

Contextualising patenting of plant genetic resources: hidden threats to biodiversity

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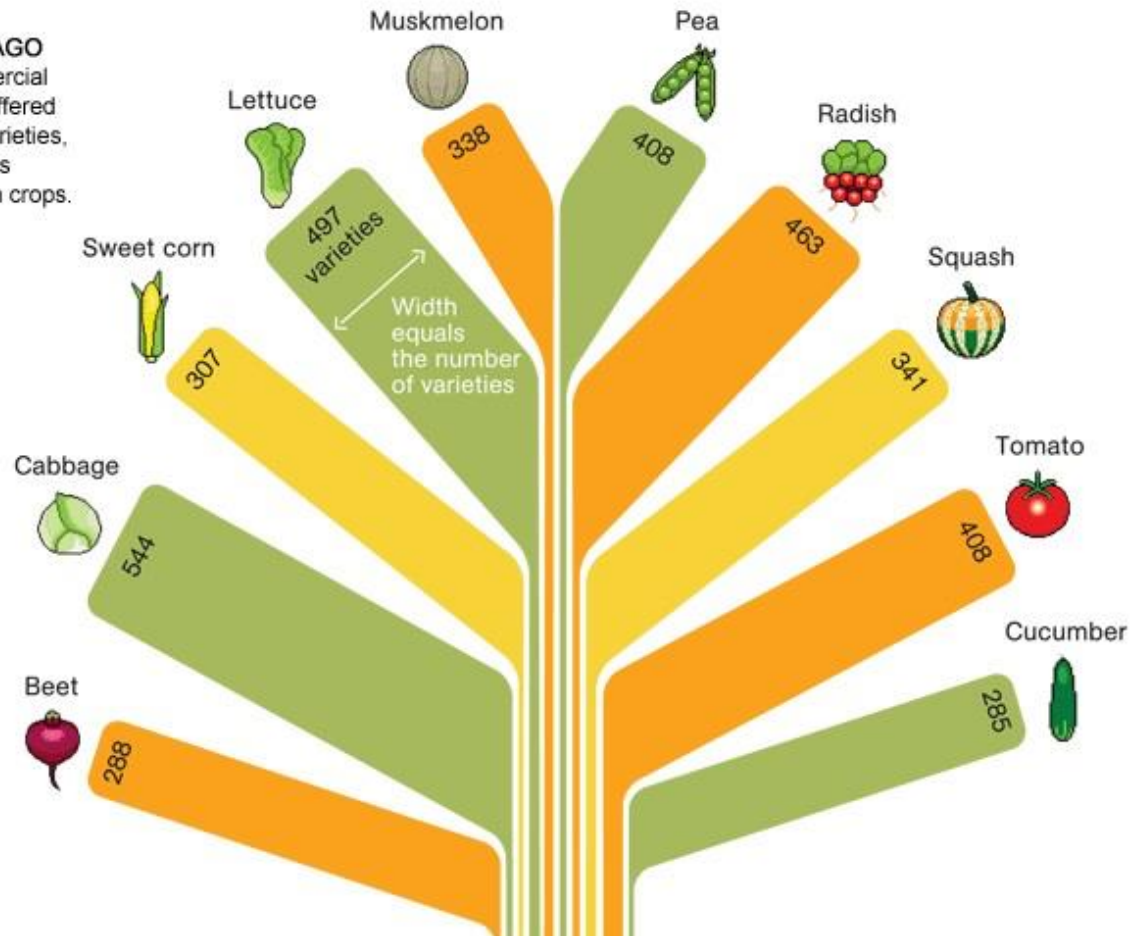
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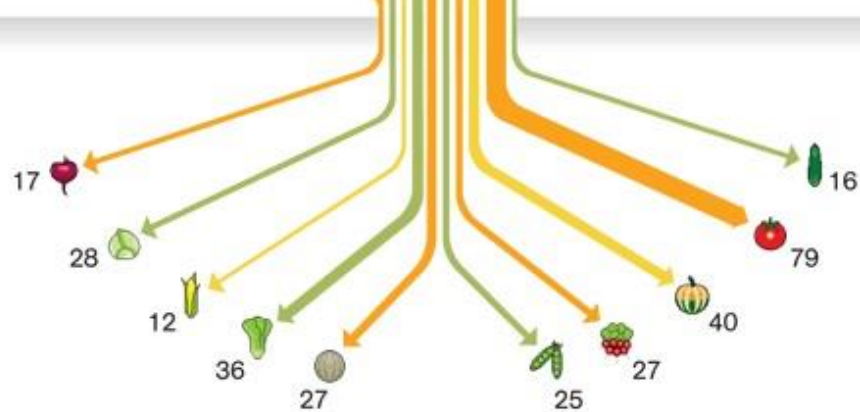
Aim

- ◆ To evaluate the patenting regime as applicable to plant genetic resources and their impact on (agro)biodiversity:
 - ◆ Why?
 - ◆ GM crops (and thereby patented crops) more likely;
 - ◆ EPO Tomato II and Broccoli II cases highlight, yet obscure, significant issue of scope of patenting;
 - ◆ Biodiversity loss: FAO, 2010: '[t]he instances of absence of genetic erosion or lack of vulnerability are rare.'
 - ◆ Self-defeating – actively undermines aim of protecting PGRs and biodiversity.

A CENTURY AGO
 In 1903 commercial seed houses offered hundreds of varieties, as shown in this sampling of ten crops.



80 YEARS LATER
 By 1983 few of those varieties were found in the National Seed Storage Laboratory.*



* CHANGED ITS NAME IN 2001 TO THE NATIONAL CENTER FOR GENETIC RESOURCES PRESERVATION

JOHN TOMANIO, NGM STAFF. FOOD ICONS: QUICKHONEY
 SOURCE: RURAL ADVANCEMENT FOUNDATION INTERNATIONAL

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 - ◆ Biodiversity loss: FAO, 2010: '[t]he instances of absence of genetic erosion or lack of vulnerability are rare.'
 - ◆ Argue that it is self-defeating – actively undermines aim of protecting PGRs and biodiversity.

Necessity of Agrobiodiversity

- ◆ ICSECR Art II: right to 'adequate food' and to 'be free from hunger';
- ◆ Call for agricultural intensification...
 - ◆ Robert Malthuse, 1798: population growth will outpace agricultural production.
 - ◆ FAO, 2009: By 2050, 'food production.. must increase by 70%;
- ◆ But, intensification alone insufficient –
 - ◆ Besides issues of access...
 - ◆ Short term solution at most → increase in stressors;
- ◆ Simultaneously need agrobiodiversity (including genetic diversity)– Resilience, adaptability, gene pool, risk diversification...
 - ◆ Articles 2 and 8 of CBD.
 - ◆ Seeds Treaty...
- ◆ Also as it promotes environmental biodiversity and sustainability.



Developing Biodiversity

- ◆ Mechanisms?

- ◆ Nature and human;
- ◆ Accidental and intentional;
- ◆ On-farm development and maintenance;
- ◆ Industry...



- ◆ FAO, 2009: 2nd prerequisite for food security related to investment in R&D – public and private

- ◆ Agri-biotechnology has the potential to play a significant role here (positive or negative)....

- ◆ Modification of the genetic make-up of crops via insertion/application of DNA from another source – including other species.

- ◆ New crops; new locations; more resilient qualities....



Corporations and R&D

- Plant research – protection of investments?
 - Companies' primary aim – wealth maximisation;
 - Threat to returns on investment? Plants' reproductive capacity and farming practices of seed-saving and seed exchange.
 - Mechanisms to protect investments? Traditional commercial mechanisms; biological confinement; and techno-legal mechanisms...



And herein lies the problem law has created...

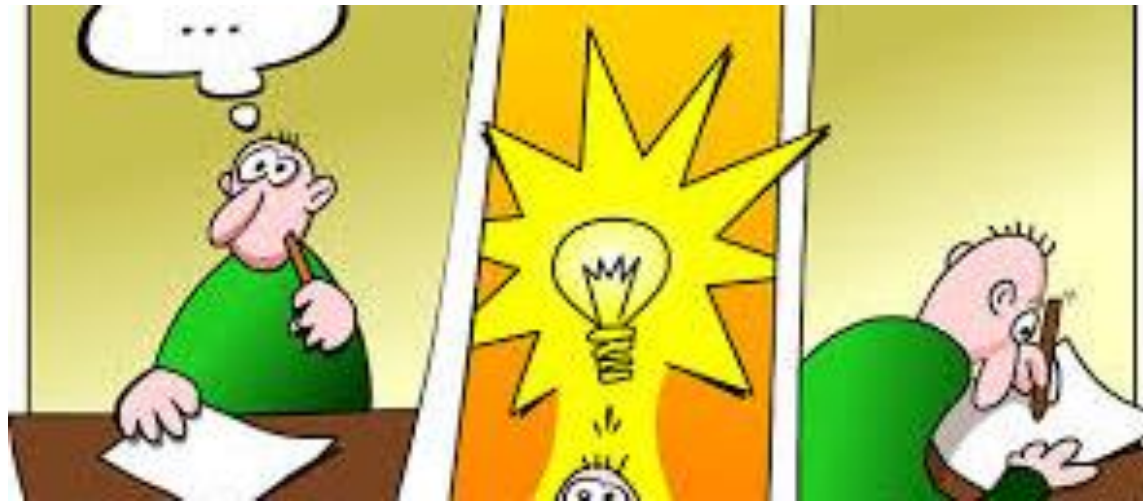


Patents

- ◆ Aim? Mazzoleni and Nelson, 1998: Encourage, reward, share (promotes inventions that are desirable/of public benefit), but proportionately....
- ◆ IPR that (temporarily) excludes others from making, using, offering for sale, selling or importing the patented product...
 - ◆ Unless exemptions or comply with IPR holder conditions (user agreements).
- ◆ European patenting law
 - ◆ EU: Directive 98/44/EC (Biotech Directive);
 - ◆ Supplemented by: Regulation 2100/94/EC on Community plant variety rights
 - ◆ Convention on the Grant of European Patents (European Patents Convention) and its Implementing Regulations. Rule 26 –BD = extra means of interpretation.

Patents

- ◆ Criteria? Inventions:
 - ◆ E.g. Article 52 of EPC (equivalent to Article 27(1) TRIPS1 and Article 3 of BD): novelty, involve an inventive step, and are capable of industrial application.
 - ◆ Criteria vary slightly in different States, e.g. US requires distinctiveness for plant patents.



Scope of European Patents

Scope of protection/exclusions under EU BD currently and EPC until March 2015:

- Permits patents on plant material,
- NOT plant varieties;
- **NOT essentially biological processes for the production of plants or animals.**
- (not where contrary to ordre public or morality)

Favours who? What? (on first appearances...)

(limited exemptions then possible)



Scope of European Patents

Tomato II and Broccoli II: Series of decisions, culminating in decisions of the Enlarged Board of Appeal of the European Patent Office on 25 March 2015:

- Interpret exclusions narrowly;
- CAN patent plants and plant material – *even if only capable of creation via essential biological processes and even if claim refers to the EBP (product-by-process).*



**IT'S
A
TRAP!**

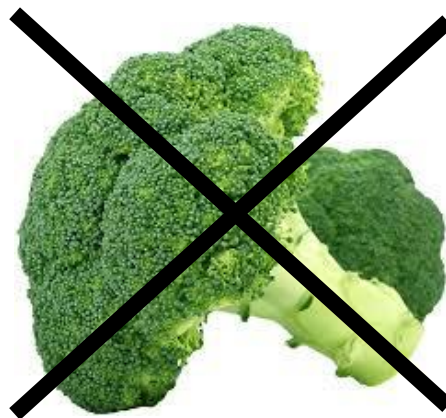


Scope of European Patents

Post Tomato II and Broccoli II:

- Commission notice – C411/3 (2016)
- Administrative Council of EPO in June 2017 →
Implementing Regulation, Rules 27 and 28

Not necessarily binding, but persuasive... plus MS...



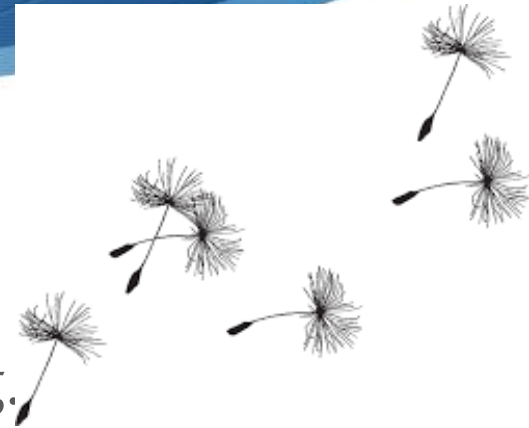
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Contextualising the regime?

◆ Nature?

- ◆ Permeable.
- ◆ Admixture and potential for outcrossing.
- ◆ Maybe product derived essentially from EBP unpatentable....
- ◆ But patents can apply to progeny of originally patented plant material: Article 8 of Biotech Directive; Schmeiser case; Bowman case.
- ◆ 3rd party farmers/secondary breeders may be using patented traits/crops...
- ◆ (only limited exemptions – more power to cos.)



Contextualising the regime?



- ◆ Humans in a capitalist world:
 - ◆ Companies want to control supply and demand – patented seeds as sole/best crop? (oligopoly tightening and monocultures growing)
 - ◆ Farmers competing;
 - ◆ Save seed, potentially lower/worse yields and take risk? (even if exemption, not for exchanging)
 - ◆ Enter treadmill, can't leave and spread patented seed?
 - ◆ Catch-22.



Power given to smaller and smaller group. Impacts on creation of new PGRs and access to current to PGRs. Contrary to spirit of idea of excluding EBP and their products?

Regulatory capture?

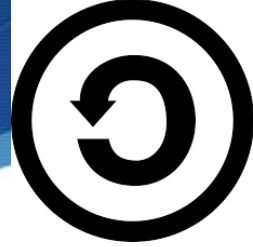
Impact of the patenting regime?

- Encourages, rewards, shares... new crops/traits/genetic diversity...
- Follow-on from Tomato II and Broccoli II: restrictions on EBP and products derived from EBP (probably)
- But:
- Power given to smaller and smaller group. Impacts on creation of new PGRs and access to current to PGRs. Contrary to spirit of idea of excluding EBP and their products?

Regulatory capture?



Future options?



- ◆ Tweak patenting approach (*sui generis* approach): e.g. Dutch or German approaches which excludes products derived from essentially biological processes → progeny? Seed-saving? Hand-pollination?
- ◆ Prohibit patenting re living organisms? Develop open source seeds/copy left? OSSI. Kloppenburg – Via Campesina.
- ◆ Rely on Corporate Social Responsibility, e.g. OECD Guidelines for Multinational Enterprises (2011) or UN Global Compact
- ◆ Claim Unfair competition? Article by Thomas Cottier; Article 40 of TRIPS re anti-competitive practices?
 - ◆ Are these going to be compliant with the law?
 - ◆ Are any of these enough at this point?
 - ◆ Look to context again: capitalism; oligopoly; monocultures; significant loss of biodiversity; climate change; Global Seed Vault had meltwater from permafrost in it this year!