

Linseed

Linseed article was written by Mr Paul Rooke of the United Kingdom Agricultural Supply Trade Association Ltd (UKASTA) - www.ukasta.org.uk

Linseed comes from the family Linaceae, Genus Linum, which includes the vast majority of the herbs and shrubs found in temperate and sub-tropical regions bordering the Mediterranean Sea. Linseed/flax, *linum usitatissimum* is certainly not a new crop. Flaxfibre and linen have been discovered with remains of stone age man and it is known that flax was a well-established crop in the Nile Valley around 1000 BC. Within modern day Europe, however, linseed is most widely grown for its oil content – a very high quality drying oil.

The relatively unique properties of linseed oil have provided it with a market in the paint, lacquer and varnishes markets, as well as being used in soap, putty, printing ink and, of course, linoleum – a market which saw something of a revival in the early 1990s. The meal content is more problematic. Due to a deficiency in the amino acid lysine, it has only a limited use in the animal feed industry and will, therefore, trade at a discount to the meals of other vegetable oils such as soya and colza (rape).

In terms of EU support for both linseed and fibre flax, a subsidy system of one sort or another has been in operation since 1976. In the early days of the scheme, France was the single biggest producer of linseed. French production fell away significantly towards the end of the 1970s and it was not until linseed began to be grown in the UK during the early 1980s that linseed's EU fortunes were revived to any extent. Canada remains the world's largest producer of linseed and is the single biggest exporting country. It has also been the provider of many European-grown varieties, although in recent years Hungary has also emerged as a strong presence in the development of linseed varieties, particularly for winter sowing.

The recent popularity of linseed, particularly in the UK, has been aided by the fact that it has helped to spread the workload on farm during the autumn bottleneck. This has become an increasingly important factor for some growers, evermore reliant on fewer staff and more mechanisation. Furthermore, linseed can be grown without the need to purchase specialised machinery and, in terms of its variable costs, it has a relatively low requirement for both fertiliser and chemical inputs compared to other combinable crops.

Whilst spring sown linseed crops have been the tradition, newer varieties have been developed which are more tolerant of winter sowings. Additionally, one or two specific winter sown varieties of linseed have been introduced with claimed yield advantages over spring sown crops. Whilst winter sown varieties are aiming at the same market as their spring sown counterparts, the husbandry of such crops can be significantly different, particularly in terms of fertiliser and pesticide management programmes.

Linseed is traded on the world market on the basis of a 38% oil content and a 9% maximum moisture content. As previously mentioned, its single biggest market is that of crushing for oil extraction. Linseed oil is able to rapidly form a durable, sticky film on exposure to air due to a high content of unsaturated fatty acids, particularly oleic, linoleic and linolenic. These give it good surface coating properties but subsequent oxidation is a disadvantage when trying to investigate food markets for the oil as it has a very short shelf-life.

Whilst the oil has limitations in the animal feed market due to its amino acid make-up, the expeller meal is a valuable protein livestock feed (particularly for ruminants) and has a crude protein level of 38%. Whilst this does not compare directly with the higher protein feeds such as soyabean meal, it is comparable with more direct competitors such as oilseed rape.

Limitations in the food market mentioned earlier are also being overcome in some areas and the recent introduction of an edible form of linseed – linola – has helped improve the standing of linseed in such areas as the health food market. Linola is helping to utilise the high linoleic and linolenic amino acid levels in linseed. These are the amino acids also present in high levels in fish oils and are an important part of a low cholesterol diet.

More recently, there has been renewed interest in the use of linseed straw and flax in the UK. Recent work has looked at a wide variety of uses for fibre from linseed in both industrial products and textiles. One particular area has been the automotive industry where a number of interior components are now constructed using linseed fibre as an alternative to moulded plastics. The adoption of new techniques and technologies has also brought flax back into UK production. Harvesting using mainstream combining machinery rather than the traditional flax puller has meant an improvement in the management of the crop.

Flax is harvested at the point of total defoliation. The crop is then retted using one of two main techniques. Dew retting involves spreading the crop thinly over the ground after harvesting and allowing fungi to colonise and ret the semi-dessicated stems over a period of around eight weeks. Alternatively, water retting involves placing the crop in tanks and utilising the actions of anaerobic bacteria such as *Clostridium felsinium*. This process is speedier with the crop being completely retted in around seven days. More recently, enzyme retting has been looked at. Whilst this is a quicker process, there are concerns that it leads to poorer quality fibres.

Future European production of both linseed for oil and flax remains heavily dependent on the structure of a support system. Recently, changes have signalled a reduction in the level of support for linseed and for the more modern methods of flax production. In addition, the non-food production of linseed on set-aside land continues but at a relatively low level. It is only through the continued development of uses for the products that the crops will continue to be seen both in the UK and the EU.