

International Expert Technical Workshop Exploring the Need for Specific Measures for Access & Benefit Sharing of Animal Genetic Resources

An Overview and Analysis of Issues and Current Practices in the International Exchange of Animal Genetic Resources

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Introduction...

- Animal Genetic Resources (AnGR) traverse borders of countries and regions, facilitated by human intervention
- In the past, no issue in movement of AnGR
- Now there is greater awareness concerning the value of AnGR and the sovereignty of nations over their genetic resource heritage (Convention on Biological Diversity, CBD)
- Some controversy
- Practices/issues – consider examples

Current Practices

- In past, exchange or trade of AnGR enabled through conveyance of live animals/eggs > technology > frozen semen/embryos > tissues, ova, etc.
- In past, land and sea > air (frozen semen, calves)
- Provision of AnGR – agreements / sale, MTAs
- Transfer of genetic material from a gene bank to agricultural institute in another country
- Aid package, mutual cooperation, political relationship, promote business, conservation of transboundary breeds

Cattle Breeds from the Indian Sub-Continent

- South Indian Cholan empire (10th century)
- Cargo on Indian warships
- AnGR > > Bali, Indonesia
- Madura cattle – possibly crossbred between Indian and Bali cattle
- Malaya – 19th & 20th century – Kangayam, Hallikar cattle > LID
- Sindhi & Sahiwal cattle



Derivative Breeds: Beef

- Brahman
- Charbray (Brahman x Charolais)
- Brangus (Brahman x Angus)
- Droughtmaster (Brahman x Shorthorn)

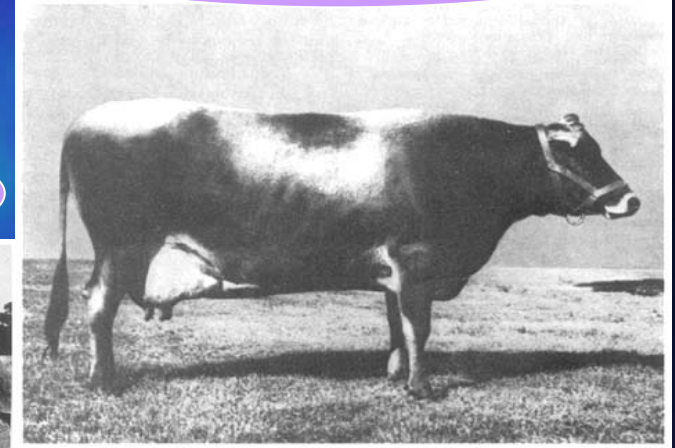
(Brazilian Beef Breeds – Nelore, Gir, etc)

Other Brahman-derivative breeds:
Braford, Simbrah, Beefmaster,
Gelbray, Beefmaster, etc.

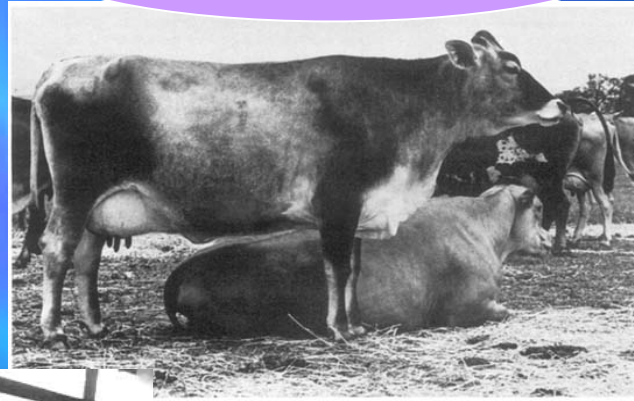


Derivative Breeds: Dairy

Jamaica Hope



AMZ



Frieswal



Mafriwal



AFS



Boran Cattle

- Indigenous to Kenya, Ethiopia & Somalia
- Kenya – Improved Boran
- CSIRO – bioprospecting – heterosis potential, high fertility, mothering ability, good temperament & tropical adaptability
- Sourced Boran embryos from Zambia > Cocos Is. > Australia
- Sales worldwide
- Allegations of biopiracy



Bali Cattle

- Found in various parts of South East Asia, Australia
- Largest population in Indonesia
- Unique fine-looking beasts
- Mainly for beef production
- Mature male and female weights: 550 kg, 300kg
- High fertility
- Highly adapted to tropics
- Impact rural development
- Frozen semen ID > MY
- Live animal exports from ID restricted/banned



Murrah Buffalo

- Riverine buffalo from Indian Sub-continent
- Average lactation Milk 2,032kg (Top: 3,294kg)
- Premier milking buffalo
- Reported in Azerbaijan, Brazil, Bulgaria, China, Indonesia, Malaysia, ...
- Philippines – since 1918 – have imported Murrah - from India, USA, Bulgaria and Brazil. PCC



Boer Goats

- Composite breed – African tribal + Indian + European breeds
- Recognized a breed in early 1900's; Registry 1959
- Superior growth rate, acceptable fertility and adaptable to variety of environments
- Reported in 53 countries (FAO, 2007)
- Thriving commercial trade



Meishan Pigs

- A Taihu breed
- Slow growing & yield fatty carcass
- Sexual maturity in 2.5 months, litter 14-15
- Juicy, tasty meat
- Introgress Meishan's good characteristics into Western breeds
- Taihu (incl. Meishan) lines for crossbreeding
- Meishan hybrid lines
- High commercial impact



Ostriches

- *Struthio camelus* – from African continent
- Large flightless birds
- Several sub-species
- Adults: 60 – 150 kg.
- Farmed for hide, feathers, meat
- Reported in Australia, Belgium, China, Malaysia, Pakistan, Ukraine,
- Appendix I of CITES – Only Algeria, Burkina Faso, Cameroon, ...



Booroola Gene

- Noted in late 1940's – Seears Brothers Booroola Station
- Merino sheep with 170-180% lambing rates
- CSIRO studies
- Mapped Fec B gene
- Commercial since 1980's
- Origin Garole sheep, India
- Hu & Han sheep – China
- Improved Texel, Awassi, Decanni, etc. – 48 breeds and composites in at least 19 countries



Issues

- Under CBD, Access & Benefit Sharing is an imperative principle
- Nagoya Protocol (2010) – terms on how countries will permit access/share benefits
- Countries once unwilling to share resources may be more willing to exchange AnGR now
- Many problems still eg. Determining country of origin of AnGR, synthetic breeds, conflicts with TRIPS, policing

Conclusion

1. **Generally all countries dependent on utilization of AnGR from external sources**
2. **Exchange & utilization of AnGR closely associated with their conservation**
3. **Impeding international exchange of AnGR can have disastrous consequences on nations**
4. **Adoption of Nagoya Protocol timely – milestone in ensuring provisions of CBD on ABS are realized**
5. **Positive impact on enhancing livestock production and ensuring food security, particularly when facing challenges of population increase, resource depletion and climate change**

Thank You

