

Measurement of Harvest Loss

John Nowatzki,

NDSU Extension

Agricultural Machine Systems Specialist;

Hans Kandel,

NDSU Extension Agronomist;

and

Juan Osorno,

NDSU Dry Bean Breeder/Geneticist

Measuring field loss during harvest is relatively easy. Five simple steps can provide a good harvest loss estimate:

1. Locate three random sites in the field.
2. At each site, outline an area that is 1 foot in the direction of equipment travel and is as wide as the effective width of the implement. For example, if a combine is picking up windrows containing 12 30-inch rows, the width of the measurement area should be 30 feet. Examine the entire width of the implement pass, not just behind the threshing section of the combine, where loss can be concentrated.
3. Search the soil surface and through any soil loosened by harvest implements within the outlined area for seeds and collect unthreshed pods. Count all bean seeds.

4. Divide the number of seeds found by the number of square feet within the outlined area. This will provide the average number of bean seeds lost per square foot. Take an average of the three areas sampled within the field.
5. Use Table 26 to convert the average number of seeds lost per square foot to pounds of seed lost per acre for specific seed sizes.

For example, if a sampled area over the full effective width of an implement pass averaged one pinto bean seed per square foot, the field loss would be approximately 36 lb/A, assuming 1,200 seeds/lb (from Table 26).

Table 26. Field Loss based on the average number of seeds lost per square foot of soil and seed size of the cultivar harvested.

Seed Size	Average Number of Seeds Lost Per Square Foot			
	0.5	1.0	5.0	10.0
Seed/lb	pounds/acre field loss			
800	27	55	272	545
1,200	18	36	182	363
1,600	14	27	136	272
2,000	11	22	109	218
2,400	9	18	91	182
2,800	8	16	78	156

To estimate the seed loss for three seeds/square foot for the same seed size of 1,200 seeds/lb, multiply 3 seeds by 36 lb/acre (loss for 1 seed per square foot) = 108 lb/acre field loss.

Another method that is easier but not as accurate is to take a 1-square-foot frame, randomly lay it on the ground and count the seeds inside the frame. If you do this at four or five places in the field, you will get an estimate of seed loss. Do some loss counts at places away from directly behind the combine as well as behind the combine. Making all counts directly behind the combine will give an excessively high seed loss count. Multiply the average number of seeds lost per square foot x 43,560 (square feet per acre) and divide by the number of seeds per pound.

Use Table 6 to determine the number of seeds per pound for different market classes.