

FAQ018 Application scalability

Scalability through efficiency of the Crop.zone application

The scalability of the application of the Crop.zone process is generally always given, since the modular design of the high-voltage units, nozzle systems and electrical applicators allows identical units to be placed side by side depending on the working width.

A limiting factor, however, is the amount of energy that can be provided by the tractor through a PTO generator. This is limited by the tractor size. At the same time, the specific power required per m working width decisively determines the possible working widths and the equipment scaling. The specific output depends strongly on the application, whereby high plants with a lot of biomass (e.g. potato desiccation) and very densely growing plants (grass stands after green manure or finalisation of field grass) require significantly more output than small plants or sparse stands during post-harvest operations or pre-emergence treatments. However, the decisive factor for the Crop.zone process is the use of optimized Electrohybrid fluids. These liquids minimize the resistance at the applicator-sheet transition and thus also reduces the required specific power compared to pure electrophysical applications. While the tractor size and working width can be freely correlated for full-area applications after harvesting or for the treatment of green manure, the specific power requirement is much more important and limited for other applications. After sowing, for example, only the tramlines can be used in many crops (pre-emergence grain, beets, etc.), which requires sufficiently large working widths if further loss of area due to additional tramlines is not to occur. For some row crops, driving between rows is also possible or even mandatory, but this requires tractors of limited size (and power), possibly with special chopping tyres. Here, too, any increase in the efficiency of the treatment through optimised combinations with the Crop.zone process is important. In order to limit the total weight of tractors and implements and to protect the soil, an increase in power efficiency is very helpful. In addition, very large system units can also be designed as trailers or at least have additional wheels for load distribution in field operation.

Since the Crop.zone process does not require full-surface wetting of the plants and the Electrohybrid solutions can in many cases be distributed in a highly concentrated manner, the need for liquid to be carried along is also limited in terms of weight.

All factors together increase the scalability of the process through the optimized and economical use of electrical power/energy and liquids.