

13 Droplet sizes

The droplet sizes for nozzles used for the application of pesticides are usually characterized by the MVD. The MVD denotes the mean volumetric diameter and is given in micrometers (µm). An MVD of 400 µm means that 50% of the liquid is sprayed in the form of droplets larger than 400 µm and 50% in the form of droplets smaller than 400 µm.

When classifying the droplet spectrum of a nozzle into the classes "fine", "medium", "coarse" ... Lechler worked according to the specifications of BCPC (British Crop Production Council) until 2019. From catalogue 2020, the spray pattern will be evaluated according to the specifications of the new ISO standard 25358. This standard defines a procedure for dividing the droplet spectrum of a nozzle into droplet size classes on the

basis of a reference system. This makes it easier to compare measurements, even if the measurement technology and thus possibly also the absolute measured values differ (µm). The reference nozzles, the pressures and the uniform colour coding of the droplet size classes have been redefined. The droplet size class "Ultra coarse" has been added.

What does this change for the farmer?

The nozzles and also the droplets and wetting remain the same. It is simply referenced differently, which changes the classification of the droplet size classes for the injector nozzles. The ranges of the droplet size classes change and sometimes become considerably smaller. With the injector nozzles this leads to a shift of 1 to 2 droplet size classes in

the direction of coarser (e.g. previously "Medium" and now "Coarse" or "Very coarse"). The additional droplet size class "Ultra coarse" divides the old droplet size class "Extremely coarse" into two classes.

Good biological effect with "Coarse", "Very coarse" or even "Extremely coarse"?

The new classification has the great advantage of better comparability of the measurement results.

With an injector nozzle and a water quantity of e.g. 200 l/ha with an MVD of 400 µm (0.4 mm), this spray pattern was classified as "Coarse" according to the BCPC classification, from 2020 this is "Very coarse" according to ISO 25358.

Half of the water quantity (100 l/ha) in the form of coarse,

medium and fine droplets below the mean value of 400 µm ensures coverage. Very coarse and extremely coarse droplets transport more active ingredient to the target.

As a result, both a good biological effect and a good drift reduction are achieved.

Even if the classification "Very coarse" is always compared with raindrops, these are with a droplet size of 2,000–3,000 µm (2–3 mm) around a multiple larger.

The table/graphic below compares the two measuring methods and therefore enables a direct comparison between the previous method (BCPC) and the new method (ISO 25358).

Droplet size classification

Droplet size classes according to the "old" and the "new" measuring system, measured with Visisizer.

BCPC (till 2019)	ISO 25358 (since 2020)	
VF	VF	Very fine
F	F	Fine
M	M	Medium
C	C	Coarse
VC	VC	Very coarse
EC	XC	Extremely coarse
	UC	Ultra coarse

- Very fine
- Fine
- Medium
- Coarse
- Very coarse
- Extremely coarse
- Ultra coarse