

## FAB Learning network session at MacGregor Farming, Mill Farm, Great Witchingham, Norfolk

11<sup>th</sup> December 2019, with hosts Duncan and Mary MacGregor and Farm Manager Leigh Nobes. Around 20 farmers, advisors and staff from Anglia Water, Norfolk Rivers Trust and the National Trust attended the event which was set up to demonstrate how cover crops can be defoliated with livestock.



Duncan MacGregor introduced the farm, which is a 1,000-acre organic mixed farm with a seven-year arable rotation, with a third of the farm being in fertility building leys at any one time grazed by the livestock enterprises on the farm. The farm was recognised by FWAG this year, winning the Ian MacNicol Memorial Trophy for farm conservation presented by Norfolk Farming and Wildlife Advisory Group.

### Cover crop management with sheep

The session focussed on the role of sheep in destroying cover crops, although as we walked around the farm, several topics were covered.



This year Mill Farm has grown fodder radish after cereals as a cover crop for autumn sheep grazing. Fodder radish is well known for its deep rooting capacity. Fodder radish was sown in August straight after cereal harvest with minimal cultivations (shake aerator) and then sown with a chameleon drill. The crop had grown to around 25cms by Mid November and 120 North Country Mule ewes (lambing in March 2020) are now being folded across the cover crop with run back and access to straw and silage. This picture shows the ewes being moved onto a new paddock using the quad bike mounted Ridley Wrapper fencing system.

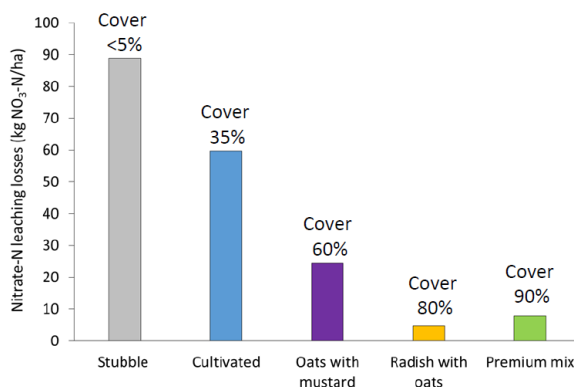


This photo shows the state of the fodder radish straight after the sheep were moved. Plants were pulled up and had roots typically 15-20 cm long. It will be interesting to see if the fodder radish will regrow. Photos are to be taken and shared with the group in six weeks' time.

Spring cereals will be drilled in this field in February 2020. It is important to consider the following crop when choosing your cover crop. Fodder radish should not be grown before brassicas such as oilseed rape, because of the increased danger of club root.

The group were also interested in the benefits of growing the cover crop in terms of fodder provision for sheep and any fertility benefits for the following crop. Research evidence suggests a benefit from cover crops of around 15 -50 kg N/ha available for the following crop. Certainly, the fodder radish provided sheep keep and we are calculating the contribution of this and will circulate when completed. In addition, growing the cover crop kept soil covered between August and defoliation in late autumn which has been shown to reduce nitrate leaching. ADAS trials have shown that the level of canopy cover has a fairly direct relationship with nitrate leaching. The graph below comes from ADAS research:

### Total nitrate-N leaching losses



The graph opposite shows that the level of canopy cover has an impact on nitrogen leaching rates. There are now ways of measuring and logging canopy cover levels. During the farm walk, the group were introduced to an app which measures crop canopy cover. This app can be downloaded from

[www.canopeo.com](http://www.canopeo.com)



Canopeo estimated percentage crop canopy of this photo at 32%. It is possible to GPS locate photos to enable repeat measurements at the same place. From the graph above this level of canopy cover could reduce nitrate leaching by 40 Kg N/ ha. N-uptake by cover crops has been shown to range from 10 to 150 kg N/ha (Silgram and Harrison, 1998)

### Insights from the day

- Benefit of leaving some forage crops for insects and birds. The practice at Mill Farm is to leave areas around the field when forage is conserved for pollinators and as additional wildlife corridors. The idea of ensuring that there is always accessible feed for insects supports greater birdlife on farm.
- Canopy measurement app: This can be downloaded free from [www.canopeo.com](http://www.canopeo.com)
- Question over whether fodder radish will regrow: Leigh Nobes to report back to the group
- Value of fodder radish as a forage crop for sheep: We will calculate the value of this and circulate when possible.
- There is interest amongst some members of this group to be involved with a new field lab looking to measure the impact of sheep grazing cover crops on soil nitrogen levels and fertiliser requirements for future crops. If you want to be involved with this and have not signalled your interest, please drop Jerry an email [jalford@soilassociation.org](mailto:jalford@soilassociation.org)