

METOS®

BY PESSL INSTRUMENTS



DropSight®

Droplet Size Distribution (DSD) Functionality

User Instructions

10/2024

A Product of



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DSD characteristics as measured with DropSight® reflect droplet data as deposited on the relevant natural leaf surface area.

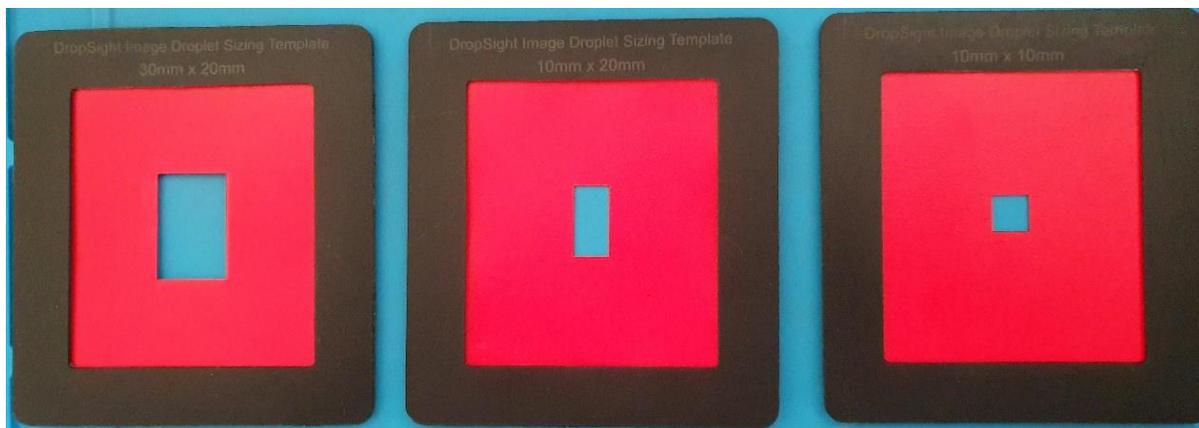
Higher droplet densities in deposition will necessarily have some droplet coalition, causing multiple droplets to form one larger droplet and thus skew the DSD data.

Similarly, high-velocity droplet impacts can lead to droplet shattering or striping effects, which skews the DSD values.

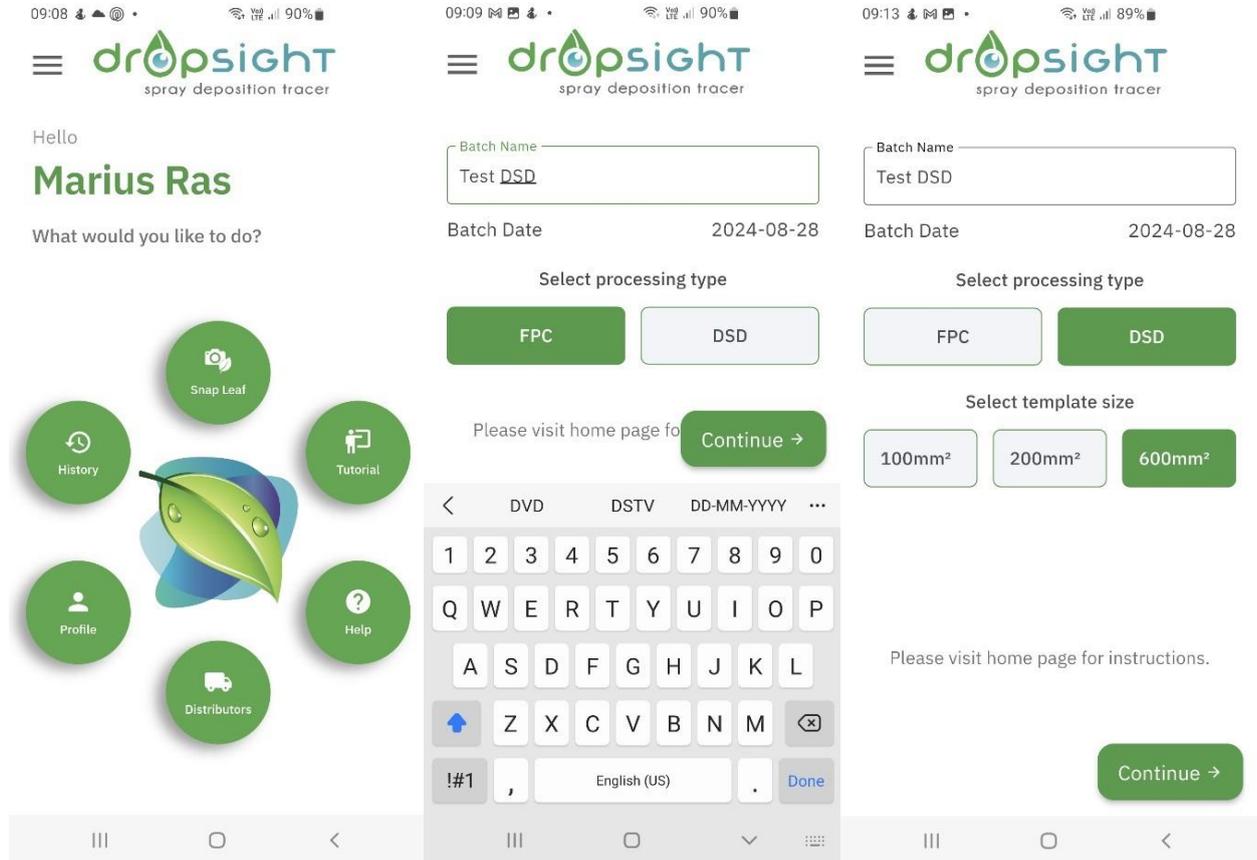
DropSight® DSD data thus does not necessarily imply a direct correlation with the “in flight” DSD as produced by the nozzle or atomizer and needs to be interpreted with caution.

Procedure

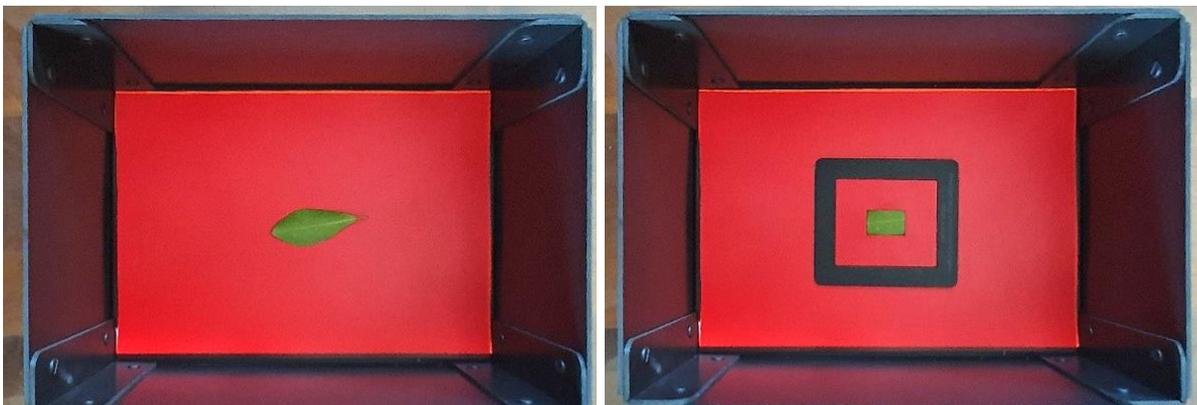
1. Identify the sprayed and collected leaf samples to be evaluated, selecting carefully those with the least or no droplet coalescence.
2. Upper-leaf and under-leaf areas should be analyzed in two different batches.
3. Prepare the selected batch by cutting off the leaf stem close to the leaf surface area and positioning it between two flat surfaces with moderate pressure for at least 1 hour to relax the turgor and flatten the leaf for better photography.
4. Select the appropriate DSD TEMPLATE, the largest to fit the given leaf surface size of the batch, to do the batch analysis with.



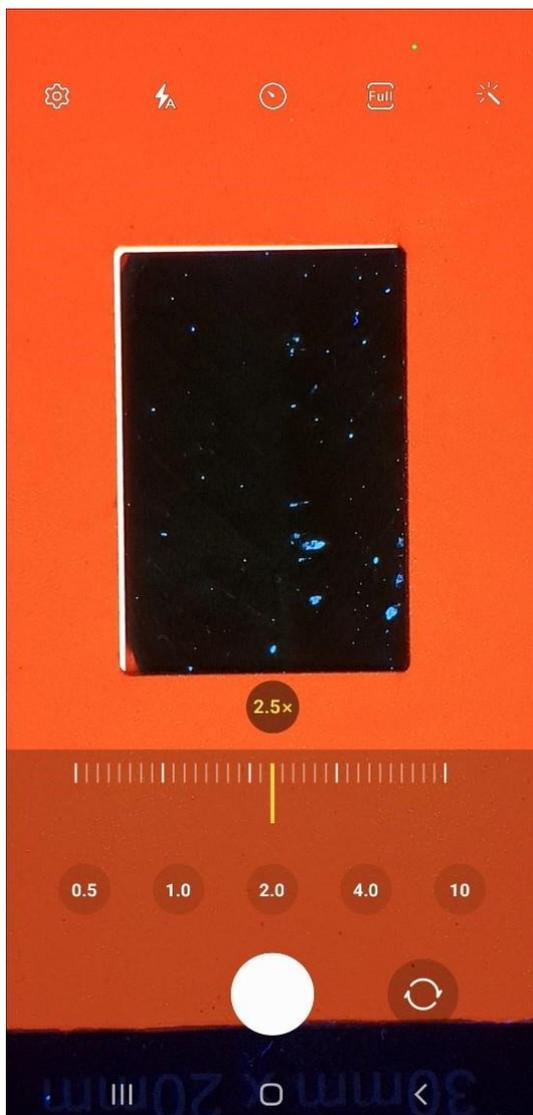
5. Select the SNAPLEAF function on the DropSight® Application.
6. Identify the Batch Name, e.g. Test DSD
7. Select the DSD function and follow the prompts to evaluate the batch.



8. Position an UNSPRAYED leaf in the LEAFLAB, placed directly under the UV Lens opening and with the chosen DSD Template over it, to be photographed.
9. Zoom in on the image to have the largest possible photo, BUT WITHOUT THE RED BACKGROUND TURNING ORANGE/RED. Typically a 2-2,5x zoom should be good.



10. Select the lowest possible threshold for the given leaf area which does not pick up any unwanted fluorescence not related to the UVVIEW deposition, by putting an UNSPRAYED sample for evaluation and finding the lowest Threshold that does not pick up anything. (e.g. Threshold 3)
11. Discard the information from this leaf – not to be saved as part of the batch.
12. ***This will be the Threshold value to use throughout the batch.***
13. Note that this value could be different for different leaf batches, and also different between upper and under-leaf areas.
14. You are now ready to evaluate the batch, using this above-determined minimum THRESHOLD value.
15. Take the sprayed leaves and repeat the process for the whole batch, saving the results of each leaf in the batch. For this instruction, only two (2) samples will be done.



09:14 89%

dropsight
spray deposition tracer

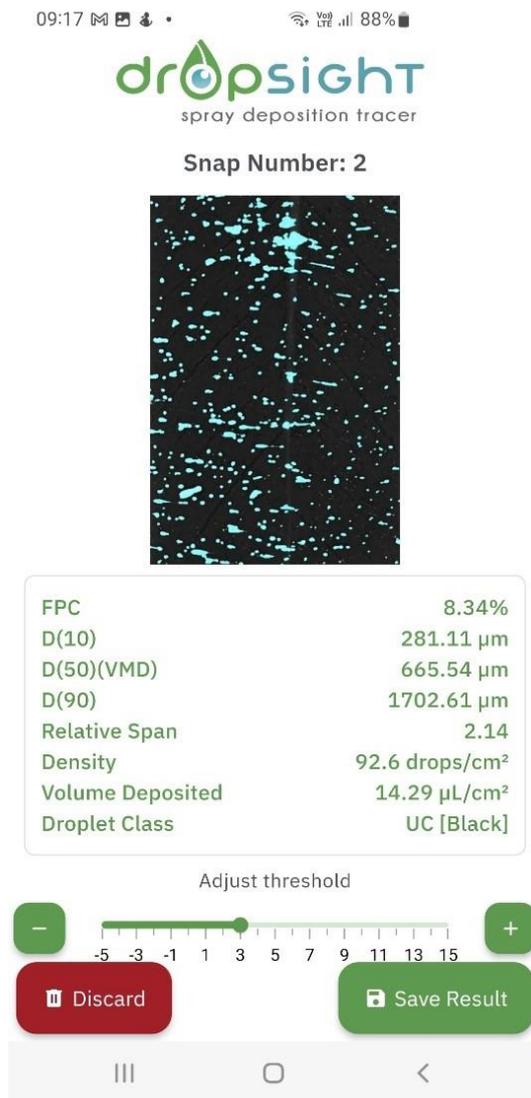
Snap Number: 1

FPC	0.80%
D(10)	279.78 μm
D(50)(VMD)	755.62 μm
D(90)	976.55 μm
Relative Span	0.92
Density	12.3 drops/cm ²
Volume Deposited	2.79 $\mu\text{L/cm}^2$
Droplet Class	UC [Black]

Adjust threshold

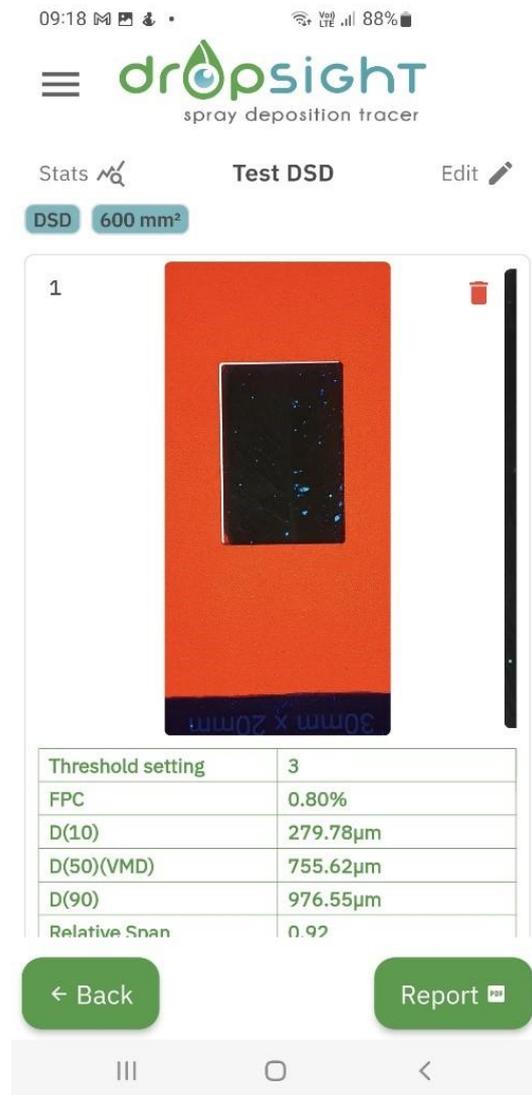
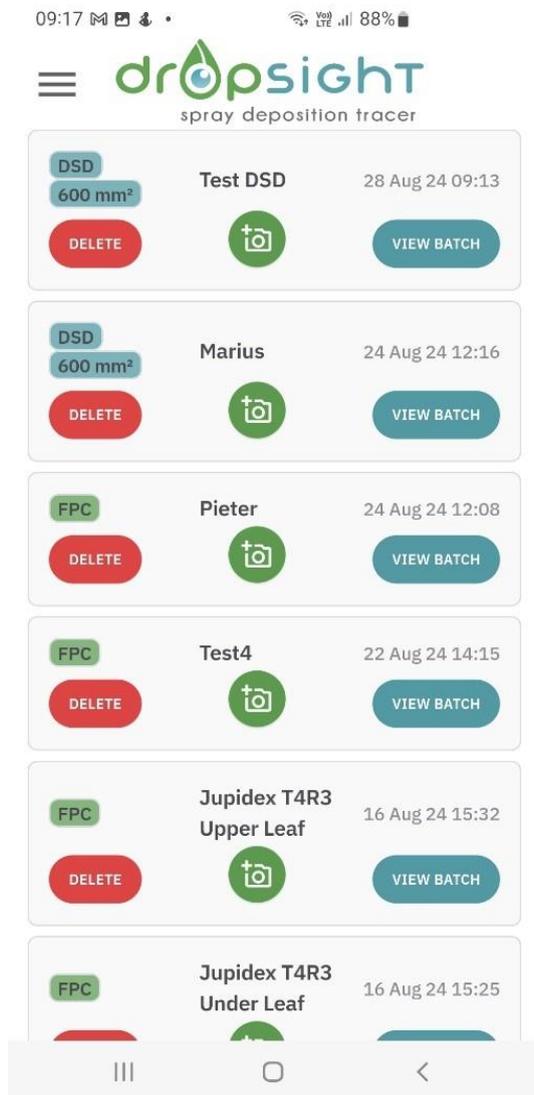
- 5 -3 -1 1 3 5 7 9 11 13 15 +

Discard Save Result



16. Select “Done” when finished with the batch, upon which the cloud-saved data will be displayed in the batch done – the latest batch at the top.
17. The batch can now be viewed, showing the photographs taken, and sliding to the left, will present the digitized version of the photograph.

18. At this point (and also at any point in the future) samples can be deleted and/or new samples added to this batch.



19. Once satisfied that the data represents the required information, the Report can be downloaded in .pdf format by selecting "Report".

See the Report below.



RAS CONSULT (Pty) Ltd

DSD Report for batch: Test DSD

Prepared by: Marius Ras

Date: 8/28/2024

Disclaimer

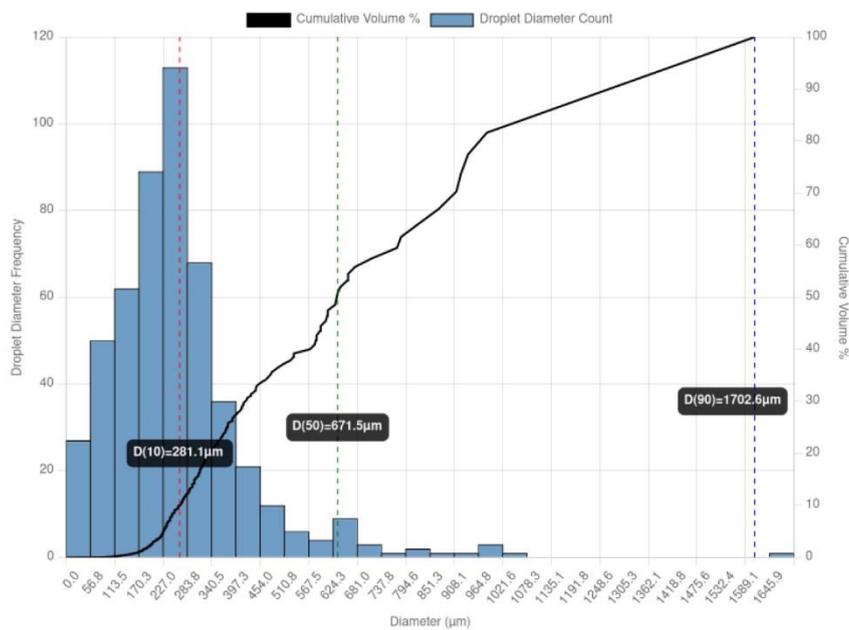
DSD characteristics as measured with **DROPSIGHT** reflect droplet data as deposited on the relevant natural leaf surface area.

Higher droplet densities in deposition will necessarily have some droplet coalescence, causing multiple droplets to form one larger droplet and thus skew the DSD data.

Similarly high velocity droplet impacts can lead to droplet shattering or striping effects, all of which skew the DSD values.

DROPSIGHT DSD data thus does not necessarily imply a direct correlation with the “in flight” DSD as produced by the nozzle or atomizer, and needs to be interpreted with caution.

Batch Summary



AVG FPC: 4.57%

FPC Std Deviation: 3.77%

Avg Density: 42.50 drops/cm²

Density Std Deviation: 40.12

Avg Vol. Deposited: 6.74 µL/cm²

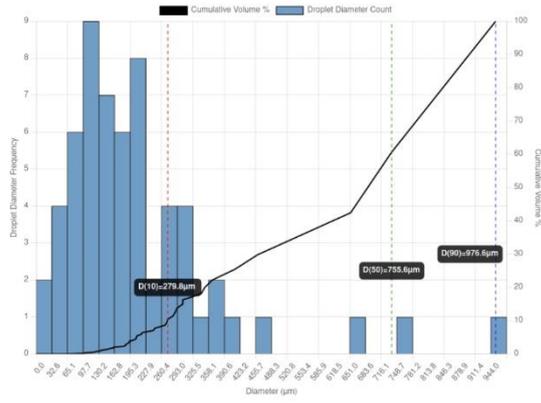
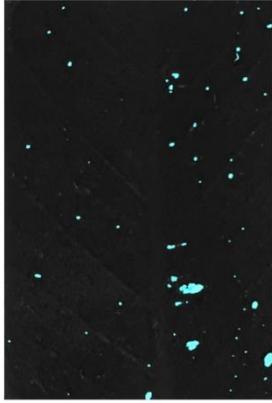
D(10): 281.11 µm

D(50)(VMD): 671.50 µm

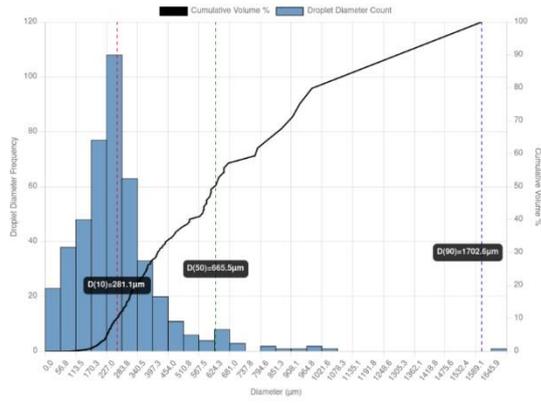
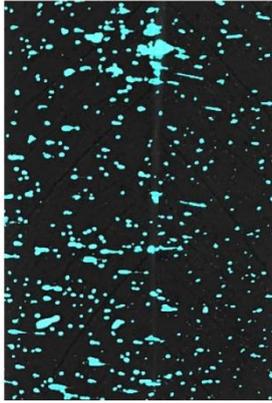
D(90): 1702.61 µm

Relative Span: 2.12

Droplet Class: UC [Black]



FPC: 0.80%
 D(10): 279.78µm
 D(50)(VMD): 755.62µm
 D(90): 976.55µm
 Rel. Span: 0.92
 Density: 12.35 drops/cm²
 Vol. Deposited: 2.79µL/cm²
 Classification: UC [Black]



FPC: 8.34%
 D(10): 281.11µm
 D(50)(VMD): 665.54µm
 D(90): 1702.61µm
 Rel. Span: 2.14
 Density: 92.59 drops/cm²
 Vol. Deposited: 14.29µL/cm²
 Classification: UC [Black]