ADVISORY COMMITTEE ON ANIMAL FEEDINGSTUFFS

39th Meeting of ACAF on 11 September 2007

Discussion Paper

OPPORTUNITIES AND IMPLICATIONS OF USING THE CO-PRODUCTS FROM BIOFUEL PRODUCTION AS FEEDS FOR LIVESTOCK

Action: The Committee is invited to note the conclusions of a report issued by ADAS and the University of Nottingham entitled “Opportunities and Implications of Using the Co-products from Biofuel Production” and to continue its consideration of the effect increased biofuel production may have on the animal feed industry in the UK.

Secretariat
August 2007
OPPORTUNITIES AND IMPLICATIONS OF USING THE CO-PRODUCTS FROM BIOFUEL PRODUCTION AS FEEDS FOR LIVESTOCK

Background

1. At its June 2007 meeting the Committee discussed the potential impact on the animal feed market from the increase in production of biofuels. The Committee received a presentation from Julian Bell of the Scottish Agricultural College and noted that as a result of the increase in demand for biofuels worldwide, the market prices for feedstock materials had risen. This was encouraging growers to put more land aside for biofuel crops, reducing the land available for growing a large range of other crops for human food and animal feed.

2. The Committee heard that the demand for biofuels had so far been less pronounced in the UK than elsewhere. The Committee also noted that any increase in biofuel production in the UK would result in increasing volumes of co-products becoming available to the feed sector.

3. The Committee asked the Secretariat to seek the views of relevant trade organisations and members before considering whether the Committee should issue a position paper. To assist the Committee’s consideration of this issue, the Home-Grown Cereals Authority, the English Beef and Lamb Executive and the British Pig Executive have kindly allowed the Committee access to a report that they recently commissioned. The report was prepared by ADAS and the University of Nottingham. A synopsis of the report, prepared by one of its co-authors Bruce Cottrill (ACAF Member), is attached at Annex I.

Action

4. The Committee is invited to note the conclusions of the report issued by ADAS and the University of Nottingham entitled “Opportunities and Implications of Using the Co-products from Biofuel Production” and to continue its consideration of the effect increased biofuel production may have on the animal feed industry in the UK.

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ANNEX I

SYNOPSIS OF A REPORT COMMISSIONED BY THE HOME-GROWN CEREALS AUTHORITY, THE ENGLISH BEEF AND LAMB EXECUTIVE AND THE BRITISH PIG EXECUTIVE

- There is considerable and increasing interest in the production of biofuels. At present the main plant-derived feedstocks for biofuel production are oilseed rape (OSR) for biodiesel and wheat and molasses (from sugar beet) for bioethanol, although attempts are being made to produce ethanol from plant cellulose that has no agricultural value. Co-products of biofuel production include oilseed meals and distillers grains, both of which have a long history of use as animal feeds.

- In the UK the Renewable Transport Fuels Obligation (RTFO) has set targets for biofuels use. If these were met from home-produced biodiesel and bioethanol, this would result in the production of up to 1.3 million tonnes of rapeseed meal (RSM), 1.0 million tonnes of wheat distillers dried grains with solubles (DDGS) and 210,000 tonnes of glycerol per annum by 2010. Information provided by the biofuel industry suggests that these quantities of RSM and DDGS are unlikely to become available for use in livestock rations within that timescale. Limiting factors include OSR crush capacity, the use of imported feedstocks for oil production, the development of methods of producing ethanol from biomass (rather than wheat) and demand for use of these co-products in power generation.

- On the basis of information currently available, it is estimated that by 2010 an additional 150,000 tonnes of RSM and 10,000 tonnes of glycerol will be available from UK-crush oilseed rape. Predicting DDGS production from wheat is more difficult, because at present no bioethanol plants are operational in the UK. However, based on current planned production, up to 1.1 million tonnes of DDGS could be available annually, of which 940,000 tonnes may be available for use as animal feed.

- In the short term, co-products from biofuel production from OSR (and other oilseeds) and sugar beet are likely to have a similar nutritional value to existing co-products. DDGS resulting from bioethanol production could be very different nutritionally to that of DDGS produced from the current potable alcohol production, but this will depend on methods of production used. In the longer term, pressure to reduce greenhouse gas emissions is likely to result in lower protein content feedstocks produced through lower fertiliser use, and the development and use of new varieties. This will result in a lower protein content in the co-products. The effects of this on total or digestible amino acid content, or on rumen degradability, are unknown, but will need to be assessed in order to optimise the use of the co-products in livestock diets.

- One of the co-products of biodiesel production is glycerol. It is a high energy feed, which can be fed to both ruminants and monogastric animals, although
there is relatively little experience of its use as an animal feed. Further research in the UK is recommended to assess maximum inclusion rates in livestock diets.

- Based on these estimates of production, it seems likely that the livestock industry could absorb all of the additional RSM and glycerol produced. Their use would displace other feed materials currently imported into the UK.

- Most of the recent information on maximum inclusion rates of DDGS in livestock diets has come from research carried out in the USA using maize-based DDGS. However, this has a very different composition from wheat-derived DDGS, and further research is recommended with this by-product to establish maximum limits for inclusion in diets, particularly for pigs and poultry.

- Variability in the composition of co-products between different biofuel producers does occur, and can be a major issue for feed compounders. However, variability is likely to become less as technology develops and biofuel producers adopt the most efficient methods of production.

- Increasing global demand for biofuels will affect feed prices primarily as a result of the increase in demand for the raw feedstocks (wheat, maize, soyabean and OSR). In the UK it is anticipated that cereal prices will rise, and as a result overall feed prices will increase. If significant supplies of RSM and DDGS become available in the UK, protein sources used in compound feed formulations may change, and this will be reflected in changes in the total protein and amino acid profiles of rations. As a result, there could be increases in the amounts of Nitrogen and Phosphorus excreted by livestock. Concentrate feeds used in the UK are subject to world feed prices, and as a result, increasing supplies of RSM, DDGS or glycerol would be most likely to replace imported feeds.

- There is increasing concern that the use of cereals for the production of bioethanol is pricing low-income consumers out of the market for staple foods. As a result, the methods of energy generation from biomass are likely to change rapidly over the next few years. Lignocellulose sources are likely to become the major feedstocks for bioethanol plants, while there will be increasing attention on the development and use of alternative oilseeds for biodiesel production. These developments will have an impact both on crop and livestock producers in the UK, and they will need to react rapidly to changes in the supply of feed materials.

Synopsis prepared by
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