16TH ANNUAL CONVOCATION

VIRTUAL MODE

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Convocation Address

Dr. R. C. Agrawal

Deputy Director General (Agril. Edn.)

Indian Council of Agricultural Research

New Delhi

NAVSARI AGRICULTURAL UNIVERSITY

CENTRAL EXAMINATION HALL

NAU CAMPUS

NAVSARI AGRICULTURAL UNIVERSITY

Navsari-396 450 (Gujarat)

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Shri Acharya Devrath ji, Hon. Governor of Gujarat and the Chancellor of Navsari Agricultural University; Shri R.C. Faldu ji, Hon. Minister of Agriculture, Government of Gujarat; Dr. Z. P. Patel, Hon. Vice Chancellor of Navsari Agricultural University; Dr. H.V. Pandya, Registrar; Vice Chancellors of other Agricultural Universities of Gujarat; members of Board of Management and Academic Council; Deans of various faculties, learned faculty members, distinguished guests, dear graduating students, representatives of the press and media, ladies and gentlemen.

I feel great pleasure and privileged to be invited as the Chief Guest to address the 16th Convocation of Navsari Agricultural University today. I would like to join you all in recognizing the presence of all the passing out students with certificates of the graduation, post-graduation and doctorate in the fields of Agriculture and congratulate them for successful completion of their respective study programmes. Let us also join to congratulate the young students who have won special recognition for academic excellence and earned gold medals in various disciplines. I congratulate the Vice Chancellor, members of the Board of Management, Academic Council, Faculty and the Staff of this University on their untiring efforts to take this University to a better position among the agricultural universities of our country. I would like to take this opportunity to share some of my views on food security and the career opportunities.

Dear graduating students! Convocation is an occasion to rejoice and rededicate ourselves for the process of Education, which is the chief defence of the nation, and is the key for transmission of civilization. Today is a great day in your life as you enter a different world of professional challenges moving out of the protected environs of your *alma matter*, which has equipped you with the knowledge and skills. I am sure; you would hereafter remain indebted to this university for the knowledge and skills which it has imparted and to your parents and teachers for their boundless contribution in shaping your life and career.

For the past several years, agriculture and food security have been intertwined in the country. Agricultural growth is critical for improving food security, most immediately by increasing food production and availability. Agriculture helps to grow crops and livestock for food and industrial raw materials and is the main source of calories for the world's population. In recent years, the scientists have to address nutritional as well as health security apart from food security, which is a need of the hour.

Biodiversity for food and agriculture is indispensable to food security, sustainable development and the supply of many vital ecosystem services. Biodiversity makes production systems and livelihoods more resilient to shocks and stresses, including the effects of climate change. It is a key resource in efforts to increase food production while limiting negative impacts on the environment. According to Food and Agriculture Organization (FAO), since 1900, about 75 percent of plant genetic diversity has been lost as farmers worldwide have left their multiple local varieties and landraces for genetically uniform, high-yielding varieties. About 30 percent of livestock breeds are at risk of extinction; six breeds are lost each month. Today, 75 percent of the world's food is generated from only 12 plants and five animal species. Biodiversity and ecosystems feature prominently across many of the Sustainable Development Goals (SDGs) and associated

targets. They contribute directly to human well-being and development priorities. India is committed to achieve the 17 SDGs and the 169 associated targets. At the Central Government level, NITI Aayog has been assigned the role of overseeing the implementation of SDGs in the country. The SDG India Index developed by NITI Ayog has been developed to provide a holistic view on the social, economic and environmental status of the country and its States and UTs. It will also go a long way in helping analyse and identify best practices and priority areas, giving direction to developmental policies. Let us take a pledge to contribute in achieving these SDGs in the interest of the country, environment and the future of our human race.

Agriculture in India is unfolding to a new agrarian model, represented by high dependency for livelihood by the large number of smallholders, which is contrary to the historical trajectory of the economic development. Therefore, research and development focus along with institutional framework and policy support needs to match emerging agricultural scenario of the country.

Agriculture now accounts for about 13.7% of Gross Domestic Product (GDP) but it is still the main source of livelihood for the majority of the rural population at the national level. However, it must be remembered that the GDP estimates do not take into account the costs of environmental degradation. Agriculture places considerable load on environment in the process of production of goods and services. Among the measures suggested to improve economic conditions specific to agriculture, include promoting High Value Agriculture (HVA) and new agricultural policy recently enacted by Central Government which include the Farmers' Produce Trade and Commerce (Promotion and Facilitation), the Farmers (Empowerment and Protection) Agreement of Price Assurance and Farm Services and the Essential Commodities (Amendment) Act apart from current Minimum Support Price mechanism is going to stay with adequate protection

of land ownership to protect farmer interests. Under the situation, an effective agricultural invention and innovation strategy would play a crucial role in addressing a number of supply-side obstructions and in harnessing numerous demand-side opportunities.

Indian agriculture is dominated by small farmers, having small land holdings for cultivation. The average size of the landholding declined to 1.08 ha in 2015-16 from 2.30 ha in 1970-71 and absolute number of operational holdings increased from about 70 million to 121 million. If this trend continues, the average size of holding in India would further reduce to a low of 0.32 ha in 2030. This is a very complex and serious problem, when share of agriculture in gross domestic product is declining, average size of landholding is contracting (also fragmenting), and number of operational holdings are increasing. Declining size of landholdings without any alternative income augmenting opportunity is resulting in fall in farm income, causing agrarian distress. The problem of land-and-water degradation is becoming a key constraint in augmenting agricultural production. Available estimates reveal that nearly 120.72 million ha of land in the country is degraded due to soil erosion and about 8.4 million ha has soil salinity and water-logging problems. Besides, huge quantities of nutrients are lost during crop production cycle. The research and development challenge is to stop further degradation and go in for rehabilitation of degraded lands and water resources in cost-effective manner.

The demand for food and processed commodities is increasing due to growing population and rising per capita income. There are projections that demand for food grains would increase from 192 million tonnes in 2000 to 345 million tonnes in 2030. Hence in the next 10 years, production of food grains needs to be increased at the rate of 5 million tonnes annually. The demand for high-value commodities (such as horticulture, dairy, livestock and fish) is increasing faster than food grains —for most of the high-value food commodities demand is expected to increase by more

than 100% from 2000 to 2030. These commodities are all perishable ones and require different infrastructure for handling, value-addition, processing and marketing. This is a challenge as well as an opportunity.

A sustainable food system (SFS) is a food system that delivers food security and nutrition for all in such a way that the economic, social and environmental bases to generate food security and nutrition for future generations are not compromised. The food system is composed of sub-systems (e.g. farming system, waste management system, input supply system, etc.) and interacts with other key systems (e.g. energy system, trade system, health system, etc.). Therefore, a structural change in the food system might originate from a change in another system; for example, a policy promoting more biofuel in the energy system will have a significant impact on the food system.

According to FAO, sustainability in sustainable food system development, is examined holistically. In order to be sustainable, the development of the food system needs to generate positive value along three dimensions simultaneously: economic, social and environmental. On the economic dimension, a food system is considered sustainable if the activities conducted by each food system actor or support service provider are commercially or fiscally viable. The activities should generate benefits, or economic value-added, for all categories of stakeholders: wages for workers, taxes for governments, profits for enterprises, and food supply improvements for consumers. On the social dimension, a food system is considered sustainable when there is equity in the distribution of the economic value added, taking into account vulnerable groups categorized by gender, age, race and so on. Of fundamental importance, food system activities need to contribute to the advancement of important socio-cultural outcomes, such as nutrition and health, traditions, labour conditions, and animal welfare. On the environmental dimension, sustainability is

determined by ensuring that the impacts of food system activities on the surrounding natural environment are neutral or positive, taking into consideration biodiversity, water, soil, animal and plant health, the carbon footprint, the water footprint, food loss and waste, and toxicity.

The overall performance of the food system, measured in terms of sustainability, is the result of the intertwined conduct of all actors in the system. Firms, farms, consumers, for instance, all can have the power to influence food system performance and initiate change.

Undernutrition – the result of not having enough to eat – frequently overlaps with malnutrition caused by deficiencies in the quality of diets, such as lack of protein and of micronutrients, including iron, iodine, zinc and vitamin A.

Although agriculture currently produces enough food for all, close to 1 billion people are unable to meet their minimum food energy requirements, and 2 billion suffer from "hidden hunger" caused by micronutrient deficiencies.

The way forward for the Nutritional security is

1. Diversify agricultural production. Increasing the supply of foods high in carbohydrates, such as rice, wheat, maize, tubers and cassava, which has been the main focus of agricultural development for the past 50 years, may satisfy dietary energy needs, but does not by itself guarantee commensurate improvements in nutrition.
2. Empower rural women. Rural women are the strongest link between agriculture and good child nutrition.
3. Strengthen links between the agriculture, nutrition and health sectors. Interventions aimed at improving diets and raising levels of nutrition should combine public health, nutrition education and dietary strategies. Agriculturalists need to work with nutritionists to identify deficits in local diets and micronutrient intakes. Food-based interventions

will be more effective when accompanied by community health programmes.

4. Provide nutrition education. Interventions should include a strong programme of nutrition education and behaviour change, targeted principally towards women, in order to ensure that increases in food supply and income lead to improved household nutrition.

One key strategy in nutrition-sensitive agricultural development is the "food based" approach, which is aimed at increasing the availability Sustainable nutrition security – Restoring the bridge between agriculture and health 12 and consumption of the diverse range of foods necessary for a healthy diet.

Biotechnology, both as an alternative as well as supplementary tool, offers new opportunities to increase agricultural production and productivity by using a more sustainable, stable and ecologically friendly agricultural system encompassing plants, animals and fish. Apart from increasing the production and productivity of agricultural produce and products, agro-biotechnological applications have a great potential in enhancing the value of agricultural products in terms of quality and nutrition. Biotechnology, in agriculture, is a powerful and immensely useful tool to keep pace with the ever-burgeoning population for meeting the food and nutritional security, compensate for dwindling natural resource base and meeting the challenge of escalating biotic and abiotic stresses. Biotechnological approaches in crop improvement programmes have started giving dividends. Similarly, major impact of biotechnology on livestock production is likely to emanate from qualitative and quantitative improvement including digestibility of feeds and forages as well as through enhanced disease protection and resistance. Use of biotechnology in livestock through low cost, effective and efficient DNA and recombinant vaccines, besides improved diagnostic tools

has the potential to significantly contribute towards livestock health and production. It needs no emphasis that HRD towards developing well qualified, well trained and competent human resource for the intellectual pursuits related to agro-biotechnological applications in agriculture is imperative.

This University has jurisdiction of seven districts of South Gujarat viz., of seven districts of South Gujarat viz., (1) Navsari (2) Surat (3) Bharuch (4) Valsad (5) Dang (6) Tapi and (7) Narmada. It has 25 research stations at 15 different locations in South Gujarat, possesses 897.26 ha land including 714.49 ha cultivable land. Navsari Agricultural University has 15 regular AICRP schemes and 4 voluntary AICRP centers and could develop 85 varieties including endorsed 9 varieties out of which rice GNR-3, a bold grain variety suitable for beaten rice and puffed rice is cultivated over 30,000 hectares in South Gujarat. Till date, NAU has generated a total of 675 technologies for the benefit of farming community over last 17 years. My compliments to the university staff for this great achievement under the vision of present and past vice-chancellors and the support of the State Government.

It gives me a great pleasure to know that today a total of 690 students have been conferred with various degrees including Bachelors' Degrees to 461 students Master's Degrees to 178 and Doctorate Degrees to 51 students and 37 medals including 14 for PG students and 23 for UG students have been awarded. The University has various amenities funded by ICAR like International |Hostel, Museum, Sports Complex, Girls hostels and Central Examination Hall. In the year 2019-20, 69 students of various faculties of NAU qualified AIEEA-JRF, 37 PG students qualified SRF, 86 students also qualified NET conducted by ASRB, New Delhi. There are twelve ICAR funded ELUs including five in agriculture faculty for three colleges, two each in forestry & Veterinary faculties and three in horticulture faculty. Moreover, two State funded ELUs are functional at College of Agriculture, Waghai. During the year 2020-

21 the University received Rs. 111.60 lakhs under Development Grant, Rs. 47.00 lakhs for NTS (UG-PG), Rs. 38.32 lakhs for JRF/SRF fellowship, Rs. 11.09 lakhs under ICAR-PG scholarship, Rs. 7.11 lakhs for Veterinary internship and Rs. 5.04 lakhs for student READY.

It is a matter of great appreciation that this University also got prestigious World Bank funded NAHEP-CAAST sub-project on "Establishment of Secondary Agriculture Unit for Skill Development in Farmers and Students" on competitive basis during the year 2018-19. The total outlay of this prestigious project is Rs. 20 crores with emphasis on capacity building of students and faculty members, innovative research and product development. This project has sent about 500 students and 150 faculties from 58 Universities for internship and training in various global universities across the world.

I am happy to know that the Directorate of Extension undertakes extension activities through 5 KVKs, Training Units (Sardar Smruti Kendra & Training and Visit System) at head quarter, ATIC, extension departments at different colleges along with the State Agricultural Management and Extension Training Institute (SAMETI), Gujarat assisting in extension reform programme and could organize 48 Agricultural Exhibitions and Fairs to benefit 45,961 farmers of South Gujarat. The Directorate could organize 284 on campus and 169 off campus Farmers' Trainings for the benefit of more than 20,279 farmers.

During the lockdown period due to COVID-19, the University has taken up several activities to increase the confidence and morale of students and farmers by issuing various advisories, online classes of students and by use of the "Kisan Mitra Mobile App" for disseminating information about agricultural practices through cell phone and during the year the app was downloaded by more than 50,000 farmers.

In agricultural education, the country can be proud that we have developed extensive higher agricultural education system for meeting the new challenges of agriculture. However, the reality is that the state agricultural universities are not adequately funded. Drastic measures are needed to have adequate faculty and assured financial support for the growth of agricultural universities. Integration of research, education and frontline extension is essential for creation, dissemination and application of new knowledge which is the main source of agricultural growth in future. Accordingly, ICAR is continuing to provide ample support to Agricultural Universities for Education, Research and Extension. In view of the fact that future expectations on new knowledge, agricultural education will have to become more vibrant and responsible to address national goals for economic growth, rural livelihood security and employability of its graduates. Increasing intensity of application of new knowledge in science and technology will become prime infuser of surge in agricultural production and productivity across diverse agro-ecologies of the country. It will be necessary to restructure education in a manner that it measures up to diverse expectations of all stakeholders such as students for employability, farm men and women for livelihood security, farmers for new knowledge and skills, and the country for economic growth and meeting international obligations and concerns of sustainable development. Also, with the changing employment scenario, there is need for integrating agricultural education with job creation and entrepreneurship development rather than job seeking.

ICAR envisages *Student READY* (Rural Entrepreneurship and Awareness Development *Yojana*) programme launched by Hon'ble Prime Minister Shri Narendra Modi, in its future endeavors that aims at entrepreneurship development among graduating youth. It combines Rural Agricultural Work Experience (RAWE) and Experiential Learning Programme (ELP) courses to provide

students with the grass-root level experience and entrepreneurship skills along with in-plant training and student project. The vast network of Agricultural Universities and Colleges can play a leading role in cultivating self-confidence and capabilities in the students required for taking up agriculture as a profession. The main aim of STUDENT READY is to prepare the pass outs as **Job creators rather than job seekers.**

Retaining of the rural youth in agriculture is a challenging task ahead. The rural youth can respond to the needs of the country only if they are offered fruitful opportunities. The challenge that lies ahead is how to make agriculture and rural professions intellectually stimulating and economically rewarding to enable attract and sustain rural youth in agriculture and allied sectors. In this context, *ARYA* (Attracting and Retaining Youth in Agriculture) is another programme of ICAR included in the plans to build capacity of rural youth through special programmes and projects including 'earn while you learn' programme, develop a comprehensive policy for development of youth in rural areas, involve youth in policy making processes from design to implementation, monitoring and evaluation and recognise the requirements of the new-age farmers and endeavour to fulfil the same.

In the present scenario of R&D, the significance of interdisciplinary and inter-institutional research is being accepted globally. ICAR has taken the new initiative to establish *Consortia Research Platforms* to provide scientific focus to some of the critical areas. In order to improve the technology dissemination, *'Farmer FIRST'* is initiated to enrich farmers-scientists interface for technology development and application with the primary objective of taking up technology development based on feedback with the participation of various stakeholders among farmers.

ICAR has taken several initiatives to strengthen the Agricultural education and quality assurance in the country, this is one of the largest National Agricultural Research & Education

System in the world with 63 SAUs, 4 DUs, 3 CUs, 4 CAUs, 112 ICAR Institute, 69 AICRPs & 18 Network Projects and 722 KVKs spread all over the countries. Good Governance in these universities was ensured by implementation of ICAR Model Act for providing base for functioning and uniformity in agriculture education across the country. Quality assurance was ensured by the Accreditation Board.

Some of the new initiatives taken by ICAR for quality Agricultural Education are (i) Formulation of ranking framework for Agricultural universities (ii) Implementation of revenue generation at AUs through capacity building, training, consultancy, testing certification and technology outreach approach (iii) Implementation of Green Initiatives as per Global needs (Rain water Harvesting, Solar Energy Utilization, Composting, Waste water recycling and e-governance (iv) Developed minimum standards for establishment of new colleges (v) Alumni portal for all the agricultural universities. (vi) Emeritus Professor scheme to attract superannuating teachers (vii) Establishment of Centers for Advanced Faculty Training (viii) Implementation of the NAHEP (ix) Establishment of Faculty Development Centres and Student Development Centres, (x) Introduction of External Research Projects to enhance the quality of Agriculture Education and (xi) Declaration of National Agricultural Education Day on 3rd December.

Apart from these initiatives, Government of India has taken up several measures to address the problems of farmers under Atma Nirbhar Programme

- Rs 1 lakh crore Agri Infrastructure Fund for farm-gate infrastructure for farmers
- Rs 10,000 crores scheme for Formalisation of Micro Food Enterprises (MFE)
- Scheme promotes vision of Hon. PM: 'Vocal for Local with Global outreach'

- Unorganised MFEs units need technical upgradation to attain FSSAI food standards, build brands and marketing
- Cluster based approach (e.g. Mango in UP, Kesar in J&K, Bamboo shoots in North-East, Chilli in Andhra Pradesh, Tapioca in Tamil Nadu etc.)
- Expected outcomes: Improved health and safety standards, integration with retail markets, improved incomes. Will also help in reaching untapped export markets in view of improved health consciousness.

The Vision of New Education Policy-2020 announced recently by the present Government aims at;

- An education system rooted in Indian ethos that contributes directly to transforming India, that is Bharat, sustainably into an equitable and vibrant knowledge society, by providing high-quality education to all, and thereby making India a global knowledge superpower.
- The curriculum and pedagogy of our institutions must develop deep sense of respect towards the fundamental duties and constitutional values, bonding with one's country, and a conscious awareness of one's roles and responsibilities in a changing world.
- To instil a deep-rooted pride in being Indian, not only in thought, but also in spirit, intellect, and deeds, as well as to develop knowledge, skills, values and dispositions that support responsible commitment to human rights, sustainable development and living and global well-being, thereby reflecting a truly global citizen.

ICAR is working for a roadmap for the implementation of this policy in the Agricultural Universities of our country. I request that state government to extend all possible support to all the Agricultural University of this State and to ICAR in implementation of New Education Policy.

We have to understand that India will remain a predominantly agricultural country for much of the twenty-first century, particularly with reference to livelihood opportunities. Enhancing small farm productivity and profitability will likely make a major contribution to reducing hunger and poverty. An integrated crop–livestock–fisheries farming system is the way forward for the country. This calls for an Evergreen Revolution (i.e. increase in productivity in perpetuity without associated ecological harm), focused on rain-fed farming areas and crops suited to these areas.

To sum up, Indian agriculture has undergone considerable technological and management transformation since 1947, when the country gained independence. The human population, which was about 350 million then, has now reached 1.34 billion. There is hence no time to relax. The saying of Pandit Jawaharlal Nehru, **"Everything else can wait, but not agriculture,"** is even more relevant today. It will, therefore, be appropriate that during 2019 we focus our energies on realizing the goal of a hunger and malnutrition free India. We cannot implement the legal commitment to ensure the right to food without accelerated efforts in improving the productivity, profitability and sustainability of family farms. I wish you all great success in this challenging task. Let me congratulate all outgoing students' alumni once again on your academic accomplishments. I wish you a bright and meaningful professional career and much personal happiness.

Finally, back to students, I hope that the graduates and post graduates who are leaving this university, with adequate knowledge, skill, dynamic potential and strong will to serve the

nation, will be able to face the challenges in agriculture sector and will prove to be a great asset to the nation in uplifting the agriculture sector and in improving the economy. After getting these degrees today, you become more matured, more responsible, towards your family, society and nature. Mahatma Gandhi said "Live as if you were to die tomorrow. Learn as if you were to live forever." So, keep learning in your life. I would most humbly appeal to make science your friend, do what excites you to have fun and let the friendship be ever-rewarding to the society at large. Wish you all the best in your life and hope that you will rise in your chosen profession and prove worthy alumni of your *alma mater and the Degree.*

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Jai Kisan..

Jai Hind….

Thank you.

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