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WORLD INTELLECTUAL
PROPERTY ORGANIZATION



INTERNATIONAL UNION
FOR THE PROTECTION OF
NEW VARIETIES OF PLANTS

**WIPO-UPOV SYMPOSIUM ON
INTELLECTUAL PROPERTY RIGHTS
IN PLANT BIOTECHNOLOGY**

organized by
the World Intellectual Property Organization (WIPO)
and
the International Union for the Protection of
New Varieties of Plants (UPOV)

Geneva, October 24, 2003

PRACTICAL IPR IMPACT
ON THE US SEED INDUSTRY

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**PRACTICAL IPR IMPACT
on the
US SEED INDUSTRY**

Presented at
WIPO-UPOV Symposium on Intellectual
Property Rights in Plant Biotechnology

Geneva, Switzerland
October 24, 2003
By John Gerard
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**Practical Impact
of the
United States
Plant Variety Protection Act (PVPA)
and
Utility Patent Act (UPA)
in
U.S. Seed Industry Practice**



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PVP and UPA IMPACT

Question:

- Has the U.S. PVPA and UPA had positive impact on the US seed industry?
- Focused on maize, soybean and wheat.



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Until 1960's-Early 70's, majority of US germplasm and variety development was by public institutions for both hybrid and varietal crops:

- Free access
- Commodity products
- Low financial return
- Few private companies involved in R&D with relative minor financial investment



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PVP and UPA IMPACT

- Late 1960's public funding began to erode
- Private sector saw an opportunity
- Private sector began effort to develop and get implemented an IPR system: 1970 PVPA became reality
- Private sector then seized the opportunity to get into the R&D business. Large, medium and small companies
- Utility Patent Act became an additional positive for R&D investment



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PVP and UPA IMPACT

Noteworthy Observations

- Great proprietary development commitment
- Excellent increase in product productivity
- Number of seed companies remains fairly consistent
 - Easy and inexpensive to license excellent products



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PVP and UPA IMPACT

Noteworthy Observations, cont'd

- Licensed products represent 40-50% of the retail market
- A significant number of varieties/inbreds available to license for line/germplasm development
 - Reasonable financial arrangements
 - Right to commercialize provided
 - May restrict certain sublicensing activity
 - Extensive licensing



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PVP and UPA IMPACT


Noteworthy Observations, cont'd

- A significant number of Biotech traits available to license for incorporation into varieties/inbreds
 - Reasonable financial arrangements
 - Some restricted breeding rights
 - Right to commercialize provided
 - May restrict certain sublicensing activity
 - Extensive part of the licensing business




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| | Maize | | Soybean | | Wheat | |
|---|-------|-------|---------|-------|-------|------|
| | 1970 | 2003 | 1970 | 2003 | 1970 | 2003 |
| Number of Developers | <5 | 25/30 | 3 | 25/30 | 0 | <15 |
| % Proprietary Seed Sales | <10 | 98+ | <10 | 98+ | 0 | 70+ |
| Number of Companies: | | | | | | |
| Germplasm/Inbred Development | 3/5 | 10/15 | 0 | 10/12 | 0 | 3 |
| Variety/Hybrid Development | 5/10 | 20/30 | 2 | 25 | 0 | 3 |
| Marketing Proprietary inbreds and/or varieties | <5 | 200+ | 2 | 200+ | 0 | 150+ |
| % of Products sold that are Licensed Proprietary variety/inbred | 0 | 40+ | 0 | 50+ | 0 | 70+ |

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| Number of Companies | Maize | | Soybean | | Wheat | |
|---|-------|------|---------|------|-------|------|
| | 1970 | 2003 | 1970 | 2003 | 1970 | 2003 |
| Licensing Biotech traits for inbred and/or variety development | 0 | 20+ | 0 | 25 | 0 | <5 |
| % of seed companies selling varieties/inbreds that exhibit Biotech traits | 0 | 98+ | 0 | 98+ | 0 | 0 |

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PVP & UPA Protection allows for:

- Broader base of genetic diversity
 - Free germplasm may reduce diversity
 - Breeders tend to focus on only those very few commercialized products
 - Non-commercial products are available to use in product development



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PVP & UPA Protection, cont'd

- Timely development by Licensees
 - Don't have to wait on commercialization
 - Breeding methodology can be really important
 - Early adopting licensees get a jump-start on competition
- Focused development
 - Can access germplasm/lines that may lack commercial merit but have "traits" to enhance ones own material



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PVP & UPA Protection, cont'd

- Benefit sharing
 - Original developer: Royalties Germplasm Other
 - Licensee: Marketing strength Enhanced income
 - Farmer: More selection, high performing, cost-effective, in demand technologies
 - Food/Feed User: Great products, meeting demand, cost-effective



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PVP & UPA Protection, cont'd

- Continued and increased financial investment for new development
- Incentive to invest in the expensive and high risk taking



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Are there negative issues surrounding PVP and UPA?

- Caused change in the way I do business
- Caused more licensing paperwork
- Caused seed industry more labeling issues
- Caused seed industry more accountability
- Caused seed industry more inventory items to manage

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Are there negative issues surrounding PVP and UPA? cont'd

- Caused some restrictions some people aren't comfortable with
- Raised the value that the seed industry brings to the food/feed industry

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Continuing strong and effective intellectual property protection is:

- necessary to ensure an acceptable return on research investments
- prerequisite to encourage further research efforts
- essential to meet the challenges mankind has to face in the coming years, i.e. feeding an increasing population whilst preserving the planet



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Intellectual Property Protection, cont'd

- These challenges cannot be met without further development of new knowledge, technologies and the more effective use of a broader base of genetic resources
- All of these endeavors require substantial, long-term and high risk investments. Strong, effective IPR will continue to encourage this investment



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YES: The PVPA and UPA has had a very positive impact on all seed companies in maize, soybean and wheat business.

The US seed industry is impactive, strong and filling the increased demands of an ever changing world.

THAT IS VERY POSITIVE



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