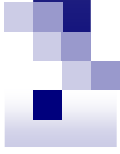


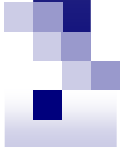
# Legal Questions Resulting from Biotechnology Developments in Animal Breeding: Scope of *Patent Rights*

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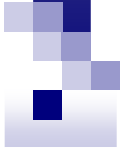
# The IP-climate in AnGR

- Trademarks – Goldshire Pigs
- Geographical Indications – Poulet de Braise
- Patents – ‘Super Salmon’ (biotechnology?)
- Copyrights – Breeding Method PEST
- No sui generis systems (PBR – UPOV)
  - Low-tech innovation in AnGR is not covered by IPRs
- All these rights have different effects, functions and subject matters



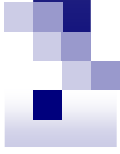
## Patent Regulation: A Few Clarifications

- Patents cover new, inventive and applicable inventions – it aims at fostering investment in innovation
- Patents are negative monopoly rights – no *direct* market access or right to *use*
- Patent systems *can be tailored* to local needs under the TRIPs Agreement, especially in relation to biotechnology
- AnGR can even be excluded from patentability under the TRIPs Agreement
- Broad scope of patents in biotechnology and subsequent negative effects have not been empirically confirmed (on the contrary)
- Concentration and biological uniformity on the AnGR supply market do not root in patents (but secrecy + hybridisation)



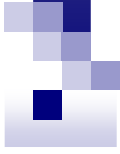
# Patents over AnGR - coverage

- The TRIPs Agreement leaves the choice over patenting AnGR free but the minimum standard entails patents for non-biological and microbiological processes and products
- Products & Processes – Biotechnology
  - Animals (So far mostly for research purposes – agriculture lags behind)
  - Gene sequences
  - Cells
  - Vectors
  - Various types of methods (only biotechnology?)
  - Etc.



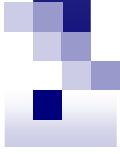
# Patents on AnGR - Chronology

- **1980s** – Introduction of biotechnology to the patent system
  - US Supreme Court ‘Chakrabarty’: 1981
- **1987** – First product patent on a transgenic animal
  - Harvard ‘Oncomouse’
  - Discussion on scope of *product* (gene) patents
- **In the past few years**: increased number of applications for process patents
  - ‘Brassica’ / ‘Monsanto pig’
  - Discussion on scope of *process* patents



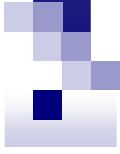
# AnGR Ownership

- Traditional, individual ownership (private good) – *individual genetic resources management* (use, sale, progeny, slaughter, etc.)
- Collective ownership (private/public (community good) – *community genetic resources management*)
- Ownership over the pool of animal genetic resources: Public domain (public good), Secrecy (private good) or IP-protection (temporary private good to achieve a public good)? – *global genetic resources management*



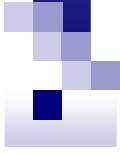
# Patents v. Physical Ownership

- Ubiquity of IP-Rights
  - The patent holder is not the *owner* of each protected item, but the owner of the *knowledge* as applied in each item – both are disconnected
  - The ‘real owner’ can *use*, the ‘patent owner’ can *produce*
  - Thus - Ownership over a concrete individual animal v. ownership over the knowledge contained in its genetic structure



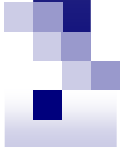
# Ownership over AnGR and Patents

- When patents, an additional ‘layer of ownership’, come in – the main differences are to be found in
  - The price (monopoly prices) - Access
  - Possibilities of using eventual progeny and (re-)producing the animal - Access
  - A changing market structure – Access?
  - But also in the disclosure of the inventions and in the incentive it gives to investment in research - Access



# Extension of Patent Rights: Principles

- Product patents
  - Product ( + in case of (isolated, in laboratory form) gene sequences also the organism in which it is incorporated and fulfilling its function)
- Process patents
  - Process (method) +
  - Directly derived products (doctrine of essential characteristics)



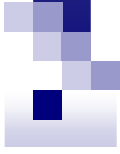
# Extension of Patent Rights: Progeny

- **Product patents over animals**: as many generations as keep expressing the patented property (becomes and issue of traceability)
- **Product patents over gene sequences**: every animal in which they are incorporated + fulfilling their function (becomes and issue of traceability)
- **Process patents**: Indeed a ‘broad scope’
  - The process (but what about self replication? – no case law)
  - The directly derived products (animals), (even if not themselves patentable)
  - The further progeny -  
as long as they keep the essential characteristics (thus also in subsequent cross-breeding) obtained through the use of the protected method, *versus* a narrow interpretation of the wording ‘directly derived’?  
– no case law.
- **However – Farmer’s privilege (in Europe) & research exemption**  
In Europe: “*any other biological material derived from the directly obtained product through propagation or multiplication (thus regardless whether the patented process is used again –added),..., possessing those same characteristics*”



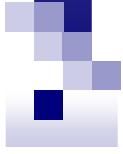
# Intellectual Property and Biodiversity

- Patents and sui generis rights (as construed for plant varieties) are aimed at fostering *innovation* and may have a conservation function in relation to AnGR
- The impact of *marketed* biodiversity is of essential impact on *global* biodiversity. It is marketed diversity that is designing agriculture and thus assuring food resources. Commercialisation can be the predominant ‘saviour’ of agricultural breeds from extinction indeed: lacking commercial value and a market, conservation often runs out of direct incentives – lacking diversity as a market failure situation
- The question of incentivising marketed diversity thus appears essential. Here intellectual property rights do have a role to play – concentration and limited marketed AnGR diversity occurred in a patent free environment



# Questions

- Is there a need for *international* action?
- Is there a need for *TRIPs* adjustments?
  - A sui generis obligation for animal ,breeds‘ protection equal to plant ,varieties‘?
  - Patent law adjustments:
    - Explicit exclusion or inclusion of AnGR?
    - ‘Ceiling‘ or ‘maximum standards‘ to scope of patents?
    - Explicit rule on progeny protection?
    - Explicit farmer’s right?
    - Explicit research exemption?



# Thanks!