

tillage

Growing need for oilseeds

Supply is down and demand is growing, so there are lots of opportunity with this proven crop.

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The area of winter oilseed rape is expected to increase this autumn, primarily due to the substantial rise in the price of oilseeds. Other attractions are the potential nitrogen savings when good growth and development is achieved in the autumn/winter period, grass and other weed control options and significant yield increases in following crops.

The five year average area of winter oilseed rape (2017-2021) is 8,900ha, but estimates from DAFM indicate that the area increased significantly for the 2022 harvest to 14,500ha.

The average yield of winter oilseed rape has remained consistent over the last five years at 4.4t/ha, with some growers regularly achieving 5t/ha.

Improved varietal traits, such as for pod-shatter resistance, phoma and light leaf spot resistance and turnip virus yellows resistance, have contributed to the consistency of today's winter oilseed rape crops.

Winter oilseed rape has a high nitrogen requirement (225kg/ha at index 1) but significant savings can be achieved through good canopy development in the autumn/winter period.

Target Green Area Index (GAI) at flowering is 3.5, but savings on nitrogen (€750/t) of €277/ha are possible in a crop with a GAI of 2.0 compared to a small crop with a GAI of 0.5.

Brassicac crops are very efficient users of nitrogen and growers are increasingly incorporating organic manures to help crop growth in the autumn.

Sowing oilseed rape at the optimum timing of mid- to late- august can be challenging during a busy harvest, but research carried out at Teagasc Oak Park shows oilseed rape can be successfully established using time saving min-till or strip tillage. Yields from these systems are comparable to plough-based systems.



Don Somers.

Regardless of the establishment system, timely sowing is crucial for canopy development and to realise the benefits of lower nitrogen application and reduce pigeon grazing.

Slugs and cabbage stem flea beetles are the most common pests in the autumn. The area of oilseed rape in the UK has reduced dramatically in recent seasons, due to insecticide resistance and an inability to control cabbage stem flea beetle.

While this has not been an issue in Ireland to-date, only using insecticides when thresholds are exceeded is vitally important.

Pigeons are a serious pest in the spring, but damage is less likely in large canopies.

Winter oilseed rape can be highly profitable in its own right, but profitability should be viewed across the entire rotation.

Yield increases in winter wheat after breaks for disease of up to 19% have been recorded in Teagasc experiments when compared to continuous wheat.

Don Somers, a Teagasc Signpost farmer based in Co Wexford, has grown oilseed rape for the last 17 years. Recent years have seen Don achieve more desirable yields, making the crop a much more attractive option to grow.

A contributing factor to more consistent yields is drilling crops earlier and applying organic manures to

produce crops that have a larger GAI in the spring.

Having a larger GAI in the spring makes it much easier to achieve the target GAI of 3.5 at flowering, particularly in years when pigeons are active or if there is poor growth in February and March.

Crops with a more significant GAI in the spring also offer a number of other benefits.

Such crops have the potential to capture more soil residual nitrogen during the autumn/winter period, reducing the threat to surface and ground water.

This also makes a contribution to profitability, since less nitrogen needs to be applied to the crop in the spring, thus reducing the cost of production.

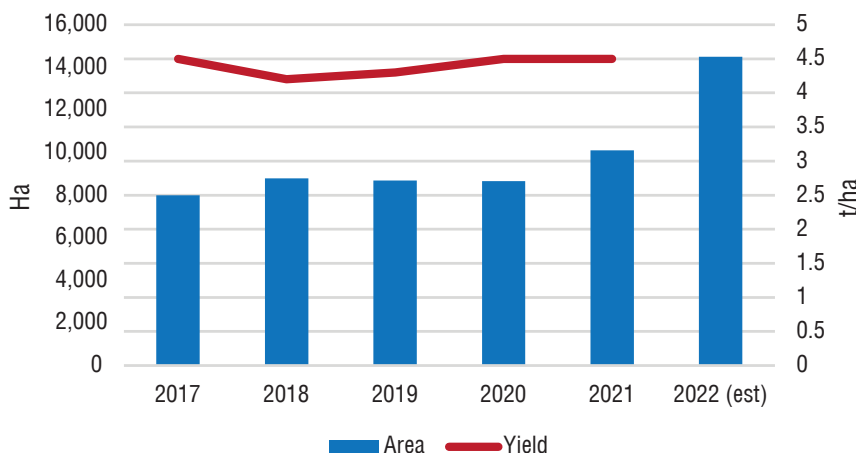
Don also applies the final split of nitrogen in liquid form – this enables nitrogen to be applied to the crop later.

Oilseed rape offers the farm a range of benefits. It enables the control of problematic grass weeds with alternative chemistry, preventing such weeds from becoming an issue on the farm.

Oilseed rape also helps to broaden both the drilling and harvesting periods, using labour resources on the farm more efficiently. The crop also helps to make a significant contribution to soil health.

Its deep taproot helps to improve

Winter oilseed rape ('17-'21) year area and yield.



soil structure and the incorporation of straw returns a significant quantity of carbon to the soil.

Don recognises that oilseed rape can present a number of challenges, however. Drilling it early can be challenging, since it can coincide with harvesting alternative crops.

Previous crops need to be harvested relatively early to enable the oilseed rape to be drilled, hence a bit of forward planning is required.

When using cover crops within the rotation, there is a need to be selective with species to avoid building

club root levels in soils and avoid particular cover crop species becoming problematic weeds within crops of oilseed rape.

Harvesting oilseed rape can be very challenging with unfavourable weather conditions and there may be a need to compromise on the crops moisture to ensure that the crop is harvested prior to the crop shedding seed.

The oilseed rape crop also requires an investment in machinery, in the form of a side knife and preferably an extendable table for the combine head.

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OSR: the research angle

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Teagasc, Oak Park.



Rotations: For most crop growers, adopting rotations improves profitability. Oilseed rape (OSR), along with beans, are key break crops in rotations, allowing a valuable disease break and additional opportunities for weed control.

Oilseed rape suits a wide range of soils and its sowing and harvest window doesn't clash with the main cereal crops.

Our current systems research in Knockbeg has shown that 'first' wheats in rotations yield 19% more than continuous wheat, but with considerable year-to-year variation.

Earlier work over eight years indicated an 11% yield increase. The current five course rotation, which include two first wheats (following OSR and oats), returns an annual margin of €200/ha more than continuous cereals at 2020 prices.

This benefit should be attributed to the break crops, even if it is delivered

in the following year. The evaluation of individual crop margins makes little sense when comparing rotations – we need to compare the performance of all crops in the rotation.

Table 1: Knockbeg research: break crop and rotation benefits.

| First wheat yield boost | Six year average |
|---------------------------------------|------------------|
| Current research | 19% |
| 2011 research | 11% |
| Additional annual margin for rotation | €208/ha |

Nitrogen management: PhD candidate Shiva Rahimi Tanha has carried out in-depth studies of nitrogen (N) management systems in OSR over a three year period. Her key findings include:

- The canopy management approach of assessing crop N uptake and crop size (GAI) post-winter and calculating the fertiliser N needed based on these, is suited to our conditions.
- Crop N uptake and plant growth, measured as GAI post-winter are key determinants of fertiliser N.

•Soil mineral N measurement may be of less benefit in our milder, wetter conditions.

•In our climate and soils, more soil N becomes available through the season, resulting in a lower demand for fertiliser N, but this is difficult to predict.

Winter OSR is unique in its capacity to capture and efficiently use soil N over the winter period, which in certain seasons, can amount to 100kg of N/ha (cereals would be limited to approximately 30kg N/ha). This reduces environmental risk and greatly reduces the need for fertiliser N, allowing a more targeted approach to N fertilisation.

Crop establishment: Previous research has shown that winter OSR can be successfully established with a range of crop establishment systems, from plough-based systems to strip-till with 600mm row spacing.

These results will help support the production of oilseed rape and consequently give growers more options in adopting more resilient rotations.