

A bin lettering guide (Figure 6) can be used at bin center in order to establish possible probing points. The guide should be unfolded so that each of the five spokes is 72° apart. With the guide in place, centered on the top of the grain, a can of spray paint can be used to mark the bin with letters. The roof of the bin or the wall near the roof should be lettered with paint as indicated in Figure 5. This procedure should be done on the first visit.

A bin inspection form (Figure 5) should be filled out prior to entering the bin. A bin history and location form is always useful (Figure 7).

## Overfilled bins

One of the most important considerations in the inspection and subsequent maintenance of quality is the grain level within the bin. Bins are often filled beyond the rated capacity by peaking the grain and at the same time filling it to the eaves. This practice results in sampling and inspection problems because there is insufficient room between the grain and the

bin roof to work. A sample taken while outside from the bin wall door, roof door, or roof cap may be the only point accessible for the deep bin cup probe (Figure 8). In such cases, the following procedure is recommended:

1. Sample in the center at intervals as deep as possible using the deep cup probe. Temperature readings should be obtained at regular points and intervals.
2. If a roof door can be opened, sample 1 foot from the wall with the grain trier and as far from center as possible.
3. Using the deep cup probe, sample at an angle with several extensions in a north and south direction. Reach the bin wall if possible at two to three depths.

## Procedures

### Temperature

The temperature probe should be left in place while making a moisture probe with the grain trier to allow enough time for the thermometer to reach equilibrium within the grain mass. The temperatures should be recorded on the grain bin inspection form (Figure 5). It is important that the extensions are well connected. The probe should not be twisted counterclockwise because this will disconnect sections and leave a probe buried in the grain mass which could damage unloading equipment. Vice grips can be used to hold the probe sections and prevent disconnection in the grain mass.

### Moisture

The most accurate means of determining moisture content is the oven method. In this system, a known weight of grain is subjected to very high temperatures for several days until all of the water has been removed from the grain. The moisture content of the sample may be determined by using the following equation:

$$\% \text{Moisture Content} = \frac{(\text{Initial sample weight} - \text{Final sample weight}) \times 100}{\text{Initial sample weight}}$$

(wet basis)

However, the time required to obtain a moisture content reading using the oven method is too slow for most farm applications. Therefore, electronic grain moisture meters are more practical.

Most moisture meters determine moisture content indirectly by measuring the electrical properties of the grain. Electrical properties of grain

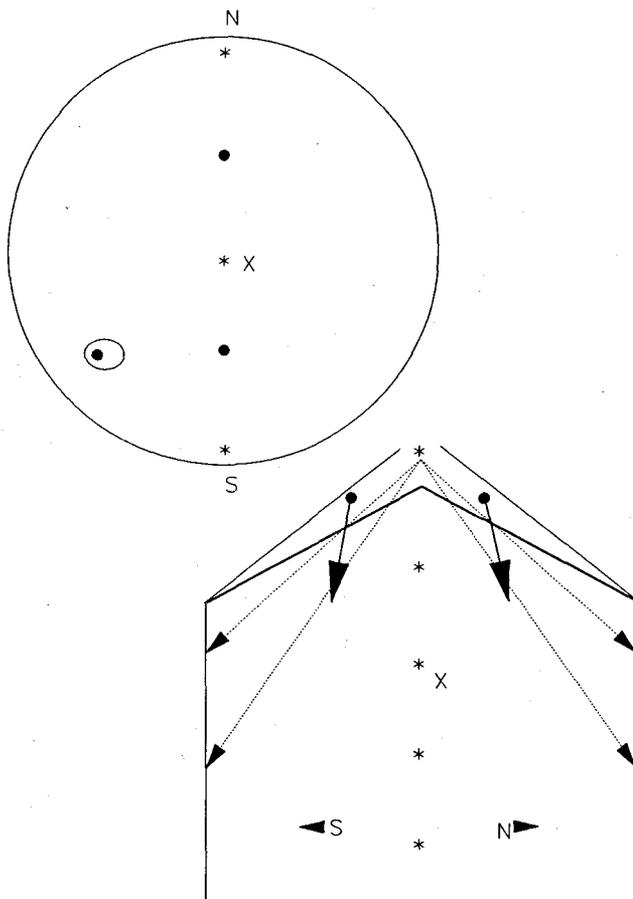


Figure 8. Sampling an overfilled bin.