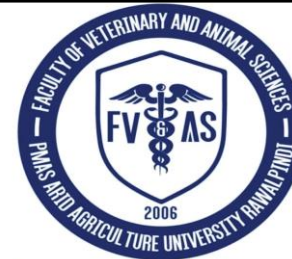




Animal Gene Editing Policy of Pakistan



Dr. M. Moaee-ud-Din (FV&AS, PMAS-AAUR)



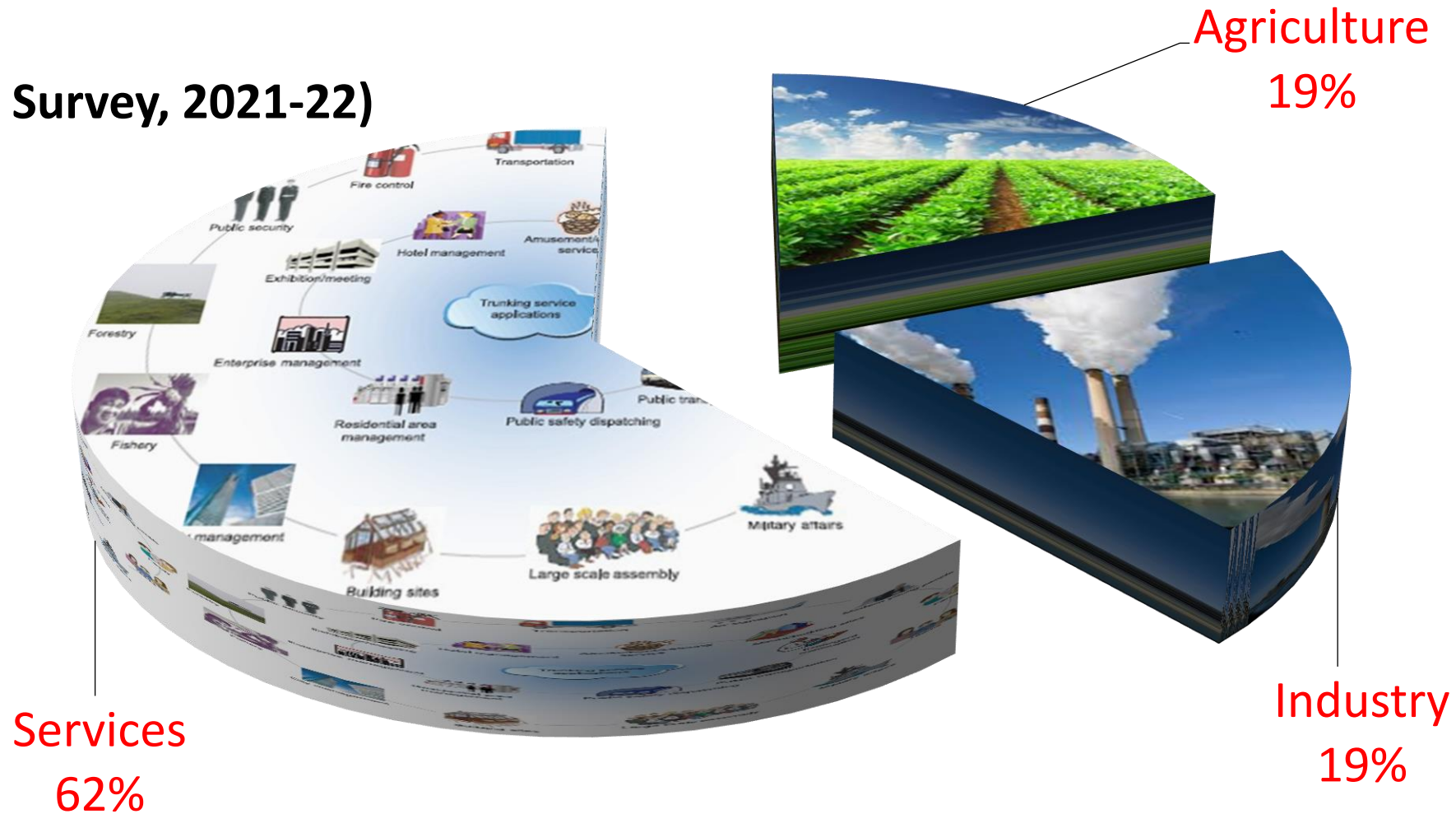
Department of Animal Breeding & Genetics



ANIMAL ECONOMY OF PAKISTAN

Agriculture Contribution in National Economy

(Economic Survey, 2021-22)

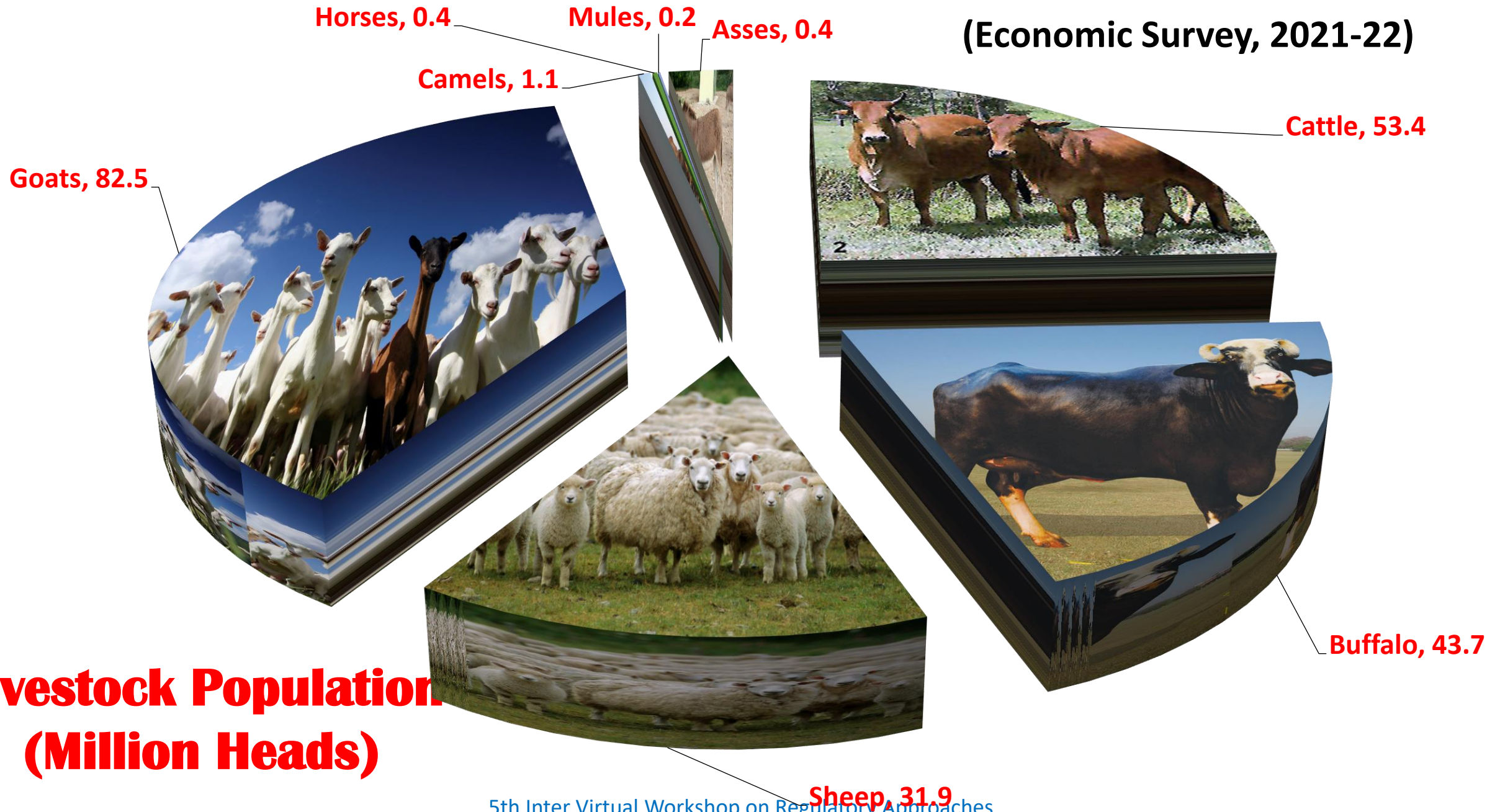


Livestock Contribution in Agriculture Economy



(Economic Survey, 2021-22)

(Economic Survey, 2021-22)

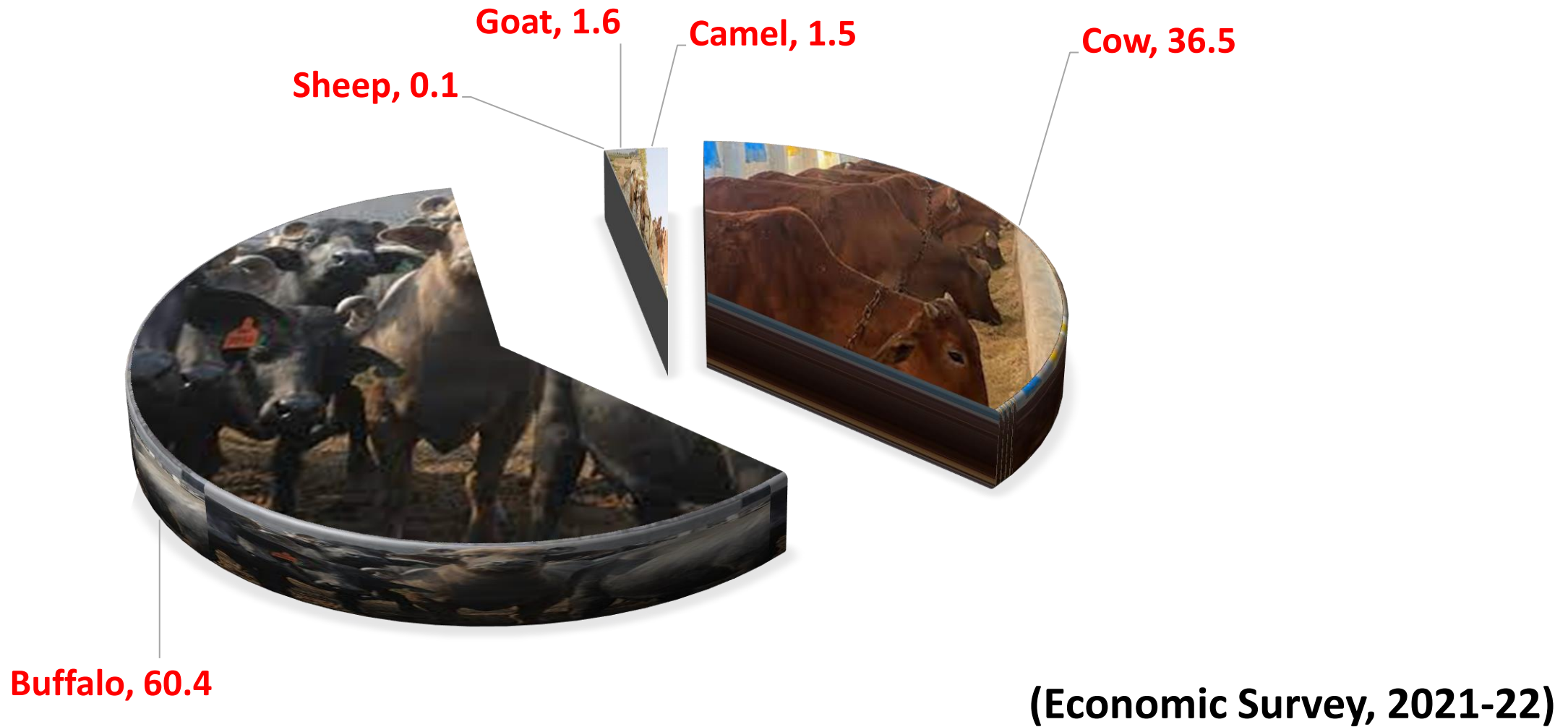


Livestock Population (Million Heads)

10/10/2024

5th Inter Virtual Workshop on Regulatory Approaches
for Agric Applications of Anim Biotech August 19-22,
27-29, 2024

Milk Contribution by Species (%)



Livestock Products

S No.	Product	000 tons
1	Milk	65,745
2	Beef	2,461
3	Mutton	782
4	Poultry Meat	1,977
5	Eggs	22,512 Million
6	Hides (all Species)	19,384000 Million

Economic Survey of Pakistan (2021-22)

Country Needs – Gene Editing?

- **Horizontal expansion of animal production:**
 - Need improved breeds for milk & meat
- **Import of live animals and germplasm:**
 - Dairy animals of *Bos taurus* breeds
- **Gene edited animals importation:**
 - To increase vertical milk and meat production
- **GMO policy for crops:**
 - There is one for cash crop but not for gene editing
- **DNA vaccine:**
 - Recombinant vaccine for ND in Pakistan
- **Embryo editing:**
 - Mice embryo cloning at UVAS
 - No labelling policy

**GMOs dealt
under Pakistan
Biosafety Rules
(PBR) 2005**

Country Gaps – Gene Editing Policy

- **Horizontal expansion of animal production:**
 - No commercial production/sale of animals derived from GE
- **PBR 2005:**
 - PBR mentions organisms which would be the basis for any regulation of GE animals
- **Trade Barriers:**
 - No regulatory framework for animal biotechnology - GE animals and products imports likely to be restricted
 - FMD is not eradicated yet which is an export barrier

Opportunities – Use of Gene Editing

- **Double muscle:**
 - **For meat animals**
- **Slick gene:**
 - **For dairy animals**
- **FMD control through gene edited animals:**
 - **FMD eradication through gene editing can remove export barrier**

Cooperation and regulatory alignment - Gene Editing

- **GMOs not yet allowed:**
 - No cash crop allowed as GMOs except cotton
- **Recommendations for use of Biotech:**
 - Pakistan Council for Science and Technology Ministry of Science and Technology Government of Pakistan gave its recommendation for use of Biotechnology in livestock in 2014, still policy is awaited
- **Trade Barriers:**
 - No regulatory framework for animal biotechnology - GE animals and products imports likely to be restricted

**THANKS FOR YOUR
VALUABLE TIME**