Soil Health Northern Ireland
Integration of Cover Crops in Arable Rotations

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KEY FINDINGS:

- ❖ Cover crops impact soil chemistry, biology and structure which ultimately improves soil health.
- ❖ Early sowing of cover crops is essential to maximise the benefits from cover crops.
- ❖ The benefits reduce as sowing date is delayed.
- ❖ If sowing date is delayed, then species choice is critical. Phacelia, was the best performing species when late planted.
- ❖ The immediate financial benefits of cover crops is their nutrient sequestration and offset of inorganic fertiliser to the subsequent crop.
- ❖ They help improve retention of nitrogen over typical bare stubble.

Fundamentals to Cover Crop Success

- ❑ **Sow early**
- ❑ **Establish clear objectives for sowing**
- ❑ **Does not require expensive seed or sowing techniques**
- ❑ **Tailor seed choice to sowing equipment available**
- ❑ **Seed rates can be reduced through using compatible mixtures.**
- ❑ **Avoid conflicting rotations e.g brassica cover crops and oilseed rape**

Key Benefits of Cover Crops

1. Sequestration of leachable nutrients
2. Weed suppression
3. Source of carbon from root exudates and from plant residue
4. Protect the soil over-winter
5. Contributes to improving soil health

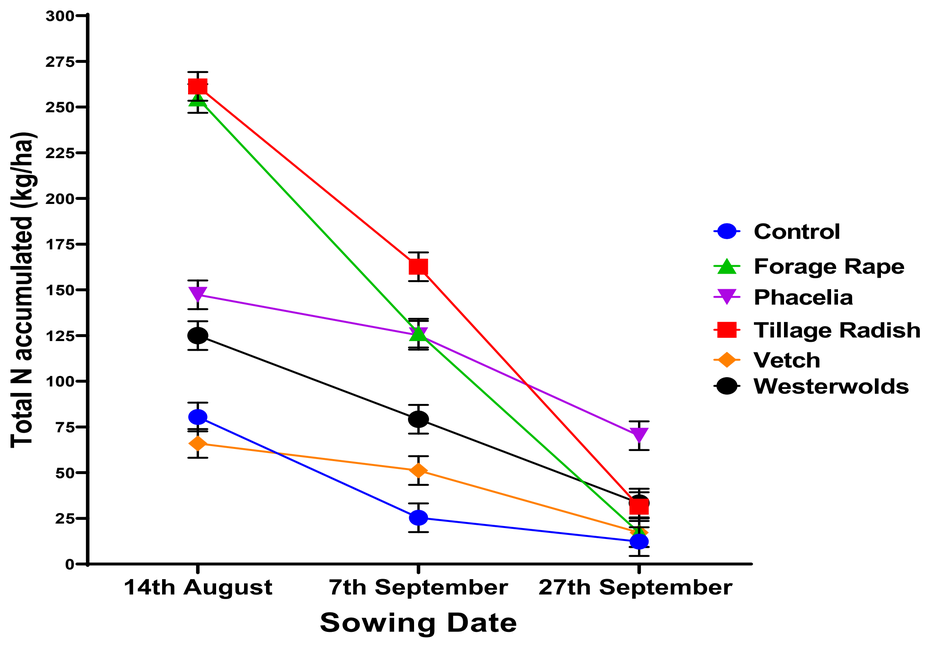

Figure 1. N accumulation (CC + roots + weeds) by sowing date and species (kg N/ha)

Errors bars represent standard error of the mean (SEM)

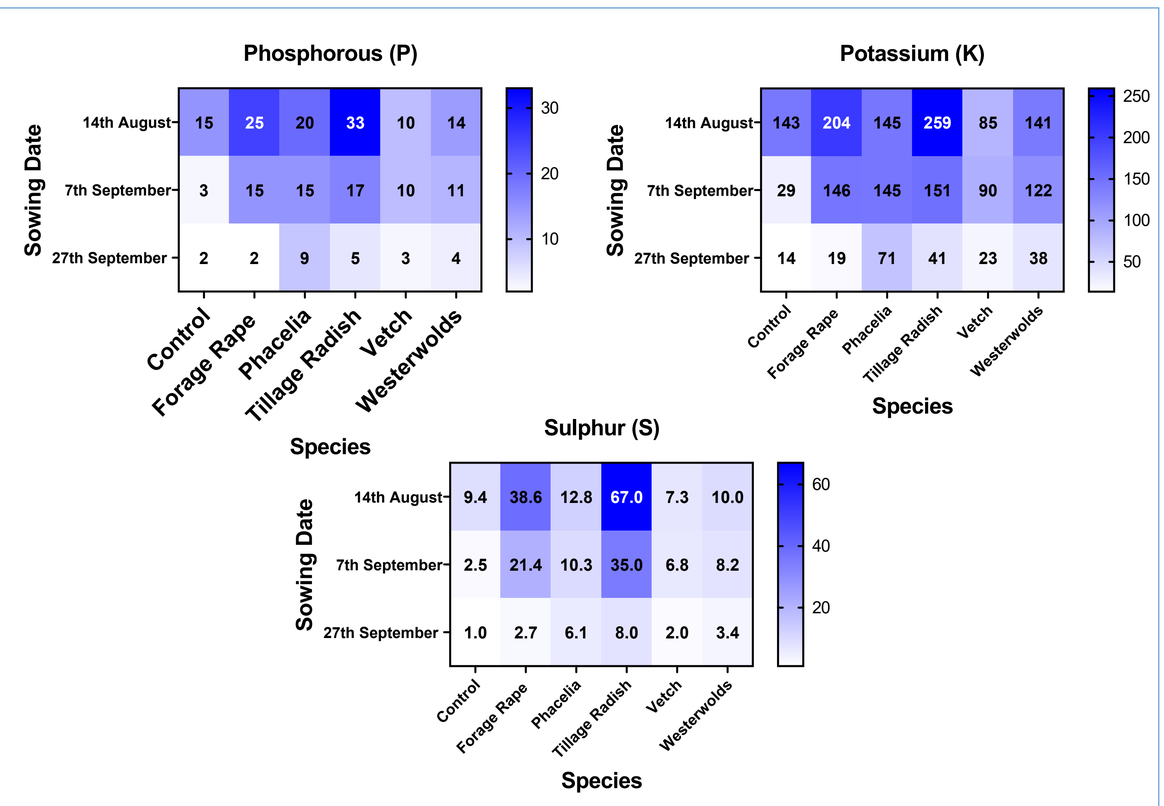

Figure 2. Nutrient uptake by the cover crops at the different sowing dates (kg/ha)

Kg/ha nutrients applied by slurry = 50kg P, 160 kg K & 24 kg S. N = 4 for each mean.

Species:	**Phacelia**	**Radish**	**Phacelia**	**Forage rape**
Sowing date:	27/09/18	14/08/18	7/09/18	14/08/19
Maximum N uptake:	70 kg/ha	261 kg/ha	125 kg/ha	254 kg/ha

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