

16.1. DOOR OPENER TO GENE-PEACE: ORGANIC FARMING AND GMO CROPS ARE COMPATIBLE WHEN COMPARING CROP BREEDING.

Critique on the Genomic Misconception opens doors to acceptance of GM bio-fortification and to new, nearly revolutionary views of 'organo-transgenic' breeding.

Even among scientists and especially among regulators the political-commercial split between transgenic and conventional crops is very popular and based on fundamentalist propaganda against GM technology in the present day agriculture. The background of such ardent debates is not so much hidden in real risks, rather the hysteria of present days is created by lots of socio-economic factors, often deeply based in psychology, but also in business interest of the protest industry, all details described in a draft literature review on the Golden Rice soon to be published: (Ammann Klaus, 20150615) A major part of the arguments for such a stigmatization of GMOs against conventional cultivars is lost when you accept the scientific foundations of product-oriented regulation. The tolerance of the Genomic Misconception as a wrong way of looking at the new technologies *and is of enormous consequences*, Fear, technophobia, social exclusion (stigmatization), moral self-licensing, exclusion of mankind from nature (GMOs not natural). It is not only a battle of facts and their misinterpretations, it is foremost a debate on social, legal, historic and cultural aspects: this will be the way out of the facts-tennis match with its near eternal tiebreaks.

'Organo-Transgenic' (or 'orgenic' after Gressel) concepts: See below: (Ammann Klaus, 2008, 2009a; Ammann Klaus & van Montagu Marc, 2009; deRenobales-Scheifler, 2009; Ronald & Adamchak, 2008; Ryffel, 2012). The author has no illusions that – just in the improbable case that serious talks to jump over this stigmatization frontiers, cemented with marketing interests, will only be possible if a lot of dogmas are seriously questioned in a long process of discourse (Ammann Klaus, 2014b).

In 2008 and 2009 the author published two papers on organotransgenic topics, here copied in the printed and the full text versions:

Ammann Klaus. (2008). Feature: Integrated farming: Why organic farmers should use transgenic crops, fulltext links. *New Biotechnology*, 25(2), pp. 101 - 107. DOI: <http://dx.doi.org/10.1016/j.nbt.2008.08.012> AND <http://www.ask-force.org/web/NewBiotech/Ammann-Integrated-Farming-Organic-Biotech-20080825-fulltext-final.pdf>

Ammann Klaus. (2008). Feature: Integrated farming: Why organic farmers should use transgenic crops, print. *New Biotechnology*, 25(2), pp. 101 - 107. <http://www.ask-force.org/web/NewBiotech/Ammann-Integrated-Farming-Organic-Farmers-use-transgenic-Crops-print-2008.pdf>

Ammann Klaus. (2009). Feature: Why farming with high tech methods should integrate elements of organic agriculture. Accepted, corrected proof, open links. *New Biotechnology*, 4, pp. <http://dx.doi.org/10.1016/j.nbt.2009.06.933> AND <http://www.ask-force.org/web/NewBiotech/Ammann-Integrated-Farming-Biotech-Org-20090410-fulltext-final.pdf>

Ammann Klaus. (2009). Feature: Why farming with high tech methods should integrate elements of organic agriculture, print. *New Biotechnology*, 25(6), pp. 378-388. <http://www.sciencedirect.com/science/article/B8JG4-4WKT50-1/2/1698b7149ed724fd0a49b3ae49f234ab> AND <http://www.ask-force.org/web/Organic/Ammann-High-Tech-and-Organic-2009.pdf>

Ammann, K. and M. van Montagu (2009), Organotransgenesis arrives, *New Biotechnology*, Vol. 25, /6, pp. 377-377, <http://www.sciencedirect.com/science/article/B8JG4-4W7YY1F-1/2/28740dfca05cf12bb3b973b4f4568ccb> AND <http://www.ask-force.org/web/NewBiotech/Ammann-Montagu-Editorial-Oranotransgenesis-arrives-2009.pdf>

"Much has been written about the vast field of biodiversity and agriculture; if you include related social sciences, a few quick search moves easily find well more than 9500 references, most of them published in peer-reviewed journals. In nature conservation circles, it has become clear that optimal plant and animal protection cannot be reached by neglecting the major factor: agricultural production. This is especially important in regions with an important percentage of agricultural production on all inhabited continents. Conservation efforts are paying off particularly in regions with a highly productive industrial agriculture

where ecological and also socio-economic insights are often neglected. This is where a trend towards a better integration of biodiversity conservation makes most sense. This cannot be achieved by regressing to old-fashioned production schemes of small-holder agriculture, as some eco-romantics advocate, because it is unethical to stress eco-friendly production in poor countries at the cost of the livelihoods of smallholders, where the ultimate priority would be to come swiftly to better production figures to fight dramatic hunger situations. This does not mean that much higher yields should be reached at the excessive cost of environmental deterioration and in addition it is equally important to focus not only on higher yield but also on the socioeconomic side of enhancements. This can only be achieved through a serious commitment to deliver innovation in agriculture. Plant biotechnology is widely acknowledged as a key resource for environmentally responsible and sustainable plant productivity practices. International organizations such as the WHO and FAO cite genetically modified crops as an important component of programs for sustainable agricultural development and poverty alleviation. Indeed since the first commercial plantings in 1996, there have been extensive documentations of the impact of GM crops in terms of land use, crop varieties, quality and quantity of food, environmental benefits, socio-economic development in neglected rural areas and health. As the technology matures further, new crop varieties will be developed to conserve more resources, such as water, land and energy. Most notably, crops with improved ability to tolerate periods of drought and other water-related stresses will be invaluable to both food security and the environment in the long term.

Now we need new paradigms of agriculture, which take into account the best from many different production strategies, including some practices in organic farming, which has its advantages, not in the ideologically steered exclusion of innovative agricultural technologies, but in taking very seriously socio-cultural aspects and integral views, among them landscape quality. In the concept of Organo-transgenesis, there is no place for a sterile ideological warfare between biotechnology and eco-agriculture; rather the reverse, there is a necessity to forget the contrasts and urgently work together for the sake of humanity and nature and create synergies.

In a first publication in this journal (*New Biotechnology* 25:101–107, 2009), the analysis of such new paradigms revealed that there are ample reasons, even in accordance with most of the official rules of organic farming, why certain transgenic crops could well fit into new agricultural practices. In the second part of the analysis in this issue, it can be demonstrated that some organic practices could very well be adopted by hi-tech agriculture; indeed, they actually fit well into modern concepts of high yield agriculture, especially when it comes to the adoption of biodiversity-friendly landscapes. **Moreover, new insights in resistance management – by introducing a concept of crops with stacked genes or even better by introducing seed mixtures of modern traits, which could be assembled with the help of new knowledge in community ecology and adapted to local needs – might be a way forward. Finally, a future oriented and dynamic concept of sustainability is introduced, taking into account innovative agro-ecological, social and evolutionary management systems.**

Klaus Ammann (Guest Professor), Sabanci University, Istanbul, Turkey

Marc van Montagu, European Federation of Biotechnology, Spain” from (Ammann Klaus & van Montagu Marc, 2009)

deRenobales-Scheifler, M. (2009). *More sustainable food: Genetically modified seeds in organic farming*. pp. 119 Gijon, Basque, Spain: Junta General del Principado de Asturias Sociedad Internacional de Bioética (SIBI) <http://www.sibi.org/ingles/jgp/p2009.htm> Book: English: <http://www.sibi.org/ingles/jgp/books/Book%20Prize%20JGPA%20SIBI%202009.pdf> AND <http://www.ask-force.org/web/Organic/Renobales-Organotransgenics-Book-Prize-JGPA-SIBI-2009.pdf> AND Spanish: <http://www.sibi.org/jgp/p2009.htm> AND [http://www.araba.ehu.es/p208-content/eu/contenidos/noticia/20100211_mertxe_renobales/eu_np/20100211_mertxe_renobales.html](http://www.ask-force.org/web/Organic/DeRenobales-Scheifler-GM-Seeds-Organic-2009.pdf)

Ronald, P. C. and R. W. Adamchak (2008), *Tomorrow's Table: Organic Farming, Genetics, and the Future of Food* edn. Oxford University Press, USA (April 18, 2008) IS: ISBN-10: 0195301757 ISBN-13: 978-0195301755 pp. 232, http://www.amazon.de/Tomorrows-Table-Organic-Farming-Genetics-ebook/dp/B003AJS26M/ref=sr_1_1?s=digital-text&ie=UTF8&qid=1410081085&sr=1-1&keywords=Tomorrow%27s+Table%3A+Organic+Farming%2C+Genetics%2C+and+the+Future+of+Food Kindle, Book review by J. Gressel 2009 <http://www.ask-force.org/web/Gressel-Book-Ronald-2009.pdf> AND Tony Trewawas <http://www.ask-force.org/web/Organic/Trewawas-Redefining-Natural-2008.pdf>

See also a new interview with Pamela Ronald and Raoul Adamchak 2015

Berlin Jeremy, Ronald Pamela C., & Adamchak, R. W. (20150504). Can This Scientist Unite Genetic Engineers and Organic Farmers? *National Geographic Magazine*. <http://news.nationalgeographic.com/2015/05/150502-nginnovators-rice-genetic-engineering-gm-organic-farming-pamela-ronald/#b05g16t20w15> AND <http://www.ask-force.org/web/Organic/Berlin-Ronald-Adamchak-Organo-transgenics-20150504.pdf>

Ryffel, G. U. (2012), *Organic plants: Gene-manipulated plants compatible with organic farming*, *Biotechnology Journal*, 7, 11, pp. <Go to ISi>://WOS:000310678000009 AND <http://www.ask-force.org/web/Organic/Ryffel-Organic-Plants-2012.pdf>

The latest news come from a Danish author group in a review making some new conclusions and comments including the recent gene editing method development: (Andersen et al.)

Andersen, M. M., Landes, X., Xiang, W., Anyshchenko, A., Falhof, J., Østerberg, J. T., Olsen, L. I., Edenbrandt, A. K., Vedel, S. E., Thorsen, B. J., Sandøe, P., Gamborg, C., Kappel, K., & Palmgren, M. G. Feasibility of new breeding techniques for organic farming. *Trends in Plant Science*, pp. <http://dx.doi.org/10.1016/j.tplants.2015.04.011> AND <http://ask-force.org/web/Organic/Andersen-Feasibility-new-breeding-techniques-organi-farming-2015.pdf>

“Organic farming is based on the concept of working ‘with nature’ instead of against it; however, compared with conventional farming, organic farming reportedly has lower productivity. Ideally, the goal should be to narrow this yield gap. In this review, we specifically discuss the feasibility of new breeding techniques (NBTS) for rewilding, a process involving the reintroduction of properties from the wild relatives of crops, as a method to close the productivity gap. The most efficient methods of rewilding are based on modern biotechnology techniques, which have yet to be embraced by the organic farming movement. Thus, the question arises of whether the adoption of such methods is feasible, not only from a technological perspective, but also from conceptual, socioeconomic, ethical, and regulatory perspectives.

In this interesting text, building already on modern gene editing (which should actually ease up the conflict between organic and biotech breeding, I call it here in this text a “door opener”) there is one important point missing: the fact that *on the process level*, there is no difference between

transgenesis and natural breeding, as the author has stated since 2006, and reviewed in full extension in 2014 (Ammann Klaus, 2014a). As the author stated in two papers cited above, there are more reasons for making peace. Unfortunately, the powerful lobby on the side of the organic industry focuses too much on business and not enough on concepts for the future in rejecting such thoughts. (but see the comments from Nathan Gray below (Gray Nathan, 20150424). On the other hand, many molecular biologists see only the old-fashioned, backwards looking conservative farming tradition – the luddites. Indeed, with a growing importance of organic farming, not only the problems like corruption, falsification in large quantities (imports from Italy to Switzerland) and one-sided commercial lobbying (it today involves billions of income nowadays – the stakes are really high.

After the first years of organic euphoria among farmers, reality about exorbitantly high organic feed costs takes over and farmers return back again to conventional methods in England (and Germany), despite of high consumer demands: (Rustin Susanna, 20150314). On the other hand, the consumer demands will foster organic farming (Fromm Jeff, 20150402), but it needs to get rid of old-fashioned production methods and really accept modern breeding in all its variants, needless to say that also the new methods need biosafety assessment adapted to the novelty and degree of genomic alteration. Organic farming is going after the first individualistic and from outside chaotic pioneer phases into different directions, one is committed to new technology as precision farming: Also needless to say, that organic farming organizations should refrain from cheap anti-GMO propaganda, see e.g. (Melchett Peter, 20121217) and even more important: accept justified biosafety assessment including the whole process of organic farming, including the involved crop traits: (Popoff Mischa, 2010, 2011) and (Popoff Mischa & Moore Patrick, 2012). Popov makes it ultimately clear that the organic farming organizations are often powerful agencies behind cheap but successful anti-GMO activities. For more details about the pro's and con's of organic and biotech farming see the two earlier publications of the author (in open source mode): (Ammann Klaus, 2008, 2009b)

There is still a lot of ranting and disputing going on between the major parties of organic farming and biotech farming, if you want to read an extensive example of such a war on words, go to Calamur intervieweig Senapathy, including 179 pages of comments: (Calamur Jayadev & Senapathy Kavin, 20150614)

The latest news is that IFOAM (International Foundation of Organic Farmers) begins to re-think its own stigmatization policy on GMOs (Gray Nathan, 20150424), which actually is a big positive surprise:

Gray Nathan. (20150424). Can Organic Foods and GM-Like Technologies go ever Hand in Hand? *Food Navigator*, 1. <http://www.foodnavigator.com/content/view/print/1081195> AND <http://www.ask-force.org/web/Organic/Gray-Nathan-Can-organic-foods-GM-like-technologies-20150425.pdf>

When asked by Food Navigator, Christopher Stopes, EU-Director of IFOAM, answered

"The use of certain biotechnologies could support organic production in the future – although the currently approved 'cross-species' GM technologies are the biggest threat to the organic food system, says Christopher Stopes" from (Gray Nathan, 20150424)

Comment of Chuck Benbrook on the text (who obviously seems to be pretty much provoked by the interview)

"Principles Matter: Transgenic technologies that require farmers to apply more herbicide, or which express insecticidal toxins throughout plant tissues, irrespective of whether the target insects are even present, will never be accepted in organic farming for reasons that have nothing to do with the techniques used to move foreign DNA into plants. The "silver bullet" treatment approach to farm management violates core organic principles, and as long as the seed industry uses GE methods to create unilateral treatments, as opposed to preventive system changes, there will not be a reason to even consider whether the breeding techniques are compatible with organic principles." Posted by Chuck Benbrook 24 April 2015 | 16h05

Comment of Klaus Ammann as an answer to Chuck Benbrook:

"Dear Chuck, instead of sticking to principles based on marketing, you should have a closer look at the following paragraph including citations with full text links and try to be inspired by Genepeace instead of Greenpeace"

<http://www.ask-force.org/web/AF-19-Golden-Rice-Review/Ammann-Chapter-16-1-Door-Opener-ProgressGenomic-Misconception-MS-20150425.pdf>

Benbrooks statements have to be taken cum grano salis, since the battle around the abused FOIA (Freedom of Information Act) has yielded an unexpected victim: exorbitant figures of massive financial support for Charles Benbrook by the organic industry have been unearthed: (Kelly Julie, 20151013).

Less explicit, but still with an emphasis on developing organic farming seen as a multiple effort including new technologies are statements by Urs Niggli from Switzerland: (Niggli, 2015).

Niggli, U. (2015). Sustainability of organic food production: challenges and innovations. *Proceedings of the Nutrition Society*, 74(1), pp. 83-88.

<Go to ISI>://WOS:000352198500009 AND <http://www.ask-force.org/web/Organic/Niggli-Sustainability-Organic-Challenges-2014.pdf>

"However, the concept of organic agriculture offers ample scope to increase the productivity of farms, on the basis of both eco-functional intensification and the smart and selective use of modern techniques and technologies. The first priority for more research encompasses soil fertility building, improved crop rotations, crop mixtures with full integration of legumes and functional biodiversity in arable and horticultural crops. Emphasis must be given to crop breeding, which targets the specific environment of organic and low-input crop systems such as nutrient uptake from soils better synchronized to the mineralization of organic manures." From (Niggli, 2015).

In his oral (in recent years also public) statements Prof. Urs Niggli does not exclude modern breeding such as genetic engineering – for many years done in personal exchange and since about two years also in the public.

It is time for new initiatives, an example from New Zealand:

Rotherham Fiona. (20150615). NZBio backs fresh debate over new biotechnologies, including genetic modification. from

<http://www.nbr.co.nz/article/nzbio-backs-fresh-debate-over-new-biotechnologies-including-genetic-modification-b-174171> AND

<http://www.ask-force.org/web/Genomics/Rotherham-NZBio-backs-fresh-debate-new-biotechnologies-20150615.pdf>

A final caveat is important: Based on a recent text in Forbes by Henry Miller (Miller Henry, 20150729) there are essential thoughts published which will lower the optimistic expectations of a fusion between organic agriculture and conventional-Industrial way of producing food: The Organic farming with its recent commercial development, has grown worldwide into powerful commercial and political structures. Still, the regulation of organic produce is in its infant shoes and the interests to keep regulatory scrutiny low is obvious. There are lots of new and old negative developments precisely described in Henry Miller's piece. If any organo-transgenic structures should be developed in future, the critique of Henry Miller has to be taken seriously.

Miller Henry. (20150729, 29. July 2015). The Colossal Hoax of Organic Agriculture. *FORBES*, 20 incl. comments.

<http://www.forbes.com/sites/henrymiller/2015/07/29/why-organic-agriculture-is-a-colossal-hoax/> AND <http://www.ask-force.org/web/Organic/Miller-Colossal-Hoax-Organic-Agriculture-FORBES-20150729.pdf>

"Consumers of organic foods are getting both more and less than they bargained for.

On both counts, it's not good.

Many people who pay the huge premium—often more than a hundred percent—for organic foods do so because they're afraid of pesticides. If that's their rationale, they misunderstand the nuances of organic agriculture.

Although it's true that synthetic chemical pesticides are generally prohibited, there is a lengthy list

Of exceptions listed in the Organic Foods Production Act, while most "natural" ones are permitted. However, "organic" pesticides can be toxic. As evolutionary biologist Christie Wilcox explained in a 2012 Scientific American article ("Are lower pesticide residues a good reason to buy organic? Probably not."): "Organic pesticides pose the same health risks as non-organic ones."

See also his previous critical articles on organic farming, readers will be certainly healed of any romantic views regarding organic farming, as it exists as a world-wide commercial structure in reality. And we should take into account one of the most serious critiques on organic farming when it comes

to the lack of regulation (Popoff Mischa, 2010, 2011)

Popoff Mischa. (2010, 2011). *Is it organic? The inside story of who destroyed the organic farming industry, turned it into a socialist movement and made million\$ in the process, also Kindle.* pp. 593, 574 Osoyoos British Columbia Canada: Polyphase Communication, Mischa Popoff AND Xulon Press (16. Februar 2011). 978-0-557-54033-4 AND 978-0-557-54886-6 AND ASIN: B004WG43DI www.isitorganic.ca AND http://www.amazon.de/Organic-English-Mischa-Popoff-ebook/dp/B004WG43DI/ref=sr_1_1?s=digital-text&ie=UTF8&qid=1410020457&sr=1-1&keywords=Is+it+Organic%3F Bibl. KA and Kindle

Sorry friends. What you think about organic food is mostly wrong. The global organic industrial-complex promises everything and delivers nothing. But don't blame organic farmers! They're victims, along with millions of consumers. Being organic is no longer about farming fields. It's about filling forms. Your taxes underwrite this marketing subterfuge and help drive a stake into the heart of the most efficient food system ever known. Who's behind this? You'll be surprised. Organic farming began in England as a Christian movement. Organic farmers in the United States and Canada overwhelmingly identify as conservatives, and until 1997 their industry actually had a sound scientific basis, subject to free-market rules with no government interference. But you'll never hear about that from the pro-organic media, or about the key role Presidents H.W. and G.W. Bush played in vaulting organics from hippie movement to multi-billion-dollar industry. Is it Organic? is a tell-all history by an industry insider who saw too much to keep quiet. Organics can get back to basics by producing food using age-old methods like natural composting, or it can be ruled by banality, fraud and eco-politics. As far as government and urban activists are concerned, farmers, the environment and consumers are mere afterthoughts. And, like it or not, you're footing the bill.

The hard realities of missing yield results can be overcome by using modern breeds among the crops, including transgenic crops and new ones built on gene editing, but as long as this is not done, there are a lot of comparative studies done, but the basis of the comparison is often to be questioned. Too often, systems are compared where some basic parameters should not be compared, as revealed in an open-minded discussion of detailed results in one of the best yield comparison studies (Seufert et al., 2012). Nevertheless, Seufert et al. conclude in most cases clearly in favor of conventional farming.

Life cycle studies comparing agricultural products from conventional and organic farming systems report a wide variation in the resource efficiency of products from these systems. The studies show that impacts per area farmed land are usually less in organic systems, but related to the quantity produced impacts are often higher, but results are not yet consolidated (Meier et al., 2015) as the discussion of the authors of the study states.

Despite the present day uncertainties in such comparison studies, the conclusion is already now obvious and hard to be contradicted: modern crop traits (including transgenic and gene edited ones) should be introduced in organic farming, leaving behind ideology and looking at the facts.

Finally a popular sticker for GMO debates in the public: comments in (Schiermeier, 1998)



Ammann Klaus. (2008). Feature: Integrated farming: Why organic farmers should use transgenic crops, print. *New Biotechnology*, 25(2), pp. 101 - 107. <http://www.ask-force.org/web/NewBiotech/Ammann-Integrated-Farming-Organic-Farmers-use-transgenic-Crops-print-2008.pdf>

Ammann Klaus. (2009a). Feature: Why farming with high tech methods should integrate elements of organic agriculture, print. *New Biotechnology*, 25(6), pp. 378-388. <http://www.sciencedirect.com/science/article/B8JG4-4WKTX50-1/2/1698b7149ed724fd0a49b3ae49f234ab> AND <http://www.ask-force.org/web/Organic/Ammann-High-Tech-and-Organic-2009.pdf>

Ammann Klaus. (2009b). Feature: Why farming with high tech methods should integrate elements of organic agriculture. accepted, corrected proof, open links. *New Biotechnology*, 4, pp. <http://dx.doi.org/10.1016/j.nbt.2009.06.933> AND <http://www.ask-force.org/web/NewBiotech/Ammann-Integrated-Farming-Biotech-Org-20090410-fulltext-final.pdf>

Ammann Klaus. (2014a). Genomic Misconception: a fresh look at the biosafety of transgenic and conventional crops. A plea for a process agnostic regulation. *New Biotechnology*, 31(1), pp. 1-17. <http://dx.doi.org/10.1016/j.nbt.2013.04.008> AND open source: <http://www.ask-force.org/web/NewBiotech/Genomic-Misconception-new-20140821-names-links.pdf> AND <http://www.ask-force.org/web/NewBiotech/Ammann-Genomic-Misconception-printed-2014.pdf>

Ammann Klaus. (2014b). Systems Approach Second Generation for a pragmatic debate on the future of Agriculture. Rules for a successful Discourse and long term iterative Planning-Design beyond the present day ideological fights on breeding methods and agricultural strategies. Draft Nov. 18, 2014. *ASK-FORCE* 17, AF-17, pp. 24. <http://www.ask-force.org/web/AF-17-Systems-Approach/Ammann-Systems-Approach-AF-17-20141118.pdf>

Ammann Klaus. (20150615). *The Debate on the Golden Rice and its Background, a Literature Review. name citations with full-text links, additions until July 20, 2015.* *ASK-FORCE* 19. Neuchâtel, Switzerland. pp. 201 Retrieved from <http://www.ask-force.org/web/AF-19-Golden-Rice-Review/Ammann-Debate-GR-Background-AF-19-names-fulltext-20150615a.pdf>

Ammann Klaus, & van Montagu Marc. (2009). Organotransgenesis arrives. *New Biotechnology*, 25(6), pp. 377-377. <http://www.sciencedirect.com/science/article/B8JG4-4W7Y1F-1/2/28740dfca05cf12bb3b973b4f4568ccb> AND <http://www.ask-force.org/web/NewBiotech/Ammann-Montagu-Editorial-Oranotransgenesis-arrives-2009.pdf>

Andersen, M. M., Landes, X., Xiang, W., Anyshchenko, A., Falhof, J., Østerberg, J. T., Olsen, L. I., Edenbrandt, A. K., Vedel, S. E., Thorsen, B. J., Sandøe, P., Gamborg, C., Kappel, K., & Palmgren, M. G. Feasibility of new breeding techniques for organic farming. *Trends in Plant Science*, pp. <http://dx.doi.org/10.1016/j.tplants.2015.04.011> AND <http://ask-force.org/web/Organic/Andersen-Feasibility-new-breeding-techniques-organi-farming-2015.pdf>

Calamur Jayadev, & Senapathy Kavin. (20150614, 14. June 2015). Organic vs GM: finding the grain of truth. *dna*, 14. June 2015, 4 and 179 pp. comments. <http://www.dnaindia.com/lifestyle/interview-organic-vs-gm-finding-the-grain-of-truth-2095346> AND <http://www.ask-force.org/web/Organic/Calamur-Organic-vs-GM-Finding-Grain-Truth-20150614.pdf>

deRenobales-Scheifler, M. (2009). *More sustainable food: Genetically modified seeds in organic farming.* pp. 119 Gijón, Basque, Spain: Junta General del Principado de Asturias Sociedad Internacional de Bioética (SIBI) <http://www.sibi.org/ingles/jgp/p2009.htm> Book: English: <http://www.sibi.org/ingles/jgp/books/Book%20Prize%20JGPA%20SIBI%202009.pdf> AND <http://www.ask-force.org/web/Organic/Renobales-Organotransgenics-Book-Prize-JGPA-SIBI-2009.pdf> AND Spanish: <http://www.sibi.org/jgp/p2009.htm> AND <http://www.ask-force.org/web/Organic/DeRenobales-Scheifler-GM-Seeds-Organic-2009.pdf> AND http://www.araba.ehu.es/p208-content/eu/contenidos/noticia/20100211_mertxe_renobales/eu_np/20100211_mertxe_renobales.html

Fromm Jeff. (20150402). Target's new focus on organic grocery will win big with millennials. *The Business Journals, a Vision of ACBJ*, 3. <http://www.bizjournals.com/bizjournals/how-to/marketing/2015/04/targets-new-focus-on-organic-grocery-will-win-big.html?page=all> AND <http://www.ask-force.org/web/Organic/Fromm-Targets-New-Focus-Organic-20150402.pdf>

Gray Nathan. (20150424). Can Organic Foods and GM-Like Technologies go ever Hand in Hand? *Food Navigator*, 1. <http://www.foodnavigator.com/content/view/print/1081195> AND <http://www.ask-force.org/web/Organic/Gray-Nathan-Can-organic-foods-GM-like-technologies-20150425.pdf>

Kelly Julie. (20151013). FOIA: Organic industry, Chuck Benbrook orchestrated anti-GMO "independent" research, marketing. *Genetic Literacy Project*, pp. 10. <http://www.geneticliteracyproject.org/2015/10/13/foia-organic-industry-chuck-benbrook-orchestrated-anti-gmo-independent-research-marketing/#link> AND <http://www.ask-force.org/web/FOIA/Kelly-Benbrook-FOIA-Organic-Lobbying-20151013.pdf>

Meier, M. S., Stoessel, F., Jungbluth, N., Juraske, R., Schader, C., & Stolze, M. (2015). Environmental impacts of organic and conventional agricultural products - Are the differences captured by life cycle assessment? *Journal of Environmental Management*, 149, pp. 193-208. <Go to ISI>://WOS:000348084000019 AND <http://www.ask-force.org/web/Yield/Meier-Environmental-Impacts-Organic-conventional-2014.pdf>

Melchett Peter. (20121217). The pro-GM lobby's seven sins against science. *Soil Association Mother Earth*, pp. 7. <http://www.soilassociation.org/motherearth/viewarticle/articleid/4752/the-pr> AND <http://www.ask-force.org/web/Organic/Melchett-pro-GM-lobbys-seven-sins-20121217.pdf>

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