Reducing nitrogen loss from tillage ground – catch crop update from the Agricultural Catchments Programme

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All farming sectors have to reduce nitrogen (N) loss in order to restore all water bodies to a good status by 2027. On free draining, nitrate-leaching prone sites, research has shown that overwinter green cover can substantially reduce nitrate leaching to groundwater from fallow crop land. The ACP has been monitoring a tillage dominant river catchment in Castledockrell, Wexford since 2008 and has been focusing on winter green cover research. Ireland's 5th Nitrates Action Programme (NAP) requires in all circumstances that 75-80% of harvested crops be shallow cultivated or sown with a crop within 14 days of harvest. The earlier the green cover is established, the more N it can capture.

In 2021, four on-farm sown catch crops were selected with a range of sowing dates for sampling. Table 1 details the sowing dates and preceding agronomic detail. All crops were rape/leafy turnip.

Table 1. Sowing date and agronomic detail of catch crops selected for crop sampling 2021.

Date of Sowing	Crop Following	Sowing Method	Added Nutrients	Seeding Rate
10th August	Spring Barley	Disc Tilled with Spinner on Back	Pig Slurry <1000g/acre	8kg/ha
20th August	Winter Barley	Spirit One Pass Drill	1 bag of 18-6-12	8kg/ha
4th September	Spring Barley	Disc Tilled with Spinner on Back	0	8kg/ha
10th September	Spring Barley	Direct Drill	0	8kg/ha

Above ground crop samples were taken for dry matter yield determination (Figure 1). The August sown crops yielded much more than the September sown crops through the sampling period.

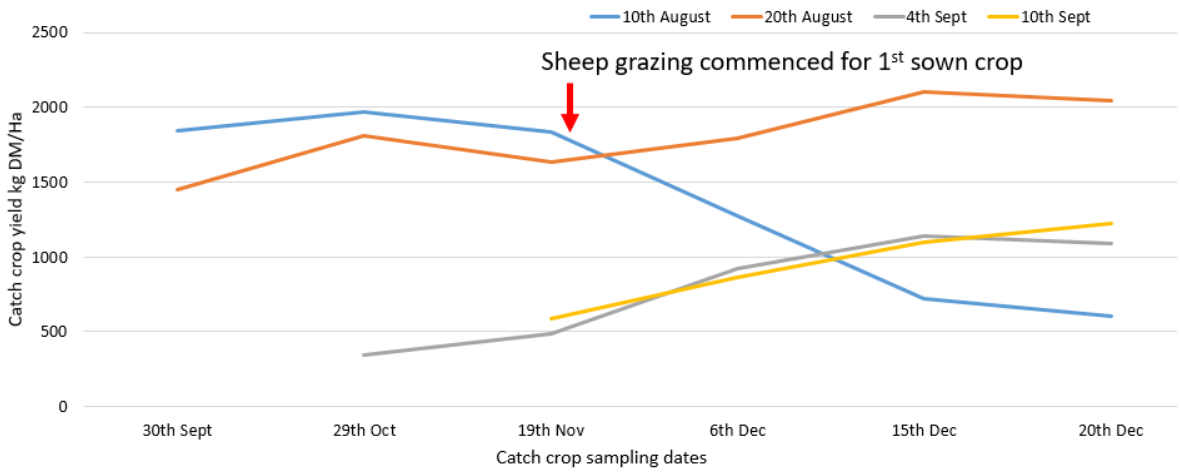

Figure 1. The effect of sowing date on yield (kg DM/Ha) of catch crops at six dates in autumn 2021.

As a follow on, this year (2022) a study is under way comparing the effect of 4 cover crop treatments on nitrate leaching, crop yield, crop N and soil fertility.

1. Natural cover regeneration;
2. Shallow cultivation and natural regeneration;
3. Shallow cultivation with leafy turnip & forage rape;
4. Shallow cultivation with phacelia & vetch.

As part of the NAP, farmers must leave 20-25% of their stubble ground uncultivated for overwintering birds. This year we have begun sampling seed, which is an important food source for birds. This is in uncultivated, shallow cultivated and sown catch crop ground on farms to track seed food source for wild birds over the winter period.

To complement this work, a knowledge transfer campaign on catch crops is under way with a field scale demonstration site to be the focal point for tillage discussion groups this winter. The site will demonstrate the effect of sowing date (19th August/ 2nd Sept), post sowing rolling (with or without), and mixture type (1. Leafy turnip & forage rape; 2. Raddish, mustard, vetch, clover, forage rape, phacelia and linseed; 3. Phacelia, vetch & clover).

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Note:

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