

The use of genetic engineering in agriculture requires a comprehensive technology assessment

New Testbiotech report

22 March 2023 / The introduction of transgenic plants into agriculture around 30 years ago was accompanied by many promises of benefits and high expectations, most of which have either not or only partially been realised. At the same time, there have been hardly any systematic or independent studies to objectively assess the actual impact of the transgenic plants on agriculture.

As far as risks are concerned, various authorities have carried out risk assessments of individual genetically engineered plants ('events'). They have, however, so far failed to make detailed assessments of the combinatorial and cumulative effects, or assess any interactions between the genetically engineered (GE) plants. Current risk assessment does not therefore adequately cover either systemic environmental effects or food safety. At the same time, multiple studies have shown that interactions between the GE plants (events) or between their traits, can cause further destabilisation in agro-ecosystems, e.g. through the accelerated spread of certain 'pests'.

Several growing regions are already seeing an uncontrolled spread of transgenic plants, including in wild populations. This is already affecting some countries where the GE plants are not grown and also, in some cases, centres of biological diversity. Given this situation, there is a higher likelihood that spontaneous crosses with transgenic plants will lead to 'next generation effects', i. e. characteristics will be seen in the offspring of transgenic plants that were unknown at the time of the original risk assessment. There are further problematic impacts on agriculture that are often discussed but have not yet been resolved at the policy level. These include patents on GE seeds, which have led to a strong corporate concentration in the field of plant breeding, and thus enabled a handful of large globally-active corporations to expand their dominant market position. As a result, these corporations are now able to influence cultivation practices in many regions throughout the world. In this respect, they appear to be paying very little attention to the actual problems in agriculture, and seem to be far more interested in making a profit. A further, as yet unsolved problem, is the coexistence of GE crops alongside traditional or organic production systems that want to avoid the use of any GE organisms.

In order to deal with the negative impacts that could be caused by the possible introduction of plants derived from new genomic techniques (NGTs) (or New GE, new genetic engineering), the existing approval procedures should be updated and supplemented by a comprehensive technology assessment (TA). The aim of a TA would be a full and comprehensive investigation of the potential advantages and disadvantages of NGT applications, including the ecological and socio-economic impacts. Besides allowing excessive expectations to be critically reviewed, it would help to prevent potentially negative impacts on ecosystems, safeguard the natural balance and limit, as far as possible, environmental interventions.

The use of NGTs are often justified by the assertion that new solutions are needed to secure world food security, especially against the backdrop of climate change. However, new solutions cannot be considered to be sustainable if their use can result in ecosystems being overburdened by mass releases of non-adapted organisms, or if risks accumulate and go unnoticed in food production, or if breeding is hindered by patents and the interests of consumers are disregarded. The concepts of nature conservation and environmental protection are largely based on the principle of avoiding interventions. These concepts must also be applied in the field of genetic engineering. From this perspective, the introduction of a technology assessment into genetic engineering regulation can help to effectively control and limit the type and number of potential releases of genetically engineered organisms.

Testbiotech is publishing a report on this today and presenting it at an event in Brussels.

Contact:

Christoph Then, info@testbiotech.org [1], Tel + 49 151 54638040

Further information: [The report](#) [2]

[Program of the event](#) [3]

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