



ANNUAL CONVOCATION

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CONVOCATION ADDRESS Chief Guest



Shri Deepak Shah

Chairman

SML Group of Companies, Mumbai



Junagadh Agricultural University

Junagadh-362001

Gujarat

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Hon'ble Governor of Gujarat & the Chancellor of Junagadh Agricultural University **Shri Acharya Devvrat ji**; Hon'ble Minister of Agriculture, Animal Husbandry, Cow-Breeding, Fisheries, Rural Housing and Rural Development, **Shri Raghavjibhai Patel**; Hon'ble Minister of state of Panchayat and Agriculture, **Shri Bachubhai Maganbhai Khabad**; distinguished Vice-Chancellor of Junagadh Agricultural University **Dr. V P Chovatia**; Registrar **Dr. Kalpesh Kumar**; Hon'ble Vice-Chancellors of SAUs of Gujarat; Members of the Board of Management and Academic Council, invited guests, learned faculty members, dear students, representatives of press & media, ladies and gentlemen. I am honoured and delighted to be here on this important occasion.

My congratulations to all the graduates, post graduates - Master & Doctoral who have earned the degrees, awards and distinctions today. I am optimistic that all will serve the agriculture sector to produce the food to meet ever growing populations of the India. The UNO has rightly chosen the theme of **World Soil Day-2022** as **"Soils: Where food begins"**. I wish you all the very best for a bright and fruitful career and a very happy life. I also extend my congratulations to the faculty and staff of the University led by the dynamic Vice Chancellor, who have worked hard for imparting quality education and morals to the students. I would also like to congratulate the learned faculty who have worked hard with the students and enriched them with the wealth of knowledge, skills and ethical values to make them capable of serving the science, society and humanity at large.

I feel pleasure to be in the green campus of **5 star** rated Junagadh agricultural University and thank heartily to the Chancellor and Vice Chancellor for inviting me to this auspicious function and to deliver the Eighteenth Convocation address of this university. I feel proud to be in the land of the eminent national leaders; Mahatma Gandhi and Sardar Vallabhbhai Patel, the real visionary social reformers; Shri K M Munshi and Shri Dayanand Saraswati, world famous space scientist; Vikram Sarabhai and frontiers of corporate

sectors; Tata, Reliance, Adani, Nirma, Suzlon etc., All of these personalities are the pride of Gujarat and India, whose contributions continue to inspire every young not only in our nations but also in the world. We should also feel proud to have world class political leader and reformer of modern India; our present Hon'ble PM **Shri Narendrabhai Modi**, who could make passage to lead G20 countries.

I am very happy to convey you that every year India produces Cereal/Millets of 305.2 million MT against requirements of 187.2 million MT; Fruits of 103.0 million MT against requirements of 78.0 million MT; Milk of 210.0 million MT against requirements of 156.0 million MT and Oilseeds and nuts of 38 million MT against requirements of 15.6 million MT. However, we fall short of in productions of pulses and vegetables. Presently India produces Pulses (Legumes)/ Fresh food of 27.0 million MT against requirements of 62.4 million MT and green fresh vegetables of 204.6 million MT against requirement of 208.0 million MT.

Therefore, I urge all today's degree earners to work hard to produce more from small through the soil nutrient and water management because everyone on this planet earth, either vegetarians or non-vegetarians have to depend on soil only as "Soils from where the food begins". It appears that in the present scenario, farmers as well as policy makers need an education regarding balanced nutrition in Indian agriculture. They need to understand that crop does not only need N, P or K, but other nutrients as well such as Sulphur, Zinc and Boron.

The major nutrients (N, P, K and S) play an important role in maintaining soil fertility. Nitrogen is one of the most important major nutrients as well as expensive input in agricultural production, which is closely associated with growth and development of plants. It is found in amino acid, proteins, nucleic acids and chlorophyll. Phosphorus is essential constituent of nucleic acids, ADP and ATP. It also regulates root and flower growth, cell division and formation of protein. Potassium is also important because of its role in regulating stomatal opening and closing. As the opening for gas exchange, stomata help to maintain a healthy water balance. Sulphur is essential for protein structure and the vitamins thiamine and biotin. It is a coenzyme of vitamin A, which is important for respiration and fatty acid metabolism.

During the current scenario of India's soil health in terms of

nutrient imbalance, physical, chemical and biological deterioration, we cannot run faster without adopting the balanced nutrient management. No matter where we reach, India will always depend upon its own farming community and limited land resources to feed its population. Balanced nutrient management for our soils and crop productivity, therefore, needs to be promoted and adapted at all levels with sensor and drone technology. We cannot and should not wait for another major setback to bring us back on track. We should be aware about the needs of our soils, crops and our farmers' household and adopt the best possible balanced nutrient management approach to save Indian agriculture.

Gujarat is one of our agriculturally important states. It is a leading producer of cotton, castor, groundnut, milk and marine fish. Gujarat is the highest cotton producing state in the zone as well as in the country. In the last season 2021-22, the state cotton production increased by 4.70% to 75.57 lakh bales of cotton over the previous season. The state stakes 24% of the total cotton production of India. Similarly, Gujarat produces groundnut of 3 million tonnes which accounts for half of India's production of 6.73 million tonnes. The Gujarat state alone has groundnut sown area of 17 lakh ha (37.84 % share) out of 45.14 lakh ha of India. With a contribution of 67 per cent castor seed and 36 per cent cumin seed, Gujarat ranks the first in the world production of these items. Besides, Gujarat has recognition for highest area, production and productivity of castor comprising 12.98 lakh tonnes production (84% of total castor production of the country) from an area of 6.83 lakh ha. India is the world's largest cumin producing country, contributing about 70% of total world output. Moreover, Gujarat has the highest productivity in fennel seed, Isabgul and banana. Besides these, mango, sapota, groundnut, mustard, sesame, tobacco and herbs are the potential from processing point of view. **"Gir Kesar Mango"** and **"Bhalia wheat"** have accorded unique GI identity in the country.

Couple of good integrated pack houses, air cargo complex and gama irradiation projects have been established by Gujarat Agro-Industries Corporation. Out of the 90 active onion dehydration units in the country, 75 units are located in Mahuva (Bhavnagar), Vadodara and Gondal (Rajkot) alone with a production capacity of 11,250 tonnes per day.

About 11.4 million tonnes of milk is produced in the state

ranking 5th in India. The total milk production in India reached to 210 million MT in 2021-22. India's share in global production is 23 per cent now. The all India per capita availability of milk is 427 g/day (2020-21) which is far above the global average per capita milk availability of 293.7 g/day. Gujarat is one of the leading producers and exporters of fish. Gujarat fish farming production accounts for 8.35 lakh tonnes of fish production. The state alone contributes 20% to India's marine fish production. Furthermore, fish production in Gujarat is the 3rd largest marine production in India.

The recent extreme events of floods, droughts, heat/cold waves etc experienced by different parts of the world are the evident of climate change. In the era of changing climate, nothing is certain. Only certain is the uncertainty. The recently published IPCC report AR6 warned that;

1. The climate change impacts are stressing agriculture, forestry, fisheries and aquaculture, increasingly hindering efforts to meet human needs.
2. Climate-related extremes have affected the productivity of all agricultural and fishery sectors, with negative consequences for food security and livelihoods.
3. Impacts on food availability and nutritional quality will increase the number of people at risk of hunger, malnutrition and diet related mortality.
4. The occurrence and distribution of pests, weeds and diseases in agricultural, forest and food systems (terrestrial and aquatic) will be altered, and their control will become costlier.
5. Bio-based products as part of a circular bio-economy have potential to support adaptation and mitigation, with sectoral integration, transparent governance and stakeholder involvement key to maximizing benefits and managing trade-offs.
6. Those Agricultural production systems (like Integrated Farming, Organic Farming, Natural Farming) that integrate crops, livestock, forestry, fisheries and aquaculture should be promoted.
7. Investments in improved humidity and temperature control in storage facilities for perishable items, and changes in public

policy that control international trade and domestic market transactions should be made.

8. The yield losses are found as 12.4%, 7.1 %, 4.4% and 6.1% for soybean, wheat, rice and maize, respectively, due to climate change.
9. As cotton is heat tolerant and yield increases with extra plant growth, positive effects of increasing temperature and CO₂ are expected, but observed impacts have been mixed due to negative impacts on phenology and plant water status. Negative impacts of climate change due to proliferation of the pest cotton bollworm are widely observed.
10. Climate change will affect food production. Meeting future food needs requires greater land shares unless we change what we eat and how we grow food. Additionally, large-scale land projects that aim to mitigate climate change will increase land competition. Less land will then be available for food production, increasing food insecurity. People at greater risk from land competition are smallholder farmers, indigenous peoples and low-income groups.
11. Feasible and effective options include cultivar improvements, community-based adaptation, agricultural diversification, climate services, and adaptive eco-management.

Water is essential for all societal and ecosystems needs. More extended periods of dry spells and droughts are already affecting water availability, especially in the arid areas of India, China, the USA and Africa. Other extremes, such as heavy precipitation and flooding, can affect water quality, making water unsafe for drinking. In coastal regions and small islands, the combined effects of higher sea levels and more intense storms affect water security by increasing the salinization of groundwater resources. Indirect effects of climate change on water security include impacts on infrastructure for the provision and recovery of water resources, which can affect the safe access to adequate water resources, both in terms of quality and quantity. In terms of assessing the extent of water scarcity, studies estimate that currently, between 1.5 and 2.5 billion people live within areas exposed to water scarcity globally. These numbers are projected to increase continuously, with estimates of up to 3 billion at 2 °C and up to 4 billion at 4 °C by 2050.

According to one estimate, globally, there has been a loss of 9–10% of total cereal production due to droughts and other weather extremes. Similarly, floods are one of the significant reasons for crop losses worldwide. Climate change-induced losses in livestock and fisheries have also been documented. In some parts of the world, especially in cold temperate zones, agro-climatic zones have become more conducive to yield growth in crops like maize and soybean due to increases in summer precipitation. Yet, negative impacts far outweigh positive impacts.

Some of the adaptation responses around crops and water include: (i) changing cropping patterns to less water-intensive crops, and changes in the timing of sowing and harvesting to respond to unfamiliar trends in the onset of rains, (ii) adoption of improved cultivars, such as drought and flood-resistant seed varieties (iii) improved agronomic practices, including conservation agriculture that helps to reduce water application rates (iv) irrigation and water-saving technologies such as efficient irrigation and on-farm water management techniques (v) on-farm water and soil moisture conservation. (vi) Irrigation and changes in crop choices and cultivars are also shown to be effective for future adaptation, especially at 1.5°C global warming, but much less effective at 2°C and 3°C when these responses will not mitigate a large part of the climate risk.

The uncertainty in climate related extremes events requires quick actions by farmers to offset its negative effects, which requires mechanizations. There is a need to innovate custom service or a rental model by institutionalization for high-cost farm machinery to reduce the cost of operation. During 2014-15 to 2020-21, a sum of Rs. 4556.93 crores of funds have been released under the scheme to the States and other implementing institutions. As of now, more than 13 lakh agricultural machines have been distributed and more than 27.5 thousand Custom Hiring Institutions established. For 2021-22 Rs. 1050 crore budget has been allocated for SMAM which is more than the previous year.

There is good scope for introducing improved equipment for performing various farm operations for cultivation of groundnut, rice, wheat, pulses and cotton in Gujarat, However the cost of equipment is beyond the reach of farmers. Therefore, the Govt. has initiated a efforts since long back on agricultural mechanization with focus on custom hiring of Farm Machinery and Implements.

The Hon'ble PM of India has desired to raise the Indian economy to \$ 5 trillion from \$ 3.29 trillion at present by the year 2026-27. Among these, the contribution of agricultural sector would be raised to \$ 1 trillion from \$ 0.66 trillion through the technological interventions in the agriculture sector. The total food grains and horticultural production in the country is at record of 316.06 MT and 329.86 MT in the year 2021-22 which is higher by 1.71% (5.32 MT) and 2.93% (9.39 MT) respectively as compared to year 2020-21.

The agricultural and horticultural production can be enhanced by increasing the crop acreage and yield. The crop acreage can be increased by making more land and water available for agriculture. This demands for enhancing the water productivity in every sphere of human life. The crop water productivity can be enhanced by concentrated efforts on managing more on when, how much and how to irrigate the crops. Also, due attention is required to enhance the land and water resources along with improving its health and qualities.

Agro-processing including value addition is now regarded as the sunrise sector of the Indian economy in view of its large potential for growth and likely socioeconomic impact, specifically on employment and income generation. Properly developed, agro-processing sector can make Indian a major player at the global level for marketing and supply of processed food, feed and a wide range of other plant and animal products. Processing machinery industries are increasing day-by-day. The testing of such processing machineries are carried out as per IS codes. I urge the Minister of Agriculture, GoG to establish testing centre for the processing machineries in Gujarat as in the entire western India, there is no such centers.

The ever-growing need to feed our growing population provokes an increase in deforestation and other climate change issues. The crop insurance is now more essential in the era of uncertain climate. However, we can ensure food security and safety by harnessing the power of satellite imagery and analytics. Remote sensing based inventory of irrigated crops is useful for timely estimation of the crop areas: to find water demand over space and time, to monitor crop condition during the irrigation season, to forecast crop yields before the end of the season and for evaluating overall performance of irrigation projects. The use of precision technology such as drones, robotics, sensors, remote sensing and GIS coupled with Artificial

intelligence will play a vital role in Agriculture to overcome the problem of Animal and human labor and timeliness of operations and application of inputs in time, place, required quantity and quality.

I came to know that JAU has developed low cost IoT based Automated MIS controller, Agrivoltaic system, Bio-pesticides, Nano-fertilizers, etc. JAU has released high yielding and nutritive varieties of groundnut, chickpeas, pearl millet, sesame, pigeon pea, wheat, soybean, coconut, castor etc which are scalable and adopted at large scale in Gujarat as well as many states of India too.

At this juncture, I would like to suggest to the JAU authority, faculties and students to emphasize the patent registration of outcomes of research development. The ICAR has operationalized guidelines for IPR portfolio management and commercialization of technologies. The initiative has created IPR awareness and literacy, enhanced the work environment for higher innovativeness, ensured that the scientists/innovators are duly rewarded with their share of benefits accrued, and guide the manner of technology transfer which would be competitive and better serve the interests of agriculture and farmers.

Entrepreneurship is an important element for the development of economy of the country like India, as it generates employment, produces a variety of goods and services, brings about growth, excellence and sense of achievement in national development and makes the education & planning, hands on experience, effective and well directed. There is a tremendous scope for entrepreneurship in agriculture. Experiential learning is a new initiative with the primary aim of removing weakness in the present educational system and to develop a cadre of highly skilled professionals who can create their own enterprise. Emphasis has been laid on developing skills for carrier in agri-business and agri-clinic.

At the end, I would like to congratulate all the degree recipients as well as recipients of medals for successfully completing this important phase of life. I urge you to work hard and utilize the knowledge imparted by the University to the fullest level for the service of the farmers. Remember that learning is a never ending process, **“Anyone who stops learning is old, whether at twenty or eighty. Anyone who keeps learning stays young.”**

Thank you!



॥ कृषिमूलम् जगत् सर्वम् ॥

