

AGRONOMISTS BRIEFING

Growing HEAR Rape

Premium Crops is promoting the production of High Erucic Acid Rape (HEAR) for harvest 2015 onwards. Since its acquisition by Technology Crops, Essex and Technology Crops International in the US, Premium Crops is part of one of the worlds largest and most experienced producers of HEAR.

As you will know, HEAR is Brassica napus, the same species as '00' and '000' Oilseed Rape. The difference lies in the oil profile. HEAR contains around 50% Erucic acid compared with less than 2% in '00' and '000' low varieties but in other respects it is identical:

- Same agronomy as '00' Oilseed Rape
- Same output per hectare as '00' Oilseed Rape
- Same full FOSFA 26a oil, moisture and admixture bonuses as '00' Oilseed Rape
- PLUS a premium of up to 20% over '00' Oilseed Rape
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The unique properties of HEAR oil and its constituents are irreplaceable in a variety of industrial and food applications, including high temperature lubricants, slip agents, printing ink, cosmetics and consumable spreads. Demand globally is growing, which provides an opportunity for expansion of HEAR production.

New HEAR varieties are available with similar yield and agronomic characteristics to "00" varieties, which means that there is no agronomic disadvantage to the growing of HEAR.

HEAR must be grown at least 50 metres from any '00' Oilseed Rape and the grower should not be growing Oilseed Rape more than 1 year in 2 (ie not a Rape, Wheat, Rape rotation).

Growers of '00' Oilseed Rape can easily switch to HEAR to enhance their profitability.

Is it really an easy transition from '00' to HEAR?

HEAR offers the grower the chance to grow Oilseed Rape with up to £150/ha more margin – this is obviously attractive but there are common fears of growing HEAR

- It will "poison the land" and contaminate the land irrevocably preventing future production of '00' varieties on those fields.
- The yield will be poorer
- The agronomic factors of the varieties are worse

Firstly Some Reassuring History

HEAR has been grown in the UK since 1986, currently accounting for >25,000 hectares/year. In those 28 years there has never been a single instance of a '00' Oilseed Rape crop being rendered unsalable by in-field contamination of HEAR, or vice versa.

There are 2 sources of potential contamination: Pollination from neighbouring fields of Oilseed Rape and Oilseed Rape volunteers in the same field.

Contamination by Pollination from Neighbouring Fields

Oilseed Rape pollen grains are relatively large (PM25) with a sticky outer coating – these characteristics do not lend themselves to travelling long distances

There is an EU statutory 50 metre isolation distance between growing crops of HEAR and '00' Oilseed Rape. This is more than sufficient to limit crop contamination. Cross pollination reduces exponentially with distance so the 80/20 rule applies (where the first 20% of isolation distance gives 80% of the reduction of cross contamination).

Volunteers in the Same Field

This is an area where timely harvest to minimise seed shed and correct treatment of Oilseed Rape stubbles to minimise seed dormancy reduces further potential risk. Glyphosate applied pre harvest may also reduce seed viability and the use of pod stickers minimise pod shatter.

Oilseed Rape seeds have little primary dormancy, so once they have adequate moisture they germinate immediately. The seeds can acquire secondary dormancy and the major way to avoid this is to keep the seeds in the light. Do not cultivate the Oilseed Rape stubbles until at least 4 weeks after harvest and preferably just before planting the following crop. This allows shed seed to germinate as soon as it becomes moist enough and this flush of volunteers can be killed off prior to sowing the following crop.

Rotational effects

The viability of seeds in the soil seed bank declines over time and it is estimated that after 3 years the viable Oilseed Rape seed bank will reduce by 95%. Control of Oilseed Rape in cereal crops is extremely efficient, so it is safe to assume that no more rape seed will be returned to the seed bank during other 2+ years of the rotation.

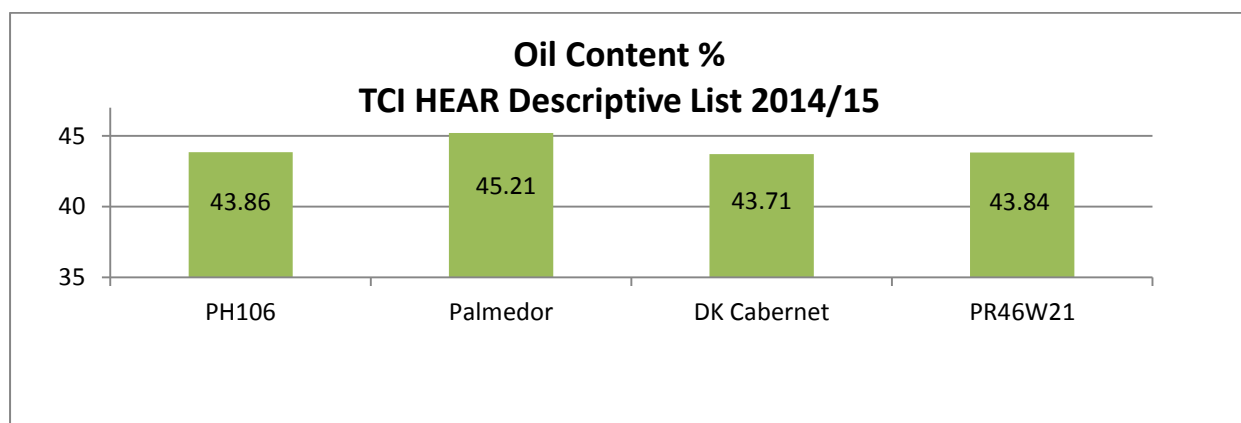
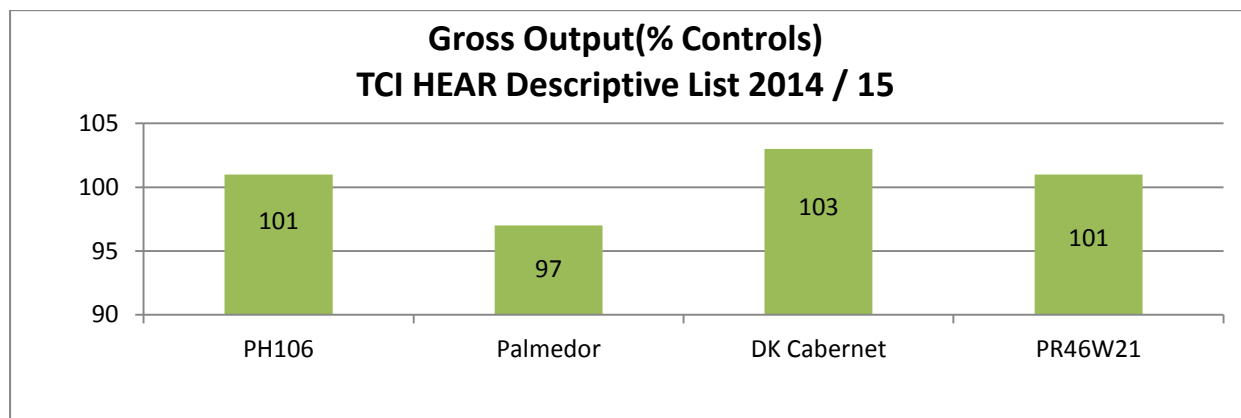
Integration of Cultivation for Minimising Oilseed Rape Volunteers

Cultivation over the rotation influences not only the Oilseed Rape seed bank but also the management of herbicide resistance of other weeds such as Blackgrass. Direct drilling/min-till increase the problems of herbicide resistance whilst being beneficial to the reduction of Oilseed Rape volunteers. Ploughing has the reverse benefits. Integration of the two cultivation systems can address both problems however. If ploughing in any one year, direct drill/min-till for the following few years. This will maximise the rundown of the viable seed bank over time whilst maintaining the benefits of burying resistant weeds to depth and allowing good chemical weed control in the shorter term.

Varietal Performance

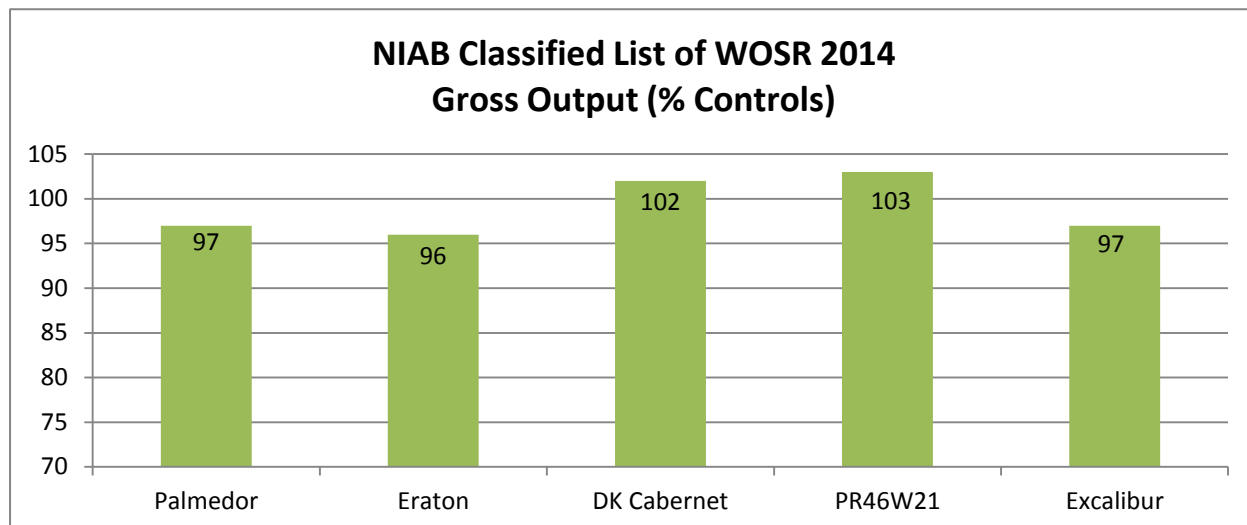
As stated earlier, HEAR varieties are available with similar yield and agronomic characteristics to “00” varieties, which means that there is no agronomic disadvantage to the growing of HEAR.

Palmedor (Hybrid) has been the mainstay of HEAR production for the last 3 or 4 years, with new varieties PH106 (Hybrid) and Durola set to become increasingly important.



All the above information is from trials results from 5 replicated trials sites across the UK, hosted by NIAB, Scottish Agronomy and CAT. Results are a mean of two years (2012 and 2013).

	PH106		Palmedor	PR46W21	DK Cabernet
Plant Height (cm)	165	Med/Tall	160	162	157
Autumn Vigour	7.3	V. Good	7.0	5.7	7.3
Resistance to Lodging	6.0	Stiff	6.3	8.0	8.7
Stem Stiffness	5.7	Medium	6.0	7.7	8.0
Maturity	6.0	Med / Late	7.0	6.0	5.7



Good Disease Resistance

PH106 and Palmedor scores well for both Light Leaf Spot and Stem Canker resistance and can therefore be grown successfully throughout the UK, although, like most rapeseed varieties genetic resistance should be seen as just one element in a wider disease control programme.

Resistance to....	PH106		Palmedor	PR46W21	DK Cabernet
Light Leaf Spot	7	Good	7	5	6
Stem Canker	5	Med / Good	5	4	6

In summary

- HEAR varieties have a yield similar or equal to “00”
- HEAR varieties often have a higher oil content to give a greater bonus
- HEAR varieties are agronomically robust and no different to “00”
- HEAR volunteers do not pose a problem

As one of our growers said “We have grown HEAR for over 10 years and the premiums available have made it the biggest gross margin on the farm for many seasons. Why would you not grow HEAR?”

For more information, please call Premium Crops on 02392 632 883, or email info@premiumcrops.com