bag to make sure the seed can imbibe enough water but don't overdo the amount of water. The idea is to keep the towel moist but not saturated. Check the bag every day or so to make sure it has not dried out.
5. Keep the bag at room temperature for 3-5 days for most species, up to 7-10 days for bermudagrass or some native grasses. After this time, open the paper towel and count the number of sprouted seeds. For 100-seed samples, the number sprouted equals germination percent. For 50-seed samples, double the number of sprouted seeds to determine germination percent. If a different number of seeds are used, calculate percent germination by this formula: (sprouted seeds / total seeds) x 100 = germination percentage.
6. Seed samples of some crops may contain hard seeds. Hard seeds may be viable, but have a hard seed coat that prevents them from imbibing water and germinating right away. This allows them to survive long periods in soil.

Figure 1. Count out 50 to 100 seeds from a representative sample onto a paper towel.

Using the Germination Test Results

If the germination test shows 85% or more germination, you can plant at the normal recommended seeding rate to achieve a good forage stand. If the germination rate is less than 85%, increase the seeding rate to account for the lower seed viability. To adjust the

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seeding rate, divide the normal recommended seeding rate by the percent germination found in your germination test.

For example, a lot of alfalfa seed left over from the previous year has a germination rate of 70%. The normal recommended seeding rate for alfalfa is 20 lbs per acre. So the adjusted seeding rate for the lower germination rate is 20 / 0.70 = 28.5 lbs of seed to plant. Alternatively, use Table 1 below as a general guide for adjusting seeding rates of low germination seed lots. Recommended seeding rates for many forages are provided in various fact sheets available at your county extension office.

Figure 2. Germinated alfalfa seeds (staining in this image is from commercial seed coating).

Table 1. General guide for adjusting seeding rates of low germination seed lots

	IF GERMINATION RATES IS:			
	85%+	75%	50%	25%
	No Adjustment	Increase Seeding Rate x 1.33	Increase Seeding Rate x 2	Increase Seeding Rate x 4
Recommended Seeding Rate (lbs/acre)	Adjusted Seeding Rates (lbs/acre) Based on Germination %			
3	3	4	6	12
5	5	7	10	20
10	10	13	20	40
15	15	20	30	60
20	20	27	40	80
25	25	33	50	100
50	50	67	100	200
100	100	133	200	400

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