

Seed Analysis Study Guide

The method I prefer to use when analyzing any sample of seed follows a few simple guidelines for any sample and a few more complicated ones for specific samples. If you follow along on the Seed Analysis Form it makes this process a little easier to understand.

Guidelines:

Quality Factors-

Discolored-

1. Any sample that has enough of the following to cause the sample to be anything other than it's normal range of colors.
 - Green Kernels
 - Moldy Kernels
 - Heat Damage

2. Wheat- the natural color is a nice uniform reddish tan
 - Abundant Yellowberry- can cause the factor discolored.
 - Abundant Blacktip- can cause the factor discolored.

3. Oats- the natural color is a uniform straw color.
 - Abundant Wild Oats can cause the factor discolored.

4. Barley- the natural color is a uniform straw color.
 - Abundant Black Emma Base can cause the factor discolored.

5. Yellow Grain Sorghum- the natural color ranges from pale yellow to salmon to a dark red.
 - This is a tough one but weathering can cause the factor discolored- the seeds appear almost moldy but do not shatter between your fingernails when crushed.

6. Pinto Fieldbeans- the natural color is a tan or brown mottled with white- Solid brown beans do not cause the factor discolored.
 - Dark red beans that show the mottled effect to some extent are discolored.

Insect Damage

1. On Dent Corn, Wheat, and Yellow Grain Sorghum the factor insect damage may be very obvious due to visible bore holes in the body of the seed or the germ face being eaten away. Also look for the presence of live insects, skeletal remains, and fine dust in the bottom of the plate.
2. Insect damage is not a factor (at least I have never seen it in the dried beans. Occasionally you may have bore holes in Blackeye Cowpeas or Pinto Fieldbeans but these are the result of insects eating on the bean while still in the hull.
3. In Oats and Barley look for the presence of dust and insect skeletons, bore holes may be present but they are difficult to detect. Also look for insect activity in the germ face of the hulled kernels.

Moldy Kernels

In all samples having the factor Moldy Kernels the seed will be blackened or grayed by the mold. This color will come off on your hands. Fuzz may or may not be present. Sprout damage may or may not be a factor.

Sprout Damage

In all samples having the factor Sprout Damage the seed will have small roots protruding from the base of the seed. Depending on what species the seed is the root may or may not have smaller root hairs protruding from it.

Heat Damage

1. The factor heat damage in Wheat, Soybeans, Blackeye Cowpeas, Pinto Field Beans will be apparent because it will cause the seed to become somewhat puffed up and will become discolored looking as if it had been burnt or roasted. **There will also be a characteristic odor of having been cooked.**

2. In Dent Corn and Yellow Grain Sorghum the color will change somewhat, the odor will be present, **but the key factor for heat damage in these samples will be a few, not all, popped kernels which resemble popped corn on a lesser scale in that the kernel does not open up completely.**
3. Wheat and Oats are much harder to identify the factor heat damage in because of the seed coat. The key is to look for discoloration not resulting from mold, immature, black lemma base, or wild oats and then **use the odor as the determining factor.**

Frost Damage

I have never seen the factor frost damage in a quantity large enough to call.

Yellowberry

Occurs only in wheat. The starch will be cloudy and turn yellow as opposed to being clear and somewhat translucent.

Scab

I have never seen the factor scab in a quantity large enough to call.

Bunt

I have never seen the factor bunt in a quantity large enough to call.

Blacktip

Occurs only in wheat. The tip near the germ face will become dark or black. Will not be present on every seed in the sample.

Smut and Covered Smut

I have only seen the factor smut in quantities large enough to call one time and that was many years ago.

Black Lemma Base

Occurs only in Barley. The tip that attaches to the stalk and the back side (smooth not grooved) of the kernel will be dark or black, this occurs in many seeds in the sample and will be very obvious. Do not confuse with blacktip in wheat although they are similar.

Pink Lemmas

Occurs only in Barley. I have seen a few samples with this disease in it. The seed will have a light pink tint on the back side of the kernel. Do not confuse this with the chemicals that are applied to some seeds to prevent insect damage. (I never use those seeds with chemicals anyway.)

Purple Seed Stain

Occurs only in Soybeans. While this disease can be found in most samples I have a really hard time calling it because only a very few seeds (5 or 6) usually have it.

Bean Blight

Never seen it!