Third Annual Convocation

27th February, 2008

Convocation Address
by the Chief Guest

Dr. S. P. Tiwari
Deputy Director General (Education)
Indian Council of Agricultural Research
New Delhi

॥कृषिमूलम् जगत् सर्वम्॥

Junagadh Agricultural University
Junagadh

JUNAGADH AGRICULTURAL UNIVERSITY, GUJARAT

THIRD ANNUAL CONVOCATION

Convocation Address by the Chief Guest

Dr. S. P. Tiwari
Deputy Director General (Education),
Indian Council of Agricultural Research, New Delhi

His Excellency, the Governor of Gujarat State and Chancellor of Junagadh Agriculltural University, Shri Nawal Kishore Sharmaji, Guest of Honour of today's function, Shri Dharmabandhuji, Shri Vaidik Mission Trust, Pransla; Vice Chancellors of Agricultural Universities, Deans of different faculties, Members of the Board of Management, Academic Council, invited dignitaries, recipients of degrees and medals, students of various faculties, representatives of media and press, ladies and gentlemen.

I am grateful to His Excellency, the Chancellor and Vice Chancellor of Junagadh Agricultural University for inviting me to this auspicious function and to deliver the third Convocation Address of this university. It is my privilege and pleasure to be in the land of the Father of

Nation Mahatma Gandhi whose contribution and character continue to inspire every young nationally and globally. I pay my deep homage to that magnanimous soul.

Gujarat has produced several eminent national leaders like Sardar Vallabhbhai Patel - the Iron Man and Unifier of India, Shri K. M. Munshi - a real visionary and educationist and Shri Morarjibhai Desai - a man of high moral values and principles. Gujarat has also given spiritual leaders like Shri Dayanand Saraswati. The distinguished space scientist and father of space research Shri Vikram Sarabhai, is the pride of Gujarat.

The profession of agricultural R & D and related management is approved by many scriptures especially Vedanta. It states in Taitriya Upanishad that one should multiply the grain/seed and that enhancing the grain/seed production is an aim worth pursuing.

अन्नं बहु कुर्वीत । तद् व्रतम् ।। तैतरीयोपनिशद, नवम अनुवाक् ।।

ICAR-Agricultural University System of our country has admirable plurality and breadth. Junagadh Agricultural University, as a component of this system, has made an appreciable progress in the field of higher agricultural education and research. The Gujarat State

occupies acclaimed ranks in the productivity and production of several crops at the national level, i.e., first position in castor, groundnut, cotton, isabgol, fennel, potato; second in *bajra*, cumin, onion and third in mustard. I compliment farmers, researchers and policy makers of the State for having realized this progress.

On this occasion, let me reiterate the commitment of the ICAR for bringing about and enhancing the overall quality and relevance of higher agricultural education in this country through effective partnership among and collective wisdom of the components of the ICAR-AU system. The Council would continue to provide performance-linked support, with appropriate financial discipline, to AUs.

Universality of the Higher Agricultural Education:

The word 'University' is derived from the Latin word 'universe'. India had some of the oldest and universal seats of learning or universities namely, Takshashila (in at least the 5th if not 7th century BC), Nalanda (one of the earliest universities of India dating back to the 5th century) and Vikramshila (in late 8th or early 9th century A.D.). Takshashila as stated by Radha Kumud Mookerji in his book entitiled '*Ancient Indian*

Education: Brahmanical and Buddhist', "exercised a kind of intellectual suzerainty over the wide world of letters in India." Thus, university should not be understood as creating narrow domestic walls of regions and states and country albeit respecting the motherland above all. Inbreeding should not be encouraged. Higher education should be characterized by its national and international dimension, interactive linkage, networking, mobility, exchange of teachers and students, and collaborative national and international research projects. I have been told that Junagadh Agricultural University has initiated efforts for international collaboration. While some foreign universities have opened their campus in India, several Indian universities have made efforts to enhance their global visibility by obtaining ISO standards and attracting foreign students. ICAR contemplates to provide Overseas Fellowships for this purpose in the XI Plan. The Council would further encourage faculty/ student exchange and reduce inbreeding depression.

Converting Job-seekers into job-providers :

Entrepreneurship is important for achieving inclusive growth and development. There is a tremendous scope for entrepreneurship in agriculture. Entrepreneurship development generates employment,

produces a variety of goods and services, brings about inclusive growth, and makes the education practical, effective and well directed. Agricultural Universities should undertake specific training/HRD for entrepreneurship development.

Emphasis should be laid on realizing a confluence of knowledge, skill and attitude, the three realms of pedagogy. The knowledge and skill will be permanently ingrained into learners' repertoire only when they start putting them to continued use. The experiential learning cycle (comprising the experiencing, processing, generalizing and applying) has to be gone through. Towards this goal, the ICAR has embarked upon development of experiential learning units in AUs. It aims to develop a cadre of highly skilled professionals who can create their own enterprise. It is aimed towards enabling to learn all aspects of enterprise management so that the graduates have complete understanding of field problems, production, product development, processing, marketing etc. with an end-to-end approach. Knowledge alone is not enough. In our philosophy also, wisdom is placed higher than knowledge.

Fisheries and Aquaculture:

Food security should not be conceived in terms of field and horticultural crops and other terrestrial sources alone. Time has come when we will have to do the 'Samudra Manthan' **(leqnz eaFku)** and utilize water-bodies and sea increasingly for the purpose. Aquaculture is the fastest growing food sector in the world with an annual growth rate of over 8 per cent. Gujarat is one of the richest states in the country in terms of fishery resources. With a coastline of 1,600 km, the state is the top producer of marine fish (around 6 lakh tonnes). The state has enormous potential to increase fish production from mariculture and coastal aquaculture (potential area, 376,000 ha). Further, a variety of inland fishery resources such as reservoirs (2.86 lakh ha), lakes (12,000 ha) and ponds (71,000 ha) exit in the state that can be harnessed to increase fish production, generating both employment and earnings through export.

Gujarat has made appreciable progress especially in terms of brackish water shrimp aquaculture. However, more efforts are required for the commercialization of brackish water and freshwater fin-fish aquaculture. There is a need to develop suitable technology for culture of commercially important brackish water fin-fishes in

coastal saline lands. Research in fish biotechnology and fish biodiversity also requires prime attention.

The fisheries sector has been recognized as a powerful income and employment generator besides a major contributor to foreign exchange through export of marine products. The fish processing industry in India has made rapid strides during the last four decades. The phenomenal growth of industry has enabled the country to increase its export earnings from only Rs. 4.13 crores in 1961 to Rs. 7245.30 crores. There is a scope to improve and update the post harvest technology to increase the level of processed seafood in the export basket. Nevertheless, retention of domestic markets is a new challenge thrown by globalization. Domestic sector is still sizable and is not be neglected. There is a great scope for introducing technologies in the distribution, preservation and storage of fish and fish products meant for indigenous consumption.

Post Harvest Management of Agricultural Produce and Products:

The Green Revolution embodied the process of "seed to grain", as Late Shri C. Subramaniam stated, whereas the second green revolution should be "soil to

seed; seed to grain; grain to food; and food to marketing". Accordingly, produce has to be converted into products. The country has a lot to offer for food processing industry. India is one of the world's largest producers of agricultural commodities such as milk, tea, coffee and also a large producer of fruits and vegetables, sugarcane, cashew nut, poultry products etc. Only about 2.2 per cent of the total production of fruits and vegetables in the country is processed presently. In fisheries, only about 10 per cent of the total fish caught is processed for exports, which can be potentially increased many fold. Agriculture in Gujarat contributes 20 per cent of the Net State Domestic Products (NSDP). With a contribution of 67 per cent castor seed and 36 per cent cumin seed, Gujarat ranks first in the world production of these commodities. Gujarat has the highest productivity in fennel seed, isabgol and banana. Besides these, mango, sapota, groundnut, mustard, sesame, tobacco and herbs are also produced. These altogether have great potential for the state from the processing point of view.

Estimated value additions to the raw food materials through primary and secondary/tertiary processing in India are about 75 per cent and 25 per cent respectively. Thus, primary processing has a greater role

to play in enhancing the economic benefits to the farmers. The post-production losses of the farm wealth are enormous. About 10 per cent food grains and 25-40 per cent fruits and vegetables are wasted, as the food produced is not processed in the catchment areas. Agro-processing is now regarded as the sunrise sector of the Indian economy in view of its large potential for growth and likely socio economic impact specifically on employment and income generation. In order to assure remunerative price to the growers and processed products to consumers at an affordable price, development and application of appropriate post-harvest technology in production catchments is needed by establishing rural agro-processing centre owned and operated by targets beneficiaries, individually or collectively. A large number of unemployed youth in the rural areas could be trained and induced to take up these simple, low cost yet profitable agro-processing activities. The primary value addition on or near the farm can provide employment and discourage the migration of people from rural to urban areas. The universities may serve as a model for demonstration and emulation by undertaking processing and adding value to their own produce rather than selling it as mere raw product.

In order to produce specialty varieties and quality products, the new tools are to be used not only for research purpose but also for production at farm level. Farmers already have several modern dairies and controlled environment production systems. These need to be extended and expanded. Transgenics, diagnostics and molecular marker assisted improvement of crops, animals and fisheries are the approaches being followed for accelerating overall agricultural growth. Similarly, other cutting edge technologies like nano-technology, use of bio-sensors, controlled crop and animal production etc. need to be promoted.

For processing and related aspects, technologies such as alternative sterilization, pasteurization, and preservation are to be developed in order to promote better-packaged food quality and a safer food supply. The advance processing technologies available such as high-pressure processing, pulsed electric field processing, ozone technology for food processing and Ohmic heating of foods are to be increasingly used. Methods and kits are also needed for rapid detection of food-borne pathogens particularly microbes, and contaminants in the food.

While using the new tools of science, issues such as biosafety and bio-security and overall interests of the farmers are to be concurrently addressed. Sanitation and phyto-sanitation has to be ensured at the internationally accepted levels.

Functional Foods:

We have to move from produce to 'Functional Foods' that have components such as glucosinolates, anthocyanins, zeaxanthin, lycopene and isoflavones. The intention is that people should eat foods and not chemicals to help prevent diseases and to be healthy. For example, tomatoes with lycopene, a disease-fighting antioxidant, have been developed. A new study, however, suggests that a special variety of orange-colored tomatoes provide a different from of lycopene, one that our bodies may more readily use. Similarly, isolated compounds, called glucosinolates, from broccoli sprouts may fight bladder cancer. Phytochemicals viz. lutein and zeaxanthiun, abundant in leafy green vegetables such as kale, spinach, and collard greens, reduce damage brought on by ultraviolet light that can cause cataracts. Crops such as broccoli, black raspberries, spinach, tomatoes and soybean are being worked upon for this purpose.

Restoration of Land Capability:

The low productivity is mainly associated with soil related constraints. These include acidic, saline and alkaline nature of soils needing amelioration, undulating unleveled topography, inadequate depth, low organic carbon, multilevel macro- and micro-nutritional deficiencies, ingress of sea water and biological activities. Balanced fertilization alone is a major concern that calls for comprehensive and integrated interventions both at policy and implementation levels. Soil health/ quality is a threshold desideratum for system productivity and stability in agriculture. I am happy to learn that AUs particularly of Gujarat have realized this and have started helping farmers in this regard.

Biodiversity and Deep Ecology:

India is among 12 mega biodiversity countries and 25 hot spots of the richest and highly endangered eco-regions of the world. The accelerated loss of biodiversity components over the last few decades has been a great concern. Climate change, over exploitation, habitat loss and above all the increased human activity are among the major causes of biodiversity loss.

We have to live with the nature and all its

components with inter-relatedness. Mahatma Gandhi has said that the nature can take care of our need but not of our greed. Dr. Sarabhai, an illustrious son of Gujarat and India, stated and I quote:

> "A biological system lives only as long as it receives and gives to its environment. This mutuality of all living systems with the environment imposes the need for interdependent existence".

In our country, biodiversity is integrated with religion. We follow 'deep ecology', as Arne Naess of Norway calls it. The doctrine of Dependent Origination i.e. 'Pratitya-samutpada' (प्रतीत्य-समुत्पाद) of Buddhism also favours 'deep ecology'. All things arise independence upon conditions. 'Deep ecology' is eco-centric in contrast to ''shallow ecology' that isanthropocentric or human-centred. Climate change and its threats are presently conceived in view of reducing the damage and increasing the benefits as related to human beings. 'Deep ecology', in contrast, does not separate humanity from nature. There is an inter- dependence. Nature is like a web of life (after the physicist Fritjof Capra) with all strands interconnected. The 'Shallow Ecology Movement' is the 'fight against pollution and resource depletion', the

central objective of which is 'the health and affluence of people' whereas the 'Deep Ecology Movement' endorses 'biospheric egalitarianism'. 'Deep' environmental ethicists propose that the natural environment is worthy of protection, because it has an independent (actually affecting all) value regardless of its usefulness to humanity. Let us cease to think parochially in terms of our benefits only as this cannot be sustainable. Let us internalize this fact that our thinking and acting should always be in tune with the nature. Let us have an orientation towards togetherness in our endeavours.

ॐ सह नाववतु । सह नौ भुनक्तु । सह वीर्यं करवावहै ।

तेजस्वि नावधीतमस्तु । मा विद्विशावहै । ॐ षान्तिः षान्तिः षान्तिः ।। कठोपनिशद ।।

Nothing Remains Unchanged

The universe is not static. It is dynamic. If one does not evolve accordingly, one would lose his/her relevance; one could, then, eventually lose one's existence too. It is to be remembered that, as Charles Darwin the naturalist (1809-1882) stated, it is neither necessarily the mighty nor the most intelligent ones who survive and flourish but those who are capable of evolving and modifying themselves as per contemporary and emergent needs, do.

A real student is one who is self-motivated, undergoes continuous self-revival and becomes a lifelong learner.

A Meaningful Life Ahead:

Dear students, the challenges before you are immense but so are the opportunities. You have to increase not only the productivity and production of agricultural systems through a system-wide approach but also to enhance overall farm prosperity. That will give your endeavours a purpose and a meaning. A meaningful life is always better than a mere successful life. I wish you not only a successful but also a meaningful life ahead.

"JAI HIND"