HYDRAULIC SPREADER CALIBRATION PROCEDURE

Calibration is simply calculating the pounds per mile discharged for each control setting at various travel speeds by first counting the number of auger or conveyor shaft revolutions per minute, measuring the weight of salt discharged in one revolution, then multiply the two to obtain discharge per minute*, and finally multiplying the discharge per minute by the time it takes to travel 1 mile. *In this process, we will first determine the number of revolutions in one minute, in order to do the drop test using a 20 second capture rate, then average that up to a full minute. These instructions align with the Hydraulic Pounds/Revolution calibration chart available from UNH T2's Resource page on the UNH T2 website at t2.unh.edu (https://bit.ly/calibrationresources).

There are multiple rows on the spreadsheet to repeat the process for each auger or conveyor setting, but in addition, most spreaders have multiple gate openings so you must also calibrate for each specific gate openings.

Equipment needed:

1. Scale to weigh salt
2. Salt collection device
3. Marking device (White paint or Post-it with Arrow)
4. Watch with second hand or stopwatch

Calibration steps:

1. Record gate height.
2. Remove, bypass or turn off spinner.
3. Warm truck's hydraulic oil to normal operating temperature with spreader system running.
4. Put partial load of salt on truck.
5. Mark shaft end of auger or conveyor.
6. Load salt fully on auger/conveyor by advancing.
7. Rev truck engine to operating RPM's. (1200-1500 rpm)
8. Count number of shaft revolutions per minute at each spreader control setting, record in Column B.
9. Collect salt discharged for one revolution, weigh it and deduct the weight of the container (if you did not zero the scale for the weight of the container). Record in Column C, then repeat and record second figure in Column D, then a third test to be recorded in Column E. The reason for repeating the discharge per revolution is for better accuracy (we'll take an average of these three). Note this will remain a constant number for each auger/conveyor setting, if gate height stays the same.
10. Add the total weight across all three test discharges (Column C + Column D + Column E) and then divide that total by 3. This is the average discharge rate per revolution (average pounds of salt discharged per revolution). Record this figure in Column F.
11. Multiple the Average Discharge Rate per Revolution (Column F) by Revolutions per Minute (Column B) and record this figure in Column G.

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12. You will now use a multiplier based upon speed to come up with the pounds of material discharged per mile.
    a. Column H - For pounds of material discharged when driving 5 mph, multiply Average Pounds Discharged per Minute (Column G) by 12. Enter figure in Column H.
    b. Column I - For pounds of material discharged when driving 10 mph, multiply Average Pounds Discharged per Minute (Column G) by 6. Enter figure in Column I.
    c. Column J - For pounds of material discharged when driving 15 mph, multiply Average Pounds Discharged per Minute (Column G) by 4. Enter figure in Column J.
    d. Column K - For pounds of material discharged when driving 20 mph, multiply Average Pounds Discharged per Minute (Column G) by 3. Enter figure in Column K.
    e. Column L - For pounds of material discharged when driving 25 mph, multiply Average Pounds Discharged per Minute (Column G) by 2.4. Enter figure in Column L.
    f. Column M - For pounds of material discharged when driving 30 mph, multiply Average Pounds Discharged per Minute (Column G) by 2. Enter figure in Column M.

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