Application and Area Verification

The following steps will help you to verify application discrepancies and understand how the Topcon area counters work.

When considering the Topcon Area counters it is very important to understand that the system records both Coverage area and Treated area for each of the tanks being used.

Coverage Area – *coverage area is the actual area covered not including overlap.*
Treated Area – *treated area is the area covered with product being applied, treated area will count all overlap.*
The following questions should be answered before proceeding to a simple weigh in, weigh out test;

- Is the unit over applying?
- Is the unit under applying?
- Which area counter are you using?
  - Coverage area counter?
  - Treated area counter?
- If the unit is under applying have you checked the pressurization hoses, checked for air leaks, verified ground speed and verified calibration?
- If the unit is over applying have you checked implement width, verified ground speed and verified calibration?
- Does the product have a relatively consistent size?
- How did you verify the weight of product used?
- How did you verify the Treated Area?

After the questions have been answered you would usually have your answers or a direction to proceed in solving the issue.
Area counters can be very confusing (see detailed area counters explanation PowerPoint and operators manual). In the example to the right we simulated seeding a field with numerous pot holes.
Job Statistics displays Area Worked which is coverage including all overlap, Boundary Area displays the calculated area remaining unpainted within the field boundary and Area Remaining displays the calculated area remaining unpainted within the field boundary.
Treated Area displays the area a tank has applies product based on the width of the boom and the distance travelled.

Coverage Area Worked displays painted area excluding any overlap. The same as what the tractor coverage map displays.
ASC Savings displays the calculated percentage savings in area of a sectional boom compared to the area that would have been applied if it were a full width boom.

Average application rate for tank within field. (total product used divided by treated area)
In this field we put product down on 72.85 acres but covered 86.09 acres. We also were seeding at a rate of 120 lb/ac and ended up with 141.12 lb/ac for the field due to overlap from the pot holes. This makes it look like we over applied by 15% when we only over applied in the overlap areas.
How to verify Area Counters and Application Rates?

Due to the complex nature of the area counters it may be beneficial to follow a simple procedure to verify the area counters and application rates.

This procedure effectively removes the X30 calculations from the equation.

43560 (sq ft per ac) divided by the implement width = distance per acre

Starting weight of product – weight remaining after test pass divided by acres covered = lbs per acre.

We will use a 76ft drill seeding wheat at 100 lb/acre for our example.

43560 divided by 76 = 573.2ft (distance per acre)

1. Weigh in enough product to seed out a specific amount of acres, we will use two acres for our example.
2. Add an additional ½ acres worth of product.
3. Seed for the distance calculated above. (2 acres in our example would be 1146.4 feet)
4. Weigh the product remaining in the tank.
5. You now know how much product was used to seed your short test and can calculate how much product was seeded per acre.

For our example we put 250 lbs of wheat in the tank, seeded for 2 acres (1146.4 feet), empty and weigh the tank (46 lbs for our test), subtract the weight remaining from the starting weight and divide the weight remaining by the 2 acres we seeded.

250 – 46 = 204 divided by 2 = 102 lbs per acre

Note: see the next slide for an alternate method of verifying area and rates.
How to verify Area Counters and Application Rates?

Alternate method of verifying Area Counters and Application Rates.

Implement width X distance travelled divided by sq ft in an acre = acres covered
Starting weight of product – weight remaining after test pass divided by acres covered = lbs per acre.

We will use a 76ft drill seeding wheat at 100 lb/acre and travel 1000 feet for our example.
76 X 1000 divided by 43560 = 1.74 acres covered.

1. Weigh in enough product to seed out a specific amount of acres, we will use two acres for our example.
2. Add an additional ½ acres worth of product.
3. Seed for the distance to use up the majority of the product without running out.
4. Calculate the acres covered using the formula above. (1.74 acres for our example)
5. Weigh the product remaining in the tank.
6. You now know how much product used to seed your short test and can calculate how much product was seeded per acre.

For our example we put 250 lbs of wheat in the tank, seeded for 1000 feet, empty and weigh the tank (74.3 lbs for our test), subtract the weight remaining from the starting weight and divide the weight remaining by the 1.74 acres we seeded.
250 – 74.3 = 175.7 divided by 1.74 = 101 lbs per acre