

Response to the questionnaire about the socio-economic implications for beekeepers of the placing on the market of GMOs for cultivation

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Introduction

These comments represent the views of several local beekeeping associations across Sweden. Because there is no commercial production (only field trials) of GM-crops in this region these comments are 'ex-ante' and are based on the experiences from GM-crop production in other countries – mainly North and South America – and the impact they have had over time and place (ecosystem level). GM-crops are mainly grown as export crops for the global market. They have major socio-economic consequences in the countries where they are produced (but not consumed) because of their impact on the environment, health and distribution of resources. In the name of solidarity and international justice we must take this into consideration – but also what happens in these countries will, in the longer term, also affect our own situation here in Sweden – for example through climate change.

Background

Agriculture and beekeeping

Modern industrial agriculture, where GM-crops are used, has proven to have a negative effect on biological diversity, and increased the eutrophication of water bodies and the amount of green-house gases released. It has also led to a decreasing capacity of the soil to fill its role as a carbon sink. It fuels climate change which in turn leads to greater imbalances in the ecosystem with serious negative consequences for beekeepers and others who are dependent on these important ecosystem services. Ecological agriculture reduces some of these negative effects by increasing biological diversity, reducing the emission of green house gases and improving the soils capacity to sequester carbon dioxide from the atmosphere and store it in the ground. This is a development in the right direction but much more research is needed to make ecological agriculture more effective and reduce even further its negative environmental impact.

Ecological agriculture has several advantages for beekeepers

- No pesticides are used that can harm bees

- Crop rotation and locally adapted crops gives an increased biological diversity which in turn gives bees a richer flora that produces a more varied diet (both nectar and pollen) over a longer growing period.

These advantages result in stronger bee communities that can better withstand virus and other diseases that follow the varroa mite and that as a result can be more productive.

Ecological agriculture is threatened by GMO-agriculture because GM-crops spread in nature – through wind and insects that spread the pollen that cross breeds with conventional/ecological crops and wild relatives. The risks increase with increased cultivation. Ecological agriculture (KRAV) does not allow the presence of GMO in their products. This has created problems for, for example, the ecological maize farms in Spain. Not only have many been forced to cease cultivating ecological maize due to contamination with GMOs, but also there has been an extra cost for ecological producers who must bear the cost of testing to show that they don't have GMO contamination. Soja farmers in Brasil who don't want to grow GMO-soja have met the same problem. The 'polluter pays' principle is not being followed.

GMO agriculture has a negative effect on biological diversity. More than 99% of commercial GMO-crops are modified either to tolerate herbicides (mainly with glyphosate and glyfosinate as the active substances, but now even other herbicides) or to produce the insecticide Bt themselves or both. In the USA where many farmers have grown GMO-crops for 15 years, GMO-agriculture has led to a dramatic increase in the use of pesticides and the use of stronger pesticides. The same situation exists in Brazil and Argentina. This increase is a result of weeds (and now also insects) developing resistance as a result of the one-sided use of pesticides and large monocultures. This has led to increased costs, partly for an increased amount of pesticides and partly for increasingly more expensive GM-seeds that are modified with additional traits so they tolerate an increasing amount and number of pesticides.

Field trials are presently being carried out in Sweden for cultivating GMO-crops for industrial products – potatoes for industrial starch, canola for industrial oil and different crops for energy. These crops will not be approved for human consumption. In the EU there is zero tolerance for the presence of GMOs that are not approved for human consumption in food. Several corporations have plans for cultivating many different GMO-crops in open fields for different purposes – in addition to industrial products, also medicine. It will be, in the end, impossible for beekeepers with hives close (within a five mile radius) to GMO- crop trials and commercial cultivation to produce honey, pollen and other bee-products, that are guaranteed free from contamination of this – not approved for human consumption – GMO-pollen.

Patents and lack of independent research

A handful of multinational corporations produce and have patents on the great majority of these GMO-crops. These patents are on the inserted gene sequences with the result that the patent (and ownership) follows these gene sequences that are also in the harvested crops. The consequences for farmers is that they must sign a contract with the GMO-seed producer that i.a. stipulates that farmers may not save seed from their own production. They have to buy new seed from the corporation each year. Another problem is that these genes spread in nature and cause problems for nearby farmers. The High Court in Canada awarded Monsanto ownership rights of the GMO-canola that was found in Percy's Schmeiser's field irrespective of how (wind, birds, careless transport) they got there. Patent right is stronger than farmers' rights. Ownership rights when these patented genes are found in honey has up to now not been tried in court. This issue needs to be clarified.

There is a lack of independent research on the effects of GMOs on health and in nature due to the fact that the Corporation which sells these seeds has a patent on them and can thereby control what research is done and what is published. (See August 2009 Scientific American Magazine [Do Seed Companies Control GM Crop Research?](#) Scientists must ask corporations for permission before publishing independent research on genetically modified crops.)

Laboratory animals fed with GMO-crops have been shown to have serious affects, for example affects on fertility and changes in the liver, kidneys and intestines. In such a situation the precautionary principle should be followed. Based on these studies and other observations The American Academy of Environmental Medicine (AAEM) has demanded a stop for GMOs in food until the health risks can be seriously studied.

<http://www.aemonline.org/gmopost.html> .

These GMO-corporations have also taken out patents on many thousand conventional (non-GMO) varieties that are stored in the world's different gene banks. By owning these patents these corporations can make it illegal for others to use these varieties in research and production. A newly published UN paper – “The right to food – Seed policies and the right to food: enhancing agrobiodiversity and encouraging innovation” – takes up this problem and warns for the risks that such ownership entails.

Research on the direct effect of GMOs on bees is limited. The GMO-crops that exist today are not acutely poisonous for bees. However that are a few studies that indicate that certain Bt-crops (GMO-crops that are modified to that the plant itself produces the insect poison) can have a negative effect on the bees immunity so they become more susceptible to diseases. Other studies have shown that certain 'purified protease inhibitors' can influence the development and lifespan of bees. GMO-crops with these traits are not grown commercially yet. Research on the indirect effects of GMOs on bees (for ex. changes in the ecosystem as a result of changes in production methods) is so limited that it is impossible to draw any conclusions at all.

Socio-economical effects i producer countries

The production of GMO-crops in countries like Brazil, Paraguay and Argentina has had serious negative socio-economic consequences. A short film: 'Killing fields: The true cost of Europe's cheap meat' (see: www.feedingfactoryfarms.org) shows how an increasing production of GMO-soya for export to Europe as feed has resulted in the destruction of tropical rainforests with a resulting reduction in biological diversity and negative climate impact. This production has also had serious negative socio-economic consequences for small farmers and indigenous people who have lost their access to land and forest resources that have given them food, medicine and an income. New research results from Argentina have shown serious health problems (increased frequency of cancer and birth defects) as a result of the increased use (and aerial spraying) of Roundup on GMO-soya fields.

Unclear negative socio-economic effects for beekeepers in Sweden

The growing of GMO-crops will make beekeeping very problematic for beekeepers who don't want GMO-pollen in their honey and other bee-products (pollen, propolis, etc.) and for KRAV- beekeepers who absolutely may not have GMO-pollen in their honey and other bee-products. This is because the existing rules regulating the production of GMO-crops do not take the situation of beekeepers into consideration.

In the official government (Regeringskansliets) text on GMO (www.regeringen.se/sb/d/6421) it is stated that, i.a. consumers choice is to be assured and that all GMO-products must be labeled and traceable.

In the rules developed by the Agriculture Department (SJV) a GMO-farmer needs only inform other agricultural enterprises with fields within 100 m of the planned GMO-field in November the year before planting. The GMO-farmer must also report his GMO-production to the Agricultural Department within two weeks after planting. Beekeepers will not have access to the necessary information in time to plan for the placement of beehives to avoid these GMO-fields. If GMO-crops production becomes widespread in an area it will be impossible to avoid GMO-contamination. Honey that is imported from areas in Canada where canola is grown has been found to be contaminated with GMO-pollen. According to the Swedish rules this is not a problem. Such honey can be sold with no GMO-label because the contamination is considered to be unintentional (adventitious) and therefore does not need to be labeled as the total amount of GMO-pollen is less than 0.9% of the pollen in the honey. (However pollen cannot be sold without labeling as the amount of GMO-pollen will be more than 0.9%). This interpretation is presently being contested in the EU court. However, according to an official at the Swedish National Food Administration, if the pollen comes from a GMO-crop that is not authorized for use as food then there is zero-tolerance for contamination (due to health risks such as allergic reactions, etc.) and it is the producers responsibility to ensure that such contamination does not occur. Trials are now being planned in Sweden for GMO-canola that will produce oil

for industry. This canola will not be authorized for use as food nor will honey or other bee-products with pollen from this canola be authorized for use as food.

The existing Swedish rules governing GMOs only apply to agriculture land, no rules cover the use of GMO-crops that are produced for private use within the producers own household or on allotments. In other words it is free to grow EU approved crops in gardens and allotments with no registration required and therefore no traceability.

The case in Germany shows how difficult the situation is for beekeepers.

The German Case

In 2007, the beekeeper Karl-Heinz Babloks was forced to destroy 340 kg of honey. It had traces of pollen from a GM-maize that was being grown on a nearby government research station that was not authorized for use as food. The Ausburg Court ruling was based on the fact that because it had traces of this pollen it was not authorized for use as food. The Court also ruled that the beekeeper Bablok, despite the negative economic consequences, did not have the right to demand that others refrain from growing GMO-crops. Instead he was required to move his beehives so that the bees would not come in contact with GMO-crops. According to the Court he could apply for compensation for costs and losses from the GMO-crops producer.

This case is being taken up in the EU court. The Swedish authorities are waiting for this decision before they decide how similar cases should be treated in Sweden.

This is a very important issue because field trials are ongoing in the USA and other parts of the world with GM-crops modified to produce medicine (for ex. rice that can produce insulin) and industrial products (for ex. industrial starch from potatoes, industrial oil from canola and energy crops). These will not be authorized as food crops.

Questions that Need Answers

The seriousness of the negative socio-economic consequences for bee-keepers will depend, in part, on how the following questions are answered.

- Sweden has recently received a large (many million kronor) research grant from the EU to carry out research on GMO-canola modified to produce industrial oil – i.e. canola that is not authorized for food. If this canola is grown in a field trial and if a nearby (within a 5 km radius) beekeepers honey contains this GMO-pollen then the honey and other bee-products will not be permitted as food according to EU rules. Who then will pay the beekeepers losses and extra costs?
- Who's responsibility is it that beekeepers are informed about GMO-crop production (both commercial and private) in the area where his/her bees are foraging?
- Who has responsibility to ensure that honey and other bee products are free from GMOs that are not authorized as food? Can a beekeeper send his honey and other bee-products for control? Where? What does this cost? Who pays?

- If the GMO-maize pollen in the honey is from a variety authorized for food and a corporation like Monsanto has a patent on the gene sequence in this pollen who has the right to sell the honey? Will beekeepers be obliged to sign a contract with and pay a fee to the owner of the patent as farmers do? Can they be taken to court for patent infringement as farmers have been?

- Who ensures the right of consumers to choose GMO-free honey? How will the sale of honey be affected if consumers suspect that honey is contaminated by GMO-pollen? Who guarantees that beekeepers will be able to choose between production of KRAV/SIGILL/Conventional or GMO honey and other bee-products? How can this be done?