REPORT ON EEC EXPERT GROUP ON WILDLIFE AND DOUBLE LOW OILSEED RAPE

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INTRODUCTION

Oilseed rape grown in European Economic Community was initially high erucic and high glucosinolate in character. Changes to low erucic acid rape (LEAR) occurred rapidly during the mid 1970s as a response to scientific evidence indicating the potential for erucic acid in food to create health problems for some mammals at least.

Subsequently the Commission of the European Communities (CEC) instituted a further change in quality; this gave premium payments to growers who produced rapeseed with a low glucosinolate content. This change is not yet fully operational but currently it is the CEC intention to move to a maximum level of 20 µm glucosinolates per gram of seed at 9% moisture content.

Since breeding of major cultivars of oilseed rape is in the hands of relatively few breeders and utilisation in hands of few crushers, it was inevitable that the CEC decision effectively meant a change to '00' rapeseed in all European States, not only those in EEC 10 or EEC 12.

WILDLIFE MORTALITY

Observations by shooting sportsmen in many European countries had shown substantial decline in European Brown Hare (Lepus europaeus) and Grey Partridge (Perdrix perdrix) populations. Additionally in the then Federal Republic of Germany and in Austria a range of symptoms in roe deer (Capreolus capreolus) ranging from mild to fatal had been observed. Initial reaction was that all of these observations were due to the introduction of low glucosinolate rapeseed, since the two coincided. Symptoms in deer were not noted in UK, France or Denmark.

SCIENTIFIC EVIDENCE

1. RAPESEED PLANT

Popular opinion had concluded that double-low rapeseed had both double-low seed and double-low vegetative matter. Whilst the former is undoubtedly true the latter was an incorrect conclusion. It has been conclusively shown that the foliage of some double-low rapeseed cultivars contained at least as much glucosinolates as did single-low types such as Bienvenu (Macfarlane-Smith, 1991). Hence a direct effect of introduction of double-low rape and animals grazing foliage being 'adversely' affected by low glucosinolate content seemed unlikely.

In a review Macfarlane-Smith et al (1990) did highlight the significance and occurrence of the sulphur compound S-methyl cysteine sulphoxide, commonly called SMCO in several brassicae, including Brassica napus. They also. reported the findings of Rosenberger (1943) and others (eg

Smith et al 1974) who demonstrated that SMCO was the cause of 'kale sickness', a syndrome occurring when ruminants were fed large quantities of some brassica forage species. This syndrome was exhibited as severe haemolytic anaemia and that in turn created secondary symptoms.

2. ANIMALS

a. EUROPEAN BROWN HARE

In a major review of European Brown Hare populations, Schneider and Nenner (1990) showed a long term decline in population and some possible cyclical population dynamics. Ellenberg (1990) showed quite conclusively that intensification of agriculture could create changes in environment and ecosystems and that such changes could have affected population of hare. Also Richter et al (1990) and Pegel (1990) reported direct feeding studies in which European Brown Hare was intensively fed upon double-low rapeseed foliage; no acute poisoning was found.

b. GREY PARTRIDGE

Tapper (1991) reported that environmental changes, especially of weed flora which hosted a range of invertebrates upon which partridges fed had been identified as a cause of population decline.

c. ROE DEER

Tataruch et al (1990) reported clinical symptoms of roe deer illness when fed upon double-low rapeseed as well as results of pathological, histological, chemical and botanical examinations. However Askew (1990) indicated that many areas of double-low rapeseed in UK coincided with populations of many deer species, including roe deer but that intensive field surveys had not found health problems in deer due to rapeseed. Pouzet (1990) reported a lack of problems with roe deer in France.

CONCLUSIONS

The first meeting of the EEC expert group confirmed increased palatability of double-low rapeseed foliage to some vertebrate wildlife in some instances. Direct adverse effects of double-low rapeseed upon European Brown Hare and Grey Partridge were not confirmed but a potential problem with roe deer was identified. A second meeting of the expert group held during February 1991 (report in preparation) confirmed these conclusions and also showed that red deer (Cervus elaphus) was unaffected by double-low rapeseed.

REFERENCES

1. All references from 1990 refer to the EEC expert group meeting held in 1988.

AGRICULTURE: Rapeseed 00 and intoxication of wild animals. Publ. Commission of the European Communites,

Luxembourg. Report EUR 11771 EN Edit Melvyn F Askew. LSBN 92-826 -- 1947-8

2. MACFARLANE-SMITH (1990) Personal Communication

3. TAPPER, S. (1991) The Game Conservancy Trust, Fordingbridge, Hampshire, UK - personal communication.

NOTE: This report paper is intended to give an overview of the alleged problems of rapeseed and wildlife from the crop aspect only. Full veterinary details of issues discussed are given in paper within the report at 1 above.