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HEADLINE

Swiveling manure spreading: What practitioners think about it

ABSTRACT

With the rising cost of mineral fertilizer, manure produced right on the farm should be used as efficiently as possible. Can this be managed with a swiveling spreader? top agrar employee Lukas Weninger checked with practitioners.

MAIN TEXT

In the face of rising mineral fertilizer prices, more and more farmers want to make efficient use of the manure produced on their own farms. The application should be low-loss and precise, but at the same time cost-effective. Only a few spreading systems for manure accomplish this.

One of these is reported to be the swiveling distributor made by the company Möscha, which is located in the Bavarian town of Oberroth. Theirs is equipped with a passively driven (from the slurry flow) swiveling hood, which is designed to ensure a consistent working width (see also the box on page 24). We asked several farmers about their experiences with the device.

Six years of experience:

Karin and John Grießer from Stallhofen in Styria raise corn, pumpkins, winter barley and winter wheat (animal feed) on their roughly 20 ha [50 acres] of farmland. Aside from that, they use 10 ha [25 acres] of pastureland (permanent pasture and forage grasses) and about 6 ha [15 acres] of forest. In addition, they keep five mother cows including their young (18 cattle in total) as well as several pigs, sheep, chickens, etc. All products are marketed directly.

Grießer bought the Möscha swiveling spreader in 2006. Before then he had already tried numerous manure spreading systems. However, the overly fine spray of conventional deflector head spreaders, the high losses to the air and the strong odor were never satisfactory. Grießer also sees some disadvantages for drag hose systems: "If it does not rain after application to pastureland, the "manure logs" remain until the next feed harvest. These get picked up and end up in the feed." Grießer's three-year-old vacuum manure tanker has a volume of 7.8 m³ and a 6 inch connection. Möscha offers all standard sizes and diameters for connection. However, special sizes can be manufactured as well. Both the tanker and the spreader are used in a private application cooperative. The co-op is made up of five farmers who apply about 1000 to 1200 m³ of manure annually using this technique. The manure of all animal species is used for the application.

15 m³/ha for each section:

On his pastureland, Grießer applies about 15 m³/ha for each of the four sections. Before seeding he distributes about 20 m³/ha on his farmland: Before corn and pumpkins in the spring and before winter barley in the fall. Josef Wittek from Würnitz in Lower Austria also relies on the swiveling system. His roughly 400 hogs produce about 500 m³ of manure per year. Around 300 m³ of it is applied with a drag hose tanker. The farmer uses the tanker from the Laa/Thaya manure association, of which he has been a member since 2006. His own vacuum tanker, over 30 years old with a 6 m³ capacity and a 6 inch connection, handles the remaining 200 m³ (usually in the spring). It has had a Möscha spreader mounted on it for almost fifteen years. Wittek cultivates sugar beets, pumpkin, wheat and corn on his 55 ha field. Around 20 m³/ha of manure is applied either before cultivation or after harvesting. Wittek does not drive into crops.

Johann Emhofer from Naarn in Upper Austria farms 23 ha of farmland with rapeseed, wheat and corn as well as 4 ha of forest. In addition, he fattens 300 pigs. Emhofer uses a vacuum tanker having a capacity of 5.1 m³ to apply the manure that has been produced. The Möscha swiveling spreader is mounted to the 5 inch connection of this roughly 30-year-old tanker as well. The farmer bought it in 2005. Emhofer applies manure twice a year: In the spring before sowing corn and in the wheat and rapeseed crop while it is growing, and in the fall before wheat and rapeseed and for maize straw composting. He applies about 17 to 19 m³/ha in each case. Stefan Danzl from Waidring in the Kufstein District has been using a Möscha spreader for nine years. He keeps 25 dairy cows plus offspring and cultivates 30 ha of pastureland (permanent pasture). He offers holidays on the farm and also runs a biogas plant which utilizes the cattle manure and leftovers from restaurants in the surrounding areas. Every year just about 600 to 700 m³ of biogas manure and an additional 400 m³ of cattle manure is produced by a cooperation partner, which totals approximately 1000 m³ every year. A vacuum tanker with a volume of 8 m³, a 5 inch connection and a Möscha spreader has been used on the farm for a year. Danzl: "I chose this system because it is recommended for biogas manure and was described as being more wind-resistant." On his pastureland, Danzl applies about 10 m³/ha for each of the three to four sections.

Uniform Lateral Spreading:

How do the farmers we surveyed rate the spreader? According to everyone, the pendulum frequency, which is described as continuous, has a uniform lateral spreading as well as a "sharp" connection limit as a result. The set working width is therefore adhered to. This can be adjusted by positioning the end stops on the lever mechanism. The application amount is the same in the middle as on the outside. The farmers distribute their manure with working widths of 10 to 15 meters. Greater widths can be implemented using other types of swiveling spreaders.

The livestock owners even agreed with each other about the working speed. It should not exceed 7 km/h. According to farmer Emhofer from Upper Austria, a sort of "streak effect" arises during faster travel. "The spreader can no longer swivel back and forth fast enough which results in horizontal streaks and thus insufficient spreading accuracy." The pressure in the tanker must be high enough, otherwise the spreader could occasionally stop on one side. The majority of the farmers also confirm this.

Advantage During wind:

The spreader should especially demonstrate its strengths when working on slopes or under the influence of wind. This is confirmed by Josef Wittek from Würnitz: "The spreader is not as susceptible to wind because it has larger drops of manure." This is the biggest difference and at the same time the biggest advantage over deflector plate systems. The relatively coarse manure/air drops also have further advantages. Johann Grießer from Stallhofen suspects that there is less of a loss to the air, which also means lower odor emissions. This benefits the farmer because many of his fields are located near populated areas. The farmers say another plus is the fact that the manure lies on the area in large drops, resulting in less nitrogen being released.

"Due to the swiveling hood, the manure stream is only two to three meters high, but very consistent," says Christian Diesmayr from Neulengbach (Lower Austria). Because of the ground-level trajectory and the large drops, he also suspects that less gas escapes and that there is less of an effect from the wind." Assuming an appropriate driving speed, the longitudinal double overlap would result in a better spreading accuracy than for deflector plates

The practitioners also give the swiveling spreader a good grade on slopes. However, Johann Grießer points out two things that could force the spreader to come to a halt: "If the tanker becomes empty on a slope, it's possible for the spreader to come to a halt because air has escaped unchecked." Foreign objects like pieces of wood, stones, etc. can also block the spreader. Neither really see it as detrimental, but it is still important to be prepared for it. Since making the purchase, Grießer has not had any repairs or problems. All he has had to do is bend the guide plates a bit on the inside to improve the swiveling.

One drawback that Stefan Danzl noted was that his swiveling spreader made the back of the manure tanker dirty. He traced the cause of this to an area between the nozzle and the swiveling hood that leaks. And the farmer says: "A drag hose system would likely be better for the biogas manure because that system probably results in less waste."

Due to the terrain and size of the field, however, the drag hose does not fit for his farm. In the Tyrolean man's experiences, spreading is more precise at the headlands when using a deflector head. This "hits" the starting point more easily, whereas the Möscha is more difficult to predict. And on smaller parcels, a deflector head spreader with less pressure would be better for dispensing than the swiveling spreader. However, the farmer is satisfied overall with the spreader.

Simple maintenance!

While we are on the topic of maintenance: For this simply designed machine, maintenance is limited to the regular, or daily, refreshment of grease at just three grease nipples. “The only things that lock up quickly are the plastic bushings above the end stop screws,” says Josef Wittek. He proposes making these out of better material. Apropos recommendation: “The swiveling hood should preferably be purchased with a stainless steel finish,” advises Johann Emhofer. Otherwise, it falls victim to rust much faster, even if it is galvanized.” The prices for replacement parts (e.g. brass bushings) are cheap according to the farmers. All in all, the farmers surveyed by top agrar are sold on their spreading system. Grießer sums it all up in a way that reflects what the other farmers think: “The Möscha spreader may indeed be slightly more expensive than a conventional spreader (depending on the material and diameter, it costs between €490 and 810 net, editor’s note). But the higher price is justified by the benefits.”

TEXT BOX

Quick reading

- Application systems for manure should be simple yet low-loss. The Möscha spreader does a good job of this.
- It achieves this through large manure drops. This makes it more wind-resistant than conventional spreaders and reduces nitrogen waste.
- It also has a simple design. The passive drive mechanism, which is powered by the slurry flow, requires neither electric nor hydraulic components.
- This reduces maintenance costs and downtimes.
- However, compared to deflector plates, these advantages also result in higher purchasing costs.

PICTURES

- Because of the passive drive powered by the slurry flow, there is no need for moving parts (see also photo above)
- “Due to the larger manure drops, the Möscha swiveling spreader is more wind-resistant than the deflector plate,” says farmer Josef Wittek.
- Karin and Johann Grießer are satisfied overall with the Möscha system: “The advantages more than compensate for the high price.”
- Christian Diesmayr from Neulengbach applies up to 500 m³ of manure with the Möscha system, primarily in small plots and local fields. The DLG-tested spreader can be tried 30 days before purchase.