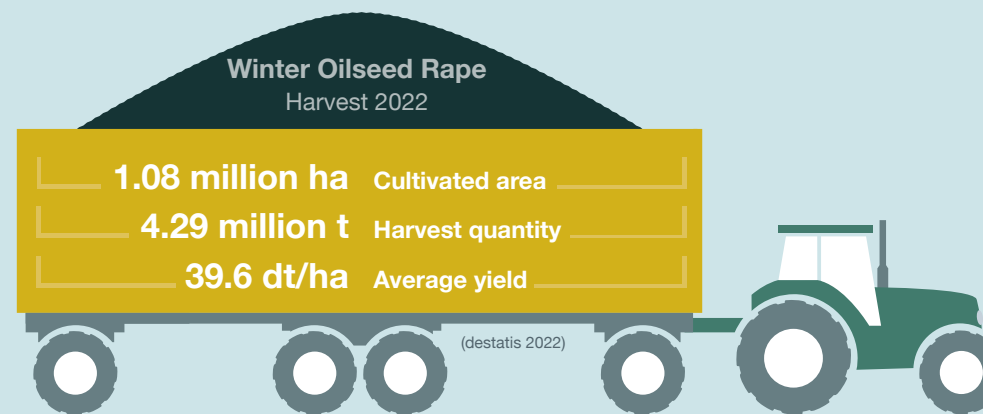


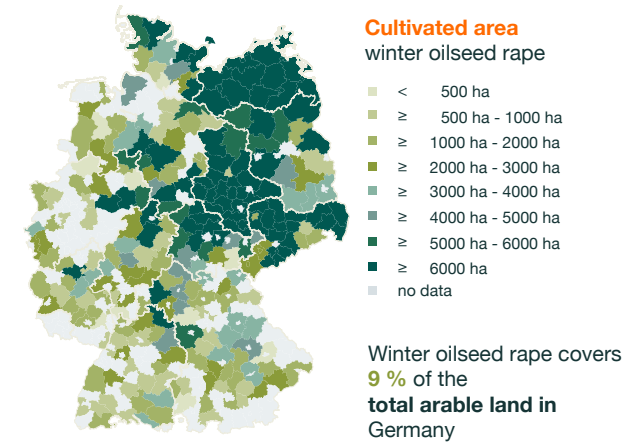
Winter Oilseed Rape – versatile, healthy and climate friendly

SEEDING
THE FUTURE
SINCE 1856



1. Cultivation

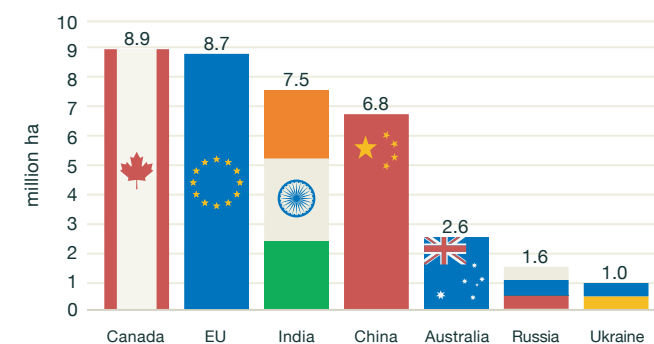
Winter oilseed rape cultivation in Germany



Winter and spring oilseed rape – international

Cultivated area 2021

In Germany > 99 % winter oilseed rape
Outside Europe almost only spring oilseed rape



Advantages of oilseed rape cultivation

- High preceding crop value:**
Up to 10 % additional yield for the following crop
- Widening of crop rotations** through leaf crops in the case of intensive cereal cultivation
- Advantageous root system** due to a particularly deep and strong taproot system
- Erosion protection** through **eleven-month ground coverage** (sowing in August and harvesting in July)

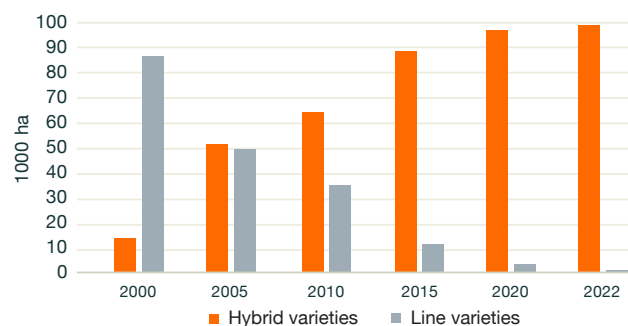
2. Breeding

Breeding goals of winter oilseed rape

-
- Yield/Agronomy**
Grain yield
Maturity
Begin of flowering
Winter hardiness
Pod shattering resistance
Plant length
 - Quality**
Oil content
Glucosinolate content
 - Resistance against diseases and pests**
Phoma
Sclerotinia (white stem disease)
Verticillium (rape wilt)
Clubroot
Cabbage stem flea beetle

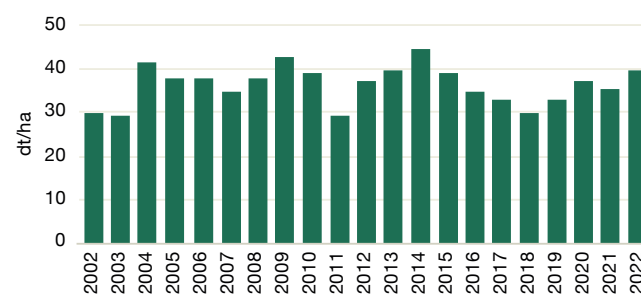
Progress in hybrid breeding

Cultivation area of variety types



High yield potential of oilseed rape

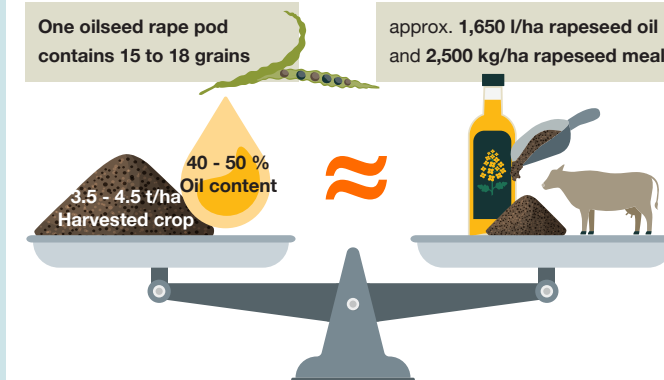
Winter oilseed rape grain yield



3. Quality

Production per hectare

Example calculation



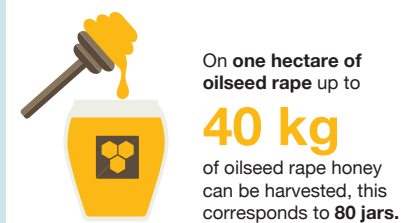
Composition rapeseed oil

- 62 % Monounsaturated fatty acids (oleic acids)
- 29 % Polyunsaturated fatty acids (thereof 9 % alpha-linolenic acids)
- 7 % saturated fatty acids

- Particularly valuable**
- High content of alpha-linolenic acid
 - High content of monounsaturated oleic acid
 - e.g. positive against cardiovascular diseases

Positive environmental impact

- Positive landscape image
- Oilseed rape blossom attracts insects



4. Possible usage

Raw material quantities

Oilseed rape oil production
4 million t/year



Rapeseed cooking oil

With **40 %** market share
most popular cooking
oil in Germany

Feeding with rapeseed meal

- Quantity in feed**
Over 4,1 million tonnes of protein feed
- Areas of application**
High-quality protein feed
for cattle
supplementary component in pig and poultry feed

Sustainable oilseed rape fuel

72 % of the biofuel used in Germany is biodiesel (2.3 million t)

The entire rapeseed harvest is **certified** as sustainable

70 % CO₂ savings compared to fossil diesel

All data in the chart refer to Germany, unless otherwise described.

① Cultivation / Winter oilseed rape cultivation in Germany (own report according to evaluation kynetec Farm TrakSeed 2022; share of total arable land, destatis 2022); Winter and spring oilseed rape internationally (own report cultivation areas according to FAO, selection of countries, 2021; cultivation type according to agricultural land use destatis 2022 and UFOP 2022); Advantages (own report according to UFOP Raps in der Bioökonomie 08/2020 and Die Rapswurzel, www.ufop.de).
② Breeding / Breeding goals (own report, selection of overriding breeding goals 2023); Progress in hybrid breeding (own report according to amis@seed 2010 and kynetec 2022); High yield potential (own report according to Growth and Harvest - Field Crops - Fachserie 3 Reihe 3.2.1, destatis 2002 - 2022).
③ Quality / Sample calculation (own report according to UFOP, Rapeseed in the Bioeconomy 2020); Composition of rapeseed oil (own report according to UFOP, German Rapeseed Oil Versatile and Special, www.ufop.de); Positive environmental impact (own report according to UFOP, Oilseed rape in the Bioeconomy 2020).
④ Possible usage / Raw material quantities (own report according to BLE, AML according to GfK household panel 2021); Rapeseed cooking oil (own report according to UFOP 2020, Oilseed rape in the bioeconomy); Feeding with rapeseed meal (own report according to Feed Protein Balance Sheet 2020/21, BLE 2022 and UFOP 2017); Sustainable oilseed rape fuel (own report according to oilseed rape in the bioeconomy, UFOP 2020).