

 **veenhuis**

CORPORATE  
BROCHURE



# Manure Matters



# ARABLE INJECTORS

The Veenhuis range of arable injectors comprises four series of high-quality machines for professional users who value efficient manure application and good tillage. The different versions provide a matching solution for any user's needs. These injectors stand out through 60-mm outlets, heavy vibration tines and a robust design.

## TERRAJECT 200

Two rows of tines  
maximum working width:  
6.50 metres



## TERRAJECT 300

Three rows of tines  
maximum working width:  
8.12 metres



## TERRAJECT 400

Four rows of tines  
maximum working width:  
6.44 metres



## TERRAJECT DISC

Two rows of discs  
maximum working width:  
6.00 metres





## FEATURES

- ⊕ For trailed tanks
- ⊕ Available in four working widths: 4.72/5.31/5.90 and 6.49 metres
- ⊕ Available as a 6-metre row version (8 rows at 75 cm each)
- ⊕ With two rows of vibration tines and wear-resistant chisels
- ⊕ Continuously variable wheels

# TERRAJECT 200

The Veenhuis Terraject 200 was developed for injecting manure into arable fields.

This machine is suitable for all types of soils and is ideal for trailed tanks. Its special spring tines ensure that the machine only requires very little tractive force.

The injector features continuously variable wheels with pneumatic tyres for setting the correct working depth.

## OPTIONS

- ⊕ Various tool attachment options
- ⊕ Quick-coupling system
- ⊕ Multifaster
- ⊕ Tow hook
- ⊕ Pneumatic drip stop
- ⊕ Section control and section control via GPS/RTK
- ⊕ Steps and platform







## FEATURES

- ⊕ For trailed and self-propelled tanks
- ⊕ Available in three working widths: 6.96/7.54 and 8.12 metres
- ⊕ Available in a 7.50-metre row version (10 rows spaced 75 cm apart)
- ⊕ With three rows of vibration tines and wear-resistant chisels
- ⊕ Continuously variable wheels
- ⊕ Range of options

## OPTIONS

- ⊕ Various tool attachment options
- ⊕ Quick-coupling system
- ⊕ Multifaster
- ⊕ Tow hook
- ⊕ Pneumatic drip stop, divided into sections
- ⊕ Section control and section control via GPS/RTK
- ⊕ Steps and platform

# TERRAJECT 300

The Veenhuis Terraject 300 injector is a robust, wide arable injectors.

The Terraject 300 is available in working widths from 6.96 to 8.12 metres and therefore Veenhuis' widest arable injectors. The Terraject 300 features three rows of vibration tines with wear-resistant chisels for applying manure and tilling the soil in a single pass. The working depth is continuously variable.







## FEATURES

- ⊕ For larger trailed and self-propelled tanks
- ⊕ Available in three working widths: 5.32/5.88 and 6.44 metres
- ⊕ With four rows of vibration tines and wear-resistant chisels
- ⊕ Continuously variable wheels

# TERRAJECT 400

The Veenhuis Terraject 400 injector is a robust, wide arable injector with four rows of tines.

This is the ideal machine for professional contractors and for attachment to heavy and self-propelled tanks. The adjustable spring tines and chisels, and the continuously variable working depth ensure optimal performance under any conditions.

## OPTIONS

- ⊕ Various tool attachment options
- ⊕ Quick-coupling system
- ⊕ Multifaster
- ⊕ Tow hook
- ⊕ Pneumatic drip stop
- ⊕ Section control and section control via GPS/RTK
- ⊕ Steps and platform







## FEATURES

- ⊕ Two rows of serrated discs
- ⊕ Available in working widths of 4, 5 and 6 metres
- ⊕ Perfect tillage
- ⊕ Maintenance-free bearings
- ⊕ Optimal hose routing
- ⊕ Height-adjustable wheels

# TERRAJECT DISC

The Terraject Disc is a disc harrow which cuts stubble, turns soil and spreads manure in a single pass.

The disc harrow features two rows of serrated discs. The height of the four steel wheels can be adjusted via a pivot. With its compact design and low weight, the Terraject Disc is ideal for trailed and self-propelled tanks. The adjustable outlets in front of the first row of discs allow manure to be spread at various sites to ensure that it is optimally applied.

## OPTIONS

- ⊕ Various tool attachment options
- ⊕ Quick-coupling system
- ⊕ Multifaster
- ⊕ Pneumatic drip stop
- ⊕ Section control and section control via GPS/RTK
- ⊕ Steps and platform





# TOOL ATTACHMENTS

## Tine harrow

A tine harrow can be optionally installed. Tine harrows have a lightweight design and are used to level soils. When working on stubble fields, the spindles can be turned in to fold the tine harrow up. Tine harrows are suitable for both light and heavy soils. Injector depth is adjusted via the wheels.



## Drag tines

Drag tines can be optionally installed. Drag tines have a lightweight design and are used to level soils. When working on stubble fields, drag tines can be turned in to fold the toothed harrow up.



## Crumbler roller

A crumbler roller can be optionally installed. Crumbler rollers are used to break down large clumps of soil. The diagonal roller arrangement ensures smooth operation without blockages. The soil is levelled at the same time. Crumbler rollers are suitable for both light and heavy soils and can be adjusted independently of the set fertilisation depth.



## Bar roller

A bar roller can be optionally installed. The injector's working depth is adjusted via the bar roller. The bar roller for the Terraject 200 is available with a diameter of 450 mm. The Terraject 300 and 400 have a bar roller with a diameter of 620 mm. A bar roller can also be installed on a Terraject Disc. Bar rollers are used to crumble soils and at the same time reconsolidate it lightly. Their spiral design ensures smooth operation and prevents blockages.





# COMPONENTS

## GENERAL



### Optimum slurry spreading

The domed lid and central supply on Veenhuis macerators ensure an optimal flow of slurry, where the manure is guided through specially shaped openings to create a reliably even flow across the entire width.



### High shredding quality

The manure is shredded at an angle in the macerator. The D-shaped openings, rotating knives and 60-mm outlets are highly effective in preventing blockages. Additional knives can be installed to ensure even better dosage at various application rates. The rotating movement keeps the knives sharp at all times, and the pressure can be adjusted quickly and easily via a central pressure regulator.



### DLG-certified

The Veenhuis macerator guarantees optimal distribution across the full machine width. The DLG has measured its distribution at various application rates and with different types of manure. The result was consistently outstanding distribution, which was awarded a ++ rating.



### No mixing of oil and liquid manure

The separate seal rings in the macerator gearbox prevent any mixing of manure and oil. A leakage channel is provided to ensure that any leakage resulting from damage to either seal is quickly detected.



# COMPONENTS

## ARABLE INJECTORS

### Spring tines

Veenhuis uses special spring tines or vibration tines for its injectors. The powerful oscillating movement of vibration tines not only ensures that they require substantially less tractive force, but also results in effective breaking down and mixing of the soil. This type of tines has a natural breaking force, which is limited by the spring. The shallow chisel angle results in more soil being lifted onto the chisel, which ensures both good manure injection and thorough tillage.



### Terraject Disc coulters

Veenhuis uses coarsely serrated disc coulters with a diameter of 510 mm. The size of the disc serrations corresponds to the natural diameter. Larger discs therefore have larger serrations to incorporate greater volumes of plant material. The coarse serration additionally breaks soils better in heavy conditions. Veenhuis has the bearing on the concave side of the discs to prevent blockages in heavy and sticky soils.



### Terraject Disc rubber outlets

The Veenhuis rubber outlets are also used in Terraject Disc machines. The outlets are shaped to ensure that manure is deposited very narrowly towards the rear to prevent panning in front of the injector. The serrated disc then places this narrow manure strip inside the cut created by the adjacent disc. This design guarantees optimal manure incorporation. The flexible rubber material additionally ensures that any stubble residue passes easily through the machine, again effectively preventing blockages.



### Hose routing

Veenhuis positions hoses on top of manure injectors so that they always drain and can be drained. This prevents both blockages and negative pressure developing in the hoses. Solid support is provided as required to maximise hose durability and absorb vibrations appropriately.





# Manure

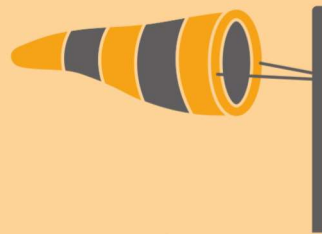
Radiation from the sun



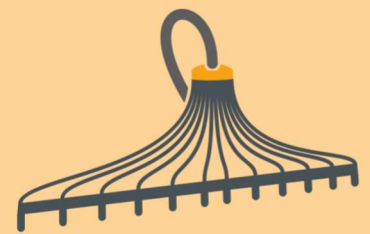
Moisture



Wind



Dosage characteristics



## N loss with various application techniques



### Splash plate

- ◆ **Approx. 70% N losses**
- ◆ Reduced nutrient utilisation, as solid manure components grow upwards with crops
- ◆ Limited uptake with grazing and from silage
- ◆ High risk of burning



### Drag hose

- ◆ **Approx. 40% N losses**
- ◆ Reduced nutrient utilisation, as solid manure components grow upwards with crops
- ◆ Crop losses, again as solid manure components grow upwards
- ◆ Limited uptake with grazing and from silage
- ◆ Risk of burning



### Trailing shoe spreader

- ◆ **Approx. 30% N losses**
- ◆ With thicker slurry, there is still a risk of silage contamination and lower uptake with grazing
- ◆ Crop losses
- ◆ Risk of burning



### Manure injector

- ◆ **Approx. 10% N losses**
- ◆ No loss of crops and maximum uptake of nutrients from manure
- ◆ Maximum uptake with grazing and no manure residue in silage
- ◆ No burning



### Arable injector

- ◆ **Approx. 10% N losses**
- ◆ Maximum uptake of nutrients from manure
- ◆ Direct injection and good tillage
- ◆ Minimal losses with longer intervals between fertilisation and sowing

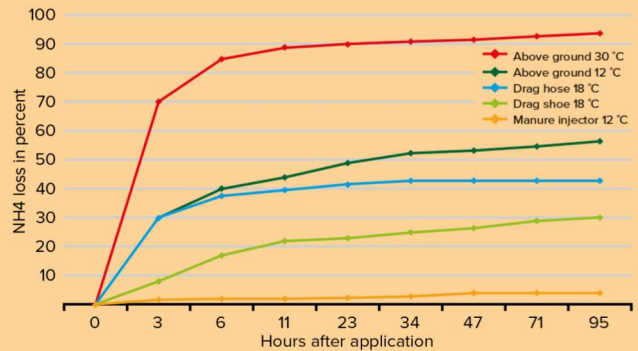


# Matters

Animal manure and digestate contain important nutrients and are therefore not waste products, but instead high-quality fertilisers. Veenhuis injectors are designed to ensure that valuable nutrients are properly incorporated into the soil so that they ultimately reach the plants. This results in improved growth and higher crop quality. Nitrogen (N), phosphate (P), potassium (K) and magnesium (Mg) are the most important nutrients contained in manure, although nitrogen can evaporate.

Evaporation processes, and with them nitrogen emissions, are influenced by both temperature and weather conditions. As Veenhuis injectors minimise the contact surface between manure and the environment, this approach to manure spreading delivers maximal utilisation of this valuable mineral.

NH4 loss with field application relative to temperature and application method



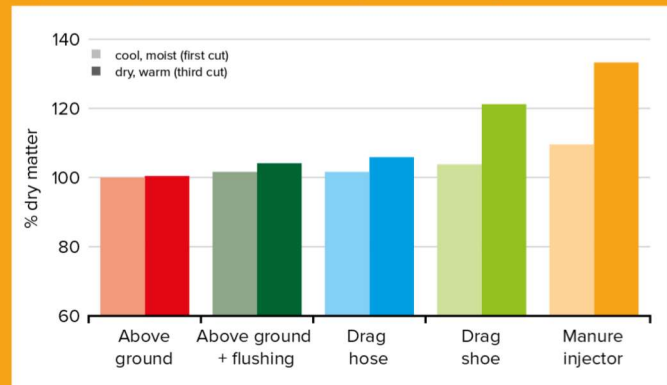
Source: Lorenz & Steffens, 1996

## And how about yields?

Modern technologies not only allow emissions to be avoided, but also boost yields. The higher the temperature, the greater the yield. This produces an increased dry matter content and boosts the utilisation of nitrogen and other nutrients.

- ◆ Less use of artificial fertiliser
- ◆ No contamination of grass or silage
- ◆ Better crop quality
- ◆ Higher dry matter content and more cuts

Dry matter yield after manure application to grassland

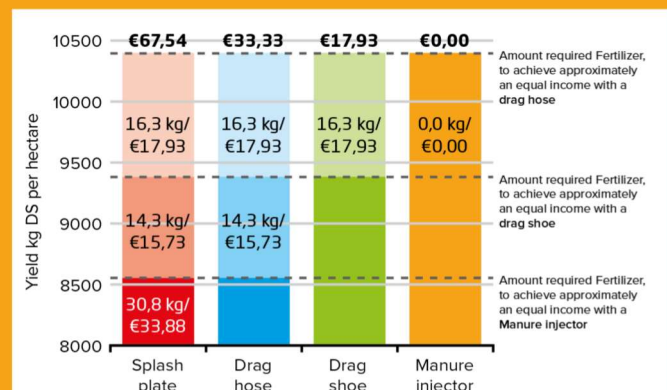


	Yield in kg DM/ha	Yield increase compared to baffle plates (kg DM/ha)	Yield increase compared to baffle plates (%)	Profit from yield increase in kg DM/ha (€0.24/kg)
Splash plate	8,000	n/a	n/a	n/a
Drag hose	8,640	640	8%	€ 154
Drag shoe	9,600	1600	20%	€ 384
Manure injector	10,400	2400	30 %	€ 576

Source: Lorenz & Steffens, 1996

## Where are the savings?

Injecting manure with a Veenhuis injector maximises the utilisation of the nutrients contained in manure. Compared to drag hose and trailing shoe systems, Veenhuis injectors deliver substantial savings in the use of artificial fertiliser. Depending on the technology used, investments of €17.93 to €67.54 are required per hectare to achieve the same results per hectare as with an injector.





# EFFECTIVE FERTIL WITH AN EUROJECT PRO ON

Veenhuis Euroject Pro manure spreaders are excellent for fertilising cereal fields. For many years, the Euroject Pro has been a popular choice for farmers and contractors due to its hydraulic parallelogram system and design with a three-part disc. As the hydraulic cylinders for the various parallelograms are connected with each other, the same pressure is applied to each element. This is important, as it ensures that manure is deposited accurately in the soil across the full working width. The three-part disc prevents blockages and is self-cleaning, even in sticky soils. For loose soils, a load relief function is recommended for relieving the linkage of the trailed or self-propelling tank. This allows the working depth to be set to any level you require.

## Practical example: fertilising an oat field with a Veenhuis Euroject Pro spreader



### 7 May: Fertiliser application

The left part of an oat field was fertilised with a Veenhuis Euroject Pro spreader. At the same time, the right side of the field was fertilised with a splash plate spreader. The same dosage was applied through both systems, and the pass across the field was done randomly so that effects on crop damage could be assessed.



### 8 June: Assessment

One month after the manure had been applied, the crop fertilised with the Veenhuis Euroject Pro spreader had a much greener colour than that fertilised using a splash plate spreader. Also, the crop fertilised with the Veenhuis Euroject Pro was considerably taller. This is the result of improved and more efficient uptake of nitrogen from the fertiliser. No crop losses due to damage to plants was observed.

# Manure



# ISATION

## A CEREAL FIELD



### 8 June: Assessment of leaf and plant growth

The picture on the left shows the leaf and plant growth after fertilisation with a Veenhuis Euroject Pro spreader. The picture on the right shows the leaf and plant growth after fertilisation with a splash plate spreader. It is clearly evident that both plant density and leaf size developed further and better after fertilisation with a Veenhuis Euroject Pro spreader, even after a short period of time. This is the positive outcome of more efficient nitrogen uptake.



### 8 June: Assessment of weed growth

The picture on the left shows the leaf and plant growth after fertilisation with a Veenhuis Euroject Pro spreader. The picture on the right shows the leaf and plant growth after fertilisation with a splash plate spreader. Fertilisation with the Veenhuis Euroject Pro resulted in greater plant density, leaf size and plant growth, even after a short period of time. As a result, less sunlight reaches the soil and weed growth is effectively suppressed.

# Matters