Geraldine Schofield
is Head of Regulatory Affairs, Foods Research, Unilever and is based in the UK. She is a microbiologist and has been involved in biotechnology regulation since 1986.

EU regulation of genetically modified organisms: Food and feed, traceability and labelling

Geraldine Schofield

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Abstract

The European Commission has proposed two new regulations to deal with the labelling and traceability of genetically modified organisms (GMOs). These deal with both food and animal feed. The intention is to provide information to the consumer, to ensure transparency of GM ingredients in the food chain and to encourage the unblocking of an (unofficial) moratorium on GM crops. This paper describes where the proposals are in the EU system, the issues and the problems industry will face if they are implemented in their present format.

Keywords: *genetically modified organisms, traceability, labelling, European regulation*

The European Parliament (EP) recently completed (3rd July, 2002) its first reading on two European Commission proposals to regulate genetically modified organisms (GMOs). These proposals effectively remove all GMOs and derived ingredients or products from the scope of the Novel Food Regulation (258/97). The new legislative package consists of a proposal for traceability and labelling of GMOs and products produced from GMOs (Proposal for a Regulation of the European Parliament and of the Council concerning traceability and labelling of genetically modified organisms and traceability of food and feed products produced from genetically modified organisms) and a proposal on regulating GM food and feed (Proposal for a Regulation of the European Parliament and of the Council on genetically modified food and feed). There were a considerable number of amendments to both proposals (56 on traceability and labelling, and 170 on GM food and feed). The results of the EP vote should facilitate the Council discussions and help member states to reach agreement and adopt a common position. The Danish presidency has planned four days of meetings in July which should bring about a political agreement by October, followed by further readings in the Parliament. The regulations are unlikely to be in force before mid-2003.

Among the issues are:

- a lack of 'fast track' procedures;
- explicit mention of the precautionary principle;
- devolved authorisation procedures (not centralised through the European Food Safety Authority);
- public access to assessments and decisions.

However, the main focus of debate was detectability, and thresholds for adventitious presence. The Parliament rejected the more extreme amendments for the labelling of products of animals fed with GM feed (meat, milk, eggs and derivatives) and labelling of processing aids. They did vote for origin labelling, and a lowering of the threshold for adventitious presence from 1.0 to 0.5 per cent.

By voting for origin labelling the proposals, as now amended, require that all raw materials or ingredients derived from a GMO be labelled. This would be achieved by means of tracing and

Geraldine Schofield
Unilever Research,
Colworth Laboratory,
Colworth House,
Sharnbrook,
Bedford MK44 1LQ, UK

Tel: +44 (0) 1234 222 131
Fax: +44 (0) 1234 222 539
E-mail:
geraldine.schofield@unilever.com

documentation. Detectability, which is not possible in some primary food derivatives (eg oil), and in many secondary derivatives (caramel, glucose syrup vitamins), was rejected. Figures 1–3 give some idea of the complexity of derived ingredients from maize and soya. Traceability will thus entail considerable bureaucracy and costs. Separating a product from the bulk commodity stream makes economic sense only if the product has enhanced value for a downstream customer (either a processor or consumer) that justifies incurring the added costs of separation.

Of course, it is not yet certain whether the 0.5 per cent will work its way into the common position. The Commission is

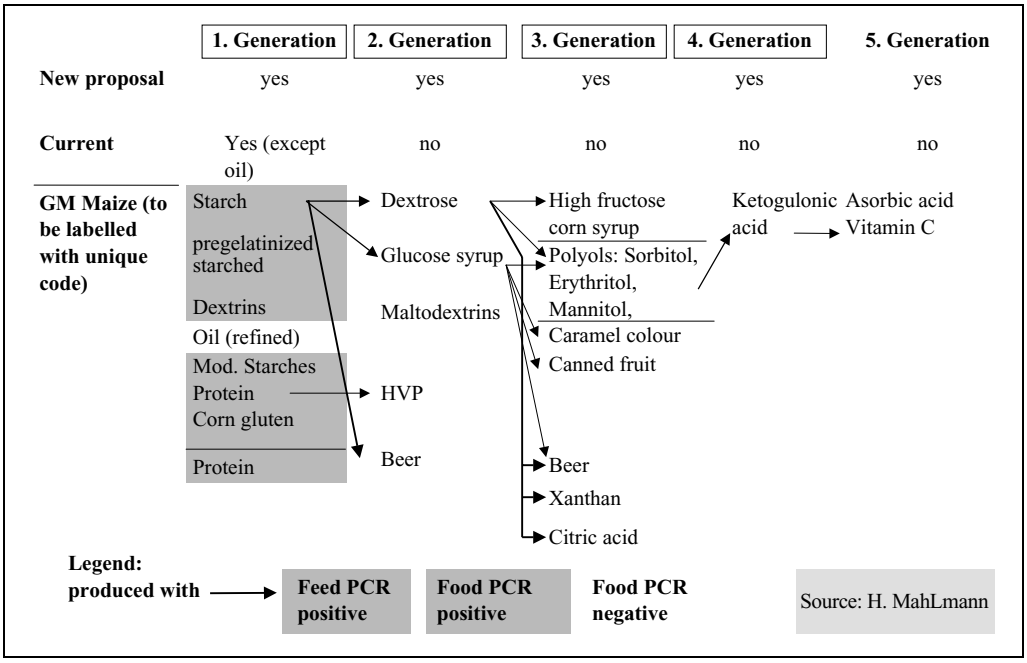

Figure 1: Produced 'from' GMO labelling

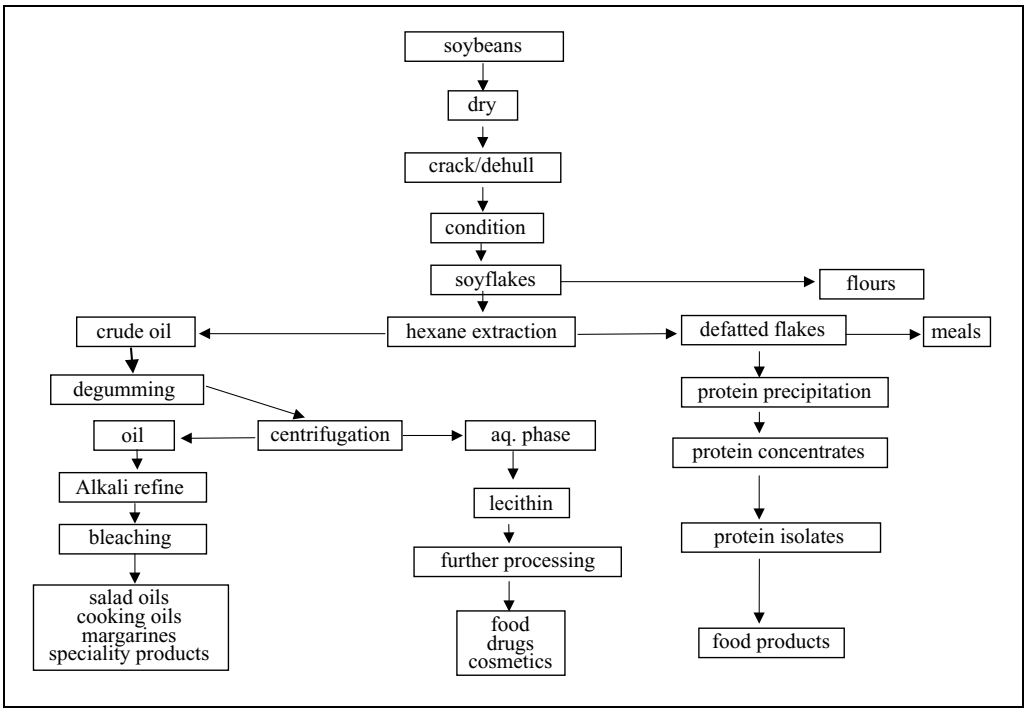

Figure 2: Soybean processing chain

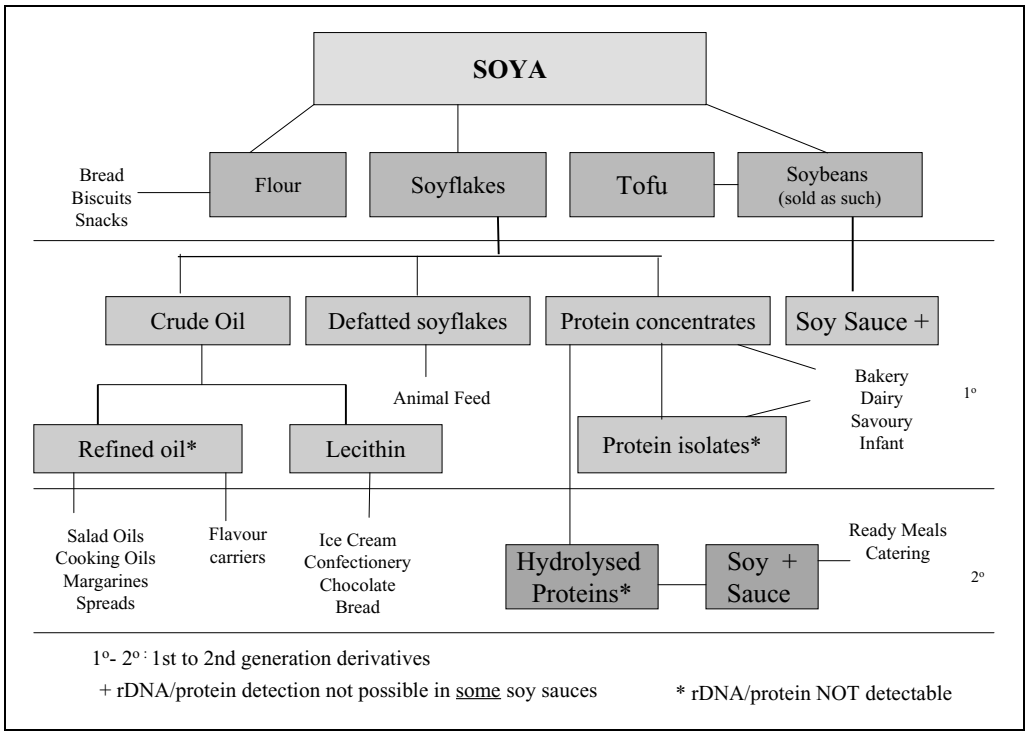

Figure 3: The farmgate traceability issue for soybean

against the reduction from 1 per cent and sees the lower levels as a 'hamper' to international trade.

IP systems are in use for a number of non-SM products

Identity preservation (IP) systems are currently in use for a number of non-GM products. Examples include certified seed, high erucic acid rapeseed, waxy corn (for starch production), flint corn (for cereal production), white corn (for corn chip production) and soybeans for food use in Japan. Organic products are traded under an IP system. The characteristics shared by all of these IP systems are that they serve very small markets relative to the size of the market for bulk commodities and they command much higher prices. The price premiums given by the North American Grain Export Association range from 15–20 per cent for certified seed to over 200 per cent for certain grains and oilseeds destined for health food markets.

The Organization for Economic Cooperation and Development (OECD) estimated costs for IP herbicide-resistant non-GM soybean from Brazil at 0.1–1.0 per cent tolerance threshold to be US$27 per tonne, a price premium of 10 per cent. For zero tolerance US non-GM soyameal protein the estimated premium was 50 per cent.[1]

The identity preservation systems that have been put in place in order to allow the supply of non-GM raw materials and ingredients to respond to current market demands will be strongly impacted by these newly proposed labelling requirements, potentially stretching them beyond their limits and corrupting their value. There is a widespread misconception that because sectors of industry have managed to segregate limited amounts of IP soya for specific applications it is possible to do the same for all derivatives. Under these proposals manufacturers will need to supply documentary evidence for *all* ingredients even where the protein or rDNA is not detectable. Further, that any GM-derived material was below the threshold at source and is accidental. (For further discussion see Schofield.[2])

An independent economic report for the UK Food Standards Agency the 'Economic appraisal of options for extension of legislation on GM labelling'[3] estimates there will be significant increases in Net Present Value costs by origin labelling – in the UK alone of £725m over 20 years.

Similar arguments can be made

reference the lowering of the threshold for adventitious (accidental) presence. The opinion of the Scientific Committee on Plants (SCP)[4] was that, at the *seed* level, 0.3 per cent for cross-pollinated crops and 0.5 per cent for self-pollinated and vegetatively propagated crops would only be achieved under ideal seed production conditions. Even assuming the best case condition for oil seed rape (0.3 per cent) the SCP estimated that the average potential rates of adventitious presence on storage, *prior* to processing would be 0.81 per cent, and for maize 0.57 per cent. How then is the proposed 0.5 per cent realistically, and honestly, to be achieved?

Also not only is the lower level of 0.5 per cent probably unattainable, the detection tests become less reliable at the lower levels. Although the level of detectability is commonly cited at 0.1 per cent it is only realistic for primary products. To date, there is no single validated test for determining whether a food is derived from biotechnology. Moreover, the tests that do exist frequently fail to detect modified DNA or protein in highly processed GM foods. The situation undermines the very integrity of the labelling regime. The Commission indicates that it will provide further guidance to operators on the topic. Such guidance will be critical to ensuring that accurate and verifiable labelling claims are made, and enforced, in a harmonised way across the 15 member states.

No single validated test for determining biotechnology-derived foods

So will there be more labels, will the new regulations ensure consumer choice? While EU food companies are able to source enough maize from Europe then labelling will probably remain limited. We will see animal feed labelled and some products containing soya oil. How does this provide more safety and choice? In reality, the situation in our supermarkets will remain, for the most part, unchanged.

Finally, one of the underlying hopes, by enacting this legislation, is that the unofficial moratorium on the planting of GM crops in Europe will be unblocked – this is unlikely to happen. Given the demand for segregated systems to avoid all use of labelling the market push against planting GM crops will remain strong. Whether this be by unofficial moratoria or feet-dragging reluctance to approve more GM crops remains to be seen.

The latest figures from the US Department of Agriculture indicates that the overall area of genetically modified crops has increased by 13 per cent over non-GM compared with 2001.[5]

Soya: 75% (68% in 2001)

Corn: 34% (26% in 2001)

Cotton: 71% (69% in 2001)

Thus only 25 per cent of the US soybean crop is now non-GM. We are rapidly arriving at a situation where non-GM is the minority, rather than the majority, so what is logical to label?

The last piece in the puzzle is the US agricultural lobby: will we see a World Trade Organization (WTO) battle on GM crops if the point of origin labelling amendment is implemented? However impractical and costly these measures are, they will have been overwhelmingly voted for by the European Parliament and 15 democratically elected member states.

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