

A Field Device for Ration Particle Sizing

Penn State engineers have devised a field device for testing particle size. This is a 3 tier system in which the top box catches the same size particles as the top 2 tiers of the Wisconsin shaker. This device costs \$195 from NASCO (800/558-9595). A local version of this box is made in Fort Collins By Dr Les Ball, retired from the CSU-VTH.

Construction: Build 3 boxes which stack one on top of the other. The bottom box is 18" x 18"; the middle box 16" x 16" and the top box 14" x 14". Top box holes are 3/4 " drilled at 1/2" on center. Middle box holes are 5/16" drilled at 5/8" on center.

Procedure:

1. Weigh 7 cups of ration
2. Put all 7 cups on top screen
3. Shake on a flat surface. Begin with 5 shakes in one direction, then make 1/4 turn and shake 5 times again. Continue turning and shaking until 40 shakes are completed. Calculate the % of the total ration that has landed in the 3 boxes.
4. Weigh sample in each box. Calculate the % of the total ration that has landed in the 3 boxes.

Evaluation: The ration should evaluate as follows (% by weight):

TMR Haylage or silage ration

Top box	7-10	15-20
Middle box	40-45	30-40
Bottom box	40-45	30-40