

Allgäuer Bauernblatt 25/2009

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HEADLINE

Large drops for a greater yield

ABSTRACT

The goal of any manure application is to achieve even spreading while simultaneously wasting as little nitrogen as possible. In pasturelands, the Möscha swiveling spreader has shown more and more that it best meets these requirements.

MAIN TEXT

Due to the requirements of the fertilizer ordinance (see box), many farmers are faced with the question as to which technology will replace the deflector plate. While drag hose spreaders are being used increasingly in arable farming regions, the technology has not taken hold in pastureland areas. Practitioners consider the technology to be poorly suited for working on slopes, too heavy, and the manure logs that are produced can still be found in the next growth under certain weather conditions. Even the manure injectors have few supporters because they rip up the turf, thereby creating the conditions for germinating dock. What will remain in the future then is the deflector head spreader, also called a gooseneck, or the Möscha swiveling spreader. The community biogas plant "GrasKraft" in the Austrian village of Eugendorf near Salzburg also faced this question, which is why it conducted its own field experiment on multiple areas of pastureland. The clear result: Compared to the deflector plate, the Möscha swiveling spreader brought an increased yield of ten percent, even 20 percent compared to the gooseneck.

Large drops

But how were such differences achieved? For Helmut Mößmer, designer and manufacturer of the Möscha swiveling spreader, the answer is clear: "To reduce nitrogen loss during application it is essential to distribute the manure in such a way that evaporation is slowed. Because of its special design and because of the deflection of the entire manure stream, the swiveling spreader is capable of forming large drops. And the bigger the drops, the lower the evaporation because of the reduced surface area." The coarse-dropped application also has two other advantages. For one thing, large drops are more wind-resistant than very small ones. A DLG test also confirmed this effect. And for another thing, large drops do not settle as a fine mist on parts of plants, but instead simply drip onto the ground.

Large window of time

"For this reason, the Möscha swiveling spreader has no problems if the manure is applied to a crop that has already started growing a bit," explains Mößmer. Because in contrast to the deflector head spreader, the swiveling spreader does not spray the manure directly down onto the grass crop at high speed. Instead, the coarse drops are decelerated on the slightly upward trajectory so that they slowly drip off on impact and do not burst. This effect was also noticed by young farmer Michael Zeller from Bad Grönenbach.

"We started out with a gooseneck, but when the crops were higher, it caused soiling and burning of the plants. We were able to resolve these problems using the swiveling spreader thanks to the large drops. Therefore, we equipped both manure tankers with the Möscha spreader," explained Zeller.

Spreader trial

This success with customers proves the enterprising metal worker was correct. Möscha can therefore afford to provide every spreader to the customers for a 30-day trial. The farmers also seem to be satisfied because 97 percent buy the spreader right away. The company Möscha in the Oberroth county of Schalkshofen, Neu-Ulm district, currently produces around 2,000 spreaders per year with one employee and 15 part-time workers.

Marianne Mößmer is responsible for shipping and accounting at the company. As “boss”, Helmut Mößmer takes care of the development and marketing of the spreader and is available for giving customers advice and support. In peak season, consulting alone takes five to seven hours a day. The majority of spreaders are delivered directly to farmers by parcel service, another portion goes to dealers and tanker manufacturers.

A company with tradition

Mößmer has been in the manure distribution business for about 25 years. As a master farmer with a bovine feedlot, he searched early on for a technology with which manure can be applied precisely and efficiently. And because he was already educated as a metal worker, he set out to build a spreader based on his own ideas. In 1983 he applied for a patent for this “swiveling head spreader,” and in 1991 the first DLG test followed as well as his own booth at the Agritechnica fair.

A wide range of applications

The Möscha swiveling spreaders are suitable for vacuum and pump centrifugal tankers. They also work the same way for cattle and pig manure as for liquid sewage sludge or biogas manure. However, the driving speed should not exceed seven kilometers per hour because otherwise the spreading is uneven. Depending on the pressure, working widths of 10 to 15 meters and 13 to 18 for type “W” are achieved. The new “DUO-spreaders” is even capable of 21 meters. Because of the diverse requirements of farmers, Möscha offers five basic models, S-55 to S-85. The number always refers to the diameter of the nozzle. The best-selling model, the S-68, costs 670 euro including connecting bend, support bracket and value-added tax. The spreaders can also be mounted by the farmer to nearly any kind of manure tanker without great technical effort.

TEXT BOX

This is required by the fertilizer ordinance:

According to the new fertilizer ordinance, the following devices no longer comply with the required “Generally Accepted Rules of Engineering”:

- Liquid manure tankers with an open discharge to the spreader,
- Central deflector spreader, which has an upward stream.
- Manure tankers with a vertically arranged centrifugal disk for the application of undiluted manure.
- Rotary jet sprinkler for undiluted manure.

Use of the aforementioned spreaders is not immediately prohibited, but rather only:

- as of January 1st, 2010 if these units were commissioned after January 14, 2006;
- as of December 31st, 2015 if these units were commissioned before January 14, 2006.

The following devices conform to the Rules of Engineering without qualification

- Deflector spreaders that stream downwards (e.g., “gooseneck”).
- Swiveling nozzles (for example: Möscha swiveling spreaders).

The Möscha swiveling spreader is eligible for a subsidy via the KuLap [Bavarian Agricultural Landscape Program].

PICTURES

1. Working widths of up to 21 meters can be achieved using the Möscha DUO-spreaders. In this way the side-by-side lanes can be significantly reduced, especially for large tankers.
2. Helmut Mößmer points out the “centerpiece” of the driveless swiveling spreader: The small plate is pressed to each side by the manure stream and the spreader begins moving. Thanks to the swiveling spreader, the manure drips down to the bottom of the plants in pastureland
3. For Helmut Mößmer, the “secret” of a low-loss manure application lies in the large drops, which can be seen well here with cattle manure
4. Michael Zeller from Bad Grönenbach swears by the Möscha swiveling spreader for the application of cattle and biogas manure. They leave behind a uniform layer of manure.
5. Helmut and Marianne Mößmer from Schalkshofen with the swiveling spreaders ready to be shipped.