



VETERINARY MEDICAL EDUCATION OF PAKISTAN & ONE HEALTH”

Dr. Masood Rabbani,

Tenured Professor/ Dean

Faculty of Veterinary Science

**UNIVERSITY OF VETERINARY & ANIMAL
SCIENCES, LAHORE-PAKISTAN**

Email: deanfvs@uvas.edu.pk

www.uvas.edu.pk





Pakistan Profile



- **Human Population:** Approx 200 Million
- **Area:** Over 7.0 hundred thousands sq km
- **Language:** Urdu, English, Punjabi, Sindhi, Pushto, Balochi, Saraiki, with over 300 dialects
- **Religion:** 96 Muslims & 4% Christian, Hindu, Sikhs, Parsi, etc
- **GDP:** Aprox \$ 1 Trillion
- **Per Capita Income:** \$ 1560
- **Time Zone:** UTC+5
- **HDI:** 0.538
- **Literacy Rate:** 60%





ANIMAL AGRICULTURE SECTOR OF PAKISTAN & VETERINARY EDUCATION: HAND IN HAND

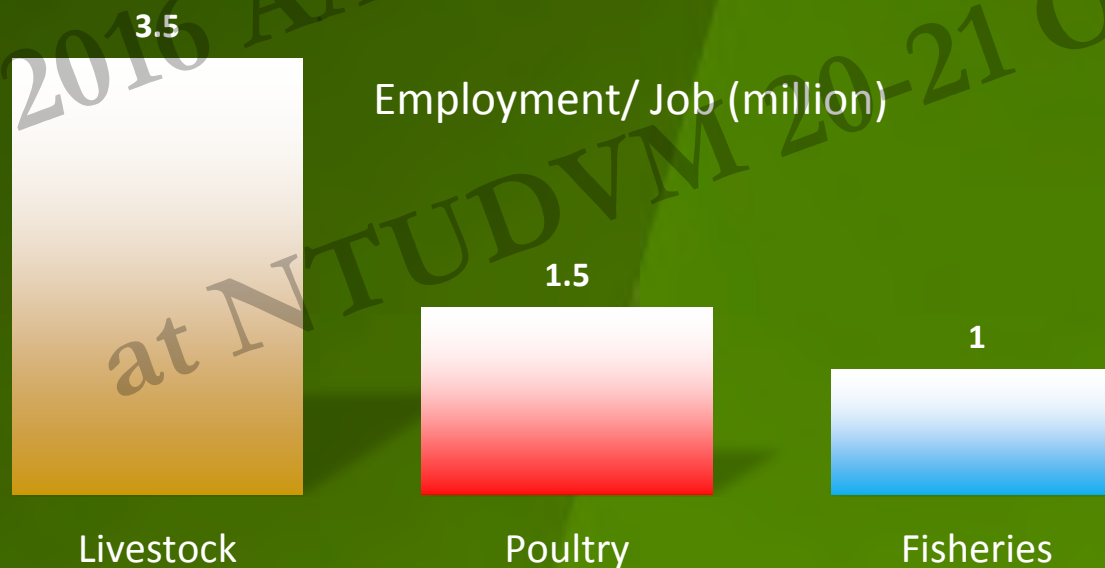
- Importance in National Economy
- Women empowerment
- Food Security
- Opportunity of Self Employment
- Poverty Alleviation of Rural Masses





AGRICULTURE (LIVESTOCK INCLUDED) CATERS LIVELIHOODS OF OVER 8 MILLION FAMILIES

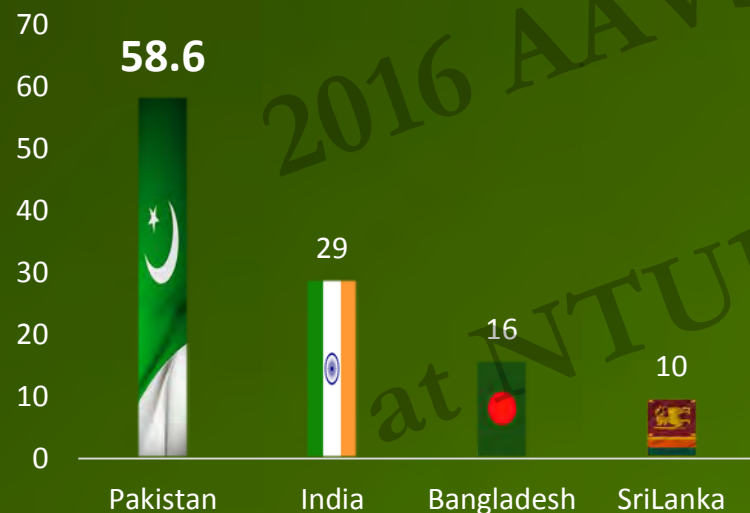
LIVESTOCK SECTOR PROVIDES AROUND 5 MILLION JOBS/ EMPLOYMENT (DIRECT & INDIRECT) OPPORTUNITIES Nationally





Livestock Pakistan: Regional Strength (%age)

LIVESTOCK SHARE IN AGRICULTURE

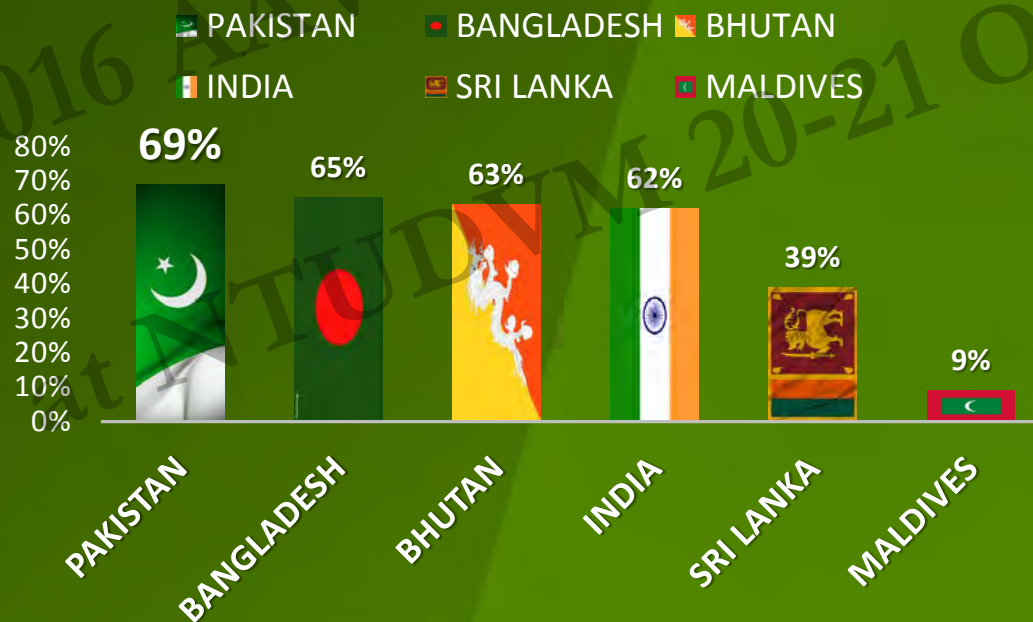


LIVESTOCK SHARE IN NATIONAL GDP





Women empowerment in Agriculture (Livestock) is 69% for Pakistan which is highest in Asia & Asia Pacific





Emerging Growth in Livestock Wealth:

Livestock	Year 1995-96 (Million)	Year 2015-16 (Million)	Percentage Increase
Buffalo	20.3	36.6	180
Cattle	20.4	42.8	210
Sheep	23.5	29.8	127
Goat	41.2	70.3	170
Horse, Ass, Mule	4.0	5.7	14
Camel	0.8	1.0	125
Poultry	350	1000	285



WORLD RANKINGS

Buffalo
(36.6 mil)



2

Goat
(70.3 mil)



3

Milk
54.328 MT



4

Cattle
(42.8 mil)



5

Poultry
(1 billion)

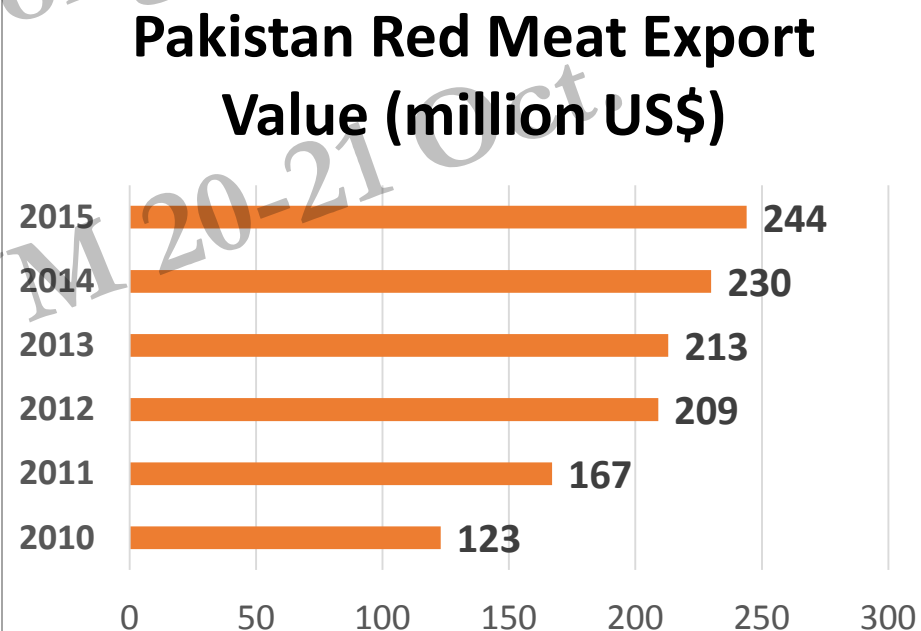
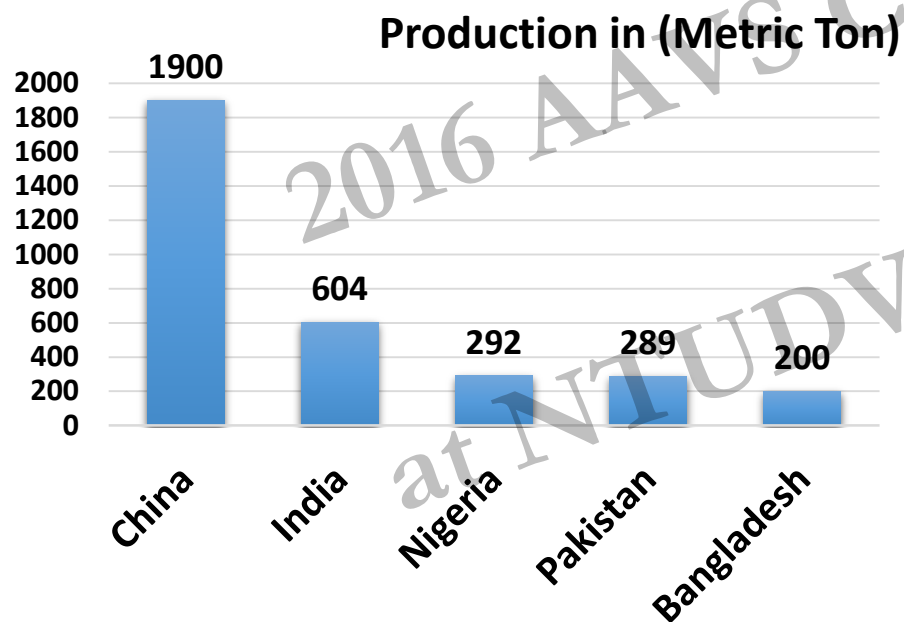


11





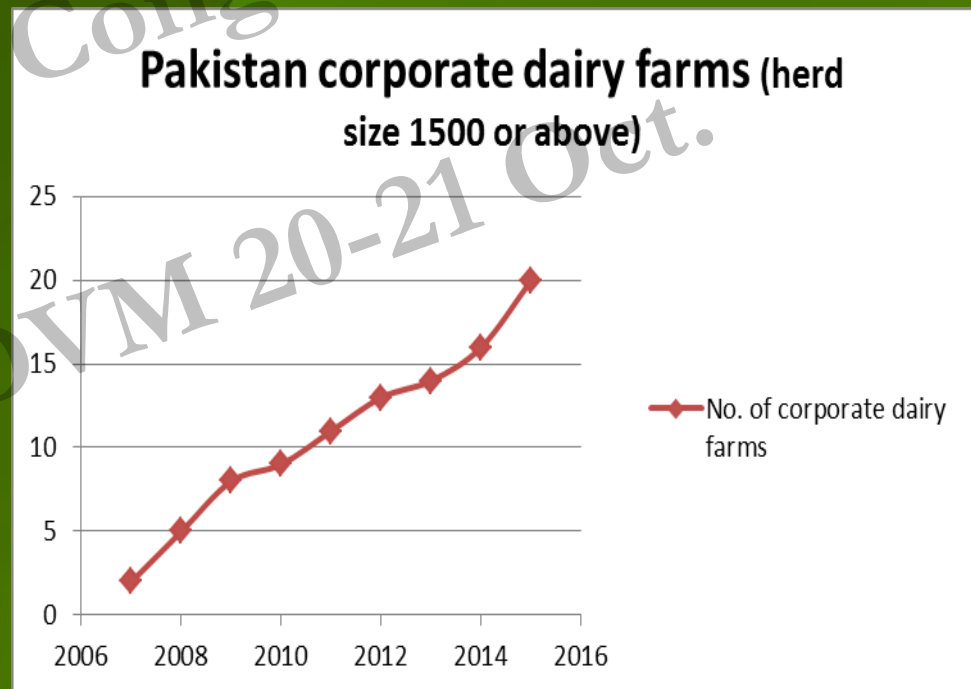
Pakistan Red Meat Sector





Pakistan Dairy

Pakistan corporate dairy farming is USD 200 million industry





Pakistan Geo-strategic Position in region provides opportunities in enhancing livestock product exports to Central Asia, Middle East, and China





369

Million US\$



Milk

213



Meat



Fish

Dutch food giant **Friesland Campina** is acquiring **Engro Pvt** for **USD 460 million** which is highest FDI (foreign direct investment) ever in this sector in Pakistan

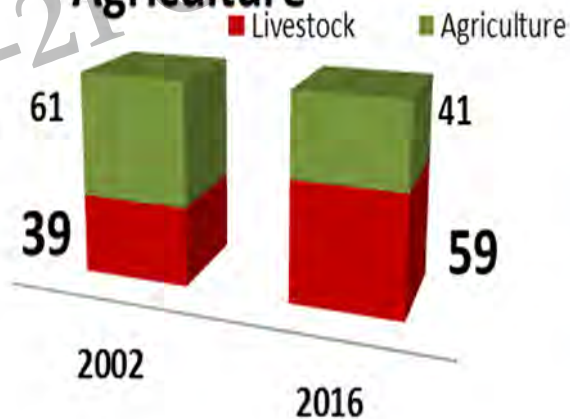


UVAS Role in Sector Growth

⊕ Livestock sector has showed remarkable growth after the inception of UVAS in 2002

⊕ Veterinary schools have reached to 16, which were just 5 in 2002

Livestock share in Agriculture





Honorary Degree Awarded By UVAS- Pakistan to DG FAO Dr. José Graziano da Silva











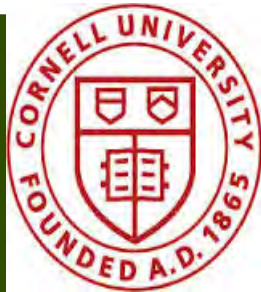
2016 AAS Congress
at NTU DPM 20-21 Oct.

05.09 10:18





Collaborations



US

US

US

US

US



Australia

Germany

Austria

Turkey

Turkey

ISO Certified UDL & QOL



Clinics 24/7



Student Forum





Sahiwal



Nili-Ravi



US Holstein Friesian



Meat Industry Training



Fisheries & Aquaculture Research & Training



Pet Breeding & Training Center

1. Sniff for explosive & narcotics
2. Tracker
3. Watch dogs





Advocacy & Policy Making for sector



**Punjab Food
Authority**



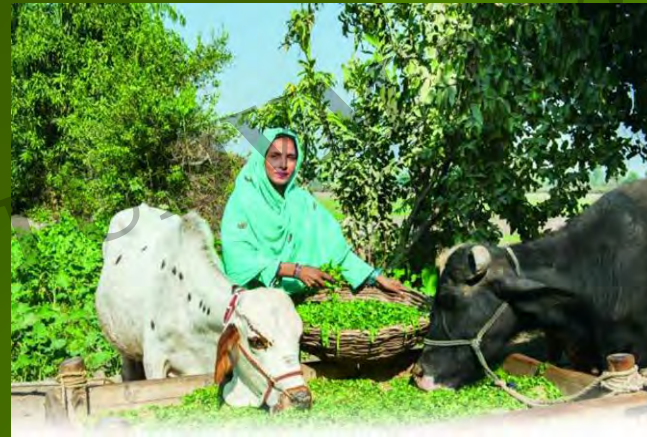
UVAS: University of Veterinary and Animal Sciences faculty members of poultry, fisheries and animal nutrition and meat technology on Monday recommended enhancing import duty on whey milk and powdered milk at least 75 per cent.

The meeting said fisheries, poultry and red meat sectors should be included in the zero rated sectors. They also recommended heavy import duties on the import of fish feed to strengthen local fish feed industry.





CAPACITY BUILDING & HRD



Farmers Training





History of VEE

- During British Rule after year 1857
- Use of Equines in Battle
- Marshy areas caused lameness of horses, Cattle Plague, frequent famines, etc.
- Remount Vets become insufficient treating Horses & Livestock
- Establishment of “Veterinary School” at Lahore district in Year 1882 (AT Units)





HISTORY OF VEEs IN PAKISTAN

NAME OF INSTITUTION	LOCATION	STATUS	
		Year Estab- lished	Accredit Since
1) Univ. of Vety & Animal Sci.	Lahore	1882	1996
2) University of Agriculture	Faisalabad	1962	1996
3) Sindh University of Agriculture	Tandojam	1970	1996
4) KPK University of Agriculture	Peshawar	1970	1996
5) Gomal College of Vet Sciences	D I Khan	1981	2005
6) College of Vety & Animal Sci.	Jhang	2006	2012
7) PMAS Arid Agriculture Univ	Rawalpindi	2006	2012
8) Lasbela Univ. Agric Water & Marine Sci.	Uthal	2011	2012



HISTORY OF VEEs IN PAKISTAN

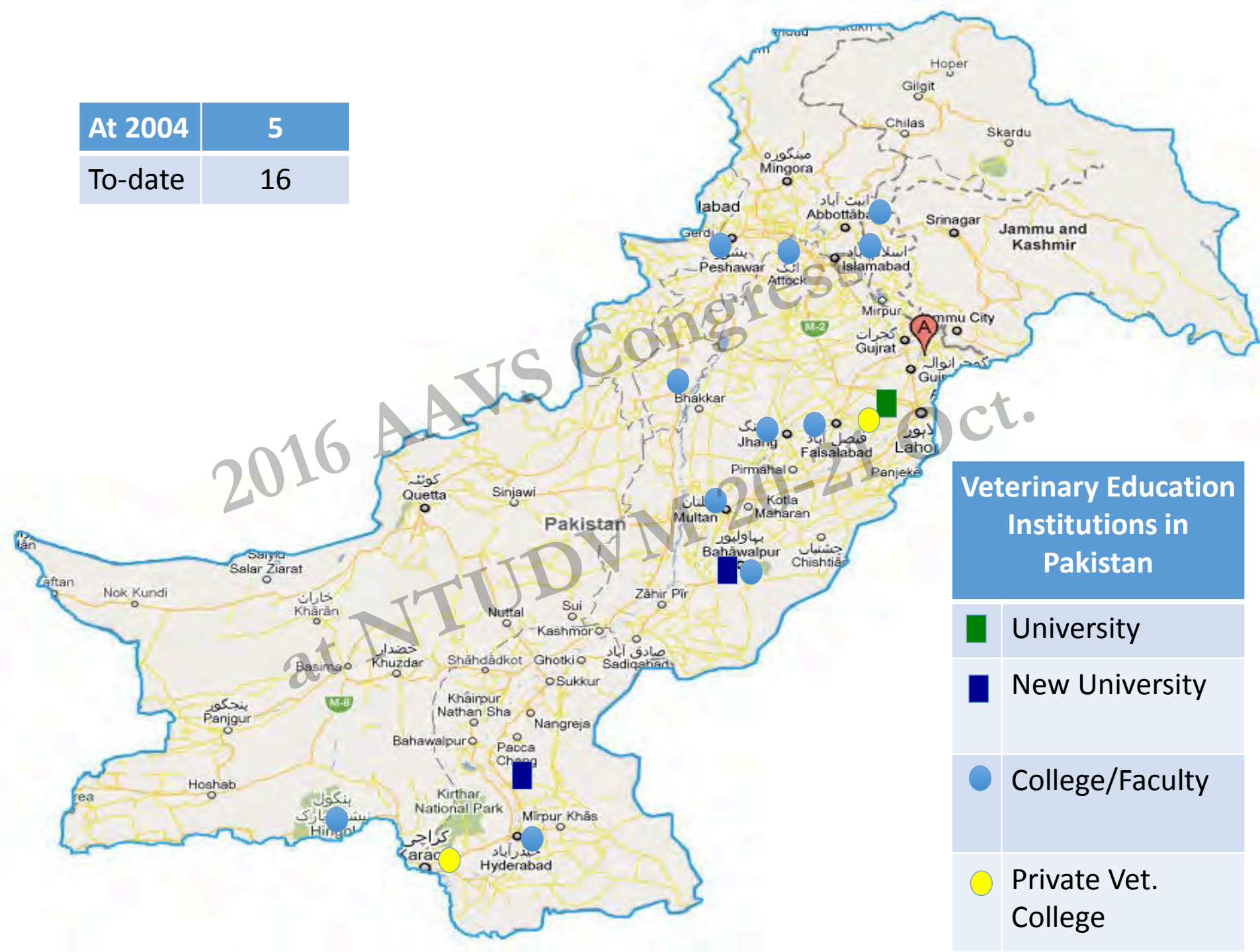
NAME OF INSTITUTION	LOCATION	STATUS	
		Year Establish	Accredit Since
9) Riphah College of Vety Sci (Private Sector)	Lahore	2012	2012
10) Bahauddin Zakariya Univ	Multan	2006	2012
11) University of Poonch	Rawalakot	2006	2012
12) Islamia University	Bahawalpur	2006	2012
NON-ACCREDITED INSTITUTIONS			
13) Baqai College of Vet Sci (Private Sector)		Karachi (2006)	
14) SBB Univ of Veterinary & Animal Sci		Sakrand (2013)	
15) Abdul Wali Khan University		Mardan (2015)	



STUDENTS IN VETERINARY INSTITUTIONS 2015-16

S.#	Name of Institution	DVM Students	Postgraduate
1	University of Veterinary & Animal Sciences, Lhr	852	93
2	University of Agriculture, Faisalabad	745	132
3	Sindh Agriculture University, Tandojam	864	96
4	K.P.K Agriculture University, Peshawar	439	75
5	LUAWMS, Uthal	240	-
6	Gomal College of Veterinary Sciences, D.I.Khan.	496	-
7	Arid Agriculture University, Rwp	249	-
8	College of Vet & Animal Sciences, Jhang	256	-
9	Riphah College of Vet Sciences, Lhr	110	-
10	University of Poonch, Rawlakot, AJK	249	-
11	Baqai College of Vet Sciences, Karachi	38	-
12	Islamia University Bahawalpur	300	-
13	Baha Uddin Zakriya University, Multan	388	-
	G. Total	5226	396

At 2004	5
To-date	16





Composite DVM Degree

- In early 1970s DVM (4 Year)
- BSc Animal Husbandry (4 Year)
- Merging of Both as:
- Composite DVM degree Program in Year 2002 (5 Year)
- Course Contents Ratio:
 - Veterinary (Pre- & Clinical courses) 60%
 - Animal Production 30%
 - Misc (Business, language, etc) 10%
- **Total Courses Taught: 70**
- **Total Credit Hours: 167 (102-65)= 297**



Regulatory Framework

1947 University Grants Commission (Main Funding)

1996 Pakistan Veterinary Medical Council Act

2000 PVMC Regulations

2001 Standard of Education Regulations

2002 Higher Education Commission (HEC)

2015 PVMC Accreditation & Equivalence Regulations



PVMC: Regulatory Body

- Established by Act of Parliament in 1996 to Regulate:
 - Registration, Practice, Code of Conduct of Veterinarian & Para-Vets
 - Establish uniform Standard of Basic & Higher Education in Pakistan through:
 - Regular Curricula Revisions
 - Accreditation of VEE through zero and subsequent visits
 - Equivalence of Educational Degrees
 - Regulating Number of DVM Admissions through assessment of Future Needs of Vet Graduates
 - **Regulating DVM Internship Program through VEE**
- Establishment of Head Office as PVMC House at Islamabad (Future Hub of Administration and Training Activities)



PVMC Accreditation of VEE

- Submission of Dossier who plan a VEE
- Zero Visit by PVMC- A&E Committee
- Gap Identifications & Analyses as per Minimum Essential Requirement (MER) filled Proforma
- Evaluation of Compliance in Subsequent Visits
- Provisional Accreditation for 2 year on MER
- Accreditation after full Compliance
- Evaluation of Reports & Surprise Visits



HEC Development & Research Funding

- Dev. Grants for Institutional Strengthening 500 – 5000 Million
- National Research Program for Universities (NRPU) 2 – 10 M
- Grant to Organize Seminar, Conference & Training Workshop
- Collaborative Research Programs
- Access to Scientific Instrumentation Program (ASIP)
- Higher Education Knowledge Exchange & Entrepreneurship
- Establishment of ORIC 15 Million & non development grant
- BIC, Services Framework, Technology Parks
- HEC Quality Enhancement Cell (QEC): University Rankings



HEC Faculty Development Programs

- Faculty Development of VEE through USAID Program
- World largest Fulbright 5000 PhD Faculty Development Program (Significantly availed by VEE)
- Indigenous PhD Program for 5000 candidates
- 18th Amendment in Constitution of Pakistan
- Education, Livestock, Agriculture, Medical are now Provincial Chapters
- Market Based Salaries of Faculty through TTS
- Travel Grant for Faculty Members
- HEC Outstanding Research Awards
- Best University Teacher Award



Initiatives by VEE

- **Admission Policy:** 12 years pre-medical education & some VEE are moving towards MCAT for Improving Admission at Entry level (Diversity of students through quota system of under privileged areas)
- **Uniform National Curricula:** by PVMC- HEC; moving towards PBL, CBL, TBL
- **OIE Compliance:** OIE Day 1 Competencies for DVM Graduates and to Local Societal Needs
- **Hands-on-Training:** Study Tours, Field visits during Disease Outbreaks, Visits of Farms, Industry, Res. Instt., safari parks, Zoo, etc
- **Career Coaching:** Weekly Interactive Lectures by Licensed Leading Veterinary Practitioners and Entrepreneurs to DVM final year students
- **Professional Development:** Establishment of Student's Clubs, Societies, Associations, Celebrating Days (Rabies, World Animal, World Veterinary, Egg, Milk, etc). So that they may be problem solvers, critical thinkers and Leaders and good in public communication
- **Civic Engagement:** Participation in Relief Activities in Natural Calamities like Earth Quakes, Floods, Mass Vaccination Campaigns, etc.



Increasing & Expanding VEE

- 5 VEE up to Year 2002 & Now 16 VEE
- Space Expansion from few Acres to 100-1000
- Faculty Number increased from 45 to over 100
- Strengthening of Labs through installation of Equipment and Provision of stocks
- Availability of Animals and Poultry as per MER
- Attaching big GLF with VEE
- MoUs of VEE with Allied Industry & Institutions for DVM student exposure and PG Research



Vet Education & One Health

- Teaching of newly added courses on Epidemiology and Public Health, Zoonosis, Food Safety and other related courses and hands-on practical training to DVM Students (Active & Passive surveillance of shared pathogens of human & animals from Field, Clinics & Lab data)
- MoUs and JVs with Medical Colleges and Universities for arranging joint walks, Vaccination Campaigns, MediaTalks, Lectures, Seminars, conferences on topics of Public Health Importance like Rabies, Bird Flu, CCHF, Bovine TB, Brucellosis, Food safety



e.g., Zoonosis & Food Safety Course 3(2-1)

- **Learning outcomes:**

- At the end of the course, students will be able to:
- Define and describe the basics of zoonotic diseases and principles of food safety
- Describe laws & regulations impacting food animal, processing industries & food consumers
- Describe approaches to microbiological and physical foodborne hazard identification, testing and sampling; and foodborne hazard prevention and control.
- Describe the route(s) of transmission of major zoonotic diseases, individual and population prevention and control methods for major zoonotic diseases.

- **Theory:**

- Introduction to zoonoses and its classification, Impact of zoonotic diseases on human health and economy, Global prevalence of zoonotic diseases, Role of veterinarians in preventing zoonotic diseases, Zoonoses: Viral, Bacterial, Parasitic and Fungal, Companion animals and zoonoses, Handling of zoonotic diseases (e.g. wool sorter's diseases), Regulations regarding zoonotic diseases. Food safety as global issue, Foodborne disease surveillance and outbreak investigation, Food safety monitoring, Drug Resistance and food safety, Surveillance and reporting of food borne illness, Hygienic handling and processing of milk and meat products. Water, Milk- and Meat-borne diseases, Microbiological standards of water, milk, meat, eggs and their by-products, Intoxications associated with food products of animal origin, Residues in food products of animal origin, WTO standards, Importance and need of Communication with media, Role of national and international agencies in controlling emerging and re-emerging diseases, HACCP certification, ISO 22000 and Global Gap program for food safety.



Continue....

- **Practical:**
- Collection, transportation and bacteriological examination of water, milk, eggs and meat samples, Qualitative standards for food safety certification of milk and meat, Quantitative standards, most probable number (MPN) and plate count (APC), Testing of residues (Antibiotics, heavy metals etc), Isolation and identification of pathogens from milk products and molecular diagnostic methods for food pathogens, Schematic sketch for isolation and characterization of bacteria, Screening and diagnosis of brucellosis, Screening and diagnosis of Tuberculosis, Screening and diagnosis of mastitis, Identification of adulteration in milk samples, Visits to Milk processing plant, Visits to Abattoir, Data collection and analysis of food borne illness.
- **Textbook:**
- Hartmurt, K., 2009. Zoonoses, 3rd Edition, ASM press, USA.
- **Recommended Books:**
- Morris, J. G. and M.E. Potter, 2013. Foodborne Infections and Intoxications. 4th ed. Academic Press. USA
- Rahman, H., L. R. Chatlod and Z.B. Dubal, 2011. Veterinary Public Health, New trends. Biotech Books, India
- Pedro, N. A. and S. Boris, 2003. Zoonoses and Communicable Diseases Common to Man and Animals. 3rd Edition. Pan American Health Organization. USA.



Protect the Ones You Love, Vaccinate Against Rabies

Awareness Walk & Vaccination Camp Against Rabies



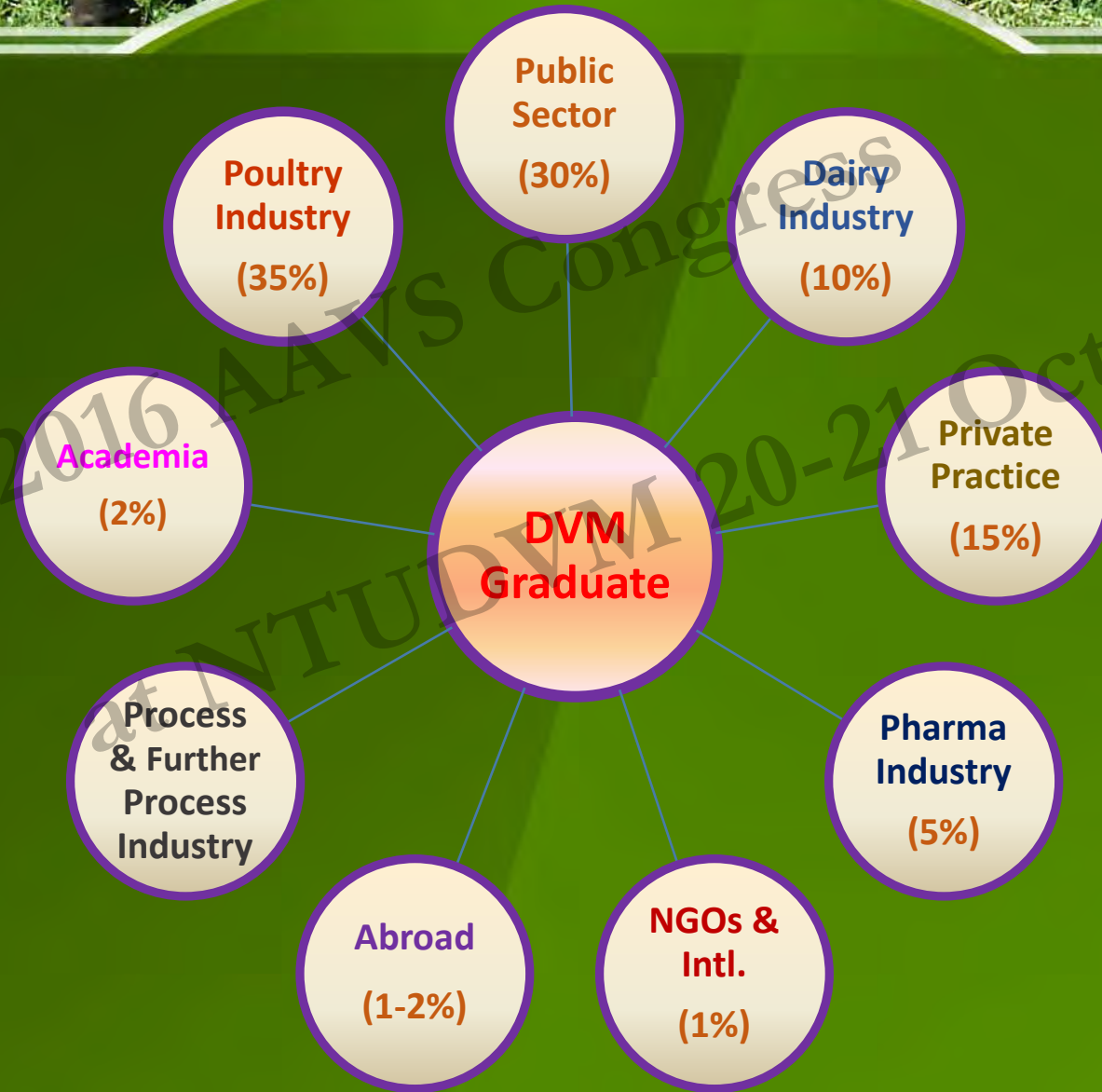
Courtesy:



NOVA

at NIPUN VVM 20-21 Oct.

Entrepreneurship & Expanding Job Market





OIE recommendations on the Competencies of graduating veterinarians ('Day 1 graduates') to assure National Veterinary Services of quality



Basic General Competencies



- **Basic veterinary sciences**
 - Taught early in the curriculum
 - Prerequisite to clinical studies
- **Clinical veterinary sciences**
 - Competencies necessary to diagnose, treat and prevent animal diseases
- **Animal production**
 - Includes health management and economics of animal production.



Advanced Competencies Outlined

- Organisation of Veterinary Services
- Inspection and certification procedures
- Management of contagious disease
- Food hygiene
- Application of risk analysis
- Research
- International trade framework
- Administration and management



Challenges in making DVM Curricula fully compliant to OIE Day 1 Competencies

- Over 90% of new DVM Curricula compliant to OIE Guidelines
- Deficiencies in awareness on topics like Certifications, registrations, local & Intl Veterinary laws & regulation
- Career-Ready, business-aware professionals at graduation, **skilled in business establishments of clinical practice**, etc communication and technological adeptness



Challenges

- Increased leadership and new knowledge required in **food security & safety, zoonoses, animal welfare, one health concept and globalization**
- Leadership in understanding the many **dimensions and influencers of diversity in society** (mindset)
- Interdisciplinary problem solvers, critical thinkers and leaders in **disaster management and public communication**



Issues in VEE

- Lack of any licensing examination
- No continuing education system at the time of renewal
- Scarcity of Senior faculty
- Insufficient faculty trained in subjects like clinical sciences, anatomy, meat & dairy technologies, disease diagnostics and use of herbal medicine
- Lot of efforts and capacities required to fully transform veterinary curricula to PBL, CBL, TBL
- Lack of Livestock Demonstration Farms and Controlled Poultry sheds at some VEE
- Lack of specific capacities in some VEE to make available equipment functional following lab management standards



Take Home Message

- Capacity building, curricula development and trainings in veterinary and animal science can improve quality of veterinary education in Pakistan
- Mindset Issues:
 - Resistance to change (Way Forward?)
 - ✦ Mechanism to attract animal oriented candidate students
 - ✦ Admission Policy
 - ✦ Societal pressure regarding status consciousness has wide variation in acknowledging and selecting different professions as under:
 - 1) Medical
 - 2) Dentistry
 - 3) DVM, etc



10th Position in HEC Sports Ranking





**Thanks & welcome for your
continued inputs & guidance**