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Defra consultation on proposal for managing the coexistence of GM, conventional and organic crops

Response from PG Economics Ltd

General

It is our view that the DEFRA consultation document has been well researched, draws on and takes account of current and relevant science and represents a sound basis for managing the coexistence of GM, conventional and organic crops in England.

Our response is set out below based on responses to the various questions posed by DEFRA in the consultation document.

1. *Comments on the proposed scope of the coexistence regime.*

The scope proposed is reasonable.

2. *Analysis of the potential sources of GM presence and the assumptions that DEFRA is proposing should underpin the coexistence regime.*

We are surprised that the analysis (para 44, page 16) suggests that there has been little practical experience with, or studies of, the application of barrier rows/strips. There is seven years commercial experience in Spain to draw on plus a considerable degree of experience held by plant breeders and seed multipliers that could have been drawn on, or consulted.

The analysis probably overstates the levels of GM adventitious presence that are 'assumed' to be presence in seed – the average potential rates cited in table 1 (page 17) are maximum levels, not average (or likely to occur) levels.

3. *DEFRA's proposed overall basis for the coexistence regime.*

The overall basis is reasonable although it is important to recognise that successful co-existence of different agricultural production systems requires mutual respect and shared responsibilities by all parties. Responsibility for implementation of co-existence measures should involve both GM and non GM growers communicating amongst themselves and implementing appropriate management practices.

4. *Analysis in the draft impact assessment and on what is planned for enforcement, monitor and review the coexistence regime*

The plans for enforcement, monitoring and review are reasonable. In relation to the RIA:

- The risk assessment is reasonable

- Options: these are reasonably discussed although the public confidence paragraph (38) cites a discredited and unrepresentative piece of research (the GM public debate). In addition, equity considerations are ignored (see below)
- Costs and benefits:
 - Previous work: the citing of the SU analysis from 2003 is of limited value. It is out of date. There is a reasonable body of consistent, representative and peer reviewed evidence and research attesting to the positive economic and environmental impact of GM crops internationally¹. To suggest that there are contradictory interpretations is failing to adequately compare representative, peer reviewed analysis with subjective, unrepresentative, non peer reviewed work and attaches too much weight to the latter category of analysis;
 - Why should the absence of effective coexistence measures lead to widespread routine testing for GM presence? Testing will only occur where markets require certified non GM status in crops. For markets where buyers are indifferent to the production method (eg, many parts of the animal feed sector and non food users), testing is unlikely to occur
 - Environmental. Para 52 states that GM crops will not be approved for commercial release in the EU unless they are at least as environmentally sustainable as the conventional crops whose use they replace. This statement is of limited value without a definition of ‘environmentally sustainable’ (which is not provided)
 - Flexibility is a key issue (para 59). Rules relating to coexistence should provide for reasonable levels of flexibility in how these are operated. Farmers planning to plant GM crops should not be required to adhere to specific measures like separation distances if they and their neighbours agree that there is no need to do so. For example, if both a GM and neighbouring non GM crop grower are planning to sell their crops to a market in which buyers have no preference or requirement for the crop having a certified non GM status (eg, many in the animal feed sector), there is no sound reason for requiring farmers to adhere to measures such as separation distances. If GM adventitious presence occurs in such circumstances it is of no economic or practical relevance to the market.

5. Do stakeholders agree with the proposed separation distances

Whilst we understand the approach used to assess risks of adventitious presence occurring and ways of minimizing this, the separation distances proposed are overly cautious (eg, 110 metres for maize). We consider that more attention should be given to commercial experience and the considerable body of research evidence gathered in the last 2-3 years (eg, relating to maize cross pollination and GM adventitious presence) across Europe that shows that shorter separation distances (and/or the use of other measures such as buffer rows) will adequately address the issue. The separation distances proposed, would in our view, be disproportionate. The specific analysis

¹ For example, Brookes G & Barfoot P (2005) The global economic and environmental impact of GM crops: the first nine years 1996-2004, AgBioforum 8 (2&3)

underpinning the proposed separation distances also overstates risks of adventitious presence levels occurring at levels in excess of 0.9% for the following reasons:

- It fails to take into consideration the dilution effect on adventitious presence levels of normal harvesting practices. It is normal farming practice to test crops for adventitious presence of all unwanted material (eg, the presence of GM material in non GM crops that are required to be certified as non GM, weed material, dirt, seed off types etc) after harvest. As a result, levels of adventitious presence of any unwanted material tend to be lower in harvested crops than might be the case if testing was undertaken in the field before harvest;
- The analysis probably overstates the levels of GM adventitious presence that are ‘assumed’ to be presence in seed – the average potential rates cited in table 1 (page 17) are maximum levels, not average (or likely to occur) levels.

6. *Do stakeholders accept how the proposed separation distance requirements will apply, including allowing local discretion*

Rules relating to coexistence should provide for reasonable levels of flexibility in how these are operated. Farmers planning to plant GM crops should not be required to adhere to specific measures like separation distances if they and their neighbours agree that there is no need to do so. For example, if both a GM and neighbouring non GM crop grower are planning to sell their crops to a market in which buyers have no preference or requirement for the crop having a certified non GM status (eg, many in the animal feed sector), there is no sound reason for requiring farmers to adhere to measures such as separation distances. If GM adventitious presence occurs in such circumstances it is of no economic or practical relevance to the market (ie, it does not matter if the crop is labeled and stated to contain GM material because the buyer attaches no value to the GM or otherwise status of the crop).

7. *Do stakeholders have any comments on how the proposed notification and liaison requirement will operate*

The proposed rules are reasonable, subject to the flexibility issue referred to above being taken into consideration.

8. *Do stakeholders think the farm saved seed proposals are reasonable*
These are reasonable.

9. *Do stakeholders agree that formal training is unnecessary*
We concur with DEFRA on this point that formal training is not necessary.

10. *Do stakeholders accept the conclusion on honey production*
We concur with DEFRA’s conclusions.

11. *Where should responsibility for any threshold below 0.9% lie and associated issues*
In considering any possible establishment of special arrangements between GM and organic production it is important to consider the issue of consistency.

Producers and those overseeing the integrity/purity of crops/derivatives (such as organic production) should be consistent in their behaviour towards the adventitious presence of all unwanted material, including GM derived material. Firstly, it is unrealistic to expect 100% purity for any crop/product and this is why thresholds are set for adventitious presence of unwanted material.

Any thresholds should be proportionate to the risks attached to the presence of the unwanted material:

- for the adventitious presence of (unwanted) material that pose known health and safety risks (eg, mycotoxin levels in cereals), it is appropriate to operate to very low threshold levels (eg, to the limits of reliable detection);
- for adventitious presence of (unwanted) material that affect product integrity, purity, quality and functionality (eg, impurities, weed/plant material, seeds/grains of off types²), wider thresholds are appropriate. Whilst these (thresholds) vary by crop and use, they are typically set at levels between 1% and 5%³. Practicality and cost considerations are important factors affecting the setting of this category of thresholds because in general, the tighter the threshold, the higher the cost and greater the difficulty in meeting such thresholds.

In respect of the adventitious presence of GM material (which has been given regulatory approval for use⁴) in non GM crops, the threshold set, by the EU's GM labelling legislation, at 0.9% falls appropriately into the second category referred to above.

Against this background, there are notable inconsistencies practiced by some certification bodies in the organic sector. These inconsistencies fall into the following two main categories.

Testing of organic produce for the presence of GMOs

Organic certification is based on certifying the production method rather than giving an end product guarantee as to the product's freedom from GMOs or excluded products. Adventitious presence of such material can occur from circumstances beyond the reasonable control of the organic producer and therefore, the identification of such material (via end product testing) is not used to de-certify organic status on produce provided growers can demonstrate their adherence to the organic farming practices and rules. Whilst this pragmatic principle should apply to possible adventitious presence of GMOs⁵, some organic certification bodies advocate the practice of undertaking testing for GMO presence, with all crops found to have detectible GMO presence de-certified (ie, the organic status is lost). This practice is inconsistent with the treatment of other unwanted material and with the treatment of crop protection products for which

² For example, grains of dent maize found in waxy maize

³ For example, the threshold for impurities in most cereals is typically 2%

⁴ In other words has been given approval for use and consumption on health, safety and environmental grounds

⁵ See for example IFOAM position paper on genetic engineering and GMOs; www.ifoam.org, page 2 and the USDA Organic Standards

thresholds for their safe use exist⁶. This (practice) may, therefore, be unfairly penalising organic farmers whose crops are found to contain very low levels of GMOs through no fault of their own. Furthermore it is possible that ‘positive’ GMO presence in an organic crop might result from naturally occurring DNA (as found in the soil), from GM plant material that has not introgressed with the organic crop (ie, pollen on the surface of a crop) or be due to testing error.

Adoption of a de facto threshold for the presence of GMOs of 0.1%

Against a current background of no organic sector-specific legal, *de minimis* threshold existing for the presence of GMOs in organic produce in the EU (ie, the 0.9% EU labelling threshold applicable to GMO presence in any product applies equally to organic produce), this is inconsistent with other thresholds and derogations operated in the organic sector. For example, the EU organic standards allow thresholds⁷ of up to 5% for the presence of non organic ingredients in some processed foods, buyers of organic produce invariably operate to the same thresholds as apply to conventionally produced crops in respect of the presence of foreign material (eg, 2% for materials like dirt, weeds, stones in maize) and there are derogations for the use of:

- some pesticides such as copper-based fungicides on potatoes and Bt (*Bacillus thuringiensis*), a bacterial fungicide used for the control of caterpillars - the Bt sprays are obtained by mass producing (using fermentation methods) the bacteria, which is then sprayed onto crops, killing caterpillars when they eat the (Bt) bacteria which contain a natural toxin to caterpillars. This naturally occurring toxin is the same element expressed in GM (Bt) maize, which is not permitted in organic agriculture;
- non organic seed;
- crop species and seed varieties derived from ‘unnatural’ plant breeding techniques (eg, triticale, a crop derived from the use of embryo rescue and chromosome doubling techniques);
- straw from conventional cereals can be used for livestock bedding – this is subsequently spread on organic production land as an important source of crop nutrients;
- a proportion of ingredients used in organic animal feed can be derived from non organic ingredients, and
- some ingredients derived from GMOs may be allowed by certification bodies because of the lack of availability of non GM derived alternatives; this relates to possible use of some GM derived processing aids in some food products and veterinary medicines.

In all these cases, the organic status of the crop is not de-classified and consumers pay the full organic premium for these products.

⁶ It is also interesting to note that all pesticides approved for use have safety-based maximum threshold levels for presence in crops. Conversely, GM crops approved for commercial use do not require the application of such thresholds for safe use

⁷ There is also no requirement to label for the presence of these ‘allowed’ non organic ingredients/products, provided the thresholds are met

Some in the organic sector seek to justify the practice of testing for GMO presence in organic produce to a 0.1% threshold as being necessary to maintain organic product integrity and consumer confidence. However, the inconsistency of this practice and the operation of wider tolerances and derogations for the use of non organic inputs/ingredients, undermines this consumer confidence argument. The more consumers are made aware of these ‘allowances’ for the use of non organic ingredients and inputs, the greater the potential for loss of confidence in the integrity of all organic products.

12. Issues relating to economic losses

The proposed provisions relating to economic liability and compensation (that compensate non GM growers for adventitious presence of GM material) are inequitable. Historically, the market has adequately addressed economic liability issues relating to the adventitious presence of unwanted material in any agricultural crop⁸ by placing the onus on growers of specialist crops (eg, seed, organic) to take action to protect the purity of their crops (such growers usually being rewarded by higher prices for taking such actions). These proposals create new economic liability provisions for any negative economic consequences of adventitious presence of unwanted GMO material. As such, it is reasonable to argue that the same principle should apply to all farmers regardless of their chosen production methods. On equity/fairness grounds, GM growers should have equal access to compensation for any negative economic consequences arising from the practices of neighbouring conventional or organic farmers (eg, loss of quality premia for adventitious presence of non GM material in GM crops or losses from the spread of pests and weeds from neighbouring farms with poor levels of pest and weed control). In relation to the specific questions raised:

- The range of losses identified by DEFRA are reasonable, although they fail to take into account the broader ‘equity’ (loss) issues referred to above. Harvested output from whole fields (in line with current harvesting practice) is the most appropriate unit
- We agree with DEFRA that consequential losses should not be covered
- We agree with DEFRA that strict eligibility criteria need to be determined
- The most appropriate method of redress should draw on existing laws. Experience in countries where GM crops have been grown commercially shows that GM, conventional and organic crops have coexisted successfully, that ‘problems’ relating to GM adventitious presence causing economic losses have been rare and existing laws have been adequate for dealing with any problems. The creation of any statutory based compensation mechanism is not necessary and would represent a disproportionate and bureaucratic response
- The level of redress should reflect any difference between the respective values of crops sold into different markets (eg, GM and conventional) and any mechanism developed should aim to minimise any incentive to ‘cheat’. The SCIMAC proposal based on a crop replacement mechanism is a sound basis for any compensation mechanism.

⁸ The concept of economic liability should not be confused with environmental liability, which is a separate issue and which is addressed through the regulatory approval process

13. Public register issues

We fail to see how a crop register would aid coexistence. The other proposed requirements relating to consulting neighbouring farmers are sufficient. Crop registers have to date often been used to assist those intent on causing criminal damage to (GM) crops lawfully planted.

14. Voluntary 'GM free' zones

We largely concur with the points raised by DEFRA. The establishment of 'GM free' zones should be referred to as 'non GM' zones because of the impossibility of guaranteeing 100% purity in any agricultural production system. Any 'non GM' zone should also be voluntary, with those participating required to adhere to transparent and clear principles and farming practices.

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