



Crambe

(*Crambe abyssinnica*)

Crop Fact Sheet

Crambe (more commonly known as Abyssinian mustard) is an annual spring sown herb from the mustard family originating from the Mediterranean regions. Crambe has been grown successfully for industrial use in North America for a number of years and more recently has proved to be successful in the UK as an alternative oil crop.



Image courtesy Springdale

What is crambe used for?

The oil extracted from Crambe is rich in erucic acid from which erucamide is derived which is used primarily in the plastics industry as a slip-agent (i.e. to coat plastics, such as bags and bottle tops, to stop them sticking together). Crambe seed contains 35% oil, of which 56 – 58% is erucic acid.

The potential market for erucic acid oils in Europe is currently thought to be in excess of 70,000 tonnes per annum, most of which could be satisfied by Crambe. Crambe oil is similar in its composition to that of High Erucic Acid Rape (HEAR), however the oil is more favourable due to higher concentrations of erucic acid and better colour characteristics.

Where can it be grown?

Crambe has only been grown in the UK since 2001; however production has increased year on year. Crambe is also grown successfully in Italy, the Netherlands, USA, New Zealand and Australia.

Crambe can be grown on a wide range of soil types from sands to heavy clays, although soil structure and moisture availability in the early stages of growth determine crop productivity.

Crambe is unrelated to other major arable crops in the UK and therefore does not pose a problem in existing crop rotations, where it is most likely to replace oilseed rape or alternative break crops. It does not cross-pollinate with oilseed rape, therefore separation distances are not required, as they are between conventional and high erucic acid rape. To avoid problems with volunteers, Crambe should not be grown within four years of oilseed rape.

Production cycle

Crambe is a spring sown annual, attaining 1m in height and produces a strong tap-root and visible small white flowers. It has better drought tolerance than oilseed rape and a particularly short growing season.



Seed
Image courtesy Springdale



Emergence
Image courtesy Springdale



Pod set



Crambe oil

Key points

- Spring sown annual attaining 1m in height
- Oil crop rich in erucic acid used in the plastics industry
- Same market as High Erucic Acid Rape (HEAR)
- Similar management practices to spring OSR
- Grown on buy-back contract
- Eligible to be grown on set-aside with an industrial use contract or main regime land
- No isolation distance required from conventional rape unlike HEAR

Establishment

Good establishment is key to successful production of crambe. Crambe is a small seed, so a firm moist seedbed will help to encourage even establishment.

As Crambe seedlings are sensitive to frost sowing is carried out from early April through to mid-May, after risk of frost has passed.

A stale seedbed approach can help weed control. Using a conventional cereal drill Crambe should be sown in rows 12 -15cm apart, to a depth of 1.25cm. A target population of 120 - 150 plants/m² is thought to be optimum density to achieve maximum yields. This can typically be achieved at a sowing rate of between 15 - 20kg/ha.

Initial growth phases of Crambe are slow and weed control is critical. Early crops drilled into moist seedbeds may prove more competitive with weeds than those drilled in dry conditions.

Inputs

Crambe requires moderate inputs, similar to oilseed rape, in order to maximise productivity.

Nutrients

Nutrient demands are similar to that of spring oilseed rape. 150kgN/ha may be applied to seedbeds or post emergence, or split between the two if leaching is an issue on lighter sandy land. A response to sulphur is possible in situations similar to that seen for responsive oilseed rape crops. Maintenance dressings of P and K should be sufficient, no yield responses are seen with additional applications.

Agronomy

- Sow from mid-April to mid-May
- Crambe seedlings are sensitive to frost
- Initial weed control critical
- Pre-emergence herbicides should be applied where possible. Post emergence control may also be needed but options are limited.
- 150kgN/ha applied to seedbed or post emergence
- Flea beetle may require treatment
- A fungicide applied at mid flower will give large economic benefits.

also require control in some crops. Where necessary a mid-flower fungicide application can provide control and prevent late season pod shatter, generally giving a yield response and improved oil content.

Pests

Backward crops may be subject to flea beetle attack in the very early stages of development and crops may benefit from application of a persistent insecticide. In addition aphids and pollen beetle are relatively common in Crambe and should be controlled accordingly. As yet treatment thresholds have not been developed for such pests.

Weeds

Pre-emergence herbicides are the preferred option. If this is missed or herbicides have performed badly a post-emergence herbicide may be required, but options are limited. Herbicides covered under SOLA's (specific off-label applications) are permissible.

Diseases

Alternaria is the main disease affecting Crambe, and is favoured by warm and humid conditions. *Sclerotinia* may

Pigeons may attack some crops especially where establishment is slow, deterrents should be enforced as appropriate.

Harvesting

Crambe is indeterminate in nature, so crop maturity can be uneven. Harvest will occur from late July-September depending on sowing date (generally 100 day growing cycle).

The crop is versatile and can be desiccated, swathed and combined or direct combined, depending on area, uniformity of maturity, weather conditions, equipment availability and weed density.

Pre-harvest swathing or desiccation is favoured in crops with poor uniformity, when 50% of seeds have turned brown. The crop can then be gathered by combine 7 – 10 days later.

In a uniformly mature crop direct combining is the best option to minimise costs.

Crop productivity

Crambe yields currently average around 2 - 2.5t/ha. Contract price is currently around £180/tonne plus oil bonus. Contracts include bonus/deductions for oil content above/below 35%.

Returns are comparable to cereals and oilseeds; however the value as a break crop must be taken into consideration as Crambe has a positive effect on yields when followed by cereals.

Output (£/ha)	450
Variable costs (£/ha):	
Seed	60
Fertiliser	80
Agrochemicals	50
Total variable costs	190
Gross margin (£/ha)	260

Further Information

Springdale Crop Synergies
Springdale Farm, Rudston, Driffield,
East Yorkshire, YO25 4DJ
<http://www.springdale-group.com/>

Rural Payments Agency
www.rpa.gov.uk

Storage

Crambe should be dried to 9% moisture and cleaned to 2% admixture prior to storage. Due to the lightweight yet bulky nature of the crop, sufficient storage area should be allocated prior to harvest.