GROWING ORGANIC OATS IN 2025

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BACKGROUND

The recently published Food Vision 2023 Tillage Group Report sets out the path for government, growers and industry to achieve a vibrant tillage sector. Organic farming is part of the Food Vision 2030 Report with ambitious targets set for the organic sector with an overall aim to double the area of organic farming in Ireland by 2030. The Food Vision report outlines opportunities for organic tillage farming supplying a growing organic livestock sector by displacing imported feedstuffs. Another growing market is supplying organic porridge oats for such household names as Flahavans and Whites. Recently Flahavans announced they are looking for new organic oat growers to meet increased demand. To meet these needs, Action point number 28 of the Food Vision document has two main recommendations for organic farming:

1. Increase awareness and promote opportunities for growing organic tillage crops.

2. Carry out a desk-top study on the commercial feasibility for an organic feed mill including possible capital supports.

ORGANIC TILLAGE AREA

The tillage area under organic faming is dominated by oats (as shown Table 1). This is no surprise as oats was the primary cereal grown in Ireland before chemical fertilizers and pesticides were discovered in the first half of the 20th century. CSO records show that there was over 600,000 ha of oats in Ireland in the 1840s. But the primary reason oats dominate the organic tillage area is the profitability of organic porridge oats and the lack of a dedicated organic feed mill, which limits markets for selling barley or wheat into a merchant.

Table 1: Organic Cereal Crop Area 2024

	Spring (ha)	Winter (ha)	In conversion (ha)
Oats	2266	240	500
Barley	468	32	174
Wheat	162	47	120
Cereal/Legume Intercrop	1102		245

Source: Martin Bourke, Teagasc

ORGANIC TILLAGE PROFITABILITY & YIELD

The key factor controlling profitability is the yield of organic oats as costs remain static across the yield levels (Table 2).

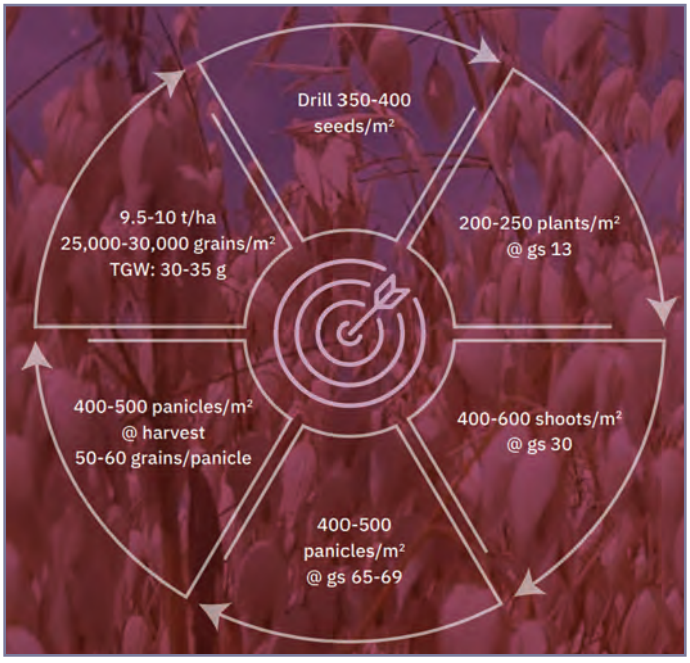
Table 2: Teagasc Analysis of Organic V' Conventional Oat Profitability 2024

Profitability (2024 Harvest)	Conventional Spring Oats (€/ha) 7.2 t/ha	Organic Spring Oats (€/ha) 4.0 t/ha	Organic Spring Oats (€/ha) 3.0t/ha	Organic Spring Oats (€/ha) 2.0t/ha
Seed	111	212	212	212
Fertiliser	370	0	0	0
Sprays	193	0	0	0
Machinery Operations	534	513	513	513
Miscellaneous Costs	73	40	40	40
TOTAL VARIABLE COSTS	1,281	765	765	765
Grain Sales	1,404	1,640	1,230	820
Straw	250	250	250	250
Gross Margin	**373 (151/ac)**	**1,125 (455/ac)**	**715 (289/ac)**	**305 (123/ac)**

Source: Martin Bourke, Teagasc

Seedtech has collated key information on the components of yield for oats. This diagram gives some key milestones that need to be achieved for conventional oats, which should be similar for organic oats. For more information on this and all tillage crops, please see www.Seedtech.ie, or email info@seedtech.ie to be added to our email, WhatsApp and open day lists.

Graphic 1: Key targets during growing season of oats

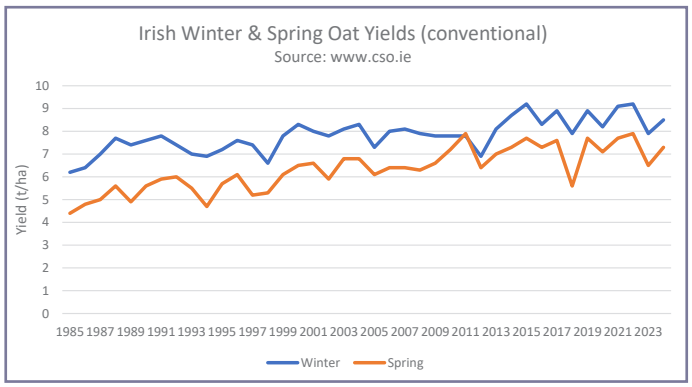


Source: www.seedtech.ie

IRISH OAT YIELDS

Ireland has the highest yield of conventional oats in the world (source https://ourworldindata.org/grapher/yields-of-important-staple-crops?country=OWID_WRL~IRL~USA~GBR~NZL) and I am confident this is the same for organic oats also. These high yields are from a mix of the spring and winter sown crops of oats (see chart 1). The key to our high yields of oats is down to the use of spring varieties being drilled in late autumn and our suitable climate.

Chart 1: Irish Oat Yields 1985-2024



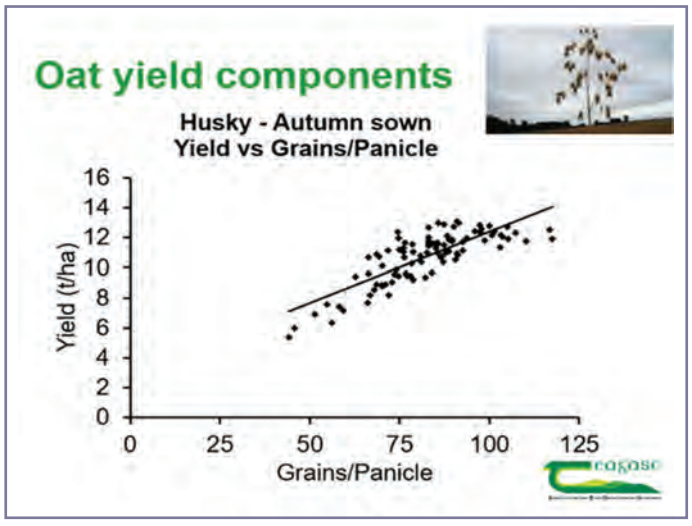
Source: www.cso.ie

HOW DO WE MAXIMIZE OAT YIELDS

Winter oats in Ireland yields 1.5 t/ha more than spring oats (Chart 1) for conventional crops. The organic dataset is not available, but we do have DAFM organic variety trials 2017-2019 which give a similar result of a difference of 1.1 t/ha between the control varieties drilled in winter v's spring. This yield advantage from winter drilling may become more important in the future as spring and summer temperatures are predicted to increase. Oats generally perform best where moisture is not lacking, especially during the grain formation stages as this reduces stress on oats. Look at the severe drop in spring oat yields in 2018 (5.6 t/ha) and you will see how a dry summer affects yields of spring oats.

This is nicely explained by research conducted by the late Dr John Finnan, Teagasc who found that the greater the number of grains per oat panicle, the higher the yield.

Graphic 2: Relationship of grain number per panicle and oat yields



Source: Dr. John Finan, Teagasc

Around the same time, some Canadian researchers discovered that if oats are stressed during grain fill (i.e. from a lack of soil moisture and/or warm temperatures, like in 2018), some grain sites abort (or blast as you might know it). These sites will have used up some valuable nutrients, and these are unlikely to be re-distributed to the remaining viable grain sites on the oat panicle, resulting in lower yield and quality.

Graphic 3: Oat v's wheat spatial arrangement of grain sites

Source: McElroy et al., 2018

The distance between individual oat grains is greater than between wheat or barley grains, making re-distribution of nutrients from aborted grains unlikely (McElroy et al., 2018) as you can see from graphic 3.

So now we understand how yield is fundamentally formed in oats and why avoiding stress during grain formation is quite important.

The last piece of the jigsaw is looking at what our European colleagues are doing in recent years i.e. drilling more spring varieties in the late autumn. This is part of a large EU funded project called Crop Diva (***https://www.cropdiva.eu/*** _). The logic is simple: as climate change is affecting weather patterns, Europe is experiencing milder winters and drier summers. These weather patterns do not suit traditional spring drilled crops such as oats and beans. One strategy is to drill spring varieties in the winter or late autumn, thus ensuring crops go through grain formations stages in spring where the risk of dry conditions is reduced. Milder winters (as we normally experience in Ireland) have reduced frost risk which lowers the probability of winter kill when spring varieties are drilled in late autumn.

VARIETY CHOICE

Since the mid 1980s, oats in Ireland have been dominated by two varieties, Barra and HUSKY, both of which are spring varieties, and both were suitable to be drilled in autumn. Of course, there is a risk of frost damage or winter kill which occurred in 1998, 2008 and 2010. This risk is minimized by drilling as late as possible in autumn to delay the crop getting to GS 30 until after mid-March, when the risk of late severe frosts is minimal. The other way to minimize risk is choosing a variety from the DAFM Recommended List with known frost tolerance, which HUSKY performs quite well (see winter hardiness score).

Seedtech produces DAFM and IOA certified Organic HUSKY seed each year. This is for sale though Agri-retail merchants throughout Ireland. Book early to secure your supplies.

An Roinn Talmhaíochta,
Bia agus Mara
Department of Agriculture,
Food and the Marine

WINTER OATS RECOMMENDED LIST 2025

AGRONOMIC & QUALITY CHARACTERISTICS	RECOMMENDED		PROVISIONALLY RECOMMENDED
	HUSKY	WPB ISABEL	WPB ENYA
Relative Yield ♦	**102**	**98**	**102**
Straw height (cm)	111	114	103
Resistance to lodging	6	7	(5)
Straw breakdown	5	7	(6)
Earliness of ripening	8	5	(6)
Winter hardiness**	5	-	-
Resistance to:			
Mildew	5	5	(5)
Crown rust	4	5	(5)
Grain quality:			
Kernel content (%)	69.5	71.0	69.4
1000 grain weight (g)	41.7	44.1	47.5
Hectolitre weight (kg/hl)	58.0	60.5	58.2
Year First Listed	**2010**	**2020**	**2025**

Data in this table is based on trial results from **2022, 2023** and **2024**
♦ Yields are expressed as a percentage of the mean of **Husky and WPB Isabel** (100 = 9.05t/ha @ 15% moisture content).
- No data.
( ) Limited data.
** Winter hardiness score for Husky is based on robust data from Spring 2011.

Graphic 4: DAFM Winter Oat Recommended List 2025 (conventional oats)

Assessing winter oats trials for frost damage on the Seedtech Research Farm, Co. Waterford. HUSKY (unaffected in my right hand), a stunted frost susceptible variety in my left hand.

ITEMS TO WATCH OUT FOR GROWING ORGANIC OATS

The statistics in table 1 show that oats make up the lions share of the organic tillage area and rotations are quite short. Ideally, we recommend people to grow oats 1 year in 5 with other cereals like barley etc. or break crops like beans or grass in the alternative years. There are three main risks to growing oats too tight in rotation, namely Oat Mosaic Virus (OMV), Oat Cyst Nematode and Oat Take-all. Of the three, OMV is the one I have most experience of in Ireland. OMV is mainly seen in winter drilled crops but affects spring crops also but often undetected. OMV reduces yield like a mild cold affects human health i.e. we struggle away but perform well below our best. Oat Cyst Nematodes are microscopic 'worms' that affect root health and in dry times, really stress crops and reduce yields. First you see stunted patches which can be confused with OMV, but the roots will be 'knotted' as in the photo below.

Oat Take-all is rarely seen but has the potential to affect oats as it is a common strain between bent grasses and oats. The more common form of Take-all affects wheat and barley and does not affect oats.

For all three disorders, a good rotation is fundamental for prevention. **Unfortunately, once you get these disorders in your field, it is not possible to grow oats again for many, many years.**

Oat Cyst Nematode - Oat Cyst Nematode taken in a Cork oat crop with classic 'knotting' of the roots.

SUMMARY POINTS

- Organic tillage is in demand and offers attractive margins and support payments.
- Oat yields are the main determinant of organic oat crop profitability.
- Winter-sown oats yield 1.0 t/ha greater than spring sown oats, especially in soils or seasons where moisture is limited.
- Where oats are grown in close rotation (more than 1 year in 5), disorders such as Oat Mosaic Virus and Oat Cyst Nematodes can drastically reduce yields and prevent oat growing in future.