

Metering system for pneumatic fertilizer spreaders

The Multirate metering system for pneumatic fertilizer spreaders from Rauch provides exact plant nutrition over small areas. It allows a total of 30 CAN-controlled spreading sections to be switched on and off individually.

- Aero GT 60.1 with 30 CAN-controlled individual spreading sections (Source: Rauch)

The application rate of the product can be individually regulated in parallel for each section. This allows fertilizer savings of up to 23 % and achieves significant yield improvements. The metering system for the 3-point attached Aero 30.2 with a 30-m working width or for the towed Aero GT 60.1 pneumatic fertilizer spreader with a 36-m working width has more than 30 CAN network controlled fertilizer metering systems.

Each fertilizer metering system consists of a cam wheel set system, regulated by an internally-mounted electric motor with a planetary drive unit. Fast dynamic responsiveness and minimum adjusting times now allow the application rate and working width to be set in the field at high precision in a 1,0-m to 1,2-m grid in a manner previously not possible, for application map spreading, spreading in curves, wedge-shaped spreading, spreading at field borders and for providing biotope protection.

- Comparison of the spatial extension of the spreading pattern of the twin disc spreader in comparison to the pneumatic spreader with identical working width (Source: Kongskilde)

Agricultural satellites, camera drones, and sensors now provide detailed information on the biomass, soil condition, and nutrient requirements of small field sections. In contrast to the Aero 30.2 or Aero GT 60.1 with Multirate, the widely used normal twin disc fertilizer spreaders, with their spreading and overlapping area to the rear and side, can only implement the application requirements for small areas over the entire working width using a very coarse grid.

Pneumatic fertilizer spreaders with Multirate Control ideally implement urgently-needed yield improvements, using less fertilizer and providing maximum climate, soil, and waterway protection. The control allows the optimization of plant nutrition over small areas, resulting in a significant improvement in fertilizer efficiency with a simultaneous reduction in the environmental impact of over-fertilizing.

Application maps

In conjunction with the Taskcontroller of the CCI1200 Isobus terminal, application maps loaded into the terminal can be used for controlling the 30 individual cam wheel sets of the Multirate metering system accurately at high-resolution, even for complex field contours and application zones. The improvements through exact tracking of the application map result in fertilizer savings of up to 10 % with simultaneous optimization of the plant nutrition in high-yield areas.

When spreading in curves

When spreading in curves, the different relative speeds of the individual outlet manifolds on the boom in the same time period result in different arcs being travelled for each outlet. Depending on the frequency of curves, the system can save around 2 % to 4 % of the fertilizer in the inner region of the curves with a simultaneous yield optimization through adjustment of the fertilizer quantity in the outer spreading region of the curves.

Optimum biotope protection

Biotores in the field, such as kettle pools, ponds, shoulders, and streams are protected against the spreading of fertilizer by selectively switching off individual outlets - even when these areas lie in the middle of the boom.

Sectioncontrol

Selectively switching individual cam wheel sets off allows precise wedge-shaped spreading at very small grid sizes of 1,0 m to 1,2 m. The partial section switching with 30 sections saves a significant amount of fertilizer and avoids yield losses through double spreading.

Optimum distribution up to the field border

The good fertilizer distribution all the way to the border provided by the pneumatic spreader can be further optimized via application rate adjustments to the outermost outlet manifold and by using a border spreading guide plate.

Increased dynamics of the electrical metering drive

Compared to the previously used hydraulic drives, the 48-V electrical drives offer a faster dynamic response to speed changes. The electrical drive reacts six times faster than the hydraulic drive. This allows on-the-dot distribution of the fertilizer and saves a amount of fertilizers.

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