Feiffer Grain Tablet:

Dropping a tab

Combine makers provide loss monitor(s) but tend to leave monitor calibration to the operator. German company Feiffer Consult has produced simple calibration equipment for decades, and last summer we tried its slightly more complex offering

Feiffer's Grain Tablet (left) and its companion app take much of the guesswork out of combine loss measurement.

A question for you. When is a tablet not a tablet? When it's a tray ... plus a smartphone app. What we have here is the strangely named Grain Tablet: a 650x300mm plastic tray, placed or dropped in the path of a passing combine where it collects lost grain. But before expanding on that and its companion app, a little background.

In Germany the Feiffer pan – a standalone collection tray, physically larger than the unit looked at here – has for some time been a favourite way to assess combine grain loss. But increasing variation in header widths, different yields and various permutations of straw/chaff spreader options have made it trickier to draw reliable conclusions from what's in the tray. On top of that, its 1.0m x 250mm size didn't suit most combine cabs and its use – which ideally involves a helper to place and collect the tray – was a faff. The smaller, higher-tech Grain Tablet aims to address these shortcomings.

Although the tray can still be placed by a mate, a step forward is to specify Feiffer's remote drop option. This is a steel plate bolted under the combine which hosts a couple of electromagnets. These work the opposite way to normal: when not fed voltage they are magnetic, so grip two matching steel plates in the collection tray's base. When supplied with 12V the units lose magnetism, so the tray drops to the ground. Trigger voltage can come either from the combine's sidelight circuit or from a dedicated fused/switched supply.

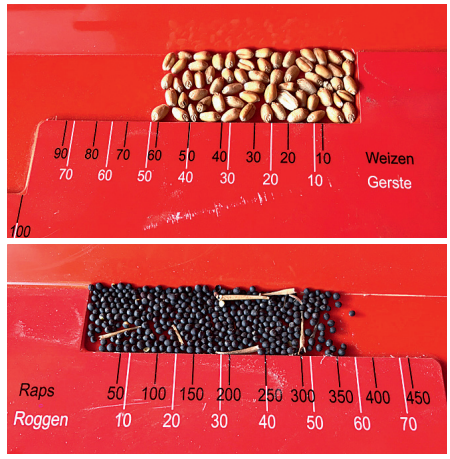
We found a home for the mounting plate just forward of our John Deere T660i's back axle, close to the header trailer light socket. Alternatives could be under the header elevator (easier for tray re-attachment) or on the back of the header, for which an accessory bracket (€109) is available. Although we used a single collecting tray you could use three, with or without remote drop – one positioned on the combine's centreline and the others to either side of the header, collecting losses from the swath and spreader. To find header loss only, a tray must be put in standing crop and the combine stopped after passing over it.

In one-man, one-tray operation, the user picks a sample point and then flicks the combine sidelights on/off to trigger tray release. Simple enough, although finding the tray under a deep swath may not be. So a good ruse is to mark the release point by lifting the header a little to create a visual pointer in the stubble. That works well in a standing crop but not so well in a lodged one.

By now you may have anticipated a couple of other snags. Depending on where you put the release plate, attaching the collection tray under the combine may not be a bundle of laughs. And as tray release is trigged by turning on the sidelights you can't sample at night, so, if you need to do that, an independent switched power feed is a better bet.

And of course you can't leave the tray under the combine for night travel between fields, so a separate storage solution on the machine – rather than adding to the clutter in the cab – would be handy.

The tray itself is made from a fairly stiff plastic that will crack if you accidentally run on it, so a softer, more flexible material would make more sense.



Graduations alongside a collection point in the tray give a fast and surprisingly accurate grain count in different crops.

Parameters for an operation are easily put into the app (which also has an English version). When fed lost grain number or weight, the app delivers values for percentage loss, loss/ha and cost of loss/ha (right).

Now for the Feiffer Grain app. It's free and in iOS and Android versions. Naturally to get sensible information out of it, you need to put similarly sensible information in. Step one is to choose the crop from a list (wheat, rye, winter barley, spring barley, triticale, oats, OSR, maize, soybean, peas, field beans and rice), and then ideally enter an accurate thousand grain weight; if you don't have a figure for that, the software uses reference values. Next up are the combine's header width and elevator width, along with whether you'll be spreading or swathing straw/chaff. The last step – if you want – is to put in figures for yield and selling price, estimated as necessary. Then you're ready to go.

To find how much grain is in the tray you first winnow the sample, either in natural airflow or with the company's battery-powered separator (€590). Then graduations on the tray (top pic, opposite) produce a fast and surprisingly accurate value for grain number. Alternatively Feiffer offers a small electronic balance for €20. Enter either grain number or sample weight in the app, and it spits out loss percentage, loss/ha and, if you've entered baseline data, the estimated cost/ha of that grain loss. We tried both grain count and weight across different crops and samples, finding that the resulting loss figure varied at most by 0.2%. So you don't really need scales.

Last but far from least comes the reason for measurement in the first place: adjusting the combine's monitor display to match actual grain loss in work.

On this John Deere T660i harvester, the tray release plate found a home just in front of the back axle. A pair of electromagnets then holds the tray until it's released on the move by the combine's operator.

PLUS AND MINUS

- ✚ Loss calculation takes multiple parameters into account
- ✚ Useable with many crops and all combines
- ✚ Remote tray release makes loss assessment a safe one-man job
- ✚ The tray is relatively fragile
- ✚ Attaching the tray to the release plate can be awkward
- ✚ The tray can be hard to locate under a swath, so some sort of position marker would be helpful.

Other points worth a mention

- There's no UK importer. Feiffer Consult has an online shop
- We've had the company's new battery-powered remote release system on test. Results will be along shortly.

Summary: The Grain Tablet and its companion Feiffer Grain app ease the business of measuring combine grain loss and boost result reliability. The tray itself isn't cheap at €130, particularly given its potential fragility; neither is €395 for the remote release. The app, though, costs nothing. Yet used with care the kit is a reasonable investment, both for monitor calibration and as a tool to show loss/ha to a customer.

Hubert Wilmer