



Diagnostic Laboratory

Bean Bacterial Blight Test (Dome Test)

There are two primary types of bacterial blight found on dry edible beans in North Dakota, halo blight and common blight. Each is caused by a specific bacterial pathogen. Since bacterial blight is seedborne, all bean seed eligible for certification in North Dakota must be tested for the presence of the pathogen.

How the test is conducted

The dome test was developed at North Dakota State University several years ago to detect bacterial blight in dry edible beans. The dome test is capable of detecting these pathogens at very low levels in bean seed and thus providing a means of comparing the blight potential of different lots of seed. The dome test actually measures the symptoms of blight in the form water soaked lesions on the undersides of primary bean leaves.

How results are determined

The results of a dome test are calculated on the basis of the number of water lesion spots observed on the primary leaves of 13-day-old plants. The average lesion number is determined on 30 plants and samples are typically run in duplicate. The average lesion number corresponds to the average area of the leaf surface covered by lesions. The average lesion number corresponds to a diagram value or dome score as represented in the chart below.

DOMESTEST RATING SCALE		
<u>Diagram Value</u>	<u>Lesion Range</u>	
0	0.0 - 0.9	PASS ↑
1	1.0 - 1.9	
2	2.0 - 4.0	
3	4.1 - 9.0	
4	9.1 - 18.9	FAIL ↓
5	19.0 - 37.0	
6	37.1 - 75.0	
7	75.1 - 100	

A sample with a dome score of 4 or less will pass the test. Any sample receiving a dome score of 5 or greater fails the test. It is important when submitting a sample for a dome test that sufficient seed is submitted. A minimum of 2-3 lbs. of seed is required for the test.