EIGHTH ANNUAL CONVOCATION

JANUARY 17, 2013

Convocation Address

Dr. K.N. Nag

Former Vice Chancellor
Rajasthan Agricultural University
Bikaner

JUNAGADH AGRICULTURAL UNIVERSITY
JUNAGADH - 362 001 (GUJARAT)

Convocation Address by the Chief Guest

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Her Excellency, the Governor of Gujarat and the Chancellor of Junagadh Agricultural University, Dr. Shrimati Kamla; Shri. Babubhai Bokhiria, Hon'ble Minister of Agriculture, Co-operation, Animal Husbandry, Fisheries, Cow Breeding, Water Supply and Water Resources (except Kalpsar), Government of Gujarat; Dr. N. C. Patel, Hon'ble Vice Chancellor, Junagadh Agricultural University; Dr. R. L. Shiyani, Registrar, Junagadh Agricultural University; Vice Chancellors of various Agricultural Universities of Gujarat; Members, Board of Management; Deans of various faculties, University Officers; Members of Academic Council; invited dignitaries; faculty members, degree recipients, students of various faculties, representatives of the media, staff of Junagadh Agricultural University, ladies and gentlemen. I am honoured and delighted to be here on this important occasion.

I deem it as a matter of privilege and honour to deliver the 8th Convocation Address of Junagadh Agricultural University at Junagadh. The University has established itself not only as a centre of imparting quality

agricultural education, research and extension education but also as a catalyst and transformer of agriculture in Saurashtra region. I heartily congratulate students for the degrees and awards conferred. I also congratulate their learned teachers and the staff of this University who provided an enabling environment to the students for achieving academic and personality development. I am sure, in the years to come, it would reach greater heights in imparting high quality education in agricultural sector, undertaking the need based research programmes by addressing the region specific realistic problems of farmers on participatory mode and by transferring the relevant technology to enhance the farm income and the livelihood status of the farming community and thereby improvement in rural milieu.

The JAU has to its credit number of varieties of important crops of the region. These varieties are further developed and tested rigorously at the testing/verification research centres of the University as well as on the farmers' fields under different agro-climatic conditions. Some of the varieties are very popular and has increased the crop production in this State as well as in the country. In addition to crop varieties, the University has developed numerous techniques in all the relevant fields of agricultural sciences. It is also a matter of great pride that the students of this University are excelling in different competitions, academic and extracurricular activities.

The annual food grain production has been around 245 million tonnes, over 17 million tonnes pulses and 34 million tonnes oilseeds. The livestock and fisheries sector contributed 121.84 million tonnes of milk, 63.02 billion eggs, 42.99 million kg wool, 4.83 million tonnes of meat and 8.29 million tonnes fish. The Economic Survey 2011-12 has shown that the Agriculture including allied activities, accounted for 14.5 per cent of gross domestic product (GDP) in 2010-11 as compared to 14.7 per cent in 2009-10. As per the International Trade Statistics 2011, of the World Trade Organization (WTO), India's agricultural exports amounted to US $ 23.2 billion with a 10.47 and 1.7 per cent share of domestic exports and world trade in agriculture, respectively, in 2010. The average annual growth in agriculture and allied sectors realized during the first four years of the 11th Plan Period, i.e. 2007-08 to 2010-11, is 3.5 per cent against the targeted growth rate of 4 per cent whereas the long term growth of the sector which is around 2.8 per cent. Given the growth rate of population, rising income levels and shifts in the consumer preferences towards processed and value added food, the rise in demand for food is but natural. The demand for food items, especially of animal origin, such as milk and milk products, egg, fish, meat and vegetables both in rural and urban areas is increasing. Therefore, attaining and maintaining a higher growth in agriculture is not only essential for the national food security but also for an inclusive growth.

Today, agriculture is facing decline in availability of land and water in terms of both quantity and quality. Our approach to agriculture, therefore, needs to be redefined in context of this changing scenario. Increased production will require enhancing productivity levels of existing resources. It is for this reason that there is growing consensus for launching a Second Green Revolution in the country. The First Green Revolution was almost confined to irrigated areas. Forty per cent of the total food production is from dry land farming, which also supports about 40 per cent of the population. More technologies are needed to give impetus to the agricultural growth in the rainfed agro ecosystems. Resource Conservation Technologies (RCTs) integrated with frontier technologies of remote sensing, GIS, GPS and micro-processor based variable rate application technologies result in very efficient agricultural production systems. Further, the precision farming techniques maximize returns to the farmers in agricultural and allied sectors and also it brings out quantifiable changes in production and productivity, thus economically uplifting the farmers. The farmers can be empowered with the precision farming technologies and related advisory services can be extended to the needy.

According to the Planning Commission and National Commission for Integrated Water Resources Development (NCIWRD), irrigation should be treated as

an infrastructure development project and conservation of water should receive top priority. The NCIWRD has estimated the water requirement for irrigation in agriculture alone at 734 BCM (billion cubic metres) by 2025 A.D. To meet the requirements of food grains alone, the net sown area (presently 142 M ha) will have to be increased to 144 M ha and the cropping intensity (presently 135%) to 175 per cent by 2025. The percentage of irrigated area to gross cropped area (at present 39%) will have to be raised to 55 per cent. The ultimate irrigation potential of 140 M ha (75.9 M ha from surface water and 64.1 M ha from ground water) has been planned to be achieved by 2050. Therefore, "water and not land will be a limiting factor in the future agricultural and economic growth of the country" and the slogan "More Crop per Drop" should be our pragmatic approach. In addition to supply side management such as modernising irrigation & drainage, rainwater harvesting & tank rehabilitation and the demand side management such as micro irrigation, water institutions for sustainable water extraction and use including pricing irrigation water and power, water governance are crucial.

The challenge of climate change has been receiving attention both at domestic and international levels. With climate change, the type, frequency and intensity of extreme events like floods, droughts and storms are expected to increase and also likely to alter the

host-pathogen relationship including emergence of new pests and diseases. Thus, climate change represents additional stress on ecological and socio-economic systems that are already facing tremendous pressure due to spreading urbanization, industrialization, rural-urban migration and other such phenomena related to economic development. The adaptation and mitigation strategies would have to include identification of appropriate germplasm, crop varieties to cope-up with extreme weather events, crops and varieties with low water requirements and input conditions, soil and water management, conservation agriculture, organic farming, energy use efficiency and livestock management to reduce the impact of climate change on productivity and to decrease the GHG (Greenhouse gases) emissions. Hence, addressing climate change is a major challenge in terms of policies and resources needed to address it at domestic and international levels.

Organic farming enhances biodiversity, protects our fragile soils, improves the nutritional quality of food, ensures high standards of animal welfare and provides increase in employment in rural areas. At the same time, organic farming reduces green house gas (GHG) emissions and fossil fuel energy use, cuts nutrient and pesticide pollution and stops potentially harmful pesticide residues entering our food chain. Organic farming builds resilient farming systems capable of combating climate

change and securing local food supplies and is highly effective in sequestrating carbon.

Enhanced productivity from the conventional cropping systems has not necessarily yielded higher profits in most areas. This is due to increasing prices of inputs, not commensurate with the prices of farm produce over the years. Therefore, there is a need to diversify and suggest alternative cropping systems, which are more productive as well as profitable and sustainable in the long run. The cultivation of high-value crops including horticultural crops such as vegetables, flowers and also spices needs to be taken in specific situations. Such endeavours should necessarily take into account marketing and export opportunities.

Integrated Farming System (IFS) approach as a biophysical and socio-economic capsule has immense potential to address instability of income, food and nutritional insecurity, unemployment, vulnerability and poverty of small and marginal farmers as well as landless labourers. An IFS involving crops, fruits, vegetables, dairy, poultry, inland fisheries, goat/sheep rearing, apiculture, sericulture and organic farming by minimizing the use of chemical fertilizers and pesticides is a profitable, sustainable and eco-friendly agriculture which needs to be practised by each and every farmer. Diversification and selection of alternate but complementary enterprises would ensure optimization of

resources, recycling of farm residues, minimizing risks and generation of employment. More emphasis is required to generate IFS models suited to various farm size holdings in different agro-climatic conditions.

Today, it is estimated that the degraded soils of India is 63.85 m ha constituting 20.17 per cent of total geographical area of the country. It reminds us that we have not taken care of our soil resources properly. We need to dwell upon this issue because the average food grain productivity of our farmland in the country is only 1715 kg / ha. Can we afford to increase the productivity of the crops if the quality of our land continues to get degraded like this even if new varieties with higher potential are produced?

Plastics have become indispensable not only in industries but also in agriculture due to their unique intrinsic and versatile characteristics and amazing number of applications. The use of plastics in agriculture is commonly referred to as, "plasticulture" and the agricultural applications of plastics are varied. These include its applications in crop production and agricultural machinery/implements, water management and irrigation (storage, conveyance and application of irrigation through micro-irrigation systems, farm pond/canal lining, mulching), drainage (smooth and corrugated perforated pipes), protected cultivation (greenhouses / nethouses / polyhouses / low tunnels), post harvest processing

machinery, storage and packaging of agricultural / horticultural produce / products, material handling, livestock sheds and buildings, tapping, storage and utilization of renewable sources of energy, etc. which are so vital for improving the income and living standard of the farming community. Therefore, it is no wonder that plastic is considered as one of the important means that could be instrumental in leading agriculture to a second phase of revolution.

Timely availability of quality seeds to the farmers is the need of the hour. The JAU has given utmost importance to quality seed production of important crops of the Saurashtra region and technology transfer to the farming community adopting the Seed Village Concept with University-Farmers linkages. In the coming years, it would be extended to all crops of the region. It is heartening to note that on top priority, the University has set up a Mega Seed Unit and also infrastructural facilities at different centres. The achievement of the University in seed production and distribution is quite commendable considering the short period of time after it has come into existence.

Fragmented holdings, increase in input prices, reduced ability of farmers to invest in future growth, lack of proximity to output markets, asymmetric information and reduced investment by public sector have resulted in decline in profitability of agricultural enterprises. In the

long run, growth in agricultural productivity can be sustained only through continuous technological progress. It is essential to give importance to both basic and applied research in agriculture. It is equally important to ensure that the results of research percolate to the lowest echelons of the farming sector. There is an urgent need to take fruits of technological advancement to grassroot level as well as build a strong feedback system which is crucial to set priorities at research station levels to make our efforts more effective to respond to the local requirements. Unless agricultural production and productivity are improved and markets integrated ensuring remunerative prices to the producers, we cannot make agriculture an attractive vocation. There is an immediate need for a vibrant, dynamic and innovative approach to be adopted for agricultural extension to achieve the targeted growth rate and serve the farmer better.

Gujarat has rich wealth of domestic livestock and the sector is contributing significantly to the economy. The AMUL model of co-operative movement for milk production is already well recognized. Prominent buffalo breeds of Gujarat State are Jaffrabadi, Surti, Mehsani and Banni. Jaffrabadi breed is known for its milk with high fat. Gir breed of cow is also a pride of Gujarat. It is the livestock which provides sustenance to reduce the impact of draught.

Livestock production is a livelihood securing activity for more than 70 per cent of the rural population and it plays important role in the socio economic structure of our country. The production and productivity of the animals is often constrained because of disease and other health related issues. The control of major diseases of economic importance in endemic areas needs effective diagnostics and vaccines at an affordable cost.

Adequate availability of feed and fodder for livestock is very vital for increasing their production and sustaining the ongoing genetic improvement programme. The estimated green fodder shortage in the country is about 34 per cent. About 60 per cent of our net sown area is still rainfed that incidentally houses a large number of domesticated livestock. The potential of rainfed areas has not been fully utilized and targeted development of rainfed areas needs to be taken up on priority.

The state of Gujarat is bestowed with the longest coastline in India (1600 km), 33 per cent of the continental shelf area (1,64,000 sq. km) and over 2,00,000 sq. km of Exclusive Economic Zone (EEZ) and ranking second among the maritime states in marine fish production. Apart from being a maritime state, it has rich inland and brackish water resources in the form of rivers, reservoirs, village ponds and vast stretches of marshy lands all along the coast. Out of total 3,76,000 ha of coastal land, 89,341 ha of land spread across 10 coastal districts is found

suitable for brackish water aquaculture. During the year 2010-11, the total marine production has been recorded as 6.89 lakh tonnes whereas the inland fish production during the same period has been 0.86 lakh tonnes. Out of this production, 1.42 lakh tonnes have been exported fetching ₹ 1442 crores as foreign exchange. Research efforts are required to assess the impacts of climate change, especially on marine fisheries. Efforts are required for promotion of businesses venturing into value-added fish product developments. New hatcheries for major carps and freshwater prawns need to be established.

Agricultural education is needed to be harmonized with existing and emerging issues related to WTO and free market economies. Worldwide, agriculture is becoming competitive price-wise and its produce acceptable quality-wise. Price and brand equity have become more prominent than before. Indian agriculture is no exception and its objectives have to align with stakeholders' needs, clients' perspective, peer concerns and market vibes. Greater infusion of frontier science subjects (biotechnology, nanotechnology, precision agriculture and information and communication technology), have become more important to promote efficiency, awareness, equity and competitiveness in agriculture.

The demand for agricultural human resources has

shifted from public to private sector. According to a recent study of human capital requirements conducted by the National Academy of Agricultural Research Management, Hyderabad (NAARM), the share of various segments by employment during 2010 is: 33 per cent in government, 44 per cent in private,10 per cent in financial, 4 per cent in research and academic, and 9 per cent in others. The major shifts are due to freezing employment in government and expansion of opportunities in the private sector, and emergence of commercialization and diversification. The study also shows that there are substantial gaps between the demand (2020) and supply of manpower in agriculture and allied sciences to the tune of 50 per cent. The existing education system produces about 24,000 graduates per year of which two third are in crop sciences stream. The projections indicate that by 2020 the annual out turn required would be about 54,000 that would require substantial trained manpower to achieve targeted growth.

Dear friends, while wishing you all the best in life, I would like to share with you that for your generation living in an environment of stiff competition, time is most precious thing in the world. Not even a single minute of your life should be wasted. All your time should be utilised in pursuits of development towards intellect and mind through worthy action. The basic idea of acquiring education should be to see beyond obtaining degrees.

You should develop within yourself discipline, humility, truthfulness, respect for others, and spirit of service to society and confidence and courage. I would also urge upon the learned teachers to serve as the real inspiration for students by virtue of their own actions that combines practice with precept.

Dear students, remember, education is a life time process and graduation is a milestone in the journey of learning. The Manusmruti says that the pupil obtains one quarter of his learning from the teachers, another quarter from his own intelligence, the third quarter from association with fellow-students and the remaining quarter in course of time. Remember, excellence is a journey and not a destination. One of the Subhashita states that even having learnt the sciences, one remains a fool unless he applies them effectively. The well thought out medicine will not cure any ailment by its mere mention. The aim of education is to prepare young minds to accomplish given task with more accuracy and perfection. The perfection is the hallmark of science.

I wish all yours dreams of fulfilment come true. I urge all of you to be sincere and rigorous in your pursuit of agricultural knowledge and serve the humanity with dedication. You should play a catalytic role by blending the best of frontier technologies with traditional wisdom and bring fame to this university and your alma mater. I would like to conclude with two quotes of Dr. S.

Radhakrishnan, former President of India and a world renowned educationist, which have message for the teacher and the taught. He felt that "Unless we have dedicated and committed teachers to take teaching as a mission in their lives, a good educational system cannot be developed." He also said that 'The greatest gift of life is the dream of a higher life.' I feel our youth have to work for the society, especially the weaker sections, to enable them to realize their dreams and give meaning to their life.

Before concluding, I would again like to mention that learning is a continuous process and that the learning process must be a harmonious blend of academic excellence and human development. Do not restrict it to the portals of your University. In fact, the real learning begins as you go out into the world. You will discover many things and know the world from a close quarter. You will realize that the life has many more dimensions than what you had thought of. Combine your knowledge with professional experience to face successfully the challenges that lie ahead. I wish you a happy future and glorious life.

I thank the University management for giving me this opportunity to be with you on this occasion, share my views and interact with our promising agricultural experts.

JAI HIND