

Sunday Evening News No. 105

Week 48 (2018-11-26 / 12-02)

Selected and edited by **BGF** Jany

Dear all,

Without a doubt this week the genome edited babies were the main focus of the coverage in the German and English media. Nevertheless, the WGG-VBIO open letter to the Ministers for Nutrition and Agriculture as well as for Education and Research has found its way into the press and not only there. The letters written in German were signed by 130 scientists.

<https://www.wgg-ev.de/aktuelles/offener-brief-bmbf-bmel-11-2018/>

https://www.vbio.de/fileadmin/user_upload/wissenschaft/pdf/181121_Offener_Brief_Genome_Editing_VBIO_WGG_mit_Unterschriften.pdf

and here **some press releases** (all in German):

Karberg S.: **130 Forscher fordern Änderung des Gentechnikgesetzes**

Offener Brief: Nach dem EuGH-Urteil zur Gen-Schere Crispr warnen Biowissenschaftler vor Folgen für die Forschung - und für die Landwirtschaft.

<https://www.tagesspiegel.de/wissen/streit-um-die-gen-schere-crispr-130-forscher-fordern-aenderung-des-gentechnikgesetzes/23678852.html>

Awater-Esper S.: **Pflanzenwissenschaftler fordern differenzierte Gentechnikpolitik**

Pflanzenwissenschaftler halten eine Überarbeitung des EU-Gentechnikrechts für überfällig. Anders hätten die Anwendungen des Genome Editing in der EU keine Chance. In einem offenen Brief wenden sich nun mehr als 130 Pflanzenwissenschaftler aus Deutschland an die Ministerinnen Klöckner und Karliczek.

<https://www.topagrar.com/acker/news/pflanzenwissenschaftler-fordern-differenzierte-gentechnikpolitik-10116470.html>

Laqua M.: **„Nichts zu tun, ist keine Alternative“**

In einem offenen Brief richten sich 130 Pflanzenforscher an die Bundesministerinnen für Bildung und Forschung, Anja Karliczek, sowie Ernährung und Landwirtschaft, Julia Klöckner. Nach dem EuGH-Urteil zum Genome Editing fordern sie unter anderem einen ergebnisorientierten Dialog.

<https://transkript.de/meldungen-des-tages/detail/nichts-zu-tun-ist-keine-alternative.html>

Zinkant K.: **Pflanzenforscher wollen neues Gentechnikgesetz**

- In einem Offenen Brief kritisieren mehr als 130 deutsche Pflanzenforscher die veraltete Gesetzgebung in Europa.
- Der Brief bezieht sich auf ein Urteil des Europäischen Gerichtshofs (EuGH) vom Juli. Es ging darin um die neuen molekularbiologischen Techniken.
- Schon im Oktober hatten Wissenschaftler aus mehr als 75 europäischen Forschungseinrichtungen an die EU-Politik appelliert, Innovationen in den Pflanzenwissenschaften zu schützen.

<https://www.sueddeutsche.de/wissen/genome-editing-gentechnik-1.4228790>

As you may recall, some years ago the detection of rDNA and even of living genetically modified microorganisms in the feed additive riboflavin was discussed in expert circles. There were hardly any press releases on the subject at that time. However, today after a report by GM Watch, this issue is now being taken up in the media and presented in a rather tendentious way.

GM Watch: **GM bacteria in animal feed products are spreading resistance to antibiotics**

<https://www.gmwatch.org/en/news/latest-news/18629>

Kwasniewski N. **EU-Behörde warnt vor Tierfutter mit antibiotikaresistenten Bakterien**

Jahrelang gelangten gentechnisch veränderte Organismen ins Tierfutter. Die antibiotikaresistenten Bakterien wurden wohl in Hunderttausende Tonnen Futter gemischt und in der EU verkauft.

<http://www.spiegel.de/wissenschaft/natur/efsa-warnt-vor-tierfutter-mit-antibiotikaresistenten-bakterien-a-1241372.html>

Deter A.: **Naturschützer warnt vor Verbreitung genmanipulierter Bakterien**

Von dem „größten Fall einer unkontrollierten Verbreitung von nicht zugelassenen Gentechnik-Organismen in der Geschichte der EU“ spricht der gentechnikkritische Verein Testbiotech.
<https://www.topagrar.com/panorama/news/naturschuetzer-warnt-vor-verbreitung-genmanipulierter-bakterien-10119672.html>

lifePR: **Illegale Vitamine mit gentechnisch veränderten Bakterien in Tierfutter gelangt**
<https://www.lifepr.de/inaktiv/foodwatch-ev/Illegale-Vitamine-mit-gentechnisch-veraenderten-Bakterien-in-Tierfutter-gelangt/boxid/731741>

France 24: **Over 1m tonnes of animal feed in Europe may contain banned GMOs: report**
<https://www.france24.com/en/20181123-over-1m-tonnes-animal-feed-europe-may-contain-banned-gmos-report?ref=tw>

Official papers:
The EU Commission decision: <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1543312838912&uri=CELEX:32018R1254>

The EFSA assessment: www.efsa.europa.eu/en/efsajournal/pub/5223

Joint publication of EU and German authorities:
www.sciencedirect.com/science/article/pii/S0308814617304193

Labelling without gene engineering / “Ohne Gentechnik”

The potential impact of the ECJ ruling on the labeling of foodstuffs without genetic engineering of is having an effect. Background is an announced complaint of an association against the use of the label “ohne Gentechnik” (without genetic engineering). An analysis of the facts (in German) on my website: <https://www.biotech-gm-food.com/mutagenese-urteil-ohne-gentechnik-siegel>

GM Watch: **Non-GMO food and feed industry welcomes ECJ ruling to provide legal certainty**
<https://www.gmwatch.org/en/news/latest-news/18619>

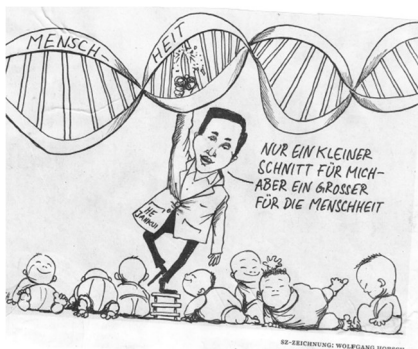
VLOG: **Open Letter: Judgment of the European Court of Justice on new genetic engineering proceedings: Ensuring the protection of GMO-free production**
http://www.ohnegentechnik.org/fileadmin/ohne-gentechnik/dokumente/English_Open_Letter_EU_Commission_28102018_final.pdf

Nachrichten: **EU-Konzerne im Clinch: Genschere bleibt stumpf**
BRÜSSEL / WIEN. Züchter wollen neues Gesetz – Lebensmittelwirtschaft kontert
<https://www.nachrichten.at/nachrichten/wirtschaft/EU-Konzerne-im-Clinch-Genschere-bleibt-stumpf;art15,3077827>

Informationsdienst Gentechnik: **Lebensmittelwirtschaft fordert: EU-Kommission soll gentechnikfreie Produktion absichern**
<https://www.keine-gentechnik.de/nachricht/33480/#gsc.tab=0>

Other press releases

Genome-edited baby



Süddeutsche Zeitung
Woche 48, Nr.275, 29.11.2018

By analogy:
Just a small cut for me, but a big one for humankind

One may discuss it as one wishes. Maybe a little bit of truth after all.

Cyranoski D.: **Genome-edited baby claim provokes international outcry**

The startling announcement by a Chinese scientist represents a controversial leap in the use of genome editing. Nature: doi: 10.1038/d41586-018-07545-0
<https://www.nature.com/articles/d41586-018-07545-0>

The Guardian: **China orders inquiry into 'world's first gene-edited babies'**

<https://www.theguardian.com/world/2018/nov/27/china-orders-inquiry-into-worlds-first-gene-edited-babies>

Dabrock P.: „Bei dieser Geschichte läuft alles falsch“

Chinesische Forscher haben genveränderte Babys erzeugt und den Tabubruch provoziert. Wie halten wir es mit Eingriffen in die Keimbahn? Der Vorsitzende des Deutschen Ethikrats nimmt Stellung.
<http://www.faz.net/aktuell/wissen/genveraenderte-babys-bei-dieser-geschichte-laeuft-alles-falsch-15910125.html>

CJEU-ruling mutagenesis

EuropaBio: **Statement: As EU court ruling risks blocking innovation, the European biotech industry calls for science-based political decision making on genome edited products**

https://www.europabio.org/sites/default/files/EuropaBio_statement_CourtRuling_final_forWEB.pdf
https://www.europabio.org/cross-sector/publications/europabio-statement-court-ruling?mc_cid=48f1a17e42&mc_eid=%5BUNIQID%5D&mc_cid=48f1a17e42&mc_eid=9855024810

Informationsdienst Gentechnik: **EU-Berater empfehlen: Gentechnikrecht ändern**

Die obersten wissenschaftlichen Berater der EU-Kommission haben ihr empfohlen, das Gentechnikrecht zu überarbeiten. EU-Forschungskommissar Carlos Moedas zeigte sich angetan.
<https://www.keine-gentechnik.de/nachricht/33479/#gsc.tab=0>

Dumont et al. | European Food Safety Authority: **Bt insect-resistant crops don't cause allergies, European safety oversight organization reaffirms**

<https://geneticliteracyproject.org/2018/11/26/bt-insect-resistant-crops-dont-cause-allergies-european-safety-oversight-organization-concludes/>

As always you will find the daily up-date of the press releases at: <https://www.biotech-gm-food.com/presse>

Publications

Now published

Ruffell D. (2018): **The EU Court of Justice extends the GMO Directive to gene-edited organisms**

<https://febs.onlinelibrary.wiley.com/doi/epdf/10.1002/1873-3468.13293>

Finkel A.M, Trump B.D., Bowman D., Maynard A. (2018): **A “solution-focused” comparative risk assessment of conventional and synthetic biology approaches to control mosquitoes carrying the dengue fever virus.** Environment Systems and Decisions (2018) 38:177–197 <https://doi.org/10.1007/s10669-018-9688-3>

Emerging technologies often pose various uncertain health risks that cause policymakers to hesitate to allow resultant products and processes to enter the market—but they also may offer large benefits, including the potential to greatly reduce some of the very risks currently most greatly affecting public health and the environment. Synthetic biology serves as one such emerging technology that, despite its potential benefits to various fields, gives policymakers pause until the human and environmental health risks posed by genetically engineered organisms are better characterized and assessed. Given various limitations of our current paradigm for making risk management decisions, some of which are caused by limitations of conventional methods of quantitative risk assessment (QRA), a modified approach to emerging technology characterization and assessment might be a needed step change. This paper demonstrates how one such approach—“solution-focused risk assessment” (Finkel, Hum Ecol Risk Assess 17(4):754–787, 2011)—can help evaluate synthetic biology products against conventional competitors. Specifically, this paper conducts a SFRA for Oxitec’s engineered *Aedes aegypti* mosquito, which serves as a synthetic biology option for dengue virus vector control.
<https://link.springer.com/article/10.1007/s10669-018-9688-3>

Mcloughlin A.G., Walker P.L., Wytinck N., Sullivan D. S., Whyard S. & Belmonte M.F. (2018): **Developing new RNA interference technologies to control fungal pathogens,** Canadian

Journal of Plant Pathology, 40:3, 325–335, DOI: 10.1080/07060661.2018.1495268

Current agricultural output is challenged by considerable losses in crop yield and post-harvest storage due to fungal infection. Traditional chemical fungicides used to treat these fungi can be ineffective and harmful to the

environment if not used properly. With fungicide resistance increasing in fungal pathogens, new environmentally friendly and sustainable technologies are required to manage diseases on the world's most important crops. RNA interference (RNAi) is an intrinsic cellular mechanism, mediated by double-stranded RNA (dsRNA), which can suppress protein expression through targeted destruction of mRNAs. With recent advances in dsRNA delivery or expression in plants, this mechanism has the potential to provide alternative disease management strategies. Examples of RNAi-based control to manage pathogenic fungal species are steadily increasing, and the technology offers new options to increase species-specificity and/or potency against fungi for which existing fungicides have been ineffective. RNAi technology can be adapted to provide either robust and multi-crop plant protection using topical sprays or can provide more durable resistance through transgene expression of dsRNAs within susceptible plant tissues. Using RNA sequencing to identify fungal gene targets, RNAi-based control technology continues to show promise as an alternative to traditional agrochemicals for crop protection.

<https://doi.org/10.1080/07060661.2018.1495268>

Tagliabue G. (2018): **Counterproductive consequences of 'anti-GMO' activism.** *Ethics Sci Environ Polit.* Vol. 18: 61–74, 2018; <https://doi.org/10.3354/esep00185>

Activist groups which oppose so-called 'genetically modified organisms' (GMOs) frequently affirm that they want to fight corporations and capitalism. While I do not discuss whether this legitimate ideological-political attitude is good or bad, right or wrong, I try to show that such avowed anti-industrial struggle in the field of green biotechnologies not only fails to hit the supposed target, but benefits and supports a sector of the industry whose products have a greater environmental impact than recombinant DNA (rDNA) cultivars. Therefore, GMO opponents are exploited by a part of the capitalistic front they are combating. In the meantime, steadfast resistance to GMOs as an indiscriminate whole creates heavy collateral damage, impeding the development of public and philanthropic biotech outcomes; such crops would help those whom activists declaredly want to protect: the poor. This detrimental action is based on one counterproductive and enormous mistake: the indiscriminate rejection of GMOs takes away precious energies from productive environmental and social battles.

<https://www.int-res.com/abstracts/esep/v18/p61-74/>

Stanciu S., Sarbu R, Săseanu S.S., Pleșea D.-A (2018): **ECONOMIC IMPACT OF NEW TECHNOLOGIES ON THE AGRI-FOOD PRODUCTION**

The emergent population of the globe and the resulted augmented need for food require the identification of some innovative strategies in the agri-food production, able to elevate the degree of global food security. The biotechnologies and the use of genetically modified plants might be a resource in avoiding a global food crisis despite the fact that, with regard to using them, there are certain reticent areas of the world. The countries with developing economies have adopted these modern methods of agriculture which ensure superior yields in comparison with the conventional crops, supplementary benefits for farmers and resolve severe malnutrition problems of the population. The present paper proposes an analysis of the evolution of the global transgenic crops phenomenon, establishing the concentration degree of the cultivated areas and of the GM plants authorised in various areas of the world using the Gini Struck method. The conducted research revealed the absence of correlation between the size of the cultivated land and the authorization of GM plant. There is a low degree of concentration of authorized GM products and a high concentration of transgenic cultivated areas worldwide. The paper has both academic and business applications, proving that from an economical point of view the cultivation of the GM plants is profitable and Romania would be able to obtain substantial benefits from such an innovative agro-food production technology

https://www.researchgate.net/profile/Silvius_Stanciu/publication/311327654_Economical_Impact_of_New_Technologies_on_the_Agri-Food_Production/links/5afb35d20f7e9b3b0bf29680/Economical-Impact-of-New-Technologies-on-the-Agri-Food-Production.pdf

Kesavan P.C and M. S. Swaminathan M.S. (2018): **Modern technologies for sustainable food and nutrition security.** *CURRENT SCIENCE*, 115, (10), 1876-1883

In the hierarchy of human needs, food is absolutely the most basic. As the human population was increasing at an accelerated rate with concomitant depletion of natural resources during the 18th century, Malthus was greatly concerned about the sustainability of food availability. Despite the fact that the human population has been burgeoning, a total collapse in food supply has not yet happened. This is because of new technologies emerging from time to time to boost agricultural productivity and preventing the onset of the Malthusian scourge. However, none of these technologies, including the Green Revolution of the 1960s, has been truly sustainable largely because of their adverse environmental and social impacts. It is expected that the Evergreen Revolution which eliminates the negative attributes of the Green Revolution would be more sustainable. Critical evaluation of the most modern technology, modern biotechnology, reveals that the Bt-and herbicide-tolerant-crops are highly unsustainable. In addition to causing environmental harm, these crops exhibit genotoxic effects. The original objective of reducing the need for application of chemical pesticides has also not been realized. There is need for basic research to understand the causes of 'unintended effects' associated with genetically engineered crops. It will be prudent to adhere to the recommendations of the Task Force on Agricultural Biotechnology, Government of India (2004) in the development and regulation of genetically engineered crops. These aspects are briefly discussed in this article.

<http://www.currentscience.ac.in/Volumes/115/10/1876.pdf>

Gressel J. (2018): **Intractable weed problems need innovative solutions using all available technologies.** *Indian Journal of Weed Science* 50(3), 201-208

There is often strong public dissent to innovations, typically fanned by those who lose out economically, but the reasons they promulgate are not economic and are targeted to public emotions. Agriculture has some problems that have been intractable to present technologies and we have no choice but to utilize new technologies to overcome them. These include developing new herbicides that affect multiple targets, new selective synergists and safeners, transgenic herbicide resistant plants that will not have the transgenes expressed in related weeds, using transposons or gene drives to disseminate deleterious genes in weeds, sterile pollen, enhanced-virulence biocontrol agents with sustaining formulations. These might be workable for multiple resistant *Amaranthus* and *Echinochloa* species, parasitic weeds, *Phalaris* in wheat as well as weedy rice in rice. Per force, most of the innovations must originate in the public sector, by weed scientists who have a broad training in basic sciences, in collaboration with experts from other fields.

<http://www.indianjournals.com/ijor.aspx?target=ijor:ijws&volume=50&issue=3&article=001> pdf-file available

Pedre B. et al. (2018): **Structural snapshots of OxyR reveal the peroxidatic mechanism of H₂O₂ sensing.** *Proceedings of the National Academy of Sciences* (2018). DOI: [10.1073/pnas.1807954115](https://doi.org/10.1073/pnas.1807954115)

Hydrogen peroxide (H₂O₂) is a strong oxidant capable of oxidizing cysteinyl thiolates, yet only a few cysteine-containing proteins have exceptional reactivity toward H₂O₂. One such example is the prokaryotic transcription factor OxyR, which controls the antioxidant response in bacteria, and which specifically and rapidly reduces H₂O₂. In this study, we present crystallographic evidence for the H₂O₂-sensing mechanism and H₂O₂-dependent structural transition of *Corynebacterium glutamicum* OxyR by capturing the reduced and H₂O₂-bound structures of a serine mutant of the peroxidatic cysteine, and the full-length crystal structure of disulfide-bonded oxidized OxyR. In the H₂O₂-bound structure, we pinpoint the key residues for the peroxidatic reduction of H₂O₂, and relate this to mutational assays showing that the conserved active-site residues T107 and R278 are critical for effective H₂O₂ reduction. Furthermore, we propose an allosteric mode of structural change, whereby a localized conformational change arising from H₂O₂-induced intramolecular disulfide formation drives a structural shift at the dimerization interface of OxyR, leading to overall changes in quaternary structure and an altered DNA-binding topology and affinity at the catalase promoter region. This study provides molecular insights into the overall OxyR transcription mechanism regulated by H₂O₂.

<http://www.pnas.org/content/pnas/early/2018/11/21/1807954115.full.pdf>

VIB (the Flanders Institute for Biotechnology)

Better understanding of hydrogen peroxide regulation can lead to new insights into disease development

<https://phys.org/news/2018-11-hydrogen-peroxide-insights-disease.html#jCp>

Pollier J. et al. (2018): A widespread alternative squalene epoxidase participates in eukaryote steroid biosynthesis, , *Nature Microbiology* DOI: [10.1038/s41564-018-0305-5](https://doi.org/10.1038/s41564-018-0305-5) , <https://www.nature.com/articles/s41564-018-0305-5>

VIB (the Flanders Institute for Biotechnology)

Steroid synthesis discovery could rewrite the textbooks

<https://phys.org/news/2018-11-steroid-synthesis-discovery-rewrite-textbooks.html#jCp>

Shakambari G., Ashokkumar B., Varalakshmi P. (2018): **L-asparaginase – a promising biocatalyst for industrial and clinical applications.** *Biocatalysis and Agricultural Biotechnology*, <https://doi.org/10.1016/j.bcab.2018.11.018>

L-asparaginase is a versatile enzyme with application in food and therapeutics and under constant quest for a reliable microbial source for commercial production. The review is an aid to comprehend the key milestones of L-asparaginase ever since its discovery, its potential sources, economical production strategies using cheaply available alternate substrates, its purification and downstream procedures reported so far, its characterization and the relevance of its application in food industry and therapeutics with an added clinical perspective.

<https://www.sciencedirect.com/science/article/pii/S1878818118306923>

EFSA: Relevance of new scientific information (Santos-Vigil et al., 2018) in relation to the risk assessment of genetically modified crops with Cry1Ac

<https://efsa.onlinelibrary.wiley.com/doi/epdf/10.2903/sp.efsa.2019.EN-1504>

“EFSA Scientific Colloquium 24 – 'omics in risk assessment: state of the art and next steps”

<https://efsa.onlinelibrary.wiley.com/doi/10.2903/sp.efsa.2018.EN-1512>

<https://efsa.onlinelibrary.wiley.com/doi/10.2903/j.efsa.2018.5496>

Meeting:

Bündnis90/Die Grünen

Im Rahmen der Internationalen Grünen Woche 2019 möchten 'Die Grünen Bundestagsfraktion' Sie gerne auf die Konferenz "Europa à la carte! Was essen wir morgen?" aufmerksam machen.

19. Januar 2019, 15:00 – 18:00 Uhr

Deutscher Bundestag, Paul-Löbe-Haus

<https://www.fruchtportal.de/artikel/ankundigung-konferenz-zur-internationalen-grunen-woche-2019-europa-a-la-carte-was-essen-wir-morgen/036514>

Wie immer wird für Hinweise und der Zusendung von Publikationen und sonstigen Informationen gedankt. pdf-Dateien können meist direkt aus den links heruntergeladen werden.

Bitte besuchen sie auch die Webseite des Wissenschaftlerkreis Grüne Gentechnik e.V. (WGG): www.wgg-ev.de.

As always, I thank you all for hints and for publications. Most of the pdf files can be downloaded directly from the links.

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