BBU Seco Duplex 800 F

Environmentally friendly at full width

A butterfly mower as a front attachment provides unbeatable visibility. Also, the handling is first class, as all three cutter bars are located on the steering axle. However, every system also has its weaknesses.

From Johannes PAAR, Chief editor LANDWIRT

The bees and the neighbours would opt for an "Eco-mower" with dual blade technology. Why? – It protects the entire meadow fauna and works much quieter than a disc or drum mower. The slower driving speed and the lower engine speed also reduce the stress for the driver. On the other hand, more concentration is required from the driver, as the cutter bars are not visible in tall grass, they clog more easily and the entire technology is more sensitive.

Three years ago we tested a double blade mower combination from BB Umwelttechnik (BBU) for the first time. At that time, however, in the detached design as a front/rear combination. Some of the weaknesses criticised at first have since been resolved by the manufacturer. More on that later.

The basic advantages of this mowing system were again confirmed in this test. Double blade mowers are superior to rotary mowers in many ways: With a comparable working width, they are two thirds lighter and function with about one fifth of the drive power. Therefore, small three or four cylinder tractors with less than 100 hp can be used. The Lindner Geotrac 74ep (76 hp) we used worked well even on steep slopes with this butterfly mower weighing around 900 kg. On our test run, the steep areas were softened by rain in the spring and were hardly passable. Famers are able to mow earlier with this light mowing combination rather than with heavy disc mowers. Due to the large working width only every third track is run over by the tractor

The "Double blade butterfly" is about two thirds lighter than rotary mowers and about one fifth of the drive power is sufficient.

The mown grass dries - without tedding and ideally without turning - much faster and more evenly. The result is clean fodder and hardly any damage to the sward! Also, the faster recovery as could be observed by our test drivers as already in 2015.

Top visibility and handling

The front butterfly mower Seco Duplex 800 F consists of three double blade cutter bars. These are flanged to the 100x150 mm thick main frame tube and are freely movable independently of each other. The working width is 7.85 m with a slight overlap. BBU offers six models of this butterfly mower in working widths from 7 to 10.5 m. This makes it possible to achieve impressive area coverage at speeds of between 8 and 12 km/h.

Our test drivers were also impressed by the visibility and mobility. For small tractors with slightly sloping bonnets, as is the case with the Lindner Geotrac, all three mowing bars are clearly visible at a glance. The mowing of fences or obstacles is significantly easier than with the front/rear combination. All mowers are located in front of the steering axle and can therefore be guided precisely. However, it must also be considered that the entire weight is on the front axle and that a rear weight may be necessary.

In our test candidate the three bars could be switched on and off individually and independently and raised and lowered. There is also a small control panel with six toggle switches in the cab. Unfortunately, the automatic mowing drive shutdown during lifting has fallen victim to the Machinery Directive. This wear-reducing feature is prohibited. Our test drivers would have benefitted from raising on the headland.

LANDWIRT Tip

Additional pictures and a video on this practical test can be found online at: www.landwirt.com/landtechnik

Shear cutting with Bidux

Top fodder quality

The broad grass cut does not need to be tedded and ideally not turned. This saves a lot of fuel and working time without sacrificing efficiency.

Control panel with speed display

All mowing drives and hydraulic cylinders are supplied with on-board hydraulics with oil temperature monitoring and oil cooler.

With the skids screwed at a height of 4-12 cm the cutting height can be varied

as required. The speed of the mowing drive is displayed digitally. A sticker on the control panel provides information on the coordination of driving speed as well as on the expected cutting result and wear behaviour. A practical detail!

Own oil supply

Farming with a Weiste triangle is done quickly. Then all you need to do is connect is the drive shaft and the three pole power cable for the control - and you are done! The drive shaft drives four gear pumps of the on-board hydraulic system. Each oil motor on the bar drive is powered by its own pump. The fourth pump supplies the valve block of the working hydraulics. Blocking blocks on the valves prevent unwanted lowering of the raising cylinder. This valve control with the control panel in the cab is special equipment. According to the manufacturer, however, 98% of all machines are delivered in this way. This allows the three cutter bars to be controlled independently of each other. This is advantageous because a double blade bar clogs much faster in the mowed grass than a rotary mower.

Around 60 litres of oil are in the main tube frame and in an additional oil tank under the frame. The optional oil cooler keeps the oil temperature low in hot weather and with below optimum blade sharpness. It only turns on when needed.

LANDWIRT Evaluation

+ high power on slopes
+ lower unladen weight
+ lower power requirement
+ clean cut by double blade
+ hydraulic mowing drive with speed indicator
+ automatic blade stop at foreign bodies
+ long service life of the mowing blades
+ collision protection of side mowers
+ easy tractor attachment
+ own oil supply with oil cooler
+ ground adjustment of the cutter bar
+ protection of the sward
+ lowest fodder soiling
+ quicker drying through wide storage
+ no tedding required
+ no danger of flying stones
+ protection of the meadow fauna

- maintenance expense
- higher concentration required when mowing
- more sensitive to foreign bodies
- slight banding in middle Bar drive
- The outer end of the cutter bar in the fodder is difficult to recognise
- high front axle load, rear weight required
- no stops of the side outriggers(Windrowing)

Improved bar excavation

In our test three years ago, the low raising height on the inside of the two side outriggers was criticised. BBU has redesigned the bar mount and now achieves significantly more ground clearance at these points. Even in the working position, the free space is larger and reduces the risk of clogging at this point. The larger travel of this support allows the bar to follow the ground better in case of greater unevenness. The raising of the side beams works without problems. It is lifted from almost parallel to the ground. One hydraulic cylinder raises the beam on the outside, and a second controls the holder on the inside of the drive side.

The redesigned collision protection of the side mowers also ensures more travel now. The release force of this mechanical solution can be adjusted. For the central cutter bar

Photos:

Collision protection for side outriggers (see arrow): In the event of overload, the rear mowers pivot 35° backwards.

Overview of technical data	
Machine type	Seco Duplex 800 F
Working width	7.85 m
Transport width	2.98 m
Cutter bar width	3 x 2.75 m
Unladen weight	900 kg
Cutting height	4–20 cm (different skids)
Drive	Drive shaft (1.000 rev/min) + own oil supply (60 Litres): 4 gear pumps, 3 gear motors
Operation	Control panel with speed display and individual bar control
Power requirement for mower drive	14.7 kW/20 hp
Overload protection	Pressure limiting valve for mowing drives, mechanical latch for side outriggers

The collision protection is optional. For good reason, as the manufacturer points out, because it does not make sense under all conditions and can do a lot of damage if used improperly.

The star with blades

ESM dual blade cutter bars with the Bidux system have proven themselves in practice. Despite the large working width, they perfectly adapt to the ground, even in short cropped terrain. For different cutting heights, BBU supplies skids in heights of 4, 5, 6, 8, 10 or 12 cm. If required, even higher skids are possible. The cutting height can also be adjusted slightly with the top link. Ideally, the cutter bars should be horizontal. The unequal blade distribution - upper blade 70 mm, lower blade 84 mm - ensures a smoother flow of force, smoother running and prevents the two blades from falling into each other when the wear is more advanced when the blades are placed "gap-to-gap".

The cut quality was highly praised by the test team in no uncertain terms. The basic prerequisite for this, however, is that the blades are in perfect condition. This does not only mean sharp blades, but also that they lie on each other without gaps: The blades must be in perfect alignment with each other. If a foreign object comes between the blades, a pressure relief valve stops the drive and thus reduces the risk of breakage. There can occure cutting problems when grass is first struck to the ground. This is the case with the middle bar on the left side. The small strip depressed by the blade drive can no longer be mowed cleanly by the following left side outrigger. In the face of this system related problem, over the last few years BBU has been working intensively to resolve it. The blemish could be minimised but not completely eliminated.

Instead of swath plates our test candidate was equipped with rotating swath drums. They are slightly inclined downwards on the inside and drive themselves through ground contact. They can also be easily removed.

Elaborate maintenance

The maintenance effort is much higher compared to a rotary mower. Sharp blades and perfectly aligned blades are everything when working with a double blade cutter bar. With a butterfly mower, the wear and tear is enormously high. However, the industry offers practical solutions including a fully automatic grinding device (see LANDWIRT issue 03/2015). The sharpening interval varies greatly depending on the fauna, cutting height and soil conditions: Experience has shown that with a blade set, depending on the conditions of use, you can cut between 10 and more than 100 ha.

Whoever does not shy away from maintenance and strives for sustainable business practices should include this double blade butterfly in their deliberations when buying new equipment. The great strengths of this mowing system are clean, faster drying fodder, lower diesel consumption and less damage to the turf due to small tractors, faster growing meadows and protection of the entire meadow fauna. The acquisition costs are at the level of rotary mowers.**n**