

Tim Jolly
Thetford, Norfolk



Tim Jolly farms over 400 hectares of land near Thetford in Norfolk. Cropping includes potatoes, carrots and parsnips with some land also rented out for outdoor pig production. The farm is situated on Breckland soils resulting in light, sandy and free draining land which has historically led to problems with wind erosion and low organic matter. Soil management practices have therefore focussed on retaining organic matter and nutrient content. The success of this has been down to the consideration of the different conditions and soil properties in each field. Understanding these differences has been achieved through regular inspections of the land and annual soil sampling.

The light Breckland Soils are characterised by:

- Low water retention capacity
- High risk of nutrient leaching
- Low levels of organic matter
- High risk of wind erosion

To overcome these issues the soil has been managed through:

- Implementing an extensive crop rotation which considers how to maintain organic matter and nutrients in the soil profile.
- Reducing the risk of wind erosion through the use of cover cropping and the incorporation of straw and manure from the outdoor pigs into the soil.

Crop rotation:

Currently an extensive crop rotation is used which typically consists of: **Potatoes- outdoor pigs- sugar beet- carrots/parsnips- cereal- onions- sugar- cereals**. The spring sown crops follow a variety of cover crops which has helped to maintain organic matter content in the light soil. Although many cover crops have been trialled, rye and radish have been particularly successful on the light breckland soil. It is anticipated this will lead to an increase in water retention in the soil which is vital for crops such as potatoes and onions when rainfall is becoming increasingly unpredictable.

Rotating between cereals, brassicas and potatoes prevents the build-up of pest and diseases which may otherwise develop. Furthermore cover crops are established following cereals to act as a soil conditioner before high value crops such as potatoes and onions.

Outdoor pigs

On average Tim has around 10,000 pigs on 80-90 acres per year. The land used for pigs is rented out to a secondary partner on fixed term lets, which is separated from any land used for grazing sheep. Pigs can provide a challenge and are monitored for any potential damage they bring to the land; however the pigs provide benefit in turning over the top layers of the soil, and due to the light and easily workable nature of the soil any impact is quickly rectified.

When working on such light soil, timing of organic manuring is important for nutrient retention and optimum uptake by plants. This has led to the outdoor pig production becoming an important part of the farming system alongside the extensive crop rotation. Pigs are put on land after the potatoes to eat the ground-keeper tubers when other animals would only eat the remaining potatoes on the field surface. Tim has also been able to use less mineral fertiliser- the available nitrogen content of the pig manure is higher than that in cattle manure and annual soil sampling has also shown an increase in phosphate and potash levels.

Straw used for bedding is also incorporated into the soil which provides further organic matter. Tim has found that when working on such light soils it is best not focus on calendar dates but to have a flexible approach to management that considers the land condition on the day.

Irrigation

Irrigation is very important on Tim's farm due to the low water retention capacity of the Brecklands soil. There has been large investment in boom irrigation to improve accuracy, this has been particularly important for crops such as potatoes. Cover crops are grown before and after a potato crop and this has proven to increase soil organic matter which assists in retaining water within the soil profile.

Cultivations and farm machinery

Due to the large scale nature of the enterprise and the crop rotations, tillage systems change depending on the present condition of the land. The lower traction when cultivating the light soils lend themselves to ploughing which helps to distribute organic matter lower down the soil profile; however a subsoiler is used when conditions are appropriate. Min-tillage has been used after cereals to maintain organic matter in the upper layers of the soil profile

Crop Rotations in Focus:

- Forage rye is established following onions from August to January. The forage rye is then grazed off by sheep, which retains the root structure within the soil profile. The rye helps to prepare the land to a good condition for the following sugar beet crop.
- To reduce soil erosion a soil sticker (soil adhesive) is used. The soil sticker in this instance was used prior to a crop of onions. The soil adhesive makes the individual sand grains too heavy to be blown away from the land.

Conclusions

- Due to the extensive crop rotation, a flexible approach to soil management is used considering current conditions.
- Increasing organic matter is vital on the light sandy Breckland soil for water retention
- Pig manure has been successful in increasing N,P,K and soil organic matter content .

2015
International
Year of Soils

