

# Access to IP: The Golden Rice Resolution and New Mechanisms.

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# Outline:

- Golden Rice and the IP issues
- Analyses
- Resolution and Opportunities
- The reality of IP and crop biotechnology
- Mechanisms for the public sector to access and to manage advanced IP

# Golden Rice in 2000

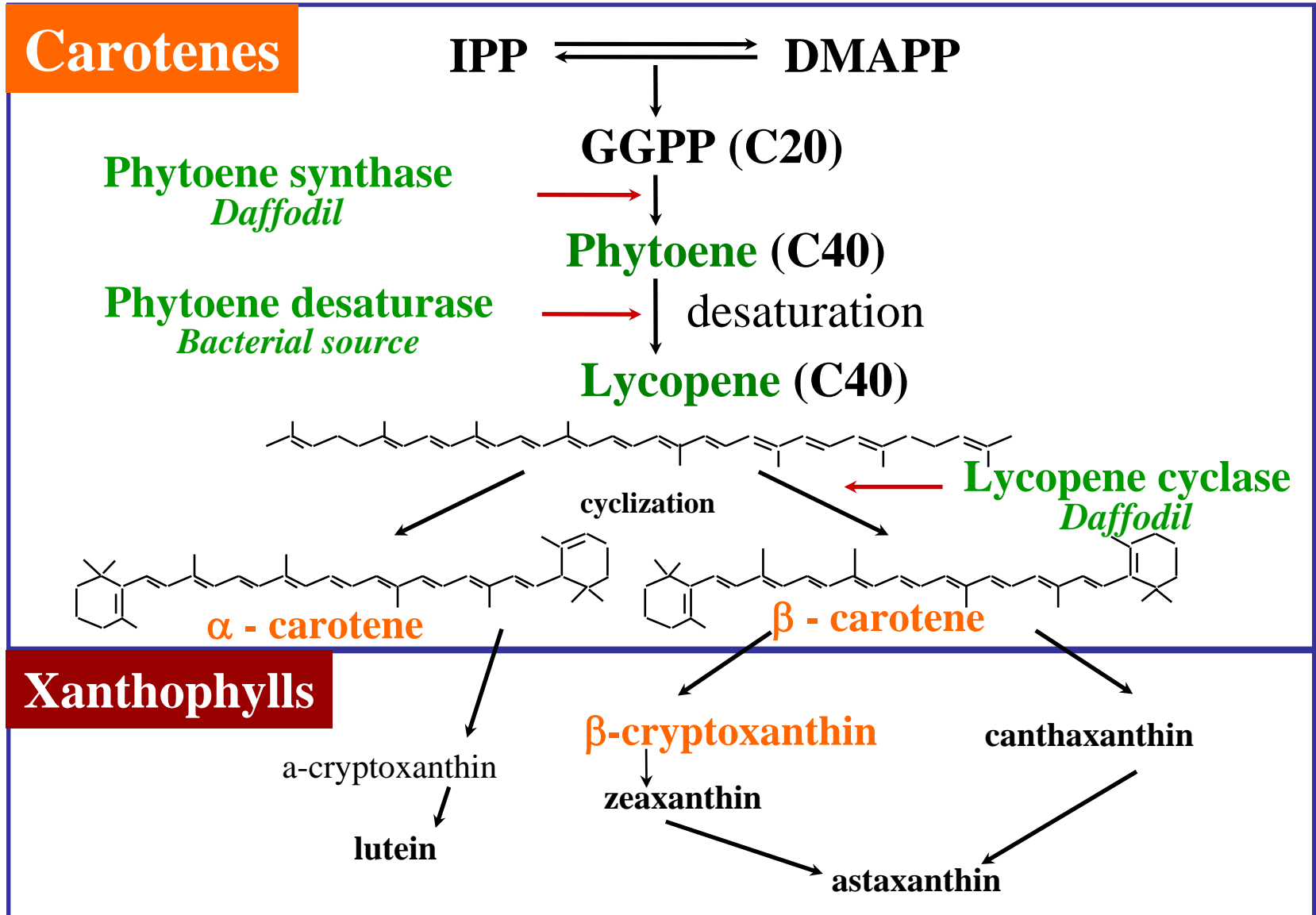


Polished rice now contained meaningful levels of  $\beta$ -carotene, the plant-produced precursor of vitamin A.

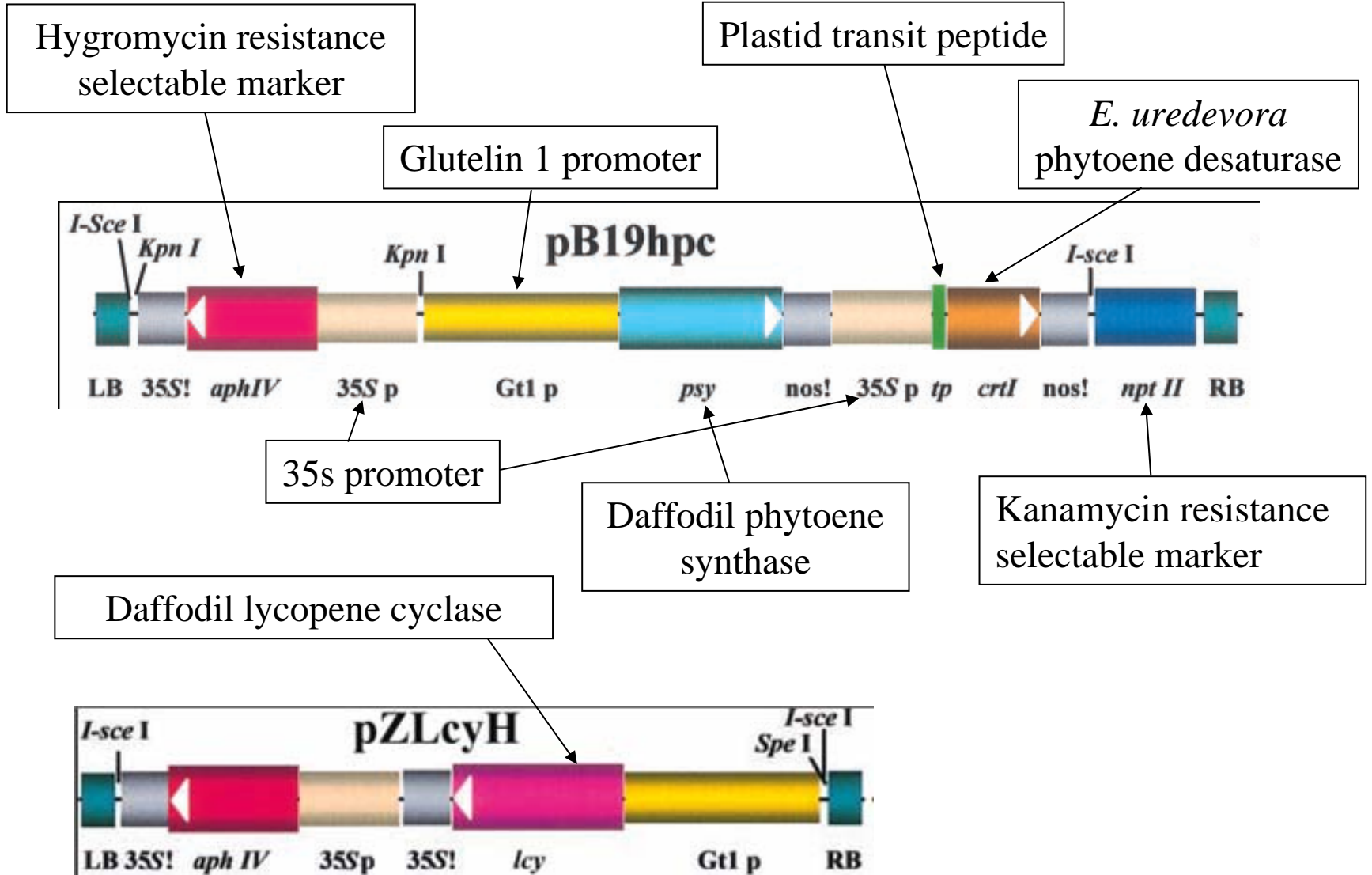
Golden Rice could be used in food-based approaches, and complement others, in reducing the persistent problem of Vitamin A Deficiency in rice-dependent populations

The 'Golden Rice' technology was developed by Potrykus (ETH) and Beyer (ALUF) and was funded by the Rockefeller Foundation, the Swiss Federal Institute of Technology, the European Union, and the Swiss Federal Office for Education and Science.

# Basic Carotenoid Biosynthetic Pathway



# Golden Rice – the genetic elements



# ‘Golden Rice’ – the controversy

How did we arrive at the claims that “70 patents” were blocking the development of Golden Rice?

# Product Clearance Profile: Possible Required Licenses and/or Agreements for GoldenRice™

<b>Name of Institution</b>	<b>Possible Applicable Patents</b>	<b>Name of Institution</b>	<b>Possible Applicable Patents</b>
1. AMOCO	6	17. National Foods RI	1
2. Bio-Rad Inc.	1	18. N.R.C. Canada	1
3. Biotechnica	1	19. Novartis AG	
4. Calgene	2	20. Nederlandse O.V.T.	2
5. Centra National de la R.S.K.	1	21. Phytogen	1
6. Cetus	3	22. Plant Genetic Systems	4
7. Columbia Univ. of New York	3	23. Promega	1
8. DuPont	3	23. Rhone-Poulenc Agro	2
9. Eli Lilly	1	24. Rutgers University	
10. Hoffman-La-Roche	4	25. Stanford University	1
11. ICI, Ltd.	1	26. Stratagene	5
12. Japan Tobacco	7	27. University of Maryland	1
13. Kirin Brewery	5	28. University of California	2
14. Life Technologies		29. Washington State University	
15. Max Planck Gesell.	3	30. Yissum R.D.C.	3
16. Monsanto	3	31. Zeneca Corp.	2

Because of possible subsequent licensing or assignment, these are not necessarily the current entities to approach for licenses.

Kryder *et al.* 2000. The Intellectual and Technical Property Components of pro-Vitamin A Rice (GoldenRice™): A Preliminary Freedom-To-Operate Review. ISAAA Briefs No. 20.

# MTAs, Licenses, Documents and Agreements Relevant to GoldenRice™

## Product Component

1. Rice germplasm transformed with gene construct(s)
2. PGEM4
3. PbluescriptKS
4. PCIB900
5. Camv35S Promoter (component of pCIB900)
6. Camv35S Terminator (component of pCIB900)
7. AphIV gene: hygromycin Phosphotransferase (component of pCIB900)
8. PKSP-1
9. GT1 Promoter: glutelin storage protein (component of pKSP-1)
10. PUCET4
11. Pea Rubisco transit peptide (component of pUCET4)
12. CrtI gene: phytoene desaturase (component of pUCET4)
13. PPZP100
14. pYPIET4
15. Electroporation Apparatus
16. Miropjectile Bombardment Apparatus

## Source of component

- Taipei 309, obtained from IRRI
- Promega
- Stratagene
- Ciba-Geigy Limited (now Novartis Seeds AG)
- Monsanto
- Monsanto
- Ciba-Geigy Limited (now Novartis Seeds AG)
- Thomas Okita, Washington State University
- Thomas Okita, Washington State University
- N. Misawa, Kirin Brewery Co., Ltd
- N. Misawa, Kirin Brewery Co., Ltd.
- N. Misawa, Kirin Brewery Co., Ltd
- Pal Maliga, Rutgers University
- Clontech, but now marketed by Life Technologies
- Bio-Rad Corp., Gene Pulser II System
- Bio-Rad Corp.



# Major Rice Producing, Exporting and Importing Countries (FAO 1997) and the Number of Applicable Patents to GoldenRice™ in its Current Form (2000)

Country	Production		
	Million MT	% of World	No. of Patents
China	198.47	34.6	11
India	123.01	21.5	5
Indonesia	50.63	8.8	6
Bangladesh	28.18	4.9	0
Vietnam	26.40	4.6	9
Thailand	21.28	3.7	0
Myanmar	18.90	3.3	0
Japan	12.53	2.2	21
Philippines	11.27	2	1
Brazil	9.33	1.6	10
USA	8.12	1.4	44
South Korea	7.10	1.2	10
Pakistan	6.55	1.1	0
Egypt	5.59	1	0
Nepal	3.71	0.6	0
<b>Total World</b>	<b>573.30</b>	<b>100</b>	

Kryder *et al.* 2000. The Intellectual and Technical Property Components of pro-Vitamin A Rice (GoldenRice™): A Preliminary Freedom-To-Operate Review. ISAAA Briefs No. 20.

# Conclusions: Implementing IP Management Systems

The challenges to freedom-to-operate (FTO) for *GoldenRice*<sup>TM</sup> at national and international levels:

1. The technology is quite complex - many sophisticated components and processes.
2. Many potential IP owners/assignees.
3. The range of potential producers/consumers of *GoldenRice*<sup>TM</sup> is wide.
4. A rapidly evolving global IP landscape.
5. *GoldenRice*<sup>TM</sup> may have significant commercial value (*as viewed in 2000*)

# IP Management Options to Obtaining Freedom-to-Operate for *GoldenRice*<sup>TM</sup>

1. Invent around current patents
2. Re-design constructs
3. IP Owners to Relinquish Claims
4. Ignore all IP
5. Seek Licenses for all IP
6. Mix of all Options (1-5)

# ‘Golden Rice’ Deal Structure

## Option 5

Seek Licenses for all IP

**ZENECA**  
**Public Affairs**



**May 16, 2000**

**CONTACT:**

**Ed Ready**

**Zeneca Ag Products**

**Tel: (302) 886-1184**

**Fax. (302) 886-1572**

**Press Release: Golden Rice**

## **‘GOLDEN RICE’ COLLABORATION BRINGS HEALTH BENEFITS NEARER**

A collaboration is announced today that will help fight blindness in developing countries through the use of genetically modified rice. The collaboration will help the inventors of ‘Golden Rice’ to deliver their gift of nutritionally-enhanced rice to the developing nations of the world, bringing closer the health benefits for countries where Vitamin A deficiency is the cause of 500,000 cases of irreversible blindness each year.

The inventors of ‘Golden Rice’ have reached an agreement with Greenovation and Zeneca... ..to enable the delivery of this technology free-of-charge for humanitarian purposes in the developing world .

# ‘Golden Rice’ Deal Structure

- Inventors (Beyer and Potrykus) assigned their rights exclusively ..... to [Syngenta\*] for all uses
- [Syngenta] licensed Inventors for Humanitarian Uses, with Right to Sublicense Public Research Institutes and Poor Farmers in Developing Countries
- The technology is to be made freely available, poor farmers can trade Golden Rice locally
- [Syngenta] will support inventors in this task
- [Syngenta] retains commercial rights

**Syngenta\* = Zeneca at that time**

# The Golden Rice Humanitarian Board (2006)

[www.goldenrice.org](http://www.goldenrice.org)

- Prof Ingo Potrykus (co-inventor of *Golden Rice*) Chairman
  - Prof Peter Beyer (co-inventor)
  - Dr Gurdev Khush, retired rice breeder from IRRI
  - Dr Gary Toenniessen, The Rockefeller Foundation
  - Dr Adrian Dubock, Syngenta
  - Dr Howarth Bouis, Director of HarvestPlus,
  - Dr Robert Bertram, US AID
  - Dr Katharina Jenny, Swiss Development Cooperation
  - Prof Robert Russell, Tufts University
  - Dr Robert Zeigler, Director General, International Rice Research Institute
  - Dr Ren Wang and Dr William Padolina, Deputy DG's, IRRI
  - Dr S R Rao Dept of Biotechnology/Ministry of Science and Technology, India
- Ex officio* members
- Dr Gerard Barry, IRRI (*Golden Rice* Network Coordinator)
  - Dr Jorge Mayer, Campus Technologies Freiburg (*Golden Rice* Project Manager).

# ‘Golden Rice’ Deal – Syngenta’s role

- Help the inventors in the management of Golden Rice deployment for humanitarian purposes
- *With other Companies and Universities, obtained “FTO” for Humanitarian use.*
- Provide biosafety expertise
- Share available regulatory data



# The primary IP contributors for GR:

- Bayer AG
- Monsanto Company
- Orynova BV
- Syngenta AG
- Syngenta Ltd
- Zeneca Mogen BV

Monsanto will provide royalty-free licenses for all of its technologies that can help further development of “golden rice” and other pro-vitamin A-enhanced rice varieties.

- This action by Monsanto is expected to aid researchers working in this area who wish to make use of existing proprietary technologies.
- The modified rice is expected to provide nutritional benefits to those suffering from vitamin A deficiency-related diseases, including irreversible blindness in hundreds of thousands of children annually.

# GoldenRice Humanitarian Project

## Governance Structure

### Licenses

- Useful to record shared understanding of responsibilities of each licensee
- Improve appreciation of the value of IP

### Licensee network

- Mutual support, cost minimisation, learning and progress

### “Humanitarian Board”

- Multi-functional, representing stakeholders, and provides direction to the project
- Enabling network linkage

# Golden Rice License Summary Terms 1

- “Humanitarian Use” means (research leading to):
  - Developing country use (FAO list)
  - Resource poor farmer use (<\$10,000 pa from farming)
  - In public germplasm (= seed)
  - There must be no charge for technology (normal costs can be recovered; NO PREMIUM)
  - Local sales are allowed by such farmers (...urban needs)
  - Replanting is allowed
- Regulatory requirements - national sovereignty (or international standards..)
- No export of grain allowed (or seed, except for research, to other licensees) – liability, trade, biosafety approvals
- Obligated to fulfil all regulatory requirements

# Golden Rice License Summary Terms 2

## Licensees obligations:

- Confidentiality of information shared
- Publication approval, (has to be approved to allow IP..)
- Improvements to licensed technology
  - Commercial rights to Syngenta
  - Humanitarian use access guaranteed
- Report annually (to Prof Potrykus)
- Warranties – none given by licensor(s) – see later
- Liabilities and costs – each party responsible for that which they control – see later

# Organization of the Golden Rice Network

*Philippines*: International Rice Research Institute, National Rice Research Institute (PhilRice)

*Vietnam*: Cuu Long Delta Rice Research Institute

*Germany*: University of Freiburg

*India*: Department of Biotechnology India, Directorate of Rice Research, Indian Agricultural Research Institute, University of Delhi, Tamil Nadu Agricultural University, Agricultural University Pantnagar, University of Agricultural Sciences Bangalore, Chinsurah Rice Research Station

*Bangladesh*: Bangladesh Rice Research Institute

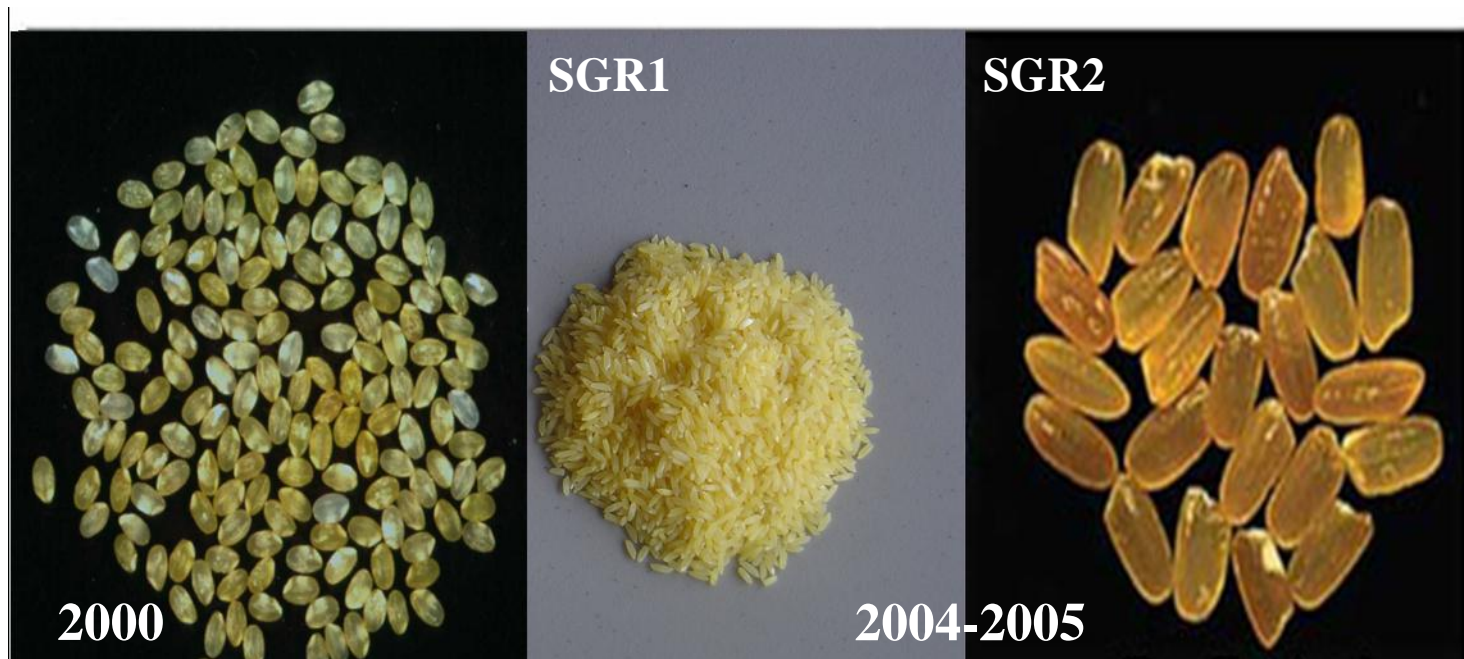
*China*: Huazhong Agricultural University, Chinese Academy of Sciences, Yunnan Academy of Agricultural Sciences

*Indonesia*: Agency for Agricultural Research & Development

*Technology providers*: Syngenta, other private sector, and public sector

# Good relationships can lead to additional good licensing deals!

SGR1 and SGR2 were developed by Syngenta as part of their commercial pipe-line; were not automatically available to the GR Humanitarian Board or Network



**1.2 – 1.8**

**up to 8.0**

**up to 36.7**

**Provitamin A Carotenoid levels (ug/g)**

# Basic Carotenoid Biosynthetic Pathway

## Carotenes

Genes now used in Golden Rice and their source

**Phytoene synthase**  
*Daffodil or Maize*

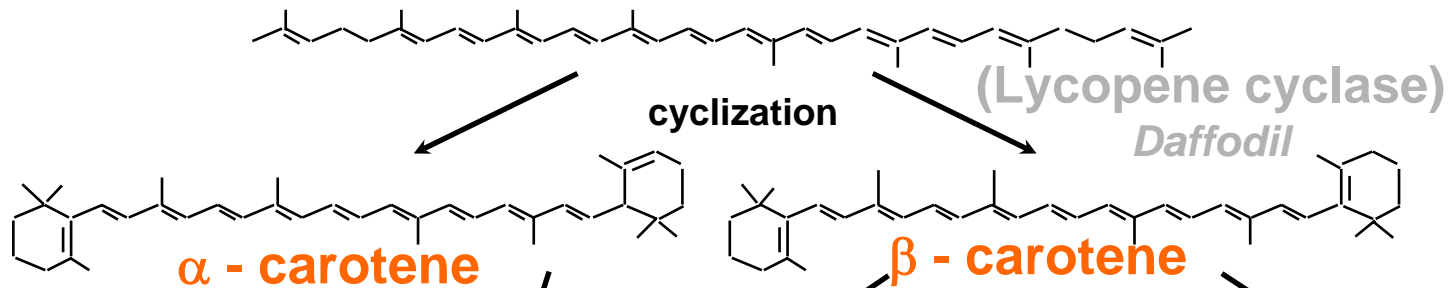
**Phytoene desaturase** → desaturation  
*Bacterial source*

IPP  $\rightleftharpoons$  DMAPP

GGPP (C20)

Phytoene (C40)

Lycopene (C40)



No longer used

## Xanthophylls

$\alpha$ -cryptoxanthin

lutein

$\beta$ -cryptoxanthin

zeaxanthin

canthaxanthin

astaxanthin



# Syngenta to donate Golden Rice to Humanitarian Board

- Basel, Switzerland, 14 October 2004

Syngenta announced today the donation of new Golden Rice ([SGR1](#)) seeds and lines to the Golden Rice Humanitarian Board.

The donation follows the successful completion of the first Golden Rice field trials and harvest in the USA last month.

Syngenta has supported this public project from its inception and will continue to do so.

The company has no commercial interest in the Golden Rice project.

Excerpted from Syngenta Media Release

<http://syngenta.com/en/media/article.aspx?pr=101404&Lang=en>

# Golden Rice 2 transgenic events will be donated for further research and development

## Humanitarian Project for Golden Rice.

- Syngenta has no commercial interest in Golden Rice.
- Consistent with Syngenta's support of the Humanitarian Project for Golden Rice, Golden Rice 2 transgenic events will be donated for further research and development...
- (The use of the **SGR2** events will be) governed by the strategic direction of the Golden Rice Humanitarian Board and full regulatory compliance.

# Vitamin A Deficiency

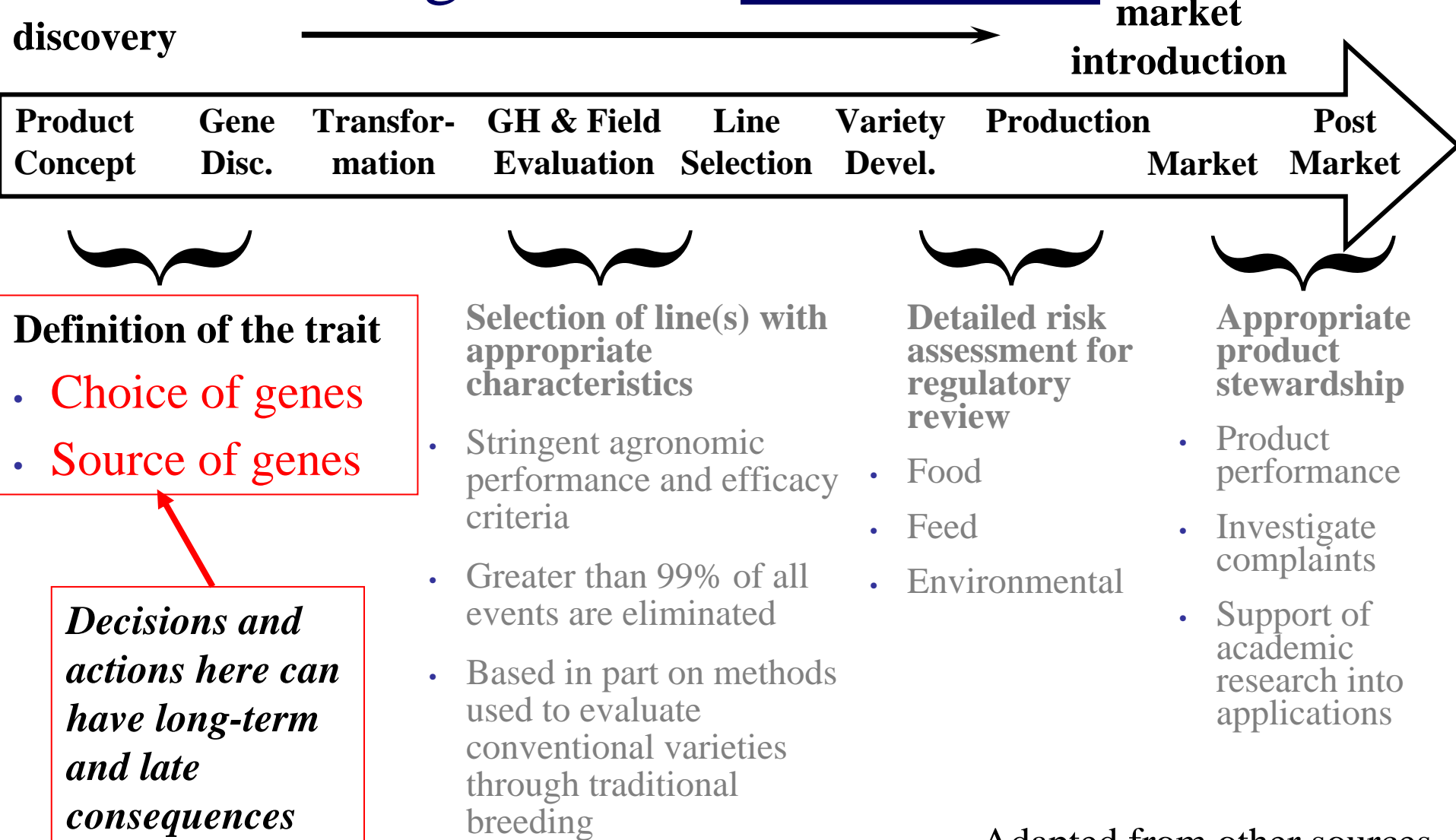


The problem remains  
to be solved ...

- 400 million people in the World are at risk of Vitamin A deficiency
- 100-200 million children are affected by severe Vitamin A deficiency
- 1.3 – 2.5 million preschool children die annually because of Vitamin A deficiency

Understand what you are  
getting into

# Crop Biotechnology Product Development is a Long Process: 7 – 12 years



Adapted from other sources

Agriculture and Biotechnology are now very big businesses with very large R&D investments

Aggressive IP protection is needed to capitalize on these private sector investments

# R&D spending and sales of leading multinational firms, 2004.

<b>Company</b>	<b>Country HQ</b>	<b>Total R&amp;D (mUS\$)</b>	<b>Sales (mUS\$)</b>	<b>R&amp;D as % of sales</b>
<b>Syngenta</b>	Switzerland	1,738	6,340	27.4
<b>Monsanto</b>	US	509	5,423	9.4
<b>BASF</b>	Germany	365	4,576	8
<b>Pioneer Hi-Bred</b>	US	527	4,830	10.9
<b>Bayer CropScience</b>	Germany	926	8,113	11.4
<b>Dow AgroSciences</b>	US	335	3,368	9.9
<b>CGIAR*</b>		428*	N/A	N/A

\* 5-10% spend on biotechnology; N/A—not applicable. Data from corporate annual reports.

Adapted from: Spielman, D.J., Cohen, J., & Zambrano, P. (2006). Will agbiotech applications reach marginalized farmers? Evidence from developing countries. *AgBioForum*, 9(1), 23-30. <http://www.agbioforum.org>

# A recent review of patent filings by nine major biotechnology firms:

Chan, H.P. (2006). *International patent behavior of nine major agricultural biotechnology firms*. *AgBioForum*, 9(1), 59-68

## The Companies

1. Asgrow
2. Calgene
3. Dekalb
4. DuPont
5. Merck
6. Monsanto
7. Mycogen
8. Novartis
9. Pioneer

Over the period of 1990 - 2000

**NOW...**

**Asgrow, Calgene and Dekalb are part of Monsanto**

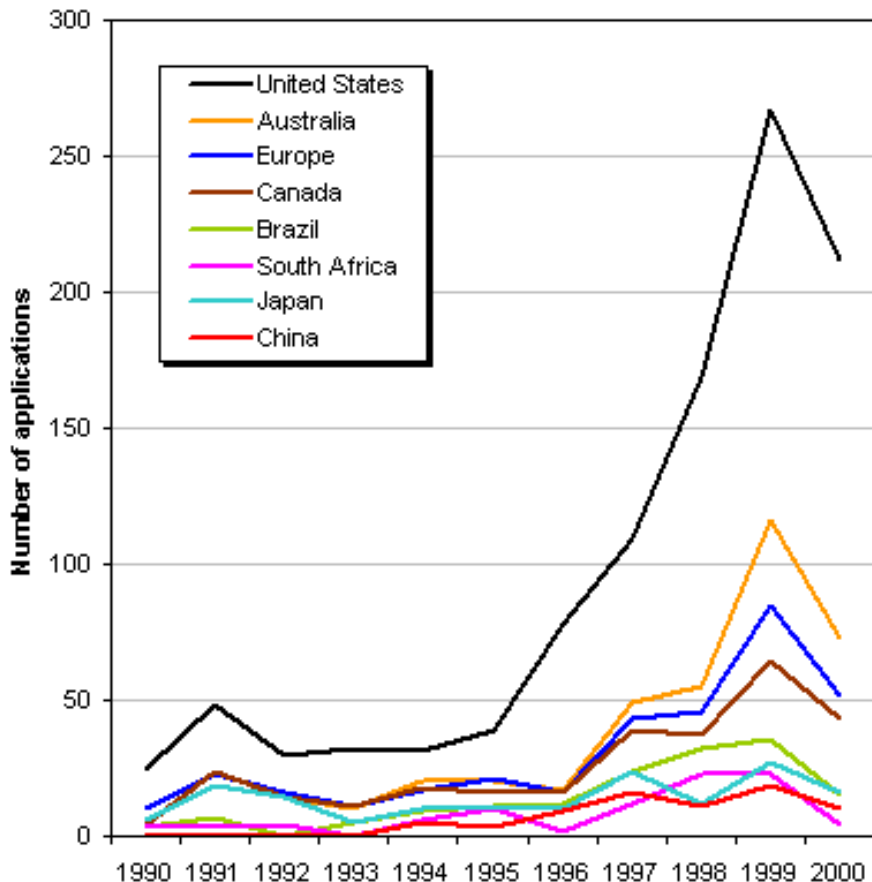
**Pioneer is part of DuPont**

**Mycogen and Novartis**

**(agriculture) are part of Syngenta**



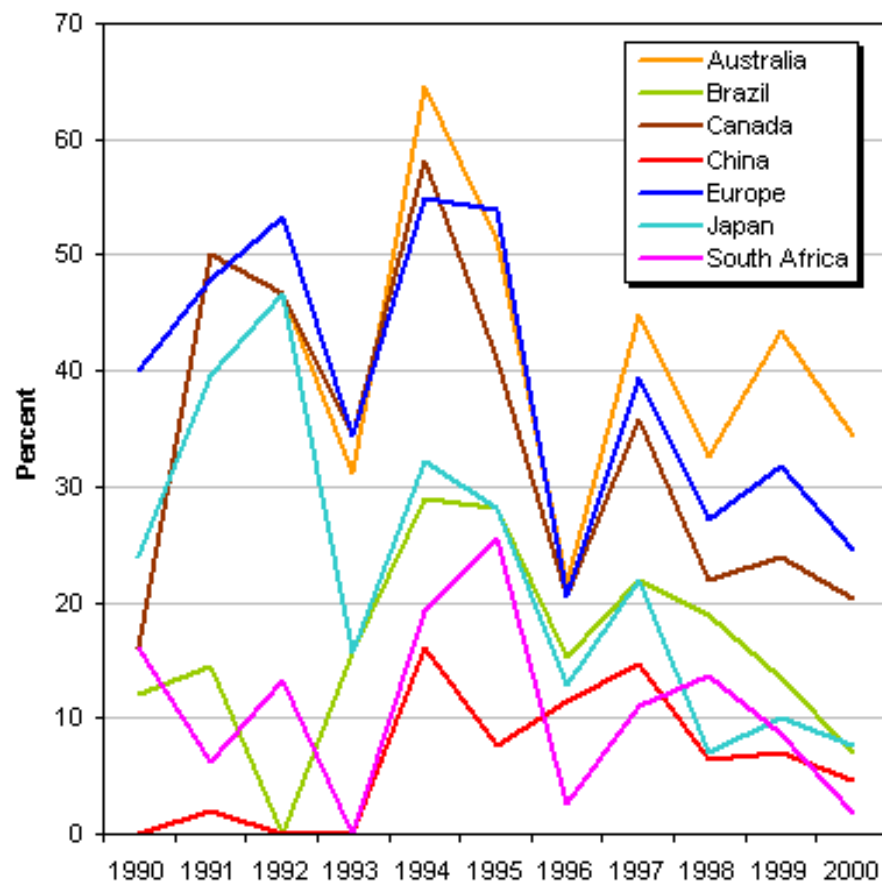
## Numbers of applications by country.



The drop in 2000 is due to data truncation.

The year refers to the year of application, except for USA, where the year of application is one year prior.

## Numbers of applications as % of US applications



# Applications by company by patent authority.

Company	Australia	Brazil	Canada	China	EPO	Japan	SA	USA
<b>Asgrow*</b>	3	2	2	1	2	0	1	85
<b>Calgene*</b>	3	4	16	2	17	11	0	20
<b>Dekalb*</b>	16	9	12	2	13	6	7	112
<b>DuPont#</b>	94	43	43	12	75	21	23	110
<b>Merck</b>	3	0	4	1	4	4	3	5
<b>Monsanto*</b>	53	29	44	21	50	27	13	144
<b>Mycogen@</b>	17	10	13	5	17	15	4	27
<b>Novartis@</b>	34	19	29	21	34	29	11	74
<b>Pioneer#</b>	176	38	123	9	128	41	29	463
* All now Monsanto; # Pioneer now a subsidiary of DuPont; @ Mycogen and Novartis (agriculture) now in Syngenta. Chan (2006); data from Derwent (2002)								

Adapted from: Chan, H.P. (2006). International patent behavior of nine major agricultural biotechnology firms. *AgBioForum*, 9(1), 59-68. <http://www.agbioforum.org>.

# Invention application correlations among patent authorities.

Country of application /total #	Percent also applied in						
	Australia	Brazil	Canada	China	Europe	Japan	USA
<b>Australia/399</b>	100	37.6	66.2	17.8	78.2	34.6	100
<b>Brazil/154</b>	97.4	100	84.4	39	96.1	53.9	100
<b>Canada/286</b>	92.3	45.5	100	23.1	96.9	50	100
<b>China/74</b>	97.3	82.2	97.3	100	97.3	68.5	100
<b>Europe/340</b>	91.8	43.5	81.4	20.9	100	44.1	100
<b>Japan/154</b>	89.6	53.9	92.9	32.5	97.4	100	100
<b>USA/1040</b>	38.4	14.8	27.5	7.1	32.7	14.8	100
Total = 1040 inventions. Chan (2006); data from Derwent (2002).							

Adapted from: Chan, H.P. (2006). International patent behavior of nine major agricultural biotechnology firms. *AgBioForum*, 9(1), 59-68. <http://www.agbioforum.org>.

Different patent types may be available in different countries

Different patent types may have different effects in different countries

# Patent type application numbers by crop and country.

Patent type	Crop	Australia	Brazil	Canada	China	Europe	Japan	SA	USA
<b>Gene patent applications</b>	Corn	228	79	152	34	187	76	38	272
	Soybean	118	46	73	20	100	38	15	148
	Wheat	88	31	50	17	69	30	7	100
	Rice	95	35	54	14	74	28	8	107
<b>Variety patent applications</b>	Corn	13	9	10	5	10	5	7	369
	Soybean	8	4	7	1	6	2	2	220
	Wheat	7	3	5	3	4	2	0	10
	Rice	6	3	4	1	3	1	0	9
<b>Method patent applications</b>	Corn	91	40	74	20	80	41	31	122
	Soybean	54	54	26	46	12	48	30	18
	Wheat	47	18	38	10	44	23	11	58
	Rice	49	21	40	10	44	26	13	56

Chan (2006); data from Derwent (2002).

Adapted from: Chan, H.P. (2006). International patent behavior of nine major agricultural biotechnology firms. *AgBioForum*, 9(1), 59-68. <http://www.agbioforum.org>.

Not all applications result in  
issued patents

Granted claims may differ  
from those in applications and  
may differ by country

# Numbers of inventions applied for and granted by patent authority

<b>Country</b>	<b>Applications</b>	<b>Grants</b>	<b>% granted</b>
<b>Australia</b>	399	119	29.8
<b>Brazil</b>	154	5	3.3
<b>Canada</b>	286	38	13.3
<b>China</b>	73	3	4.1
<b>Europe</b>	340	53	15.6
<b>Japan</b>	154	13	8.4
<b>USA</b>	1040	847	81.4
Total = 1040. Chan (2006); data from Derwent (2002) and the various patent offices.			

Adapted from: Chan, H.P. (2006). International patent behavior of nine major agricultural biotechnology firms. *AgBioForum*, 9(1), 59-68. <http://www.agbioforum.org>.

The development of agricultural biotechnology products can be very complicated, even in developing countries

Many involve multiple institutions



# Institutional arrangements in 209 advanced public transformation projects.

<b>Arrangement</b>	<b>Asia</b>	<b>L. America</b>	<b>Africa</b>	<b>E. Europe</b>	<b>All</b>
<b>Single public</b>	71	22	28	8	129
<b>Public/public</b>	25	9	13	0	47
<b>Public/private</b>	1	7	7	0	15
<b>Public/foundation/ public</b>	8	0	0	0	8
<b>Public/private/other</b>	1	0	5	0	6
<b>All other (no private collab.)</b>	3	0	1	0	4
<b>Total</b>	109	38	54	8	209

Data from IFPRI-ISNAR Survey (2003).

Adapted from: Spielman, D.J., Cohen, J., & Zambrano, P. (2006). Will agbiotech applications reach marginalized farmers? Evidence from developing countries. *AgBioForum*, 9(1), 23-30. <http://www.agbioforum.org>

# In the transgenic era...

- Many of the terms in the familiar germplasm exchange MTA's take on new forms
- New Terms will be used in Transgenic MTA's
- These new Terms are driven by
  - the high public visibility of the technology
  - the highly regulated nature of the technology,
  - the widespread use of IP protection, and
  - uncertainty at national and international levels around liability laws and regimes

# In the transgenic era...(2)

- IRRI, and almost all public sector institutions, relies on external providers (private and public) for all or parts of the materials it needs to carry out its transgenic research and pre-product development
- IRRI strives to use the technology only when it can reasonably assure that the its pre-products can be delivered to its national partners
- The terms and conditions that IRRI can obtain from technology providers will dictate those under which IRRI may transfer its materials to its partners.

# In the transgenic era...(3)

The following slides illustrate examples some terms and conditions that may be expected in in-licensing agreements

# Grant of License

PROVIDER grants a royalty-free, non-exclusive, worldwide, research-only license to the RECIPIENT under any PROVIDER patents or patent applications pertaining to the PROVIDER Technology, solely for use for the following traits: Diseases Control and Enhanced Nutritional Content, with the right to sublicense according to the sublicense provision below.

## Variations

- *Might be narrower or broader in scope*
- *Grant might be dependent on validity of patents*

# Sub-license provision

RECIPIENT has the right to grant research-only sublicenses to the PROVIDER Technology solely for use under this Agreement, and will notify PROVIDER quarterly as to the granting of such sub-licenses. Any sub-license granted under this License must be consistent with the terms and conditions of this License Agreement.

## Variations

*- Sub-licensing could require prior approval, case-by-case*

# Commercialization

PROVIDER will not unreasonably withhold the grant of a commercial license to RECIPIENT for the purpose of granting commercial sub-licenses,

- upon request for such commercial license and
- demonstration by RECIPIENT that such a commercial sub-license is necessary to support the advanced development of improved crop varieties.

## Variations

- *Could have up-front such commercial or product development rights – rare, but may be essential before committing funds and may be required by donor.*
- *Could require case-by-case approval*

# Licensee stewardship for regulatory obligations

RECIPIENT must obtain all necessary approvals in accordance with all applicable governmental statutes, rules and regulations in effect for genetically transformed plant material and related research and/or development field trials from all appropriate and relevant biotechnology regulatory bodies. RECIPIENT shall seek and obtain all necessary regulatory approvals and follow all applicable national and international regulatory guidelines (including those governing import and export of such materials) in each country.

*RECIPIENT shall require the same of all sub-licensees.*



# Indemnification of PROVIDER

RECIPIENT agrees to assume all responsibility and liability for use of PROVIDER technologies by the RECIPIENT *and its sublicensees*, as described in the terms and conditions to be set forth in this Agreement.

RECIPIENT agrees to defend and indemnify PROVIDER, and hold PROVIDER harmless from all product and other liability claims alleged or arising from the use of PROVIDER Technology by RECIPIENT *and/or its sub-licensees*.

*For its sub-licensees, the first RECIPIENT would require the same indemnification in any transfer agreement.*

# WARRANTY (or lack thereof)

PROVIDER does not warranty nor guarantee the title, quality, or correctness of the Material being supplied.

- *Also, this does not warranty that the material does not infringe IP (patents, etc., ) held by others*
- *This lack of warranty would be included in any subsequent sub-license*

Evolving mechanisms and  
policy discussions...

*Solving the issue before it  
is a (big) problem*



# Public Intellectual Property Resource for Agriculture

*PIPRA is an initiative by universities, foundations and non-profit research institutions to make agricultural technologies more easily available for development and distribution of subsistence crops for humanitarian purposes in the developing world and specialty crops in the developed world.*

# PIPRA - 2

The purpose of PIPRA is to help public sector agricultural research institutions achieve their public missions by ensuring access to intellectual property to develop and distribute improved staple crops and improved specialty crops

## Staple crops

- Important to resource-poor farmers in developing countries
- Traditional agriculture has not been able to solve some of the problems of these crops

## Specialty crops

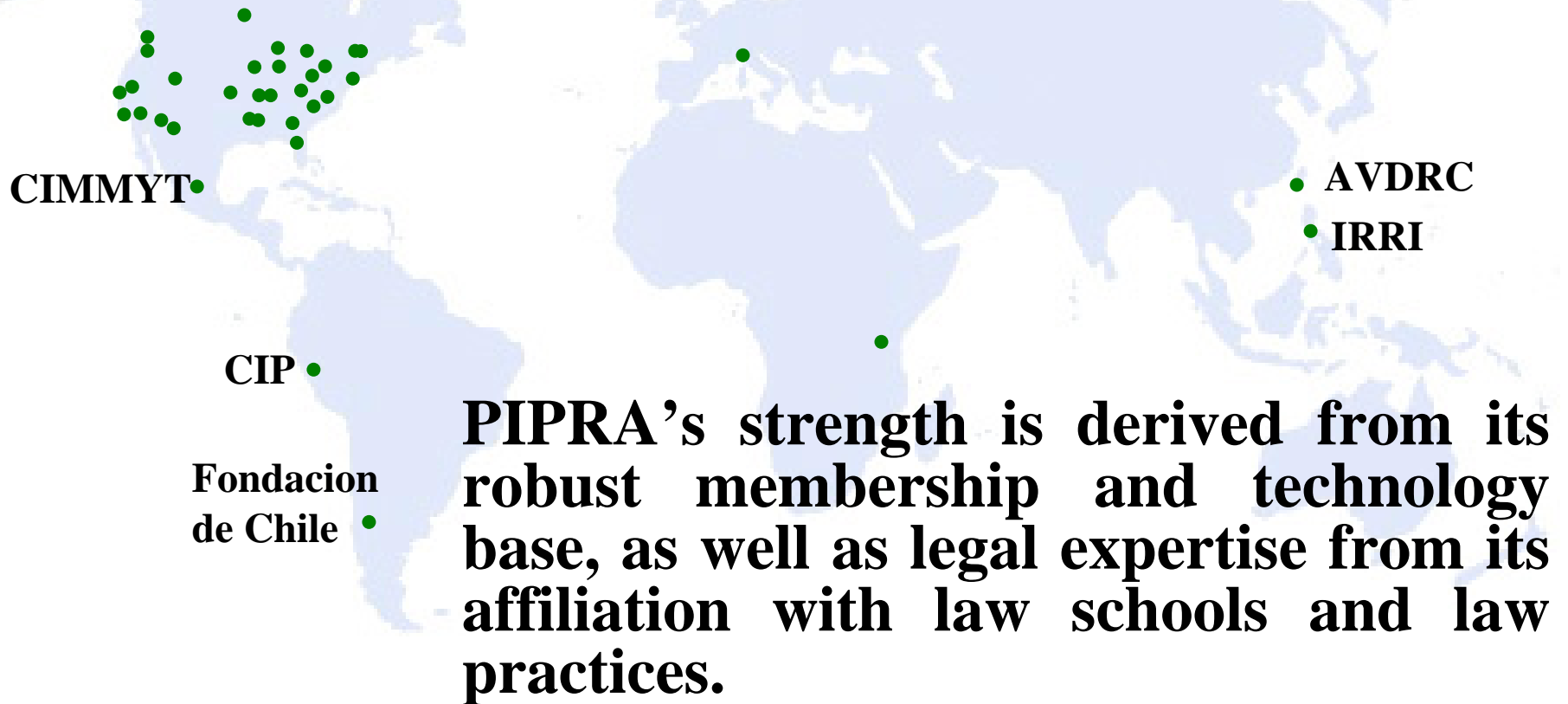
- Important to US agriculture
- State economies depend on their state universities to develop new crop varieties

PIPRA is also facilitating the design, construction, and testing of a plant transformation vector with maximal freedom-to-operate to be distributed on a royalty-free basis for humanitarian uses.

# PIPRA - 3

- The PIPRA agricultural IP database is on-line (public access):
- <http://pipra.m-cam.com>.
  - Over 6600 patents and patent applications from 39 different countries searchable by many fields, including licensing status.
  - The data represent the agricultural portfolio of 27 universities and non-profit research institutions.

## 37 Institutional Members in 9 Countries





# PIPRA and the

## *“Global Alliance for Access to Public Intellectual Property in Agriculture”.*

- Other organizations outside the US have begun to explore entities similar to PIPRA (see later)
- PIPRA will host an international workshop in 2006 to explore a **“Global Alliance for Access to Public Intellectual Property in Agriculture”**.
- Representatives from institutions that are active technology providers in the area of the agricultural life sciences from Australia, Japan, Europe, India, China, and Brazil.





## PIPRA and the

# *“Global Alliance for Access to Public Intellectual Property in Agriculture”.*

- The central question of the workshop will be how PIPRA can work to address issues of technology access globally
- The objectives of the meeting will be threefold:
  - To explore ways for PIPRA to interface with public sector agricultural research institutions in the capacity of being technology providers around the world.
  - To identify elements of a common philosophical framework to promote technology access.
  - To discuss how to link multiple research and IP management models through shared resources.
- Insights and results from this exercise will be communicated to the larger community and used to develop a global strategy among public sector institutions for technology access in agriculture.

# EPIPAGRI:

## a French-led, EU counterpart to PIPRA

- *Towards European Collective Management of Public Intellectual Property for Agricultural Biotechnologies.*
- Acknowledges the pioneering role of PIPRA
- Arose out of discussions by the following French research organizations: CNRS, INRA, IFREMER, and IRD, and led by CIRAD
- Includes the aim of assisting development efforts of humanitarian institutions

*Source: French Assembly information portal. Vers une gestion collective européenne de la propriété intellectuelle publique sur les biotechnologies à vocation agronomique*

<http://www.assemblee-nationale.fr/12/rap-info/i2254-t1-01.asp>

# EPIAGRI - Initial Members

- *Flanders Institute of Biotechnology - VIB (Belgium)*
- *FIST (France)*
- *Gabinete de Apolo Promoção da Propriedade Industrial - GAPI (Portugal)*
- *GARCHING INNOVATION (Germany)*
- *INRA Transfert (France)*
- *Institute for Food and Agricultural Research and Technology - IRTA (Spain)*
- *Irish Agriculture and Food Development Authority - TEAGASC*
- *Plant Bioscience Limited PBL (UK)*
- *Szeged-Biopolisz-Biopolisz (Hungary)*
- *Umeå Plant Science Centre - UPSC (Sweden)*

*Source: French Assembly information portal. Vers une gestion collective européenne de la propriété intellectuelle publique sur les biotechnologies à vocation agronomique*

<http://www.assemblee-nationale.fr/12/rap-info/i2254-t1-01.asp>

# EPIAGRI also plans the following:

- To transfer of the results of European public research to industry
- To set up a system of sharing of information relating to the public intellectual property in the agricultural biotechnologies (patents and know-how)
- To establish "technological baskets" based on patents and to conduct economic evaluations of these
- To make recommendations to public organizations and to political leaders on patent licensing policy and on the protection of freedom of research of public institutions
- To form partnerships with similar organizations.

*Source: French Assembly information portal. Vers une gestion collective européenne de la propriété intellectuelle publique sur les biotechnologies à vocation agronomique*

<http://www.assemblee-nationale.fr/12/rap-info/i2254-t1-01.asp>

# European Action on Global Life Sciences (EAGLES)

- EAGLES - *Addressing Europe's responsibilities towards the developing world.* <http://www.efb-eagles.org/>
- The EAGLES Declaration: *The members of EAGLES are determined to ensure that the skills and resources of European life sciences are properly used for the benefits of mankind...*
- Supported by the European Commission (EC)
- The Food Forum tries to strengthen European life science programs and policies as they affect the Developing Countries

# European Action on Global Life Sciences and IP access

- Under the Food Forum, formal IPR has been identified as an issue that may impede the transfer of advanced technologies from EU public research to developing countries.
- EC is interested in policies that will ease access to technology for Developing Countries while protecting the rights of inventors.
- IRRI will host a conference (EC-funded, in 2007) at which policy proposals will undergo stakeholder review.
- Will benefit from the PIPRA Bellagio outcomes
- IRRI will also participate in linking NARES and other stakeholders to the process.



# The African Agricultural Technology Foundation

- a not-for-profit foundation to facilitate public-private partnerships for the access and delivery of appropriate technologies to the resource-poor smallholder farmers in sub-Saharan Africa
- draw upon the best practices and resources of both the public and private sectors
- acquires technologies from technology providers through royalty free licenses or agreements along with associated materials
- establishes partnerships with existing institutions to adapt agricultural technology to African circumstances
- ensures compliance with all laws associated with the use of these technologies
- promotes the wide distribution of the technologies as appropriate



# The African Agricultural Technology Foundation

- From consultation with N. American, African and European stakeholders on what they can contribute to food security and poverty reduction in sub-Saharan Africa.
- Provides a "one-stop-shop" for structuring and accessing agricultural technologies, materials and know how.
- Will reduce transaction costs to both the providers of the technologies and the recipients.
- Convenes existing institutions to address all the elements of the product value chain, from product creation, distribution, and creation of markets for the product.
- Assists existing institutions to self-organize to efficiently and effectively absorb new technological concepts and adopt them for productive use.





# The AATF has begun to manage very complicated projects

Priority targets for AATF interventions:

- *Insect resistance in maize*
- *Mycotoxins in food grains*
- *Drought-tolerance in cereals*
- *Nutritional quality enhancement in maize and rice*
- *Cowpea productivity improvement*
- *Cassava productivity increase*
- *Bananas and plantain productivity*
- *Striga control in cereals*

Thank you!

Special thanks to Frances Tesoro