Hans Brantner & Sohn Fahrzeugbaugesellschaft mbH

Universal Spreader TA 24078 POWER-SPREAD pro with CSP2-2 Universal Spreading Unit

Distribution Quality of Livestock Manure

APPROVED 2025 DLG WWW.DLG.ORG

HANS BRANTNER & SOHN FAHRZEUGBAUGESELLSCHAFT UNIVERSAL SPREADER TA 24078 POWER-SPREAD PRO WITH CSP2-2 UNIVERSAL SPREADING UNIT

✓ **Distribution Quality of Livestock Manure**

DLG Test Report 7564

Overview

A test mark "DLG-APPROVED for individual criteria" is awarded for agricultural products which have successfully completed a scope-reduced usability test conducted by the DLG according to independent and recognized evaluation criteria. The test is intended to highlight a particular innovation and key criteria of the test object. The test may contain criteria from the DLG test scope for overall tests, or focus on other value-determining characteristics and properties of the test subject. The minimum requirements, test conditions and procedures, as well as the evaluation bases of the test results will be specified in consultation with an expert group of the DLG. They comply with recognized technical standards and scientific and agricultural findings and requirements. Successful testing is concluded with the publication of a test report, as well as the awarding of the test mark, which is valid for five years from the data of awarding.

The DLG test for the distribution quality of livestock manure was carried out using the BRANTNER TA 24078 POWER-SPREAD pro Universal Spreader with CSP2-2 Universal Spreading Unit. The 2-plate spreader is equipped with two horizontally mounted milling rollers. The distribution quality was measured at application rates of 10 t/ha and 30 t/ha with livestock manure. The cattle manure used had a dry matter content of 19.4 % and a bulk density of 726 kg/m³. The transverse and longitudinal distribution were determined in each case. Other criteria were not reviewed.

Assessment in brief

For livestock manure with spreading rates of 10 t/ha and 30 t/ha, the DLG test achieved very good (++) and good (+) spreading qualities in the transverse direction as well as good (+) results in the longitudinal direction. Table 2 shows a summary of the results.

Tabelle 1:
Ergebnisse im Überblick

DLG QUALITY PROFILE	Evaluation*
Distribution Quality of Livestock Manure	✓

* Evaluation range: requirements fulfilled (✓)/requirements not fulfilled (✗)

Table 2:
Parameters for distribution quality of livestock manure

		Livestock Manure Spreading Material			
Working width	[m]	14	15	11	25
Target application rate	[t/ha]	10	10	30	30
Driving speed	[km/h]	5.0	5.0	3.0	3.0
Transverse distribution					
– Coefficient of variation (CoV)	[%]**	8.6 (++)	11.8 (+)	10.0 (++)	14.4 (+)
Longitudinal distribution					
– Coefficient of variation (CoV)	[%]***	11.8 (+)		11.6 (+)	
– Dilation within tolerance zone	[%]****	66.8 (+)		72.9 (+)	

** DLG evaluation scale from May 2020 (transverse distribution): CoV > 15 % to ≤ 20 % = "○"; CoV > 10 % to ≤ 15 % = "+"; CoV ≤ 10 % = "++"
*** DLG evaluation scale from May 2020 (longitudinal distribution): CoV > 15 % to ≤ 25 % = "○"; CoV > 10 % to ≤ 15 % = "+"; CoV ≤ 10 % = "++"
**** DLG evaluation scale from May 2020 (dilation within tolerance zone): > 45 % = "○"; > 55 % = "+"; > 75 % = "++"

The evaluation criteria were adapted to technical progress and therefore intensified in May 2020 in cooperation with the DLG Technical Committee "Fertilisation Technology." This replaces the previous evaluation systems that were used until May 2020 and can still be found in the old DLG test reports.

The product

Manufacturer and applicant

Hans Brantner & Sohn Fahrzeugbaugesellschaft mbH
KR Hans Brantner-Straße 8
A-2136 Laa/Thaya, Austria

Product:
Universal Spreader BRANTNER TA 24078 POWER-SPREAD pro with CSP2-2 Universal Spreading Unit

Description and technical data

The tested product BRANTNER TA 24078 POWER-SPREAD pro with CSP2-2 Universal Spreading Unit is a universal spreader with a transport base and a 2-disc spreading unit. The tested spreader has the following main technical data (manufacturer‘s specifications):

Vehicle type	TA 24078 POWER-SPREAD pro with CSP2-2 Universal Spreading Unit
Year of manufacture	2023
ID No.	VDBT24078ER133897
Perm. total weight	24,000 kg
Support load	4,000 kg
Axle load	2 x 10,000 kg
Net weight	11,700 kg
Loading capacity	approx. 25 m³
Chassis	Tandem axle, hydraulically sprung; hydraulically sprung drawbar, K80 coupling
Brake type	2-circuit air brake with automatic load-dependent brake force control (ALB)
Tyres	710/50-R26,5
Cargo area	1,700 mm x 2,070 mm x 6,700 mm (H x W x L)
Required hydraulic connections	3 load-sensing connections (supply, return, control line) for damper valve, tailgate, scraper floor, boundary spreading device, hydropneumatic drawbar suspension and electro-hydraulic steering axle; 2 hydraulic lines (single-action) for level adjustment of the hydraulic chassis and for volume compensation of the hydraulic cylinder in the electro-hydraulic power steering system
Required electrical connections	ISOBUS connector; 7-pin connector for lighting; 3-pin connector for controlling the electro-hydraulic power steering
Spreading unit	2 horizontal milling drums, 650 mm dia.; 2 spreading discs, 1,000 mm dia., each with 6 spreading vanes with adjustable opening angle; Drive via PTO shaft (max. 1,000 rpm); Damper valves for separating the cargo area and spreading unit
Feeding technology	Hydraulically driven transport base (4 chains with 102 U-profile carriers) (speed continuously adjustable)

The method

The test is based on the DLG test framework “Spreaders for organic solids“ and the standard DIN EN 13080 “Manure spreaders – Environmental protection – Requirements and test methods“.

To determine the transverse distribution, collection containers (50 cm x 50 cm x 10 cm) are placed flush with each other across the test area, perpendicular to the direction of travel. The tractor then drives through the measuring section with the spreader to be tested. The quantities of spreading material collected in the trays are weighed and calculated on an area basis to determine the basic spreading pattern. The quality of distribution is described by the coefficient of variation (CoV). The CoV value for transverse distribution indicates how evenly the area is covered, taking into account the overlap after further connecting runs. The CoV values show when the permissible CoV threshold is undershot and in which range the optimum working widths (lowest possible CoV) lie.

To determine the longitudinal distribution, the mass flow is measured by continuously recording the weight

of the cargo area while stationary during the complete emptying of a load. This is used to calculate the characteristic values: characteristic manure application during unloading, dilation within the tolerance zone (percentage of the unloading time during which the application rate is within the permissible tolerance), the optimum overlap of the connecting journey and the CoV with optimum overlap.

The smaller the CoV and the larger the tolerance zone, the better the distribution quality.

The test results in detail

Figure 2:
Mobile test bench for determining transverse distribution

Figure 3:
BRANTNER TA 24078 POWER-SPREAD pro during determination of longitudinal distribution

Trial

The test was conducted in August 2025 on a harvested wheat field in the Niederösterreich region of Austria. Figure 2 shows the mobile test bench for measuring transverse distribution with collection trays. Figure 3 shows the unloading of the tested spreader in a stationary position to determine the change in mass during the unloading process.
To determine this parameter, the weighing cells installed on the spreader were used, which had been validated by the DLG Test Center prior to the test.
The cattle manure used had a dry matter content of 19.4 % and a bulk density of 726 kg/m³ DM.

A John Deere 7310 R was used as the tractor during the test. The spreader was loaded using a telescopic loader.

Adjustment

The spreading quantity of the BRANTNER TA 24078 POWER-SPREAD pro is determined by the feed rate of the transport base, the opening height of the damper valve and the driving speed of the tractor. The transport base speed can be varied continuously from 0.2 to 5 metres per minute. The transport base is hydraulically driven. The opening height to

the spreading unit can also be adjusted continuously on the control terminal using the damper valve. With the damper valve with position measuring system, the opening height is preset on the ISOBUS terminal and the damper valve is moved to the preset height at the touch of a button. The current height is displayed in the terminal and used for control purposes. On spreaders without ISOBUS equipment, the opening height is shown to the driver by means of a display (with a scale from 0 to 1.6 metres) on the front panel of the spreader (Figure 5).

The entire spreading unit of the BRANTNER TA 24078 POWER-SPREAD pro is driven by the PTO shaft (max. 1,000 rpm). The spreading material is distributed transversely to the direction of travel by two spreading discs (Figure 6). Each spreading disc is equipped with six swivelling spreading vanes. Seven different opening angles can be set on each spreading vane.

The opening angle is adjusted manually. To do this, the operator loosens the screw connection of the spreading vane (M16) on the inside of the spreading blade. Then the shear bolt (M12) on the outside of the spreader blade is removed. The spreading blade is then moved into the desired position (there are seven holes for each spreading vane) and secured and tightened again with the M12 shear bolt. Finally, the screw connection of the spreading vane is locked again. The operating instructions provide the operator with information on how to adjust the spreading vanes for various spreading materials.

The so-called foreign object flap can be used to adjust the feed point of the spreading material to the spreading discs. The foreign object flap is adjusted lengthwise (feed point) manually after loosening the lock nuts by adjusting the stop screws (M16). The height of the scraper bar above the spreading discs can also be adjusted. After loosening the screw connection (M12), a hand lever provided can be used for manual adjustment. The hand lever has a fixed location on the loading wall.

Information on the basic settings depending on the spreading material and the desired spreading quantity is also provided in the operating instructions. Due to the very different material properties of the various spreading materials, it is advisable to check the spreader settings during a test run and optimise them if necessary.

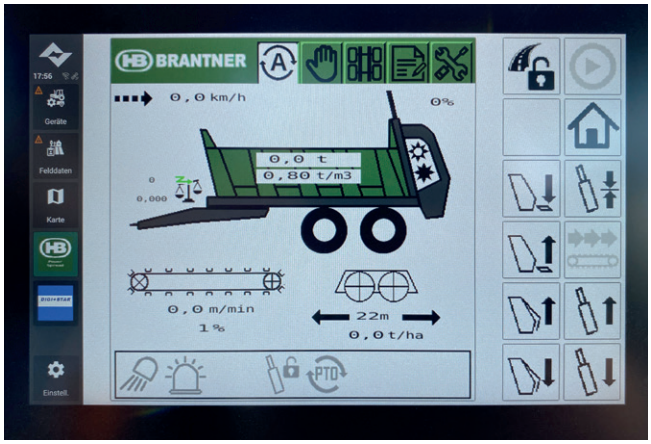


Figure 4:
Lacos LC one control terminal for BRANTNER TA 24078 POWER-SPREAD pro

Figure 5:
Display on the front panel of the spreader for the opening height of the damper valve

Figure 6:
Universal spreading unit on the BRANTNER TA 24078 POWER-SPREAD pro

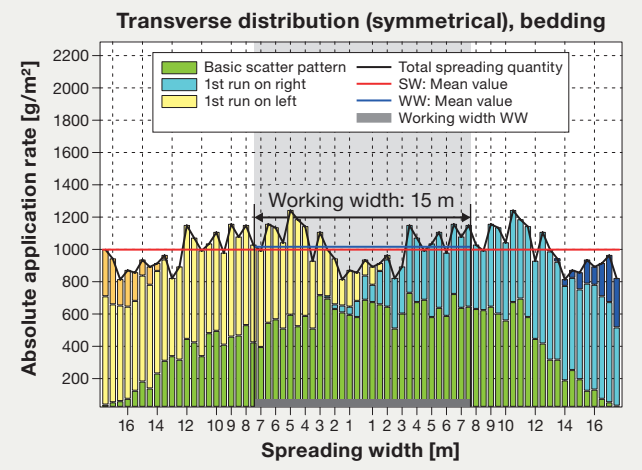
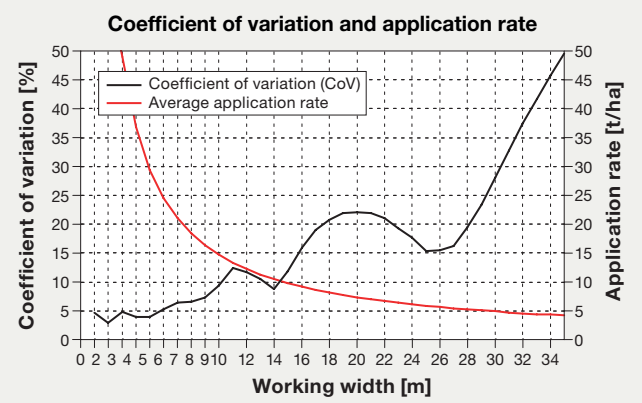


Figure 7:
Basic and overall spreading pattern when applying 10 t/ha of livestock manure



Settings
3rd trial (two optimisations necessary)
Feed: 0.8 metres per minute
Foreign body flap: 35 mm/scraper bar position: bottom
Position of spreading vanes per spreading disc: 6x middle holech

Figure 8:
Coefficient of variation depending on the working width when spreading 10 t/ha of livestock manure

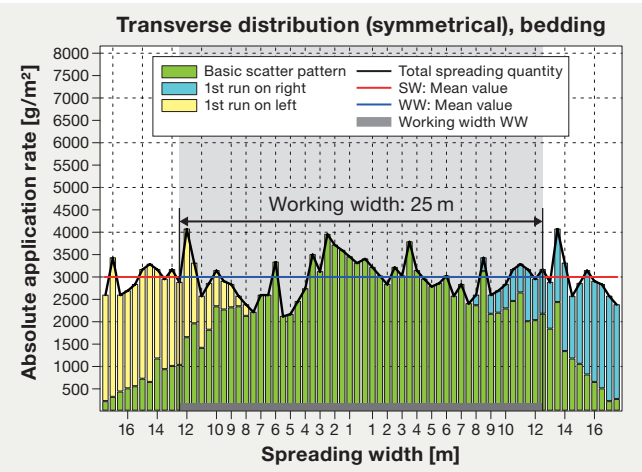


Figure 9:
Basic and overall spreading pattern when applying 30 t/ha of livestock manure

Transverse and longitudinal distribution with livestock manure

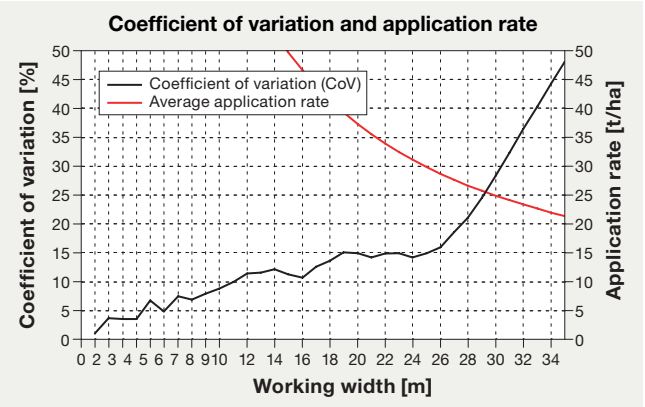
For an application rate of 10 t/ha, at a driving speed of 5.0 km/h, as well as other setting parameters and material properties, the automatic ISOBUS-controlled application rate control regulated a feed rate of approx. 0.8 m/min. In the third test, a spreading quality with a coefficient of variation (CoV) of less than 20 % was achieved at working widths of up to 17 metres.

Figure 7 shows the basic spreading pattern (quantity distribution after four passes) and the overall spreading pattern (quantity distribution taking overlaps into account) for an application rate of 10 t/ha of livestock manure.

Figure 8 shows the dependence of the coefficient of variation on the working width for an application rate of 10 t/ha of livestock manure. The CoV curve shows that the CoV has a value of 8.6 % (very good, ++) at a working width of 14 metres. For a working width of 15 metres, the CoV has a value of 11.8 % (good, +). At 17 metres, the coefficient of variation exceeds the 20 % line.

For an application rate of 30 t/ha, at a driving speed of 3.0 km/h, as well as other setting parameters and material properties, the automatic ISOBUS-controlled application rate control regulated a feed rate of approx. 1.5 m/min. On the third attempt, a spreading quality with a coefficient of variation (CoV) of less than 20 % was achieved at a working width of 27 metres.

Figure 9 shows the basic spreading pattern (quantity distribution after two passes) and the overall spread-



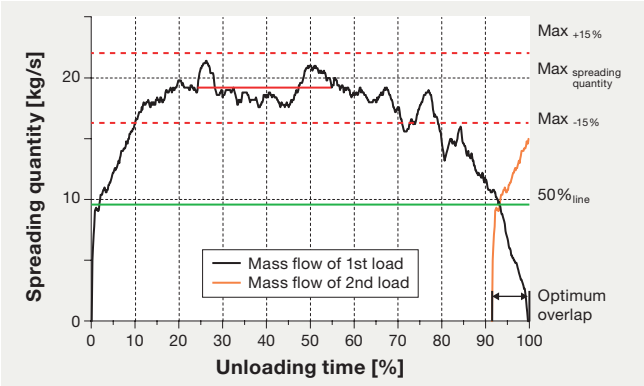
Settings
3rd trial (two optimisations necessary)
Feed: 1.5 metres per minute
Foreign body flap: 35 mm/scraper bar position: bottom
Position of spreading vanes per spreading disc: 6x middle hole

Figure 10:
Coefficient of variation depending on the working width when spreading 30 t/ha of livestock manure

ing pattern (quantity distribution taking overlaps into account) for an application rate of 30 t/ha of livestock manure. Figure 10 shows the dependence of the coefficient of variation on the working width for an application rate of 30 t/ha of livestock manure. The CoV curve shows that the CoV has a value of 10 % (very good, ++) at a working width of 11 metres. For a working width of 25 metres, the CoV has a value of 14.4 % (good, +). Only at 27 metres does the coefficient of variation exceed the 20 % line.

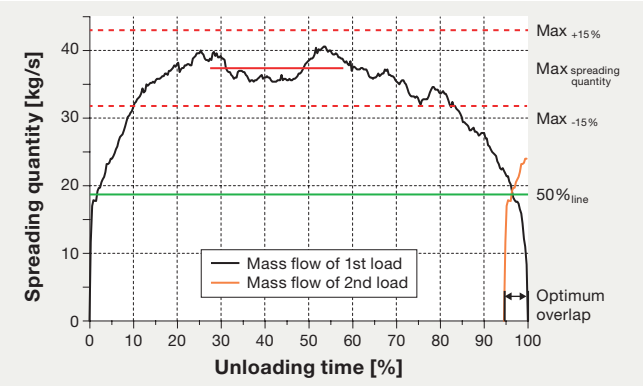
To evaluate the distribution quality in the longitudinal direction, the calculated coefficients of variation reach values of 11.8 % for 10 t/ha of livestock manure (good, +) and 11.6 % for 30 t/ha of livestock manure (good, +). The dilation within the tolerance zone was 66.8 % (good, +) for 10 t/ha of livestock manure and 72.9 % (good, +) for 30 t/ha of livestock manure.

Figures 11 and 12 show the results for longitudinal distribution.



2nd trial (one optimisation necessary)
Constant spreading quantity: 19.2 kg/s
Dilation within tolerance zone: 66.8 % (good, +)
CoV with optimum overlap: 11.8 % (good, +)
Optimum overlap for 50 % line: 8.5 %

Figure 11:
Longitudinal distribution with livestock manure (10 t/ha)



2nd trial (one optimisation necessary)
Constant spreading quantity: 37.4 kg/s
Dilation within tolerance zone: 72.9 % (good, +)
CoV with optimum overlap: 11.6 % (good, +)
Optimum overlap for 50 % line: 5.4 %

Figure 12:
Longitudinal distribution with livestock manure (30 t/ha)

Summary

In the DLG test, the BRANTNER TA 24078 POWER-SPREAD pro Universal Spreader with CSP2-2 Universal Spreading Unit was tested for spreading livestock manure (10 and 30 t/ha). The coefficients of variation determined for the evaluation of the transverse distribution are all below 20 %. The transverse distribution of 10 t/ha of livestock manure is rated as very good (++) with a working width of 14 metres and good (+) with a working width of 15 metres. The transverse distribution for a application rate of 30 t/ha of livestock manure and the corresponding working width of 11 metres is rated as very good (++) and with a working width of 25 metres as good (+).

The results achieved in the DLG test for longitudinal distribution with livestock manure for application rates of 10 and 30 t/ha were rated as good (+) without exception. For an application rate of 10 t/ha, the dilation within the tolerance zone is 66.8 % (good, +) and the coefficient of variation with optimal overlap is 11.8 % (good, +). For an application rate of 30 t/ha, the dilation within the tolerance zone is 72.9 % (good, +) and the coefficient of variation with optimal overlap is 11.6 % (good, +).

Information on the basic settings depending on the spreading material and the desired spreading quantity can be found in the operating manual. Due to the very different material properties of the various spreading materials, it is advisable to check the spreader settings during a test run and optimise them if necessary.

Based on the available results, the BRANTNER TA 24078 POWER-SPREAD pro Universal Spreader with CSP2-2 Universal Spreading Unit is awarded the DLG-APPROVED test mark for the 2025 sub-test “Livestock Manure Distribution Quality“.

Further information

Testing agency

DLG TestService GmbH,
Gross-Umstadt location, Germany

The tests are conducted on behalf of DLG e.V.

DLG test framework

Spreaders for solid farm and secondary raw material fertilisers (as of 05/2020)

Members of the responsible DLG Technical Committee "Fertilisation Technology"

Prof. Nils Fölster, Hochschule Osnabrück (Osnabrück University of Applied Sciences)

Dr. Harm Drücker, Landwirtschaftskammer-Niedersachsen (Lower Saxony Chamber of Agriculture)

Dr. Horst Cielejewski, Landwirtschaftskammer Nordrhein-Westfalen (Chamber of Agriculture of North Rhine-Westphalia)

Dr. Fabian Lichti, Landesanstalt für Landwirtschaft Bayern (Bavarian State Research Institute for Agriculture)

Peter Seeger (Farmer), Otzberg, Germany

Frank Reith (Farmer), Groß-Umstadt, Germany

Sven Schneider (Farmer and Contractor), Brensbach, Germany

Department

Homologation

Department Chairman

Dipl.-Ing. Heinrich Wilking

Test Engineer(s)

Dipl.-Ing. agr. Georg Horst Schuchmann*

* Author

DLG. An open network and professional voice.

Founded in 1885 by the German engineer Max Eyth, DLG (Deutsche Landwirtschafts-Gesellschaft – German Agricultural Society) is an expert organisation in the fields of agriculture, agribusiness and the food sector. Its mission is to promote progress through the transfer of knowledge, quality standards and technology. As such, DLG is an open network and acts as the professional voice of the agricultural, agribusiness and food sectors.

As one of the leading organisations in the agricultural and food market, DLG organises international trade fairs and events in the specialist areas of crop production, animal husbandry, machinery and equipment for farming and forestry work as well as energy supply and food technology. DLG's quality tests for food, agricultural equipment and farm inputs are highly acclaimed around the world.

For more than 130 years, our mission has also been to promote dialogue between academia, farmers and the general public across disciplines and national borders. As an open and independent organisation, our network of experts collaborate with farmers, academics, consultants, policymakers and specialists in administration in the development of future-proof solutions for the challenges facing the agriculture and the food industry.

Leaders in the testing of agricultural equipment and input products

The DLG Test Center Technology and Farm Inputs and its test methods, test profiles and quality seals hold a leading position in testing and certifying equipment and inputs for the agricultural industry. Our test methods and test profiles are developed by an independent and impartial commission to simulate in-field applications of the products. All tests are carried out using state-of-the-art measuring and test methods applying also international standards.

Internal test code DLG: 2406-0020

DLG TestService GmbH
Groß-Umstadt location
Max-Eyth-Weg 1 • 64823 Groß-Umstadt • Germany
Phone +49 69 24788-600 • Fax +49 69 24788-690
Tech@DLG.org • www.DLG.org

All DLG test reports are available for download free of charge at: www.DLG-Test.de