

Cover crops in a no-tillage system

Farmer Experience 6
Summer 2016

AHDB
CEREALS & OILSEEDS



Russ McKenzie

John Sheard Farms

Location:
Cambridgeshire and
Bedfordshire

Soil type:
Predominantly heavy clay

Rotation:
Over the past two years, we
have moved away from the
traditional oilseed rape and
wheat rotation to incorporate
spring beans, spring and
winter barley and spring
wheat

“ Our aim is to achieve a more friable surface structure for drilling in both autumn and spring without the use of cultivation and to improve organic matter levels on our heavy ground. ”

Why did you start including cover crops in the rotation?

Part of what I was seeing on my travels around the world researching no-tillage for my Nuffield Farming Scholarship really inspired me. I have always felt that no-tillage would be the panacea for how we took the farm forward and it became clear that cover crops could capture nutrients, protect our soil, open up surface structure and act as a buffer for swings in weather conditions.

What are you doing?

In our first year, we tried 40 ha. Using cover crops, soil dried out better in the spring and trafficking was improved. An N-min test showed that cover cropping increased N capture by 37 kg/ha. After this success, we increased it to 100 ha ahead of spring cropping for 2016.

We have tried a multi-species mix containing phacelia, linseed, buckwheat, sunflowers, safflower and Austrian peas, which works very well ahead of spring cereals. We have also been looking at oil radish, linseed and phacelia mixes and black oats, phacelia and linseed mixes. Seed cost can be between £30–45/ha.

Establishment has predominantly been by a direct strip seeding drill, or a tine drill. Some have been sub-soiled and drilled. Establishment cost is around £35–45/ha.

How are you measuring the changes?

We have carried out N-min tests and observed the difference in overwinter water management compared to no cover. Over the past two years, N-min tests have shown an increase in N uptake from the cover cropped area compared to the not covered of between 30–40 kg N.

What has worked well?

Most mixes have worked really well. Black and tame oats are very good in the upper profile and multi-species mixes cover most bases.

We have found grazing with sheep recycles nutrients, reduces likelihood of nitrogen lock-up and allows the surface to dry easier in the spring. Better results have been seen grazing sheep compared to cattle.

We observed a 1.3 tonnes/ha yield increase in spring barley with cover crops and direct-drilled, compared to shallow minimum tillage and no cover crop.

Oil radish produced a deep tap root but worked better as part of a mixture than as a standalone product.

Assess nutrient capture by comparing N uptake in areas with and without cover crops.



Established cover crop mix.



Deep till radish root.

Further information

Russ McKenzie hosts the Huntingdon Monitor Farm. For more information, email the AHDB local Manager: tim.isaac@ahdb.org.uk or visit cereals.ahdb.org.uk/monitorfarms

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