



## AQUA NON STOP COMFORT

Sharpen knives fully automatically to ensure top forage quality.

**CLAAS** | | | | |

# The genuine fully automatic unit.

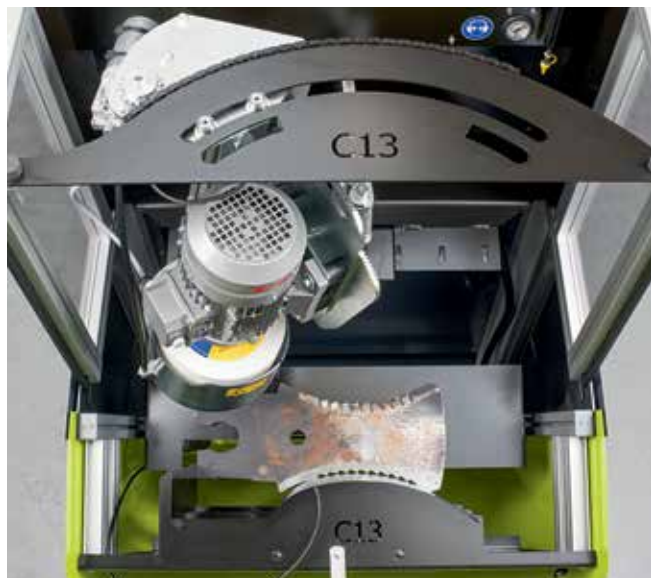
Wet grinding following the precise contour of the knife.

You need sharp knives for top forage quality. The AQUA NON STOP COMFORT knife grinder ensures consistently sharp knives – fully automatically for up to 51 knives.

More than 90 templates guarantee precise grinding along the contours of knives from virtually every manufacturer, and even allow you to sharpen straight blades.

A grinding emulsion in a sealed circuit ensures perfect wet grinding, in which the knives lose virtually nothing of their hardness grade and still deliver perfect chop quality, even after repeated sharpening.

The unit is easy and convenient to operate. Complex adjustment procedures are unnecessary, with extremely short set-up times and no need for any manual intervention. This save you time, which you can then devote to the more important tasks on your farm.









Professional knife grinding for top chop quality.







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# The evolution of knife grinding.



1

2



## Flex/belt grinder

Fully manual dry grinding – grinding "without a concept".



## Manual grinding unit

Slightly machine-aided dry grinding – time-consuming, no consistent grinding results.



3



**Semi-automatic**

Machine-aided wet grinding – a first step in the right direction.



4



**Fully automatic**

Completely automatic wet grinding with grinding emulsion – fast, professional, and of consistently high quality.



# Principles of correct knife grinding.



## Regular grinding for top silage quality.

To achieve high-quality forage, the knives in loader wagons and balers need to be sharpened properly, and, more importantly, regularly. What's more, sharp knives reduce fuel consumption, and reduce the strain on the machine's drive train, thereby increasing throughput.

A huge amount of time is required with manual grinding units. In addition, as the number of knives increases, there is a rapid decline in the sharpening quality, generally as a result of

human fatigue. Sharpening without grinding emulsion also puts a much greater strain on both the unit and the knives than is the case with wet grinding.

The fully automatic AQUA NON STOP COMFORT uses a wet grinding process and ensures a consistently good grinding pattern that follows the contour of the knives exactly, and without any operator control needed. This allows you to get other work done during the grinding process.



A perfect cutting edge, thanks to the right grinding angle.

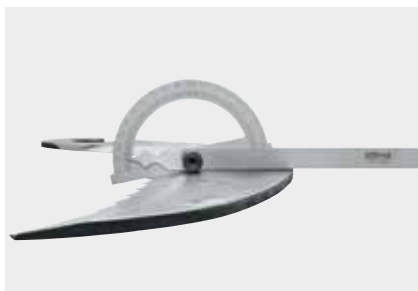
A constant grinding angle of approx. 10° to 12° over the entire service life of the knife is crucial for ensuring the ideal form of the scallop pattern. Only in this way can a high-quality grind be achieved, protecting the drive train while still achieving maximum crop throughput.

With the fully automatic AQUA NON STOP COMFORT, this grinding angle is constantly maintained over the knife's entire service life.

New knife: ideal form for the scallop pattern.

Properly sharpened knife: ideal, sharply defined scallop pattern.

Incorrectly sharpened knife: less defined scallop pattern.



New knife: angle approx. 10°.

Properly sharpened knife: angle approx. 10°.

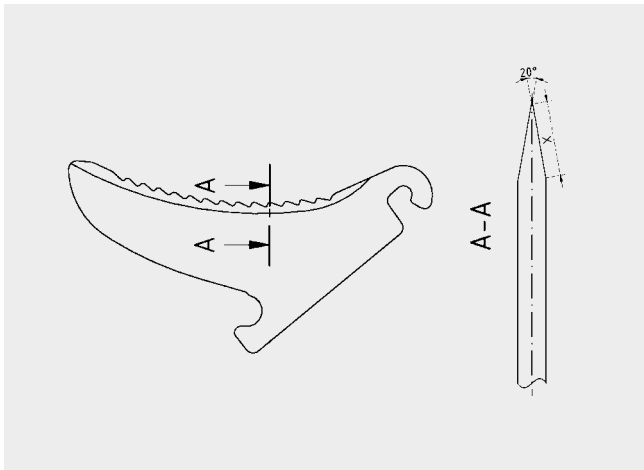
Incorrectly sharpened knife: angle approx. 22°.

The correct grinding angle determines the grinding amount.

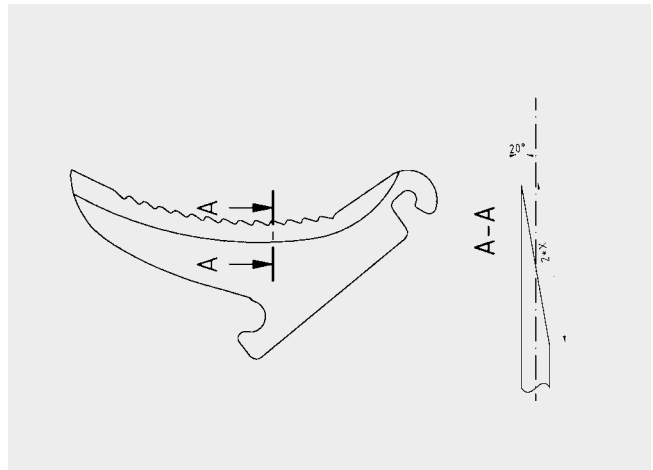
With a grinding angle of 10° to 12°, which is critical for the sharpening quality, a very large amount of abraded material needs to be taken off, especially in the "shoulder" area of the knife. The area to be sharpened doubles in size over the service life of the knife, which makes it almost impossible to sharpen using a manual grinding unit with dry grinding. This is where tools are required with special qualities that manual grinding units do not possess – for example, a cup grinding wheel made from crystalline material.

**Sample calculation:**

Number of knives (loader wagon)	45
Weight of new knife	1.6 kg
Weight of knife with max. wear	1.1 kg
Abraded material per knife	0.5 kg
Abraded material per set (45 knives):	
$45 * 0.5 \text{ kg} =$	22.5 kg



New knife: area to be sharpened = x.



Knife sharpened to the max. abrasion limit: area to be sharpened = 2 x.



New knife: 1.6 kg.



Knife sharpened to the max. abrasion limit: 1.1 kg.



## Radius versus knife contour.

For a long time, it was possible to sharpen the knife only along the radius. Depending on the shape of the particular knife, this meant that only specific areas of the blade could be sharpened, and the actual shape of the knife was increasingly lost from one sharpening process to the next. This resulted in both a shorter service life for the knife and poorer chop quality.

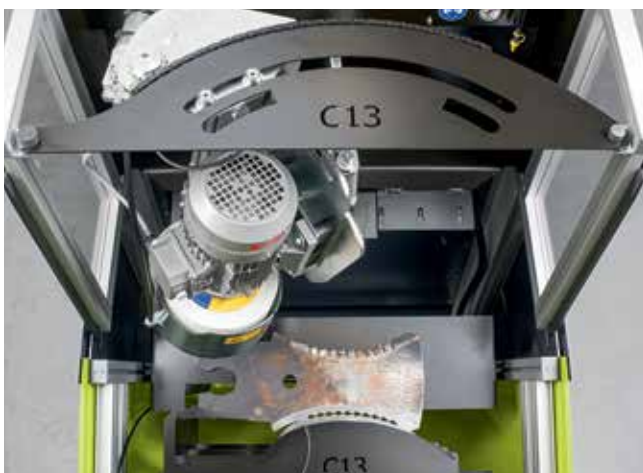
With AQUA NON STOP COMFORT, you can now sharpen the knives precisely along the original knife contour. There are a variety of templates for virtually every type of knife. The sharpening stone can therefore follow the knife contour precisely, and the original shape of the knife is left intact. For the first time, this also permits exact sharpening of straight knife blades.



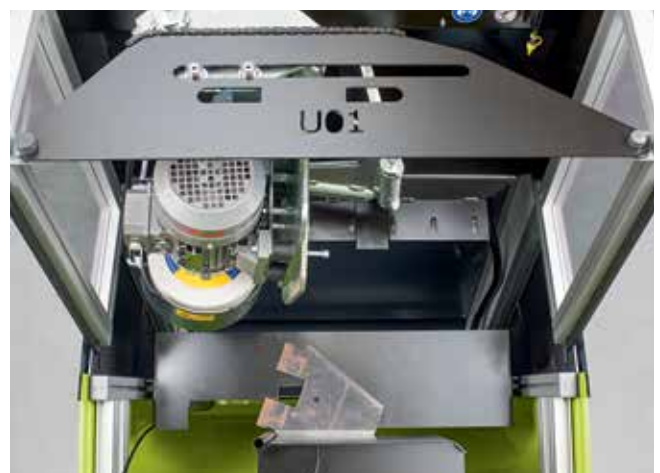
Knife with curved cut edge.



Knife with straight cut edge.



Sharpening of curved knives along the original knife contour.



Sharpening of straight knives along the original knife contour.

## Dry versus wet grinding.

Dry grinding does not use water or emulsion. The heat action changes the knife's steel lattice structure, and it loses its hardness grade. This means that the knife's service life is ultimately shortened and the chop quality is reduced.

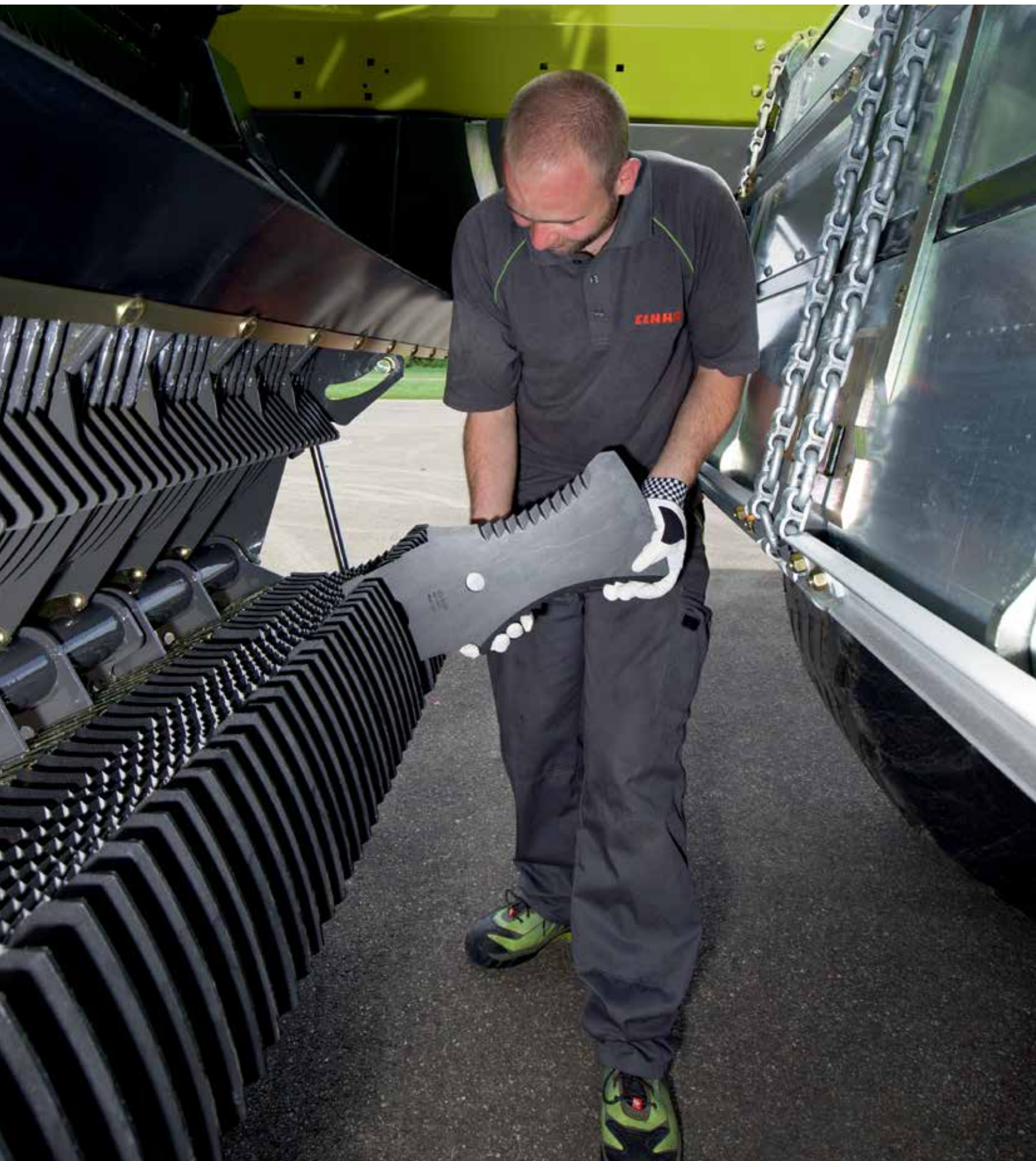
With wet grinding, on the other hand, liquid is sprayed onto the cut edge during grinding so that heat can be dissipated during the sharpening process. The hardness grade therefore remains virtually unaltered.

If clean water is used, it can easily corrode the knife and the grinding unit. To avoid this, a special cooling lubricant emulsion should be used.

AQUA NON STOP COMFORT needs to be filled only once at the start of the season with cooling lubricant emulsion, and if used properly can then be operated throughout the season.







# AQUA NON STOP COMFORT – the modern way to sharpen.



The only fully automatic knife grinding unit.

AQUA NON STOP COMFORT leaves you time for important tasks. The fully automatic unit gets on with sharpening your knives, leaving you free to concentrate on other work.

For example, with a magazine size designed for 51 blades, you can insert the entire knife set for a baler (CLAAS QUADRANT FC) in one go.

There are over 90 templates available for exact grinding along the contour of knives from virtually every manufacturer, and you can even sharpen straight knife blades as well.

Grinding emulsion ensures perfect wet grinding, during which the knife loses nothing of its hardness grade, and still gives a perfect chop quality even after repeated sharpening.

It is extremely simple to operate. Complex setting operations are no longer necessary, set-up times are extremely short and no manual intervention is required.



### The potential savings for you:

- Lower fuel consumption, thanks to constantly sharp knives
- Reduced knife wear through longer service life of knives
- The load on the entire drive train is reduced by having perfectly sharpened knives
- Higher throughput and greater area output

### The benefits for you:

- Flexible use from the ability to convert to different knife types
- Wet grinding with cooling lubricant emulsion ensures perfect heat dissipation and protection against corrosion
- Sharpening for a full set of knives is carried out fully automatically



### Sealed coolant circuit with wet grinding.

With the wet grinding principle, the knives retain their hardness grade and enjoy a longer service life. A cooling lubricant emulsion consisting of water and cooling lubricant is sprayed directly from a jet onto the grinding point between the cup wheel and the grinding surface.

This is the only way to ensure optimal cooling and allow the abraded material to run into the chip drawer along with the cooling lubricant. CLAAS supplies the cooling lubricant

CLAAS AGRIGRIND COOLTEC, which has been specially developed for the AQUA NON STOP COMFORT, and also CLAAS AGRIGRIND GUIDETEC slideway oil to lubricate the unit.



Universally applicable for virtually every manufacturer.



More than 90 templates.

You can sharpen knives from virtually every manufacturer with AQUA NON STOP COMFORT. An outstanding feature of the fully automatic unit is conversion without tools in a negligible set-up time. The knives can be inserted exactly into the knife drawer provided – it is almost impossible to insert them "incorrectly". The templates allow the grinding stone to follow the knife contour exactly. This ensures that the original

contour of the knife is maintained and the service life extended. The result: perfect chop quality.

The templates can be changed in less than a minute without tools.



### Simple to operate.

Settings can be made intuitively at the ergonomically designed control terminal, where the machine is switched off and on (in an emergency using the emergency stop switch), and the number of grinding cycles selected. The grinding pressure can be adjusted for different conditions using the rotary knob and the setting displayed on a pressure gauge. There are also diagnosis functions available for the service technician.



### High technology at the highest level.

Compressed air is used to control the fully automatic unit. Operation of the lift table and grinding motor, and the picking of the knives is pneumatic. Various sensor and switches are used to control the sequence and guarantee operating safety. All processes and procedures are monitored and can be queried with a sensor scan for diagnosis purposes.



### Fully automatic.

The knives are removed automatically. A safety switch ensures that the sharpened knives can be removed safely. The knife drawer has enough room for the full set of knives.



### Work tidily and efficiently.

The abraded material is collected in a chip drawer. Two steps ensure the chips are separated reliably, so that the ambient air remains completely free of grinding dust. The chip drawer can be emptied at any time.



# In comparison.



## AQUA NON STOP COMFORT versus manual grinding unit.

"In addition to the immediately obvious benefits of the fully automatic AQUA NON STOP COMFORT, which are primarily reflected in time savings and the consistently good grinding results, additional major benefits are confirmed by our practical test.

Only with the fully automatic AQUA NON STOP COMFORT is it possible to consistently sharpen the knife using the correct angle (10–12°) over its entire service life.

In addition, we achieve consistently good forage quality with knives that are sharpened regularly, and therefore always cut well. Using a manual unit, with the laborious grinding process, an operator quickly loses interest. This affects sharpening frequency, attention to detail and the quality of the grinding process."

Hermann Thomsen, Chamber of Agriculture, Schleswig-Holstein.



Landwirtschafts-  
kammer  
Schleswig-Holstein

**Test conditions:**

- Schleswig-Holstein, Germany
- Contractor Jörg Dreessen
- 2 CLAAS CARGOS 9400
- 1,400 ha
- Grass harvest: 4 cuts, May–October
- Knife sharpened: AQUA NON STOP COMFORT versus manual grinding unit
- Test performed by Landwirtschaftskammer Schleswig-Holstein

**A clean cut for improved forage quality.**

Working with blunt knives not only requires greater power, but also has a demonstrable negative effect on forage quality.

It is clear from the cut edge of the forage that, if the knives are blunt, the grass is ripped out rather than chopped cleanly. As a result, compression in the loader wagon and in the silage clamp is badly affected.



Grass cut with blunt knives.

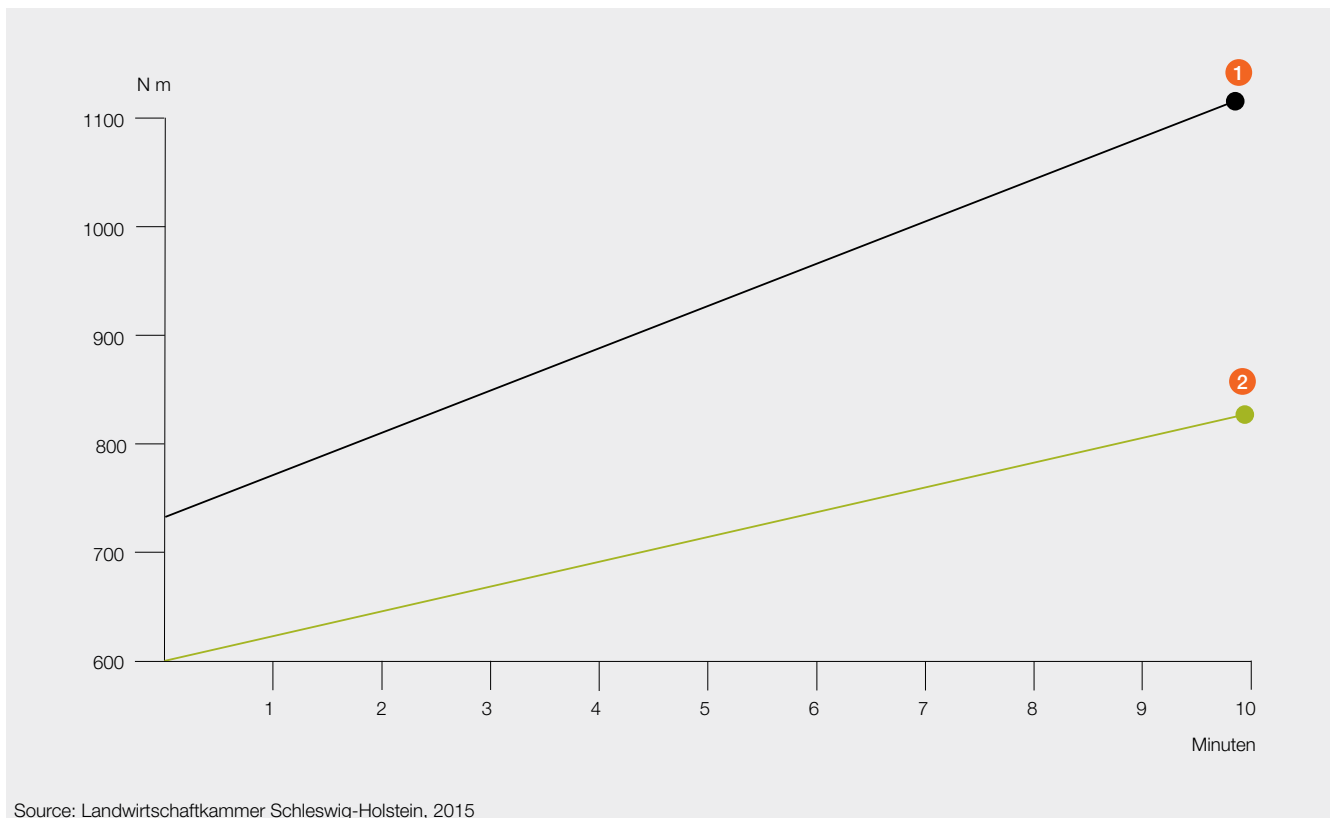


Grass cut with sharp knives.



Having the right grinding angle means less power is required.

The power requirement in a loader wagon is much lower if correctly sharpened knives (10°) are used rather than incorrectly sharpened ones (22°). The result is a reduction in fuel consumption. Average daily fuel savings in the test with correctly sharpened knives came to approx. 7 litres per hour.



Knife with the wrong grinding angle (22°), sharpened with a manual grinding unit.



Knife with the correct grinding angle (10°), sharpened with AQUA NON STOP COMFORT.





Customer opinions.





"Sharpening knives is now a lot of fun,  
and I'm really impressed with the grinding  
results."

Stefan Dülmer, aged 41, contractor.



Customer opinions.







"A genuine fully automatic unit that allows me to devote my time to other jobs."

Franz Rathmer, aged 47, contractor.



Whatever it takes –  
CLAAS Service & Parts.











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