Breeding oats as high quality animal feed

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In contrast to many other parts of the world, oats in the UK are mainly used for human consumption with oats not of milling quality sold for animal feed. However some dedicated markets for feed oats exist including feed for racehorses. At IBERS we breed husked and naked varieties of winter and spring oats that are marketed by our commercial partners Senova Ltd.

There has been considerable effort in recent years aimed at the development of naked oats predominantly for poultry and monogastrics. Naked oats have some of the highest metabolizable energy (ME) values of the cereals and we have made good progress breeding high yielding naked oat varieties with high energy and protein. Recent studies in the Quoats project demonstrated the value of naked oats for animal feed. Their high oil content together with good protein content and the composition of essential amino acids make them an ideal ingredient. Naked oats also have some established niche markets such as inclusion into feed for companion animals, racehorses and as wild bird food. However they have not yet achieved mainstream adoption as animal feed probably due to the lower yield compared to husked oats.

Husked oats produce higher yields and are more widely available than naked oats. For the ruminant market we are now developing oat varieties that combine a high oil groat with low lignin husk (trade mark “HiDioat” Senova Ltd). The high oil provides the high ME value for the feed ration and the low lignin husk is more digestible than a standard husk, making an ideal ruminant feed and as a husked oat will immediately be 20-30% higher yielding than naked oat.

The use of marker assisted selection (MAS) and high throughput phenotyping (using NIRS) to incorporate traits such as high oil content and low lignin husk into new lines is discussed.

Notes