

One-person lime spreading system:

Studied and tested

For his degree thesis, Michael Horlacher stayed close to what he knows, focusing on lime application at his contracting business. This is the result.



For its lime spreading operation, the Horlacher contracting business is able to do it all with one driver.

Horlacher is a contracting firm that offers agricultural services 70km around the village of Untermünkheim in Baden-Württemberg, between Stuttgart and Nuremberg. Much of the German firm's work involves the spreading of carbon lime from the Südzucker factory in nearby Offenau.

Three variants

Since 1982, the Horlachers have been relying on a couple of tractors with spreaders and a wheeled or telescopic loader for this lime work. "This made us efficient, but we always required three drivers and two tractors," explains Michael Horlacher.

As a key part of his agricultural studies at the Weihenstephan-Triesdorf University of Applied Sciences, he used his bachelor's thesis to examine the lime application service. He was particularly interested in Siwi's quick-coupling system, which converts the job into a one-man, one-tractor operation ... just as Bedfordshire-based MJ Petty Contractors has done – see *profi* 7/2021.

"In a practical test over a season, I collected and compared the data of three systems," Michael explains.

"This included data such as GPS position, fuel consumption, pto speed, forward speed and operating hours. For a direct comparison, some of the lime was spread as before using

KEEPING IT BRIEF

German contracting enterprise Horlacher switched to a one-man lime spreading system.

Michael Horlacher compared various systems for his thesis, working in collaboration with Südzucker.

The one-operator system proves more profitable and offers greater flexibility for this contracting business than the three-person system.

two tractor-spreader combinations and one telehandler. While two single-axle spreaders used to do all the lime work, we replaced one of the smaller machines in 2015 with a 12t capacity, tandem axle spreader

"That move was very useful for switching to the Siwi system as you don't have to stop and load as often," explains the 29-year-old. For the Horlacher trials, as part of his thesis, a Danish-made Siwi quick-change system was rented for 12 months and first operated on summer liming three years ago. This system allows the user to hitch the spreader on and off without having to leave the seat, thanks to fully automatic coupling of the pto shaft, electric lines, hydraulics and the air brakes. Since the Horlachers didn't already have a front loader, they had to buy one to go with the one-man spreading outfit. The loader uses a 1.35m³ bucket.

Referencing data from another contractor, Michael included another one-man system that relied on a spreader-mounted crane for loading as part of the project.

"In practical terms, this variant is only of limited interest to me, as we can't use our existing spreader," he adds.

Results and efficiency

Using the data collected, Michael was able to allocate the time spent loading, spreading, transport and breaks.

"The practical trials not only reveal the main differences between the various systems," he explains, "but they also show that the location and size of the heaps in the field, as well as the planning, have a major impact on efficiency."

A lot of the results clearly show how efficient the three-man system actually is.

"In the final analysis, however, the higher labour and machinery costs in our case eat



Michael Horlacher was looking for a cost-effective solution for his lime spreading operation.

up this time advantage," he says, assessing one of the results.

His theoretical calculation was based on an annual liming workload of 10,000 tonnes. The number crunching indicated that the cost structure for the quick-hitch system and one-man operation was 41% less than the three-man system with two spreaders and a wheel loader. The spreader-mounted crane system is marginally less efficient, saving 36% of the costs of the three-man system, although Michael assumes that the tractor should have a longer service because it is not shuttling back and forth with a loader and not exposed to as much wear.

"Depending on the amount of material being spread, however, the parameters shift so the other systems can also be economical," he explains.

More demanding

"The demands on the driver have naturally increased with the system," says Michael. "The driver is always on his own and needs to be aware of where he unhitches the unit to make loading as efficient as possible and

that he can reattach the spreader quickly and safely."

To ensure that the spreader can be easily attached, the hitch plate of the Siwi needs to be level. Therefore the spreader must be loaded at the front first, and should never be taken off if there is still lime in the hopper; otherwise the spreader's hitch plate can lift off the ground. Following on from the one-year test, the Horlacher contracting company has bought the quick-attachment system.

Summary

The Horlacher contracting firm is a typical family business. The change from the three-man system to the one driver with a front loader tractor and Siwi quick coupler has taken pressure off finding labour and having enough tractors available.

"Together with the overall cost savings, this more than makes up for the slightly lower efficiency," says Michael Horlacher. "We can also respond more flexibly to customers, because it is much easier to organise."

Lucas Colman



Hitching and unhitching the spreader can be done without leaving the cab.



For this season, a Fendt 728 is powering the firm's lime spreader.