



Data integration solutions

On Farm Opinion

Spending valuable hours toiling away to complete administrative paperwork is the ultimate thief of time for many farmers but adopting communicative technology has reduced the in-tray for one Oxfordshire grower and machinery running costs for another in Lincolnshire. CPM learns more.

By Rob Jones

Ditching his paper-based job system has allowed James Price to considerably increase his work efficiencies by wirelessly transferring work data to and from his machines when working across his 800ha of combinable crops.

Farming at Woodstock in Oxfordshire, James adopted Fendt's offboard system after looking at new ways to maximise the technology in his modern machinery fleet and minimise the time he spends entering data into a computer.

"Before FendtOne, we were a paper-based system, which meant inputting the specific job and details onto the computer and then printing it off for the operator to manually fill out in the field. Once the job had been completed by the operator,

I'd then manually put the data back onto the computer so we kept an up-to-date record of works," he says.

Historically, James' paper-based system worked sufficiently, but with a small workforce of two full time employees and additional students at harvest time, keeping track and then processing exact job records was reducing efficiencies. Streamlining the recording process within his Fendt fleet was starting to become essential.

Streamlining business

"We adopted the offboard technology in 2020 to streamline this process and keep paper records to a minimum. Since then, I've become much more in control of my business, it has allowed me the flexibility to keep track of jobs from wherever I am and doesn't require me to be sat down at a desk to do so," he explains.

"My role in the business has changed a lot over the years. I used to drive the tractors and the combine but I'm now more focussed on the management side of things and only really get to operate the forklift and the sprayer.

"It's now easier for the guys on the machines as there's no necessity to meet up in the morning to exchange pieces of paper and then keep hold of these once the jobs have been completed."

Fendt's offboard technology is the remote part of the FendtOne operating system and offers farmers and operators a new way of job management through the Task Doc interface. Job-specific information is added

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to a task which is then sent wirelessly to the machine. The operator completes this in the field before sending it seamlessly back to the office.

Jobs can be created from multiple devices and then sent to a machine. ▶



Ditching a paper-based job system has allowed James Price to considerably increase his work efficiencies.



During busy spring and summer periods, sending jobs directly to machines can save downtime.

► Information such as field location, machinery, and products required can all be added to the task. James says the detail which he can put onto a job sheet really helps with keeping accurate records. “We can add in addresses for farms and fields, specific product requirements and quantities for jobs — such as spraying or drilling — along with operators and machines. The tractor then automatically records when the job was carried out, so we have an exact start and finish time, measurements of the product quantities applied — even down to details on the weather.

No grey areas

“For any contracting jobs we carry out, this makes invoicing simple as we have an exact job record, including the fuel use of the tractor or machine, so there are no grey areas regarding how long a job has taken,” comments James.

Fendt’s Task Doc uses machine parameters and position data. This location-specific information is recorded every five metres and is the basis for allowing variable rate application to increase accuracy, which should save on seed, plant protection products and fertilisers.

As well as ISO-XML files, Task Doc can also process Shape files that are transferred onto the system via a USB. Another useful feature is that field waylines are stored in the field files. So when an operator clicks on a field, the previous waylines are visible, along with date and machine details.

Changing to a completely paperless system not only requires the correct technology but also the application to make it work. The way the data is now handled is the biggest advantage over the old system, says James.

“Before offboard, we’d lose job sheets or find paper that had been drawn on or incomplete records. Now, the data for each job is always on the screen which helps when operators are asked to do a job for the first time. The machine seamlessly recognises the field it’s in and brings up the task, so application is always correct, and it’s wirelessly transferred back to the office once complete.”

Further integration with different machines means additional data can be recorded, such as variable seed and fertiliser rates and maps showing the differing areas. Data on fuel and AdBlue used, along with start and finish times, are shown on the records, while working time is broken down into effective and ineffective hours, which could help users cut idling tractor times, according to Fendt.

Another big benefit for James has been the ability to monitor machines and employees when they are lone working for long periods, which from a management perspective has been a great asset and helps when providing support to the field.

“I don’t want to be hassling my guys just to find out when they will be finished or if they’ll require diesel before the end of the day. I can now see all this information on my screen which details exact

fluid levels and how much of the field or job is left. This then allows me to gauge when they might require assistance and where the best place to meet them is.”

The system has improved the data handling, he says. “With the ability to send jobs remotely to my operators means the farm is becoming more streamlined and every tractor hour is accounted for.

“At busy periods in the spring and summer, it’s much easier to check on a screen where a machine is without being a distraction for the operator. The offboard technology has allowed me to control my

Farm facts

Woodstock, Oxfordshire

- **Farm area:** 800ha
- **Cropping:** Wheat, barley, beans, oilseed rape and oats
- **Soil type:** Cotswold brash
- **Tractors:** Fendt 936, Fendt 828

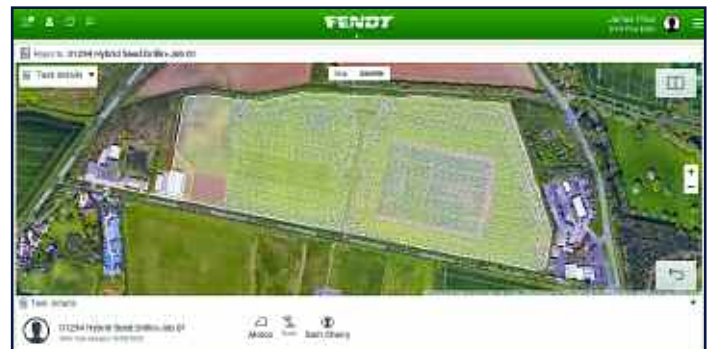
business easier from a task and location point of view. I also don’t have to be in my office to do it as it can be accessed from my phone at home, so having the flexibility to operate like that has made my life 100 times easier,” concludes James. ■



Waylines are saved to FendtONE and then shared between different machines and operators.



Creating a new job in the Fendt desktop system requires no printed paperwork.



Accurate field recording data of works can be shared with customers when invoicing.

Managing machinery costs with data

Working closely with local dealer Peacock and Binnington, farmer and contractor Ben Jackson is making full use of tractor data to monitor and manage cultivation costs in Lincolnshire. The company has a fleet which includes two Fendt tracked machines and two 415hp Fendt 942 Profi Plus tractors.

Ben suggests data provided by the tractors is helping to calculate the cost per hectare of cultivation work and this is helping him decide which machines and methods will be more efficient and effective across the 3440ha farm.

“Choosing the right kit based on data has helped us to make significant savings. Tractor data showing how much time, fuel and cost has been invested in a field enables us to better understand which machinery and methods are the most efficient.

“For example, it may be more cost-effective to run a tracked tractor with a larger plough because fewer turns are required. Alternatively, a lower horsepower tractor with tyres, using less fuel and a smaller plough may be the better option,” says Ben.

Data driven farming often relates to soil or agronomics. However, machinery choice can also be important to profit margin and Ben is keen to better understand his costs.

“FendtOne tells us how long the machine has been working, how many times it has stopped, the fuel consumption in different fields and soil types, and the hours taken to complete a task. We can cross reference this data with the overheads of the machinery and calculate our cost per hectare to cultivate a field.”

Data collected year-on-year is also being analysed in relation to combine yield mapping data. The idea is to establish which methods of cultivation are providing the best results. Fendt’s onboard/offboard system is being utilised to capture tractor data which feeds into other farm software, including Gatekeeper, which hold yield data to help Ben manage his costs.

“Our historical Gatekeeper records are somewhat primitive and only hold data about which machine we used to cultivate a field and what that field yielded. Now we’re able to capture, save and compare data year-on-year, we’ll be able to establish which system is best for the different soil types we manage.”

Soil types on the Lincolnshire farm range from light sand to heavy clay. The system starts when fields destined for oilseed rape are cultivated with one of the tracked machines and a Vaderstad 925 XL, which chits and mixes. At this point the combines are pulling off wheat and these fields are drilled with OSR using one of the 942s and a specially devised five-leg subsoiler with integral seeding unit.

“We have a Sumo LDS5 low disturbance subsoiler to relieve compaction and improve crop establishment. In recent years, we’ve relied too heavily on power harrows because the weather windows have narrowed and we have to work in almost half the time we used to.”

The ever shortening and unpredictable weather windows have led to some machinery being kept on farm to offer more options. However, investment in tractors is still the largest overhead to manage and Ben is keen to reduce costs without jeopardising operator comfort, productivity and yield.

“We have chosen tractors that operators can do long shifts in so that we can make the most of the windows we get. It’s also important to have a choice of machinery for when the ground becomes hard to work.

“By analysing the data from the tractors, we’ve established the new Fendt 942 is over 20% more fuel efficient than our previous 939, despite being more powerful. Having two 942s in the fleet has also enabled us to shed the cost of a third tracked machine, so now we run two — a 943MT and a 1162.”

Ben is also using data to compare the cost of direct drilling with more traditional cultivation



Ben Jackson believes that data provided by his tractors is helping to calculate the cost per hectare of cultivation work.

methods. Fields have been selected to establish the cultivation cost per hectare of an OSR crop, which has provided the farm with a cost of cultivation net margin figure.

“We’ve been careful to select fields that have similar soil types and using the data from FendtOne, we’ve recorded the contract hire, hours and fuel cost to establish the most cost-effective method. This has then been cross referenced with yield data to give us an accurate net margin.”

In addition to understanding the cost of cultivation, he’s also able to make decisions about which crops to grow and whether any fields would be more suitable to put into stewardship. This has also led to some fields and parcels of land being split where varying soils enable a crop to grow well on part of the land, whereas in other areas it’s better suited to stewardship.

“There’s so much data to consider and we’re helped significantly by Peacock and Binnington, which has employed a full time data manager to help customers examine the figures and decide on the best machinery,” says Ben. “I see data being the key to most farm management decisions and having a dealer that shares that vision has been important.”



FendtOne provides data on how long machines have been working, their fuel consumption in different fields and soil types, and the hours taken to complete a task.

Farm facts

Low Farm, Somerby, Barnetby, Lincolnshire

- **Farm area:** 3440ha (728ha contracted)
- **Cropping:** Winter wheat, OSR, winter barley, spring barley, hemp and corn gromwell
- **Tractors:** Contract hired on three-year cycle – three Fendt 724 Profi Plus, two Fendt 942 Profi Plus, a Fendt 943 MT and a Fendt 1162