NAVSARI AGRICULTURAL UNIVERSITY
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SIXTH ANNUALCONVOCATION ADDRESS

BY

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VENUE: UNIVERSITY AUDITORIUM
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Her Excellency, the Governor of Gujarat and Chancellor of Navsari Agricultural University, Dr.Kamlaji; Guest of Honour and Honourable Minister of Agriculture Shri Dileep Sanghaniji and Honourable Vice-Chancellor Dr. A.R.Pathak; august members of Board of Management and Members of Academic Councils; esteemed guests; representatives of press and electronic media; dear students; Ladies and Gentlemen;

I deem it my proud privilege to participate in this momentous occasion and deliver the Convocation address of esteemed Navsari Agricultural University of Gujarat. Friends, Convocation day is forward looking, it signifies obstacles, overcome goals attained and personal growth. The world opens up ahead of you and you re-enter with even greater aspirations than when you came in. Today's convocation is more special as the challenges are much more complicated in the midst of a fiercely competitive world. I am aware that your University is well recognized at National and International level due to its outstanding performance. I compliment all those who have been associated with this University for their contribution in making it one of the foremost Institutions in the country for agricultural education, research and extension education. I also

congratulate all the students those who have received gold medals and degrees today. They are indeed privileged to have studied in this prestigious institution.

The University has demonstrated its strength and quality expertise in teaching, research and extension in agricultural sciences. The students of this University have excelled in performance both co-curricular and curricular activities. How lucky you are to study in this pristine area of South Gujarat where our Father of nation Mahatma Gandhi started his salt satyagrah.

In a short span of five years the University has released number of varieties viz. **Sugarcane** - Gujarat Sugarcane 4, Gujarat Sugarcane 5, Gujarat Sugarcane 6; **Cotton** - G.Cot Hy. 12, G.Cot. 20; **Pigeon pea** - G.T.102, Vaishali; **Paddy** - NAUR-1 & GNR-2; **Sorghum** - GJ 42, CSV 21 F (Fodder sorghum at National Level) **Banana** - Grand Naine; **Nagli** - Gujarat Nagli 4, Gujarat Nagli 5; **Indian bean** - Gujarat Wal 2; **Black Moong** - Gujarat Black Moong 1 and **Vari** - Gujarat Vari 2. University has made a significant contribution in areas of Drainage technology, Watershed development, Low cost green house techniques, Micro irrigation,

Irrigation Scheduling, Biofertilizers, residue analysis, organic farming, Biocontrol, and PHT. This has certainly benefited the farmers of Gujarat in general and South Gujarat in particular. I wish the graduating students will become university ambassadors to further the interests of the institution and create technology awareness amongst the clientele of Gujarat.

Gujarat no longer competes with the rest of India but with China instead. As per the data from Central Statistical Organization, the growth rate of the state GDP from 2002 till date has been an average 12.80 %. That's as good as China's and way above the Indian average of 7.7% or even Gujarat's own past performance of 3.52 % per annum from 1997 to 2002. The proudest achievements for Gujarat in the last decade has been astonishing 9% rate of growth of agriculture per annum, which is three times the national average. This could be attributed to the dynamic leadership of Hon. Chief Minister Shri Narendra Modi along with his cabinet colleague Hon. Minister of Agriculture Shri Dileep Sandhaniji and his team including scientists of state agricultural universities who took additional pains to transfer new techniques directly to the farmers

through annual Krishi Mahotsav and innovative steps for soil health card, Jyotirgram Yojana and steps for water conservation etc. which puts Gujarat on forefront in agriculture.

Value addition is poor in our country which is only 2% as against developing countries. Therefore there is an urgent need to pay more attention so that the farmers could get better price for their produce. I learnt that NAU has done excellent work by preparing various products viz. paper, candy, textile, vermin-compost and liquid fertilizer from banana Pseudo-stem (a waste). I congratulate VC and his whole team of scientists for this work. Work started under PHT will be of great importance and I am sure results of this research will be of great importance and I am sure results of this research will be more useful to farmers of Gujarat and country too.

Degrading natural resources, falling productivity and rising cost of cultivation, regional imbalances, lack of storage facilities, post-harvest losses, limited value-addition and poor marketing infrastructure are focal points in view of globalization of agriculture in general. In addition, this part of South Gujarat suffers from Coastal salinity, water logging, soil erosion; mineral toxicity and nutrient

deficiency are threatening agricultural production, posing challenges even to sustain the current productivity.

Progressive steps have been taken by the Government of Gujarat to strengthen agriculture of the state through a series of regional Krishi Mahotsavs, water harvesting and conservation programmes, Jyotirgam, Soil Health Card System, RKVY, Krishi Vigyan and Farmers Training Centers etc. Thrust is being given to convert the state particularly the southern Gujarat Zone into an export zone because of the horticultural, marine, crop diversity wealth that is present here. Special thrust is also being given to post harvest technologies, product development and product diversification and cutting down the post harvest losses.

The World Summit on Sustainable Development in Johannesburg (2002) declared water as the most critical resource in the twenty-first century with increasing demands and diminishing supplies. In India, per capita availability of water is declining progressively over the years owing to increasing demands of burgeoning human and animal populations. And also because of irrigation needs of crop-plants, that would continue to be the major

consumer of water; though its share would reduce by 10-15% by 2025 due to competing demands from domestic, industrial and energy sectors.

The sheer momentum of the deals worth Rs.20.83 trillion signed during the recent Vibrant Gujarat summit is expected to carry over the galloping changes in the economy of the state in next few years. However, to boost agriculture business we need students who are capable of dealing with economic and environmental aspects of modern husbandry, dairy technology, fisheries, horticulture, vegetables and flowers cultivation, primary processing, loss-free storage and food preservation, sericulture, maintenance and custom-hiring of farm machinery and seed and nursery propagation. High-tech agriculture including precision agriculture and organic farming are seen to offer a vast potential to create productive, profitable and stable employment in agriculture.

It is expected that present population of 115 crores will rise to 134 crores by the year 2020. This will demand 256 million tons of food grains comprising of 234 millions of cereals, 22 millions of pulses and the demand of edible oil would be 11 million tons. There

is no possibility of area expansion and it is to be attained through increased agricultural growth rate of at least 4 % per annum. In this process of agricultural development, trained human resource constitute an important factor. The real wealth of a country is not its material wealth, but it is its people.

To meet these challenges, the academic programmes have to be flexible and modular based. The reconstruction of course curricula should essentially facilitate cafeteria approach. The reorientation of mind set of farm graduates can be brought out only by innovative changes in curricula and courses. In all applied areas among business and financial management should be added to the disciplinary training to give the graduates self confidence, essential for embarking a career of self employment. This is possible through knowledge and skill development programme.

Without solid support from agricultural scientists and technologists, it would be impossible for us to achieve production targets, whatever other measures you might take. However, there is a widespread feeling that there has been any real big breakthrough in agricultural technologies since the green revolution

of the late 1960s. This is a real challenge to our agricultural universities and agricultural scientists.

India commands about 2.3 per cent of the world's land area and about 4 per cent of the earth's fresh water resources, but feeds about 17 per cent of the world's population and in future days makes the need for newer and better technologies even more critical. Nearly 25% of the Indian population (302 million) is below the poverty line. Out of this, 73% are in the rural areas and remaining 27 per cent are in urban. The population below the poverty line in urban areas is on the increase due to migration of destitute from villages to cities. This has serious implications on feeding the cities and food security of urban people, urban poverty and environment. It is, livelihood security and consequently rationalizing migration to the cities. Agricultural production in the country is mainly mixed farming with livestock keeping as an essential component. The livestock has been found to have significant contribution in raising the income per unit area and also to reduce the poverty and hunger. It has been found that an addition of one cow or one buffalo to the assets of the farmer reduces the hunger by 16 and 25%, respectively. Therefore, the livestock sector should receive higher priority with multiple

objectives of diversifying the agriculture, raising income and meeting the nutritional security of the poor farm households.

The characteristics feature of the Indian agriculture is production by masses. Majority of the farmers (86.80%) are small, marginal and medium who cannot afford high input intensive and mechanized agriculture. The productivity level is low and is not cost effective. Farmers are seen deviating from farming. At present, fallow area is on the increase, as the farmers cannot afford to cultivate. Total fallow area increased from 23.36 m ha in 1990-91 to 26.04 m.ha in 2003-04. It is also noteworthy to state that the number of cultivators decreased from 71.9% in 1951 to 51.76% in 2004 and the number of agricultural labourers increased from 28.1% in 1951 to 45.6 % in 2001. It shows that the farmers are going away from farming. It is therefore, necessary to organize these small farmers in a co-operative chain on the lines of milk co-operatives. They also need to be given viable technology backup, empowering them with knowledge of technologies and interventions for smooth and quality input supply, irrigation, power, credit, information of development schemes and proper guidance at all levels of production and marketing.

Besides food security, nutrition security is very important. A countrywide diet survey shows that Indian diets are qualitatively more deficient in vitamins and minerals than proteins due to low intake of foods like vegetables, fruits and foods of animal origin. More than 70 per cent preschool children consume less than 50% of the recommended amount of iron, vitamin A, riboflavin and folic acid. Although significant progress in horticulture, dairy and fish production has been made, it has not reflected in the diet of the poor. Through co-ordinated efforts between different organizations and by breeding highly nutritious and fortified foods, it would be possible to solve the issues of food security and malnutrition at the same time.

Ecological and agricultural sustainability go hand in hand. The soil is one of the most wonderful ecosystems of the world. A balance needs to be worked out between conserving biodiversity on the one hand and increasing food production on the other. Towards this end, we need to adopt an appropriate agricultural cycle with precision farming so that the nutrient cycle in the soil is maintained. *In situ* and on-farm conservation of biodiversity should, therefore, be an important factor in our interventions for enhancing agricultural production.

Proactive advice to farmers based on weather forecast, market information and management information is necessary to protect the farmer from vagaries of nature and market fluctuations. Establishment of weather forecdast centres network, remote sensing facilities, market intelligence centres, agribusiness centres, internationally acceptable certification centres, etc. are needed for effective and need based agricultural production and in turn, for economic survival, of the farmers. Further, special efforts are required to develop appropriate technologies to predict and manage the disasters like floods, droughts, cyclones, etc. Effective and reliable information and communication systems, contingency planning, mobilization of technologies and resources are a must. Experiences of other countries in prevention and management of the disasters should be shared.

The revolution in information technology and telecommunication has made the global agriculture more knowledge intensive and competitive. It has provided new opportunities for employment and income generation, productivity gains and increased flow of investments in sustainable agriculture and rural development. Efforts must be made to strengthen the informatics in

agriculture by developing new databases, linking databases with international databases and adding value to information to facilitate decision making at various levels. Development of production models for various agro-ecological regions to forecast the production potential should assume greater significance. Using remote sensing and GIS technologies, natural and other agricultural resources should be mapped at micro and macro levels and effectively used for land and water use planning, as well as agricultural forecasting, market intelligence and e-business, contingency planning and prediction of diseases and pest incidence.

The public investment in agriculture has been declining and is one of the main reasons for decrease in productivity. The investment in R and D is just 0.34% of agricultural GDP. The operational support has not kept pace with overall trends. The share of State system in total R & D has consistently declined over the past four decades. There is need for a separate agriculture budget. Private investment in agriculture has been very slow, which needs to be stimulated through appropriate policies as nearly 70% of Indians still live in villages. Agricultural growth will be the major factor for economic growth and rural development. Increased investments are,

therefore, needed in agricultural research, education and extension activities, conservation of natural resources, reliable and timely supply of quality inputs, development of post harvest and value addition technologies and processing chain development, credit support, information and telecommunication development and illiteracy alleviation. Efforts are required to attract private sector investment in R & D by providing tax concessions, collaborative research and extension, strengthening regulatory mechanism, especially IPR and quarantine facilities to promote technology acquisition etc.

Dissemination of improved agricultural production technology for enhancement of the agricultural production is one of the functions of the agricultural Universities. The extension education part rests with the Agricultural Universities whereas the actual transfer of technology programme are with the state departments. This programme, in spite of strong network of technology transfer, is not effectively implemented as could be seen from very low rate of technology adoption (30%).

We must innovate on extension models and specifically integrate the needs of farm households so that the farmers get the

latest information about an array of technologies. The Agricultural Universities and the ICAR system should come forward and develop successful public private partnership (PPP) models in extension of agri-related services involving their graduates, which later can be replicated by the public and private systems.

We also need a system that transfers the improved technologies to our farmers smoothly and without delay. We need to create an appropriate information technology network through which our farmers can have information on crops and varieties, best practices, market prices, demand and supply gaps etc.

Dear students, after graduation most of you persue higher studies, pupil who have completed higher studies will only search for job. Here, I feel that at least 25 % of the graduates should settle with their own business oriented agriculture to become job providers than job seekers.

India produces only 35 thousand agricultural graduates including M.Sc and Ph.Ds although it is an agrarian country where agriculture provides employment to 60% of rural population. If you compare the number of the graduates who come out in engineering probably Gujarat state alone produces more than 1

lakh engineers every year. What a dismay it is? When agriculture is the foremost important entrepreneurship of the country there is no talent and required manpower entering into the system. In medical and engineering there are para professionals to provide services like diploma, IIT's and other certificate courses. But in agriculture this is hardly there. Here, I am happy to note that your University has diploma courses for producing middle level technicians & skilled people for providing services to agriculture. Agriculture is being looked after as a profession which can be done by even illiterate also. As it is climate dependent, it requires more challenging people than in medical and engineering and also more people to develop our agriculture.

Agriculture in lighter sense can be defined as bundle of uncertainties and exploitations.

What are the uncertainties.

1. Rainfall
2. Disaster
3. Seed availability
4. Availability of fertilizers, pesticides, bio-fertilizer, bio-pesticides

5. Degradation of land

6. Burning labour problems

7. Skilled labour force

8. Weeds, insects and diseases

9. Fluctuations and low prices

10. Perishable goods (fruits and vegetables)

11. No sufficient storage infrastructure

12. Value addition and export linkage

These uncertainities are challenges for agricultural graduates. If our country's 141 million hectares of land is leveled and made fertile on scientific lines, the country would require 50 thousand agriculture engineers every year. But our country is producing not even two thousand agril. engineering graduates.

The water conservation, water storage structures, water use efficiency like Israel if it is adopted we will require another 50 thousand agriculture and agril engineering graduates. Farm machinery due to labour shortage and nonremunerative labour wages is order of the day and there has to be greater research for developing efficient farm machinery for planting, weeding

operations and harvesting. These require additional farm engineering graduates.

I have a feeling that the Universities have to take it as a challenge to provide one or two years internship training to agricultural graduates to build confidence and Government to support establishing agri-clinic centres in a big way at least one for every five thousand population will provide entrepreneurship and self employment to lakhs of graduates.

We always feel that as Universities we are the best. But I have an experience that there are many farmers who have excelled the Universities in achieving higher productivity and building business model in agriculture. They should be invited to agricultural Universities and designated as Farm Professors so that practical learning can happen to the students and staff of Universities.

Each Agricultural University has potential to create job, for five hundred graduates who come out every year. To start with students if they are engaged in practical field work/job such as say: for example seed production. Gujarat alone requires about 20 lakh quintals of groundnut seeds. If one student can produce

one thousand quintal of seed, he can earn a profit of 5 lakhs even at the rate of Rs.5 per kg as extra. i.e. 5 lakhs rupees in just four months. As technical person when agricultural graduates adopt the modern technologies like broad bed and furrow and adopt sprinkler irrigation and application of gypsum, the yield level of groundnut can go up to 15 quintals per acre instead of 10 quintals of normal yield. This additional yield, will also bring additional revenue of Rs.10 lakhs in four months. Even a Professor will not earn so much (Rs.5 lakhs + 10 lakhs = Rs.15 lakhs) in four months. With these, Gujarat groundnut yield will go up by minimum 50%, like this the production of seeds of hybrids in field crops, vegetables, planting materials, bio-fertilizers, bio-pesticides, storage, value addition will provide ample of opportunities and jobs.

India can take the advantage of cultivating the land in foreign countries like Africa, Brazil, Canada and USA where plenty of land is available for cultivation. I think our young graduates should move to other countries for cultivation on mutual benefit to both the countries.

I have tried to highlight some of the burning issues, challenges and opportunities which would act as guiding lamp to focus yourself accordingly to mitigate the challenges in agricultural production. You have acquired knowledge in agriculture but its effective use for the cause of fulfilling the aspirations of the rural poor is required. Learning is a continuous process and therefore you will keep yourselves always learning throughout your life and offer your best services to the society.

Knowledge technologies, Language and communication skills, diplomacy, confidence, courage and guts, involvement, hard work, sacrifice for taking agricultural science to new heights can come through only You and You, I bless you to become technology **Ambassador and *'Massai'* of farmers.**

JAI HIND JAI GUJARAT