



ABIC 2004

12-15 September, Cologne, Germany

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Düsseldorf, 21/06/04

Support for Academics!

The Ministry of Economy and Labor of the federal state of North Rhine-Westphalia recognizes the potential and importance of agricultural biotechnology for the future development of agriculture both national and world-wide. Consequently, it is important to attract as many young scientists as possible to ABIC 2004 in Cologne, which will be one of the year's most important events for modern agriculture.

In order to attract as many young scientists as possible, I have therefore approved to support delegates who qualify as academics (either students or scientists from academic institutions) by subsidising a substantial reduction of their registration fees by 50%. Delegates who have already registered, will get a refund upon arrival at the conference check-in.

I am looking forward to welcoming you in Cologne,

Harald Schartau
Minister of Economic Affairs and Labor
of North Rhine-Westphalia

▶ NEW PRICES FOR ACADEMICS

Early Bird Rates, until July 2nd	
Academics:	175,- Euro (+ 16% V.A.T.)
Students:	100,- Euro (+ 16% V.A.T.)

Regular Rates, after July 2nd	
Academics:	187,50 Euro (+ 16% V.A.T.)
Students:	125,- Euro (+ 16% V.A.T.)

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North Rhine-Westphalia, Ministry of Economy and Labor
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Freiburg, 28/06/04

Beyond Golden Rice

More than 125 million children around the world suffer from Vitamin A deficiencies - costing their sight and hundreds of thousands their lives every year. Cell Biologist Peter Bayer first learned of the magnitude of this preventable tragedy in the early 1990s, when the Rockefeller Foundation asked him to participate in a conference targeting the issue. Swiss Professor Ingo Potrykus also attended that historic event, and was on the same plane as Bayer. By the time they landed in New York, the two men had agreed in principle to cooperate on the challenge of stimulating carotenoid production in rice. By the end

of the decade, they'd succeeded in generating the first prototype strains of what has come to be called "Golden Rice".

Today, the men are working to improve the technology and make it freely available to resource-poor farmers world-wide. In this month's featured interview, Bayer talks about the challenge of communicating the benefits of green biotechnology.

? **One of the goals of this year's ABIC is to compose a Biotech Manifesto for scientists, environmentalists, and industry. Since you won't be attending this year's event, perhaps you could use this platform to tell us what you feel should be a central focus of the manifesto.**

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Professor Peter Beyer

Perhaps best known as the coinventor (along with Ingo Potrykus) of Golden Rice, German Professor Peter Beyer currently heads a research group at the University of Freiburg's Center for Applied Biosciences which is working on the biochemistry, molecular biology and regulation of plant prenilyplid metabolism (sterols, vitE, vitK etc.) with an emphasis on the biosynthesis of carotenoids. His research encompasses both basic science and the application of findings in plant pathway engineering to improve the nutritional value of crop plants. He has authored roughly 70 original research articles and been awarded the "ProEuropa" European Award for Culture in Science.

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Q I think the whole issue of risk perception needs to be properly addressed. In Europe, you have this attitude of risk avoidance under all circumstances – while no one acknowledges that people are running risks every day. While we are talking, there is a risk of being killed by meteorite. It's low, but it's there. In many fields, the risks flowing from inactivity are greater than from the risks of taking action. Another issue is how risks related to GMOs are blown to major proportions, while in fact the same sorts or risks exist in classical breeding. No one talks of the risk of eating a nectarine, for example – although it is mutant in which many biochemical pathways have been changed so that the nectarine is certainly not "substantially equivalent" to a peach. Why don't we talk about wheat, in which there are many lines where parents stem from random mutagenesis caused by radioactive radiation. You need to weigh risks to rewards, as has been done for the use of GMOs in medical treatment. There's no discussion there, because the benefit to humans of this technology is recognized. It's only with green GMOs that this situation continues.

Q Why do you believe that is?

A I think it's partly because people in Europe do not want to accept that the problems in developing countries are different from those in Europe. It's very selfish, when you think about it. Look at the EU's Sixth Framework Programme for research, where a very large portion of the research themes put forward have to do with analysis of risks related to GMOs while programs to produce and develop GMOs are hardly found. This could be because the benefit of green GMOs is not as evident in Europe as it is in the developing world. The first generation of GMOs were herbicide-tolerant and insect-resistant products from which the end consumer sees no immediate benefit – beyond that the farmer doesn't have to use so many chemicals. It's ironic: the perception of risk of spraying chemicals has been largely accepted in public opinion, while the risk of not spraying has been discounted. It doesn't help that Greenpeace and other groups have identified this as a novel topic, and politicians collaborate with them. At a recent discussion in the Bundestag you hear – one-by-one and almost word-for-word – Greenpeace's arguments being recited. And their arguments are difficult to counter, because they are so well delivered.

Q Can you provide an example?

A Sure. We had this golden rice story of child needing to eat seven or nine kilos of Golden Rice to get his RDA. There's no scientific basis for that claim, but it showed up in the New York Times Sunday Magazine and spread all over the world within only days. As scientists, we don't have the means, in terms of press coverage, to counteract that – and our argumentation wouldn't be nearly as interesting, because we're trained to argue with data in hand. If you don't have the data, you have to say don't know. That won't compete with the image of a malnourished child

sitting in front of a seven-kilo pile of rice. People react to uncertainties and potential risks, and politicians react to the people, and the result is some pretty bizarre regulations to date, requiring up to 95% of research money be used to fulfill regulatory requirements that are illogical to a great part. It doesn't help that it's easier for a scientist to make a living off of identifying alleged biohazards than it does for him to identify concrete biosolutions or biobenefits. For developing countries, where this technology will be of large importance in the coming years, such a bizarre situation raises costs to the point that the countries that need the technology will never be able to afford it.

Q Let's stay with the Golden Rice. Critics point out that, at best, it's a healthy part of a diet that includes fruits and vegetables, and some claim the benefits have been over-sold – which could lead people to rely on it too much. Is that a valid concern?

A We have been trying not to oversell, but discussions on these subjects, take on their own dynamic. You find things written down that nobody ever said. Among these is the idea that this would be a silver bullet. That's not true of GMOs, and it's not true of any classical intervention, either. What we said is that with classical intervention, you need a delivery apparatus to bring the mechanism – be it vitamin or mineral – to the people in demand, and this apparatus tends to disappear when funds disappear. The important thing GMOs add is that the mechanism only needs to be delivered once, given that there is free and unlimited access free of costs to the technology and that farmers have the right to keep their seeds for further sowing. These circumstances are all met with Golden Rice.

Q When people say the rice isn't meeting its promise, where have they gone wrong?

A They've made three mistakes: first, they equate failure to meet the recommended daily allowance (RDA) with deficiency disease. With Vitamin A, the estimated amount needed to prevent deficiency ranges from 25% to 40% of RDA. The next mistake was assuming that people were going to be getting all of their Vitamin A from Golden Rice – but no living person has zero Vitamin A in their diets, because a complete lack means death, rather than deficiency. So Golden Rice isn't designed to meet all of a person's needs, but rather to push them over the borderline from insufficient to sufficient. And the third error is that they base their projections on prototypical experimental lines. Current lines increase beta carotene production substantially. The first field trials are already underway, and nutritional trials will begin in the US and in China next year. Then we'll have real numbers in hand.

Q The latest thing seems to be using the genome to make conventional plant breeding more precise, and to perhaps breed up the amount of naturally occurring beta carotene in rice. Is this possible?

A For many breeding purposes, knowledge of the genome is a large help, but there's currently no

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>>> HOTEL INFOS

ABIC 2004 DELEGATES

**Book now for
Speakers Hotel!**

PLEASE NOTE:

If you want to stay at the Hilton Cologne, which has been assigned as the Speakers Hotel of ABIC 2004, you should book now as the number of blocked rooms for the conference will soon be exceeded.

For your booking arrangements (use code "ABIC 2004" for special rates), check these data:

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means of blending this knowledge with classical breeding techniques to raise the level of beta carotene in rice, because you need a parent which has this trait. Knowledge of the genome doesn't change the fact that this parent doesn't exist ... because the colored rice grains that do exist don't get their color from carotenoids.

? **But I've seen reports saying that beta carotene does exist in the rice genome.**

! That's in the leaves. Anything that is green has provitamin A in it, but gene regulation prevents it from showing up in the grain. Maybe in the future we'll be able to tackle the problem in terms of gene regulation, but so far no strain of rice has done it on its own so, again, there is no parent out there that we can tap.

? **As I understand it, this isn't just one rice, but rather a process that is applied to indigenous rice around the world. That sounds like you'll have to keep inventing this stuff over and over.**

! Rice in the north of India, for example, is different from in the south, and it changes from altitude to altitude as well. The plan is to blend classic breeding with GR ... introducing one GR rice line, and then using this line to introgress the trait into those other strategically important lines. By "strategically important", I mean lines that a poor man would eat, as opposed to golden basmati, for example. To select the proper lines, we need people with local experience to conduct needs assessment impact studies and to do the breeding work required. And when we find collaborators, they receive a license that allows this work.

? **Why a license? Isn't this technology essentially a gift to humanity?**

! Yes, but you need a license to give contractual security, because the technology touches on 70 international patents owned by various industries and uni-

versities ... although only nine of these apply to developing countries. It's sort of like if we'd invented the car, but somebody else had the patent on the wheel. We'd have to make sure that whoever we gave our car to could also use the wheel without paying the patent holder on that concept. And licensor also assumes a certain degree of liability with licensee, because you only want the technology to be used in a non-commercial way and in a proper way that adheres to national regulatory standards.

So far, the Golden Rice network has been established in six countries. Another organization, Harvest Plus, is also establishing a network to combat deficiency diseases resulting from the lack of micronutrients in staple crops ... such as rice, maize, wheat and cassava. There are also second-tier crops, such as lentils, which are important but about which we don't have much scientific knowledge. Maybe that will change.

> MEDIA PARTNER



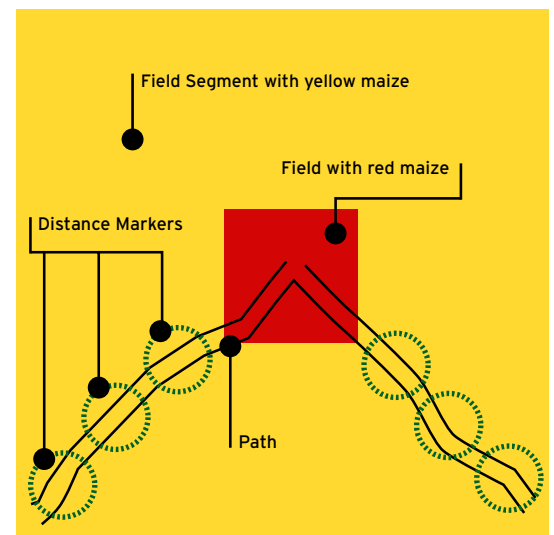
Cologne, 25/06/2004

**Maize Field Experiment
on Coexistence**

Phytowelt, organizer of ABIC 2004, has launched a field trial designed to acquaint visitors to ABIC 2004 with the realities of coexistence under real-life circumstances. Red maize has been planted in the center of a 2.7 hectare field near Cologne, with regular yellow maize planted all around it. At the time of harvest, the decreasing incidence of red maize impurity along the way out of the center of the field will visually demonstrate the distance that has to be kept to guarantee coexistence with corn varieties.

The demonstration field will be one stop of the Bio-tech-Tour, which is part the ABIC 2004 program and which will take place on Wednesday, September 15th.

More details concerning this trial will be sent to you on request to contact@phytowelt.de.



■ "red" maize ■ "yellow" maize

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CALL FOR POSTERS

Best three posters will win one delegate ticket.

You are invited to take part in the ABIC Poster Session competition. The contest is open to all non-commercial institutions. The subject of the work presented should be in relation to the topics of the program (see below).

The best 3 posters selected by an independent committee will be awarded with a free ABIC 2004 delegate ticket. The deadline for poster submission is July 2nd, 2004.

For participation, registration as a delegate is required. For more details please contact the **Phytowelt GmbH Conference Office ABIC 2004** or mail to: posters@abic2004.org

PROGRAM UPDATE

The full program can be downloaded as a PDF-file from this location: www.abic2004.org/download/ABIC2004_program.pdf

Trade Fair Conditions and Rates

Complementary with the conference, the business of AgBiotechnology will have the unique chance to present products and services. The Trade Fair will take place in the localities of the Cologne Fair. Main Sponsors will present in the especially well located exhibition area at the Auenplatz, which is the central place of the Congress Center West. Due to its immediate vicinity to the Netherlands, Belgium and France and being less than one flight hour from Great Britain, the Cologne Fair is the place of choice to get in contact with European customers and partners.

BOOTH RATES

In HALL 3 50 pre-equipped booths of 9 m² will be available. The price per square meter is Euro 250,- (+ V.A.T.). In addition, raw space is available with minimum size of 15 m²; the price for the raw space will be Euro 190,- (+ V.A.T.) per square meter.

9m² booth (pre-equipped):

Regular: Euro 2250,- + V.A.T.

Premium: Euro 3750,- + V.A.T.

15m² booth: Euro 2850,- (raw space) + V.A.T.

The full exhibitors manual will be sent to you on request.

DELEGATE REGISTRATION RATES

Prices include Breakfast, Lunch and Beverages

Regular Rate: Euro 750,- + V.A.T.

(after July 2nd 2004)

Academic Rate*: Euro 187,50 + V.A.T.

Student Rate*: Euro 125,- + V.A.T.

One Day Delegate Rate: Euro 250,- + V.A.T.

Exhibitor Delegate Rate: Euro 250,- + V.A.T.

Group Discounts: 3-5 Delegates: - 10 %
6 or more Delegates: - 15 %

Early Bird Rates:

(until July 2nd 2004)

Early Bird Regular Rate: Euro 675,- + V.A.T.

Early Bird Academic Rate*: Euro 175,- + V.A.T.

Early Bird Student Rate*: Euro 100,- + V.A.T.

* Academic and Student Delegates: You must provide verification of academic or student status to qualify for the Academic or Student rate.

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Special Partnering Event

One session of the Conference program will be fully dedicated to the subject of Business Partnering (see program below). Approximately 20 companies will be given time and technology to appropriately present themselves as part of the **Premium Partnering Package**. Throughout ABIC 2004 a special area in the trade fair hall will provide optimized partnering procedures for registered partnering event participants. In addition a special section of the ABIC 2004 website www.abic2004.org will be reserved for the partnering event. This service will be made available in due time.

PARTNERING RATES

Regular Partnering: Euro 350,- + V.A.T. (one to one meetings plus Web Partnering)

Premium Partnering: Euro 750,- + V.A.T. (Business Presentation at Forum plus Regular Partnering)

Prices are added to Delegate Rates. Partnering possible throughout ABIC to allow participants to arrange meetings at convenience.

Session (Day)	The Business of Biotechnology	Advances in Plant Improvement	New Opportunities through Biotechnology
01	The Role and Importance of Ethics for Agricultural Biotechnology in Europe <ul style="list-style-type: none"> Round Table Discussion 	Controlling Expression in Transgenes <ul style="list-style-type: none"> Regulating Expression of Transgenes in Plants Expression of Genes in specific Tissues Environmental Assessment of Risks and Benefits of Regulated Expression 	Plants as green factories <ul style="list-style-type: none"> Strategies for producing PMPs* in Plants (Molecular Farming) Improvement of Fiber Crops by Genetic Engineering Engineering New Biosynthetic Pathways * Plant-made pharmaceuticals
02	Co-existence of Transgenic and Non-Transgenic Crops <ul style="list-style-type: none"> Gene Flow and Co-Existence Scientific Basis of Co-Existence Ecological Impact of GMOs 	Synergies between Breeding and Biotechnology <ul style="list-style-type: none"> Genomics/Allele Mining Advanced Mapping Tools Use of Model Genomes 	Biotechnology and Food Security for the Resource-Poor <ul style="list-style-type: none"> Analysis of the Need for new Solutions: Africa Case Study of a real Biotech Solution: Mexico Biotechnology for Food Security in Developing Countries in the Context of Global Warming and Prospects for Organic Agriculture
03	Business Forum: Consumer Benefits and Industrial Perspectives of AgBiotechnology / Industry Presentations		
04	The Business of Biotechnology <ul style="list-style-type: none"> Investments in Biotech in Japan Dos and Dents for Biotech Start-ups Todays and Future Markets in Plant Biotech 	Improvements in Non-Food Crops <ul style="list-style-type: none"> Biotechnological Applications in Forestry Oil Palm Breeding and competitive Approaches Biotechnology and Ornamental Plants 	Nutraceuticals as Links between Food and Health: Using Biotechnology to Improve Our Food <ul style="list-style-type: none"> Polyunsaturated Fatty acids "Golden Rice" Classical Breeding / Food Processing / Fortification

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