

# Preventing run-off and the possibilities within precision farming



*Andrew Bult, an arable farmer from near Taunton in Somerset explains how he reduces surface run-off in his potato fields by using a tied ridger, uses precision farming to help get the most out of the soil and manage large fields, and uses controlled traffic farming (CTF) to help minimise compaction and maximise crop productivity. Andrews' family have been farming in West Newton for three generations. In recent years Andrew joined forces with another farmer in the area, Matthew Bere, and between them they grow 180 acres of potatoes and 500 acres of cereals.*

## Tied Ridger – preventing run-off

The soils in the area are largely red, light, sandy soils which are prone to [surface erosion and run-off](#). To tackle this Andrew uses a tied ridger (also known as a dammer diker) to create potholes and dams along the tracks between the potato beds.



Briggs tied ridger

If it rains heavily, rather than the water, soil and nutrients rushing down the tracks and out of the field it collects in the small troughs and is retained close to the potatoes. *“To use a tied ridger is a separate job which needs planning but we saw great results last year with all that rain. The downside with it is if it doesn't rain you have to smooth the lumps out prior to harvesting the potatoes”*



The tied ridger dams and potholes between the potato beds

## Getting started with precision farming

After a visit with a [Soils for Profit](#) advisor in 2010 and with the help of the SWARM Small Capital Grant Scheme Andrew purchased a Trimble [GPS guidance system](#) that can be used in two tractors and in the combine harvester. Real Time Kinematic (RTK) is the most precise type of satellite navigation system (to 2.5cm or 1 inch). RTK uses the drifting satellites and also a fixed base on the land. The limitation of RTK is that it does not always work in hilly rural regions. The alternative is a Virtual Reference Station (VRS) which is similar to RTK except it uses the mobile phone network but it can be used in rural hilly regions but the limitation is that it does rely on there being a phone signal.



The modem and VRS is in the tractor cab

Andrew opted for the VRS and explains *“Overall the VRS system has been beneficial but in the start we did have some modem issues. It is important when purchasing GPS software that set-up and continuing support is included in the price. We chose Trimble because they suited us for many reasons, but mainly they provide servicing and manufacturer support which is important. The rep only lives about 20 minutes away which has been useful.”*

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The SWARM Small Capital Grant helped fund auto-steer equipment. The fields that Andrew cultivates are long, undulating and in some places quite steep. It is not always possible to see the end of the fields so the GPS is critical. *“There are sections that are steep and as a driver it is hard to keep the machinery straight but the GPS and auto-steer keeps the lines dead straight, they are perfect. Auto-steer takes the stress out of it. However, the programming has to be exact, when something does go wrong it is often the case that you haven’t told it the correct information.”*



In this picture we can see the combined benefit of the tied ridger, VRS and autosteer in the potato beds

## Yield mapping and auto-shut off

Andrew and his partner also invested in Trimble yield mapping software. [Yield mapping](#) uses GPS software and sensor technologies to measure accurately the amount of crop harvested at a specific location and time to create yield maps. *“It took a while to set up but we have basic maps and it has been very useful to identify the low yielding areas of the field that need improving as they only produce 5t/ha.”*



*“Alongside the yield mapping we have recently been successful in getting some FFIS money to help us purchase an auto-shut off which has saved us about 8% on chemical and liquid fertilisers.”*

## Controlled Traffic Farming (CTF)

Another opportunity that arises from using high precision GPS is Controlled Traffic Farming (CTF). CTF is all about keeping compaction to a minimum, all the machinery runs up and down exactly the same tracks in the field year in year out using appropriate guidance systems. When the tractor lays its first tracks to drill, the combine harvester and the sprayers use the exact same tracks. Andrew uses CTF for his cereals. *“In the South West corn and bale trailers do the most damage, but by using CTF this damage is never outside the laid tramlines. When buying a new piece of kit is important to it precisely, it may say its 3m but it is in fact 2.93m”. CTF decreases fuel costs, increases productivity and yield, protects and enhances the soil and most importantly is more profitable for the farmer. Compaction is an expensive problem and is kept to a minimum in CTF.*

As we can see by the various techniques Andrew uses on his farm, the capability of using GPS in farming is enormous. *“When buying equipment you must do your research and consider what you might like to do with the GPS in the future.”* Andrew spent two years trying out various GPS software before taking up precision farming. He did his research and is now seeing the benefits.



This image is taken from the middle of a typical field with long rolling slopes

