

SRI VENKATESWARA VETERINARY UNIVERSITY
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VISION DOCUMENT- 2050

Foreword

The livestock sector comprising of animal husbandry, dairy and fisheries has immense potential to provide for food security and gain full employment to the ever-increasing population of the State. To meet the milk, egg and meat requirements of this huge population our vision should be directed towards increasing livestock productivity by increasing the percentage of high yielding crossbred/pure bred cows, graded Murrah buffaloes, increase the efficiency of utilization of crop residues, promoting intensive system of small ruminant rearing and increasing the meat availability from pigs, poultry, enlarge the area under fodder cultivation by making use of the waste and degraded lands, capacity building for advanced techniques in disease forecasting, disease diagnosis, alternative medical systems, quality monitoring etc. Our efforts will be further complicated by the global phenomena such as erratic seasonal conditions such as floods, drought, short fall in rain fall due global warming, increasing urbanization, shifts in the food preferences of the burgeoning middle class, decline in agricultural growth rate, conversion of precious cereal grains into bio-fuels, ban on exports of livestock feedstuffs etc.

Apart from the quantitative aspects, the future demand would be on the product quality, consumer choice, public health concern and environment protection. The feed situation will be bleak and there will be a great demand for energy and protein feed supplements and utilization of many natural resources. There will be a greater competition between human food and animal feed ingredients. Automation and intensive systems of production are inevitable and at the same time measures for sustainable production in the small holder livestock production systems is highly essential.

Preface

Andhra Pradesh is the fifth largest State in the country with an area of 275 Lakh sq.km, accounting for 8.4 % of India's territory and it is one of the agriculturally most advanced states in India with mixed crop-livestock farming as the predominant farming system practiced by over 80 percent of rural households in the state. The growth rate of the agricultural sector increased till the 1980s but it declined subsequently. In the first five years (2000-05) of this decade, growth of GSDP in agriculture was less than one per cent per annum. Within agriculture, the share of livestock has been increasing over time contributing to almost 85 per cent of the growth in agriculture. The State is home to the important Ongole cattle, Nellore sheep and Aseel breed of poultry. During the period from 2003 to 2007, there was an increase in the Cattle Population by 19.09% and buffaloes population by 23.25 % with crossbred cows and graded murrah buffaloes accounting for 61.69 and 86.06 % of the increase, a healthy portend for the future. The Sheep and Goat population increased by 21.53 and 49.77%, respectively while the Poultry increased by 23.27% between 2003 to 2007. The overall milk yield per day per Indigenous cow was 1.77 kg and that of exotic crossbred cow was 7.19 kg while in case of buffaloes it was 3.93 kg/day. Broiler poultry and sheep and goat continue to be major sources of meat while pig rearing is fast catching up particularly in the urban and peri urban areas.

By 2050, world human population would be close to 10 billion, of which 1.84 billion would be in India. Similarly, in Andhra Pradesh, the 5th largest populous State in the country the present population of 84.6 million would increase to 120 million. The situation calls for increasing the productivity of livestock, poultry and fisheries sector to ensure gainful employment to the rural masses, unemployed youth in the urban and periurban areas, planning for sustainable livestock production through capacity building for precision livestock farming and effective extension methods.

Sri Venkateswara Veterinary University, Tirupati, the 7th of its kind in the country with three Faculties i.e. Faculty of Veterinary Science, Faculty of Fishery Science and Faculty of Dairy Science, in this vision 2050 document attempts to project human resources development, targets for increasing livestock productivity in livestock and

allied sectors, policy initiatives to modernize education, research and extension methods for capacity building to be fully prepared for the envisioned scenario.

Existing Scenario on production and infrastructure

a. Animal Husbandry and Dairy

Bovines accounted for about 41 percent of the total livestock population, in 2003. Dairy activity is identified as a thrust area for increasing milk production. The landless, marginal and small farmers with operational holdings (< 2 hectare land) account for nearly 80 percent of the 12.6 million farming households and increasing milk production from these farm types could be an efficient way to improve rural livelihoods. AP is also the leading producer of poultry and eggs. It contributes to around 33% of eggs and 18 % of broiler meat in the country. AP has a rich livestock population, which offers good scope for the leather and leather goods industry. It is a major producer of hides and skins (10% of the country's total production). Having a long coastline, AP is also a leading producer of marine food products. An estimated 15% of total fish exports from the country is from AP.

Livestock resources

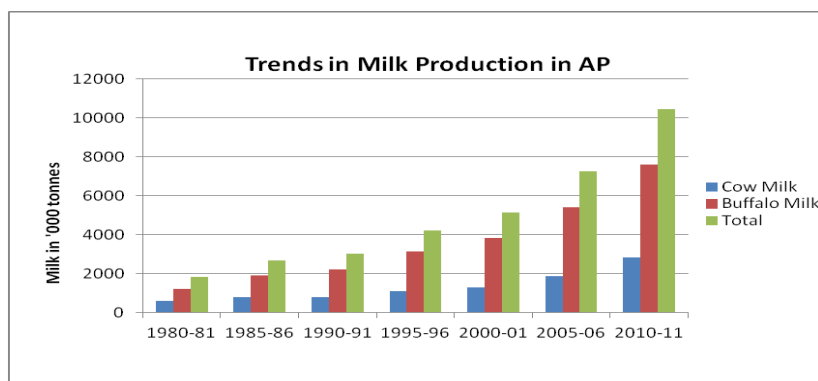
Andhra Pradesh is well known for its livestock wealth. The State has the world-famous breed of Ongole Cattle and Aseel breed of poultry which is the principle source for the development of broiler breeds in the world. Andhra Pradesh is also famous for SPS Nellore breed of sheep which is well known for quality mutton production.

As per 17th Quinquennial Livestock Census-2003 Andhra Pradesh stands first in poultry (1005.80 lakhs) and sheep population (210.15 lakhs), second in Buffalo population (107.68 lakhs), third in total Livestock population (482.20 lakhs), seventh in goat population (64.27 lakhs), and eighth in cattle (94.24 lakhs) and pig population (5.49 lakhs) in the Country.

Production

MILK

Andhra Pradesh is one of the pioneering states in dairying in India. In AP, milk is



considered as a single largest agricultural produce contributing to a total annual value of about Rs.25,000 crores. As per available estimates, AP stands at second position in the country with annual milk

production of 11.25 million tones during 2011-12 with a share of 8.5% of total country's output. The milk sector had shown high acceleration with the growth rate rising from 4.5 per cent to 6.7 per cent in milk production during the years 1980 to 2010. About 70% of the total milk output in the state is contributed by the buffalo population.

The per-capita milk availability of milk has increased by three folds growing from 109 gram in 1981-82 to 345 grams in 2009-10. The current per capita availability of milk in AP in 2011-12 is estimated at 364 g/day which is much higher than the national per capita availability but ranking only at 8th position in comparison with other states.

The share of cross bred cows, non-descript cows, buffaloes and goats is estimated at 1974, 1128, 8101 and 0.5 million metric tons, respectively. The average yield of milk per animal (Kg/day) during 2010-11 was 7.26, 1.92, 4.05, 0.10 for exotic/crossbreed cows, indigenous/Non-descript cows, buffaloes and goats, respectively.

MEAT

The meat production during 2010-11 was 747000 kg while wool production was 4832000 Kg. The average meat yield per animal was 103, 14, 13, 35 and 1.1 kg from buffaloes, sheep, goats, pigs and poultry during 2010-11.

EGGS AND BROILER MEAT

The poultry include chicken, ducks, quails, turkeys, guinea fowl and recently emu birds. Chicken industry, among poultry is one of the fastest growing segments compared to other segments in agriculture and allied sectors. So far with an average growth rate of 8-15 percent per annum, India is now world's 4th largest egg producer and 5th major producer of broilers. As per FAO statistical year book 2009 India produces 61.28 billion eggs and 2.24 billion broilers. As per ICMR, 180 eggs and 9 kg poultry meat is required per person per year. There is a large gap between the availability and requirements of poultry products. In turn the per capita availability is only 54 eggs and 2.8kg poultry meat. India's contribution to world poultry is nearly 4 % of eggs and 2% of chicken. Indian poultry and poultry product exports are meagre less than 2%. Poultry industry provides employment to 15 million people directly and indirectly and improves social, nutritional security and women empowerment. In addition, 2 lakh maize and 4 lakh soybean farmers also are benefited by the poultry industry by inclusion of these ingredients in poultry feed formulations.

Andhra Pradesh is popularly known as poultry basket of India and contributes to 25 billion eggs and 0.3 billion broilers per annum. Andhra Pradesh government has included the poultry sector as one of the growth engines for overall development of the state economy particularly agriculture and allied industry. At national level, poultry industry contributes to more than Rs 60,000 crores to the GNP.

INFRASTRUCTURE

(i) Animal Husbandry

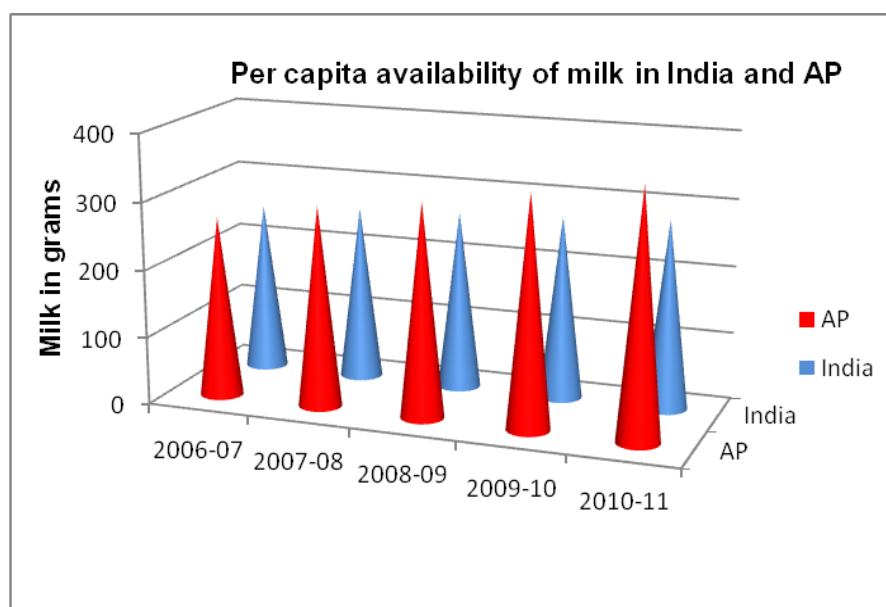
AP state has 303 veterinary hospitals / polyclinics, 1826 veterinary dispensaries and 3152 rural livestock units, 4 semen production canters, 19 frozen semen barrels ,8320 AI centers, and 6 cattle breeding farms, one buffalo breeding farm, 3 sheep breeding farms , one duck hatchery, 16 milk processing factories,256 liquid milk plants.

Besides there are 5 research stations on sheep, 1 research station on pigs, one on poultry, two research stations on buffaloes, two on Ongole cattle, one on Punganur cattle and three fisheries research stations under the University. There are 10 Animal Husbandry Polytechnics, 1 Fisheries Polytechnic under the University control to produce Diploma holders in Animal Husbandry and Fisheries.

Projections for the future

Dairy

The milk production is targeted to reach **15 million tonnes by 2020**. Considering the pace of population growth and surge in demand for the protein rich drink, the state needs to step up milk output to **31.0 million tons by 2050**. The State has to concentrate on the milk sector in the next three decades for several reasons



The state has only a total milk processing capacity of over 6 million LPD thus leaving about 68% of milk produced untapped by the organized sector. Out of 32% of milk handled by the organized sector, about 14% is only handled by co-operative sector and thus leaving 18% of milk to the private sector. There are only about 47 registered milk processing plants functioning in AP in both co-operative and private sectors.

In terms of Research and Development, a limited research on development of technologies for producing new and novel dairy products is being undertaken by the University since its inception in 2006. Some of noteworthy research outcomes are the development of probiotic yoghurt, probiotic shrikand etc. The University does not have a separate Research and Development Center for catering to these needs.

Poultry

As per the present rate of per capita egg consumption in the country, the estimated egg numbers would reach 147 billion by the year 2050 i.e 2.5 times the present egg number. Further to meet the ICMR recommendations of per capita egg consumption (180), the egg production would be expected close to 331 billion i.e nearly 5 times of the present egg number. Hence there would be many fold increase in production of eggs and similarly poultry meat. Among the livestock industry, Poultry sector is going to be further fine tuned for production of enhanced protein at reasonable and cheaper prices. Hence a great thrust on improving poultry productivity is needed in the years to come.

- Poultry component will be one of the main growth engines for developing the nation particularly our state. It is going to enhance the income generation, employment potential, nutritional, social security and women empowerment.
- There is an increased demand for animal protein. Poultry meat and egg is a cheaper commodity among the other animal protein sources.
- Increased demand for poultry feed. Poultry feed comprises largely maize and soybean meal for energy and protein sources. Deficiency of energy feedstuffs might result. Alternate cereals like sorghum and other millets may enter to substitute maize. Protein feedstuffs are mainly oil extracted by-products. There is a great demand for the soybean meal due to its protein quality. Other protein feedstuffs may come in commercial feed formulations on least cost basis with supplementation of feed additives like enzymes, amino acid supplementation. Looking at future, poultry feed requirement warrants improvement of digestibility, use of exogenous feed enzymes to improve utilization of carbohydrates and proteins.

- Amino acid nutrition is going to play importance due to the need for proper balance of essential amino acids in poultry feeds for egg and broiler meat purpose. Synthetic amino acids presently used are lysine and methionine. But the usage of other amino acids such as threonine, tryptophan, leucine, valine and isoleucine will improve the protein quality, reduce nitrogenous excretions from the bird and reduce environmental pollution. Future dependency on amino acid nutrition is at large to make the least cost feed formulations.
- Nutritional requirements of the birds will change greatly due to enhanced growth and egg production pattern of the birds. Nutrients that require to maintain health and immune status of the birds for increased production and to combat stress conditions of the bird including environment to be worked out. Enhancement of nutritional value of poultry products with phytochemicals, nutraceuticals will be looked for making designer eggs and meat for the consumer demand. Hence, research and management is highly required on these lines to improve the value of products and to get proper remuneration.
- Highly competent and huge number of human resources is required. Need for strengthening of Poultry science education, trained manpower at graduate and post graduate level.
- Commercial poultry farm size might be not less than 10 lakh birds due to which many small farm size holdings either may shift to diversified poultry or vanish from the poultry farming.
- The environmental concern will be more on poultry installations for reducing fly menace, emission of toxic gases namely carbon dioxide, methane and nitrous oxide. There is need for development of technologies for better utilization of poultry waste
- Radical changes in poultry housing infrastructure will be needed in future. Presently automation is introduced to feeding, watering in many farms. In future entire operations run on turnkey basis including egg collection and manure collection and its drying. Environmentally controlled houses would be required to address the welfare of birds due to the climate change.
- Need to change or impose policies by government for protection of environment in and around the poultry installations.

- Increase in commercial poultry growth may not be sufficient to meet the increased demand for poultry products. In turn huge growth of diversified poultry is anticipated for consumer preference for the village chicken, ducks, small turkeys and emu etc for largely meat and to some extent eggs also. Hence strengthening of diversified poultry including rural poultry will be the criteria for overall improvement of the poultry products.
- Organic poultry production practice by the farmers would be encouraging because of the consumer demand for organic farming products especially to avoid antibiotic /pesticide /toxin residues
- Countering new and re-emerging diseases to tackle better health and to sustain global exports is highly essential. Vaccine production must be reoriented to vector based for safety.
- Encouragement of Processed meat, and development of poultry products and value addition is forecast.

THE ROADMAP FOR 2050

Livestock sector

Manpower: There are 2651 sanctioned posts that require graduation as minimum qualification and 5064 posts of para veterinary staff in the AP Animal Husbandry Department. Besides there is a huge requirement for the private poultry sector, pharmaceutical industry, dairies etc. The National Commission on Agriculture (1976) recommended one Veterinarian for every 5000 cattle heads. Accordingly, the State should have 6500 Veterinary graduates. The out-urn has increased from 115 during 2006-07 to 203 during 2010-11 where as the intake has increased from about 180 during 2006-07 to 297 during 2011-12. Hence, the total number of admissions have to be increased to at least 400 in the coming years.

Dairy technology

Sri Venkateswara Veterinary University is the only institute catering to the needs of AP in technical manpower generation needed by the co-operative and private dairy industry with an intake of 55 per year and average annual output of B Tech graduates is about 40.

Poultry sector

- Trained man power needs will be huge. There will be huge requirement of para-technical and technical people as workers, supervisors and managers. For this, there is a need to establish certificate courses in poultry production and BSc poultry Science (4-year) degree program. Establishment of Centre of Excellence in Poultry with targets on research and manpower development is highly essential.

EDUCATION, RESEARCH AND EXTENSION

(a) Livestock and Animal Husbandry

Hence, to enhance the productivity of native animals and to augment feed supply action plan on the following aspects is needed.

- Animal identification and Field Performance Recording
- Interventions for productivity enhancement (Breeding, nutrition, health, management and extension)
- Increasing the efficiency of AI for cross breeding and upgradation of non-descript buffaloes
- Conservation and improvement of indigenous cattle and buffalo breeds
- Applications of biotechnology in forage crop improvement need to be implemented in network mode to break the barrier of limited available diversity of various crops and absence of desirable traits.
- More emphasis is needed on forage and food forage based cropping systems under rain fed situation.
- Research on post harvest technologies for efficient post harvest handling, processing, conservation, transport and storage of livestock products
- Fodder bank particularly in drought and flood prone zones of the country.
- Considering the importance of crop residues in livestock feeding, there is a need to understand nutrient profile along with harvest index of various improved and widely adapted varieties of food crops in the State
- Understanding rumen ecology and manipulating rumen environment for improved nutrient utilization in feeding systems to reduce and manage CH₄, N₂O and NH₄ emission should be attempted to make livestock production eco-friendly.
- Rejuvenation of common property resources for fodder production, Integration of fodder production with crop production, Quality control of feed and feed ingredients and Prevention of adulteration of feed ingredients and Augmentation of compounded feed industry.

- Preparedness to overcome adverse climatic conditions like drought or floods
- Disease surveillance, reporting & disaster management need to be improved.

The unorganized sector that accounts for more than 50% of total production and handles more than 77% of the milk marketed should be made to conform to the food laws for hygienic milk production and supply. Efforts should be made for efficient milk marketing, price spread and competitiveness by ensuring remunerative prices to the poor milk producers by involving private dairies and milk co-operatives.

Encourage growth of organized private sector which handles about 14% of the surplus milk. Multinational and National companies with potential for investment should be encouraged for investment promotion, better price spread, process innovation including in the areas of procurement & processing & product development for niche segments.

Major health schemes have to be initiated for ensuring the maintenance of disease free status and compatibility with the standards laid by the Office International des Epizooties (OIE) - World Animal Health Organization to prevent ingress of diseases into the country and also to promote trade in livestock and livestock products.

(b) Poultry sector

- University Poultry curriculum needs to be updated with the changed scenario like developments in the area of poultry production
- Infrastructure development in the university Poultry Science education and research farms need to be geared up as per the technological advancement
- Training programs to be taken up for the development of capacity building of teachers either in India or abroad according to the need based.
- Research farms to be strengthened with multi-disciplinary approach, applied research, need based innovations for addressing the problems of poultry farmers. Collaboration with line departments and other research organisations to be taken up.
- Poultry research Institute needs to be set up and develop linkages with line departments, private poultry industry to address the priorities of the poultry research there by help the farmers of state

- Breeding strategies to be evolved for the turkeys, guinea fowls and emus for enhanced performance. These are the new areas in the University for developing a commercial bird for higher returns.
- Emu farming is popular in our state contributing 75% of country's emu presently with over 6 lakh birds reared all over A.P for its high value of meat, fat and skin. Government has identified diversified poultry as emu at our centre during 12th five year plan. The immediate attention of this species is to develop breeding strategies, bird processing and technologies to render oil from fat and to explore market opportunities. The University can develop linkages with various institutions for addressing the above problems.
- Quail farming is popular in our state; University has done considerable research on development of meat type quails for higher body weight 190 g at 6th week age with 2.8 FCR. There is a great demand for these birds. Further improvement of quails is required to enhance the body weight
- Andhra Pradesh contributes 1/3rd of country's poultry produce. In future the environmental problems need to be tackled. Government policies for better environment in and around poultry are required. University has already developed the technology to process poultry waste for biogas and bio-energy production. Popularisation of the technology through public private partnership is to be taken up.
- Feeds and feeding is the priority area to make bird more efficient in food conversion to meat and eggs. Research needs to improve nutrient utilization; minimizing nitrogen excretions, better health care and disease prevention are the important areas.
- Strengthening of backyard/rural poultry. The University has already developed 'Rajasree' egg type bird suitable under rural harsh conditions. There is a great demand for the germplasm.

Priority areas of poultry research

Poultry research is dynamic and needs to be reviewed based on the needs and location specific. Application of research, innovations are largely target oriented and must be sustainable. Presently identified research priorities are

- The genome research, Identification of genes for genetic variation in production and functional traits of poultry along with environment is highly warranted.
- Recent development in the area of nano-technology and its application in poultry nutrition, healthcare, and product development is note worthy. Application of this technology will bring about radical changes in poultry farming
- Research areas required in development of diversified poultry are with respect to genetics and breeding of guinea fowl, quail, emu and turkey.
- Fermentation technology and microbial quality assurance of Poultry meat needs to be taken up for its preservation and public health concern.
- Designer eggs and meat production is required for change in the consumer preference and their demand.
- Research on poultry housing and management is essential for efficient poultry production since the biological requirements vary over a period of time
- Global climate change, its effects on poultry are going to be addressed in terms of nutrition, management, housing and healthcare and welfare also
- Understanding poultry welfare and enhancing the bird capabilities in the context of animal ethics and welfare much research is required.
- To improve the overall productivity of eggs and meat there is also a great dependency on improvement of rural/backyard poultry. This not only addresses the productivity increase but also the problems of rural people. A strategy for development and sustainability of backyard poultry production is highly required.
- Healthcare of poultry is always required and in changing production and climate scenarios addressing the issues of health through diagnosis and proper immunization is essential.
- Poultry waste utilization and improving the environment. Technologies for developing environment friendly utilization of poultry waste for biogas and bio-manure production and reduction of dependency on conventional energy.
- Marketing strategies needs to be addressed. Importance to processed meat, development of poultry products and value addition.

Role of the University

Sri Venkateswara Veterinary University was established by an act of the State Government and has been with Tirupati as head quarters from 1-4-2006

Profile

Mandate

The objectives of the University among others are to impart education in different branches of Veterinary, Dairy and Fishery Sciences, to undertake the extension of such sciences to the rural people of the State of Andhra Pradesh , to promote research in production and post-harvest technology including processing and marketing in Veterinary, Dairy and Fishery Sciences.

Mission

The mission of the University is to facilitate sustainable growth and development of livestock and allied sectors by building competent human resources for generating and developing scientific know how, situation specific, cost effective and easily adoptable technologies.

The University shall work for

- Improving the quality enhancement of education in Veterinary, Dairy and Fishery sectors in order to produce competent graduates and post graduates to increase livestock wealth and to benefit livestock farmers, fish farmers and processing industries.
- Enhancing the productivity and profitability of livestock and fisheries under different farming systems of the State with emphasis on natural resource planning and environmentally sustainable management practices.
- Intensifying basic and applied research in the areas of animal and fish production, health and management to tackle the existing and emerging situations.
- Developing appropriate strategies to tackle the future disasters affecting livestock welfare by forecasting based on scientific knowledge.

- Suggesting timely livestock development policy initiatives for the state of Andhra Pradesh.
- Attaining expertise and efficiency in the application of Biotechnology and other cutting-edge technologies for improving livestock productivity.
- Post harvest handling and value addition to livestock, dairy and fishery products.
- Developing cost effective livestock farm machinery, equipment, renewable energy sources etc.
- Develop appropriate human resources to meet the future demands at the State and National level

Institutions of the University:

♣ Veterinary Colleges	: 04
♣ Dairy Technology institutions	: 01
♣ AH Polytechnics	: 10
♣ AICRP on Pigs	: 01
♣ Livestock Research Stations	: 07
♣ Veterinary Hospital, Visakhapatnam	: 01
♣ Krishi Vigyan Kendra	: 01
♣ Centre for Continuing Veterinary Education and Communication	: 01
♣ State Level Disease Diagnostic Centre	: 01
Total	: 27

Affiliated Institutions of the University

• AH Polytechnics	: 12
• Dairy Processing Polytechnic	: 01
• College of Dairy & Food Technology	: 01

Total : 14

Academic Programmes

The University offers the following educational programmes:

(1) UG programmes:

- Five-year Bachelor of Veterinary Science & Animal Husbandry (B.V. Sc & A.H)
- Four-year B. Tech (Dairy Technology)

(2) PG programmes in Veterinary and Dairy sciences.

(3) PhD programme is offered only in Veterinary Sciences

(4) Two-year Diploma in Animal Husbandry

Research

The University has a wide network of livestock and fisheries research stations that cater to the research activities aimed at evolving solutions to issues faced by farmers and conduct of basic and applied research for improving livestock productivity and increasing economic returns to the farmers and thus to the State.

Extension

The University has two Krishi Vigyan Kendras, well developed extension education departments in all its constituent colleges besides of a net work of research stations spread all over the state for extension activities for dissemination of knowledge to farmers, entrepreneurs and industry.

2. SWOT analysis

a. Veterinary Science and Animal Husbandry

STRENGTHS

- Renowned, reputed. viable educational, research and extension institutions of national and international repute.
- Availability of livestock population, land and natural resources.

- High standards of education and research linking with globalization.
- Increasing dependency on animal husbandry
- Committed scientists and dedicated employees in the organization.
- Planned policies and established protocol support from government and line departments.
- Uniform curriculum, merit-based admissions and good employment opportunities
- Strong demand for Veterinary education

WEAKNESSES

- Shortage of man power (technical/ non-technical)
- Unequal distribution of human, geographic, demographic resources through out the state
- Inadequate / non-uniform infrastructural facilities at different institutions.
- Poor linkages between institutions and industry.
- Lack of ultra modern facilities for disease diagnosis and monitoring.
- Sluggishness in bringing out fruits of research to farmers doorstep
- Poor relationships among different scientific organizations.
- Inadequate use of information technology
- Lack of private sector participation

OPPORTUNITIES

- Great demand for manpower in livestock sector, dairy, poultry and meat industries.
- Growing requirement for inputs in veterinary and animal husbandry sectors.
- increased importance to profession due to globalization and diversified activities.
- best opportunities due to its pivotal role in augmenting nations economy and GDP
- Potentiating employment opportunities.
- Changing scenario in education, research, and extension fields demanding collaborative and multidisciplinary approach to each and every problem providing opportunities to all for animal / human welfare.

THREATS

- Competition for land fodder feed and water between animal and human kind.
- dilution of quality of education and research due to increase number of institutions.
- Injudicious development of institutions, recruitment of staff, production of students without sufficient exposure leads to standards depreciation.
- unprecedented man power man power leads to unemployment
- ecological imbalance between animals and human leading to spread of diseases.
- gaining importance to corporate sector in all aspects due to globalization leaving aside development, and welfare programmes.
- Low impetus on continuing education

b. Dairy

Strengths:

- Availability of established educational institutions needed for technical manpower generation
- Increasing demand for technical manpower in processing, quality assurance and research and development due to upcoming new dairy plants in public and private sectors. The expected demand will be 300 graduates per annum in Andhra Pradesh.
- Increasing scope for nutraceutical /pharmaceutical milk foods due to increasing health conscious consumers
- Need for creating state of art quality and food safety analytical laboratories to meet the industry needs due to opening up of international markets due to liberalized trade in dairy sector
- Increasing availability of unlimited natural but non-conventional energy resources

Weaknesses:

- Under staffing of educational institutions
- Lack of qualified and trained manpower to serve the dairy industry in analyzing the dairy products for legal requirements

- Inadequate infrastructure for monitoring the dairy products for their safety
- Limited availability of nutraceutical/pharmaceutical or designer milk foods for meeting the health conscious consumers
- Non-availability of cheaper, proven and viable technologies for harnessing the non-conventional energy resources

Opportunities:

- Enormous human resource demand in terms of qualified and well-trained graduates with dairy processing, quality and safety monitoring capabilities in view of increasing involvement of multi-national companies in dairy sector
- Establishing GMP/GLP compliant testing laboratories with biosafety facilities for augmenting the export worthiness of dairy products
- Opening avenues for the use of cheaper alternative non-conventional energy resources to replace high cost and depleting conventional energy resources
- Changing life styles and earning capacities coupled with modern days stress and strain necessitating the availability of health promoting nutraceutical or designer milk foods

Threats:

- With increase in demand, indiscriminate and mushrooming of institutions for technical manpower generation leading to underemployment or unemployment.
- Decreased availability of liquid milk due to diversion of the same for value added milk products by MNCs
- Scope for manufacture of nutraceutical/pharmaceutical milk foods with false or exaggerated health benefits or claims

3. SVVU 2050:

a. Objectives

The main objectives behind the establishment of the SV Veterinary University are to impart education in different branches of Veterinary, Animal and Fishery Sciences including super specializations and continuing education; to undertake the extension of such sciences to the rural people of AP; to promote research, field and extension programs, production, post-harvest Technology including processing and marketing, to attract external funding in the pursuits for excellence in research and to tackle the existing and emerging production, health and management situations of field and effective transfer of technology to the farmers and industry

b. Goals

- **Short term**
- To strengthen teaching research and extension activities in Veterinary, Fishery and Dairy Sciences in the state
- To impart quality education in different branches of Veterinary, Animal and Fishery Sciences and effective implementation of VCI regulations and IV Deans committee recommendations in case of Fishery and Dairy undergraduate education
- Attract external funding in the pursuits of excellence in research
- To strengthen extension programmes and effective transfer of technology to the farmers and industry
- To promote production and post-harvest technology including processing, marketing and value added services to the industry
- To strengthen human resource in faculties and improve the faculty competence
- Establishment of electron microscope unit at the main campus
- Initializing the Faculty exchange programme and collaborative programmes with ICAR and with overseas Universities

- Strengthening of Colleges of Veterinary Sciences as per VCI norms and upgradation of Dairy Technology programme into college
- **Long term**
- Super Specialization in clinics, bioinformatics and biotechnology
- Continuing Education
- ISO certification of the University
- Standardization of artificial insemination in sheep
- Conservation of Ongole, Deoni and Punganur breeds
- Value addition of animal products and introduction of Hazard Analysis and Critical control point (HACCP)
- Strengthening Animal disease monitoring, surveillance and forecasting
- Immunodiagnosics and development of vaccines for viral diseases of animals
- Introduction of e-learning in veterinary education

4. Strategic framework

A. Veterinary

Sri Venkateswara veterinary university Tirupati a pioneering university committed for development of livestock sector will shoulder the responsibility of animals and farmers welfare, meeting national and international standards out reaching farmers doorstep with the strategic plans in following thrust areas achieving goals. The University will adopt administrative reforms wherever necessary

EMPHASIS ON EDUCATION

- Exchange of students
- Enhancing student amenities & communications skills
- Need based practical oriented education with innovative teaching methodologies, restructured with ever changing curricula, uniform academic programmes, providing hands on training.
- offline/ online education utilizing class room, library, research institutions facilitating equal opportunities

- multidisciplinary education, collaborative research with allied subjects.
- extending horizons by educational exchange programmes.
- stress free professional education with quality, dignity and managerial skills.
- inclusion of biotechnology, Nanotechnology, bioinformatics, management, intellectual property rights, communication skills, personality development components for all types of people.
- Starting of PG diplomas in distant mode
- Establishing of centre excellence in Animal Nutrition and Diagnostics

THRUST AREAS OF RESEARCH

- Genetic improvement of local livestock and conservation of native germplasm
- Development of diagnostic kits and vaccines
- Super specialization in clinical sciences
- Development of alternate system of medicine like herbal and ethno veterinary formulations
- Enhancing reproductive efficiency of livestock
- Value addition to livestock products
- Production of transgenic animals
- Disease surveillance
- AI in sheep, enhancing production in sheep and goat
- Establishment of Fodder banks
- Promotion of backyard poultry
- Utilization of local feeds and fodder resources
- Establishment of mobile veterinary clinics

IMPORTANCE ON INFRASTRUCTURAL FACILITIES

- State of art common instrumentation facility in all the colleges
- Uniform infrastructural facilities

- Development of model class rooms, instructional farms, disease diagnostic units, buildings, library, play ground, canteen, internet facilities, central instrumentation facility
- Establishment of biosafety labs, P³, P⁴ lab facilities with state of art equipment
- Establishment of super speciality clinical facilities like Computed tomography, Magnetic Resonance Imaging, Pet scan for disease diagnosis

EFFECTIVE EXTENSION STRATEGIES

- Establishment of centre for continuing veterinary education and veterinary technical and information centre including press
- Establishment of extension centres at district headquarters reaching close to farming community fulfilling ambassadorial activity between university and farmers.
- Documentation, digitalization and dissemination of information received and transferred between farmers and university.
- Development of field-based trials, hands on training, short term courses to farmers, veterinarians, and scientists.
- e- extension services in animal husbandry activities.
- Popularization of lab to land programmes.
- Involvement of self help groups, and non voluntary organizations
- Institute village linkage programmes

HUMAN RESOURCE DEVELOPMENT

- Conceptualization of HRD activities in livestock sector
- planning man power recruitment and resource management.
- recruiting and training of suitable personal and monitoring working style of implementing policies of university/ government for effective functioning.
- conducting regular re fresher courses for different levels of people in organization.

- Preparing specialists in frontier areas of Research

TECHNOLOGY TRANSFER

- Transfer of technology/developments in the field of animal husbandry sector to the farmers level for experimentation and use.
- standardization of technology and patenting the same.
- Use of latest information technology, Nanotechnology, biotechnology for the cause of animal welfare.
- commercialization and entrepreneurship taking the advantage of technology.
- Modifications in technology based on feed back by field level trials.

B. Dairy

The following strategies would be adopted to accomplish vision 2050 towards achieving better productivity, quality control etc.,

- Establishing new educational institutions keeping regional balances for tapping the enormous potential existing locally
- Increasing the intake capacity of students of existing educational institutions
- Creation of sufficient faculty positions and requiring the well qualified staff for imparting effective learning and acquiring practical skills
- Creation of additional and sophisticated infrastructure to meet the emerging novel technologies
- Establishing state level center of excellence for creating R & D facility to meet the growing demands of the industry in frontier technologies
- Establishing GMP/GLP compliant laboratories with much needed biosafety facilities
- Reorientation of academic programmes and teaching methodologies and course curriculum for imparting quality education for generating competent human resource to address the emerging technology driven challenges
- Establishing linkages or collaborations with foreign universities for better exchange of new technologies

- Building academia and industry relationships to orient the education and research to face day to day challenges in real time scenario
- Conducting interactive meetings with milk producers, industry people for effective dissemination of transfer of technologies
- Establishing training facilities to guide, train rural entrepreneurs (unemployed youth or women self-help groups) with futuristic approach while utilizing the untapped or surplus milk in villages.

III. Linkages:

1. In view of the expansion of fisheries developmental activities in the future, development of able and competent manpower force to man and manage teaching, research and extension and related positions in this sector is going to assume greater significance. Management of aquatic resources and problems related to diseases out break and pollution of aquatic bodies require highly professional specialists in the near future. Therefore, long term linkages need to be established and maintained with institutions and agencies of national and international repute.
2. The Dean of Fishery Science, with the support of the Associate Dean of the College will look after overall coordination of the activities of the institute.

IV. Critical Inputs:

1. **Funding:**
 - i. Revenue generation through consultancy projects, training programmes, sponsored projects and revolving fund schemes.
 - ii. Regular budget from plan and non plan schemes
 - iii. Establishing new educational institutions region wise, for tapping the enormous potential existing locally

2. Manpower:

- i. Existing vacant post in the faculty of fishery science shall be filled up on priority basis.
- ii. In addition, 8 Professor posts and 8 Associate Professor posts and 12 Assistant Professor Posts are required under the faculty of fishery science.
- iii. Linkage of fisheries colleges and fisheries research stations with various national and International organizations for qualitative and quantitative improvement of the faculty.
- iv. Providing opportunities for the faculty to visit national and international institutions of improving their academic excellence in teaching.

3. **Equipment:** For improving academic and research programmes, the institutes needs to be provided with latest equipments.

Information on technology generation and inputs

1. Technologies already commercialized:

- ♣ Released a dual purpose colour bird (**RAJASRI**) for meat and egg production suitable for backyard poultry.
- ♣ Released **ILR 90 Jubilee**, a high feed conversion efficient layer strain of poultry.
- ♣ Released two synthetic broiler rabbit breeds, **APAU Fawn** and **APAU Black**

2. Technologies absolutely ready for commercialization:

- a. Probiotic Yoghurt
- b. Probiotic Lassi
- c. Complete feed preparation including machinery
- d. Expander extrusion technology for improving utilization of crop residues and other poor-quality livestock feeds
- e. Vaccine against Blue tongue disease
- f. Embryo transfer technology
- g. Technology for environmental friendly disposal of poultry droppings for biogas and bio-manure was developed. Biogas based brooders; flame gun and incinerator were developed to reduce the dependency on conventional energy sources.



Poultry litter based Multi-stage high rate bio methanation plant

h. Biogas based poultry equipment: Poultry farm requires considerable energy for various purposes. Biogas generated from poultry litter waste can be used as thermal and electricity generation. Biogas based poultry equipment namely **(40 cft/hr), flame gun (60cft /hr) and incinerator (100 cft/hr)** developed to reduce the dependency on conventional energy like LPG gas, electricity etc. This prototype equipment can be up scaled and commercially used for poultry farm operations.