REPORT OF THE SCIENTIFIC COMMITTEE FOR ANIMAL NUTRITION ON THE RISK OF HYPERVITAMINOSIS A

(Opinion expressed: 5 February 1992)

1. This subject was discussed by the Committee, usually with members of the Scientific Committee for Food (SCF) or its secretariat in attendance, on several occasions. For these discussions the Committee was provided with a considerable amount of documentation listed under the references. The problem had been raised initially by the discovery of unusually high levels of vitamin A in the livers of domestic animals raised for human consumption. At that time Directive 70/524/EEC controlled only the use of this vitamin in feed for chickens for fattening by stipulating a maximum level of 20.000 IU/kg complete feedingstuff.

2. The Committee noted that, strictly speaking, the vitamin A requirements of animals were probably well below the actual levels recommended in most commercial feeding systems. It has been considered good industrial practice to raise the vitamin A content of animal feedingstuffs to restore losses occasioned by manufacturing processes and storage. Nevertheless, despite these comparatively large additions in animal feeds, current veterinary practice had not reported many cases of hypervitaminosis A arising in animal husbandry.

3. The Committee was also informed, that the recommended level of vitamin A intake for pregnant women was 8.000 IU/day and that the maximum total consumption should not exceed 25.000 IU/day (American Society of Teratology; American College of Obstetricians and Gynaecologists). In this connection the Committee was of the opinion that the new temporary limits for vitamin A addition to animal feedingstuffs, set out in Directive 91/249/EEC (13.500 IU/kg complete feedingstuff for all species of domestic animals, 25.000 IU/kg milk replacer for calves), would make it difficult to achieve levels lower than 8.000 IU/100 g fresh liver and so not exceed the recommendations for pregnant women.

4. The Committee noted also that in the opinion of the SCF, given to the Commission in July 1991, the risks of hypervitaminosis A were essentially related to a teratogenic effect in women during the first two months of pregnancy. A very low teratogenic risk appears possible from a chronic intake of 20.000 IU vitamin A per day and seems likely at doses exceeding 50.000 IU/day. Furthermore, the risks from a single large ingested dose would be greater than from the same dose consumed in portions over several days.

5. The analytical data, collected in different Member States, on the vitamin A content of livers of animals raised for human consumption showed a rather frequent occurrence of levels exceeding 100.000 IU/100 g liver, which might in certain cases reach even 400.000 IU/100 g liver.

   The opinion of the SCF is that such levels constituted a risk for the health of the public and that immediate measures should be taken regarding animal husbandry practices in order to reduce rapidly and effectively the vitamin A content of livers sold for consumption.

Until appropriate changes in present-day animal husbandry achieved this desired objective, the SCF had suggested that liver should not be consumed by women during the first two months of pregnancy or by women of child-bearing age as a measure of health protection for this particular section of the population.

The SCF had drawn the attention of the Commission to the risk of hypervitaminosis from the use of vitamin A for any other purposes, a point that had already been emphasised by this Committee.

However in the light of presently available knowledge and data, this Committee does not share entirely the opinion of the SCF. It considers that it would be extremely difficult to achieve the necessary levels of vitamin A in the liver of animals which would ensure that the suggested limit of 5 000 IU/100 g is being observed simply by regulating the levels of vitamin A added to animal feeds. There is the additional concern over a possible danger to the health of the animals and interference with efficient animal production should the daily intake of Vitamin A fall below the necessary level.

In effect, before being able to advise the Commission on the appropriateness of the measure already taken to temporarily limit the vitamin A content of animal feedingstuffs as set out in Directive 91/249/EEC and to suggest possible additional restrictions on the dispensation of vitamin A in animal husbandry, the Committee requires urgently the provision of the following information:

a. Establishment of the dose/response relationships between vitamin A, its different preparations, and provitamins A in animal feeds and the corresponding accumulations in the livers of farm animals, perhaps in steps of 1.000 IU vitamin A or its equivalent.

b. Establishment of the minimum doses of vitamin A and for its congeners needed to meet the requirements of different categories of domestic animals for proper growth and development, and of the maximum acceptable doses not causing any teratogenic effects in these animals.

c. Assessment of the effect of various beef production systems on levels of vitamin A in the liver.

d. Identification of the factors affecting the absorption, biotransformation and bioavailability of provitamins A and ß-carotenes.

e. Preparation of an inventory of the actual levels of vitamin A and its various preparations added to animal feedingstuffs in the Member States.

f. Identification of the sources of dietary vitamin A in animal husbandry.

g. Data on the stability of vitamin A in complete feedingstuffs and complementary feeds and on losses during feed manufacture, including granulation, extrusion, micronization, conservation, and storage.

h. A critical review of the various conversion factors to IU vitamin A and to retinol of different forms of vitamin A and provitamin A marketed in Member States.

i. Establishment of other sources of vitamin A not related to animal husbandry practices.

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