

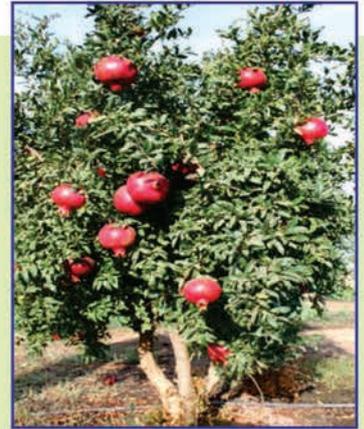


सत्यमेव जयते

Government of Gujarat

**Proceedings of A Consultation Workshop on Doubling
Farmers' Income by 2022- A Strategic Initiative
June 1-2, 2018**

Recommendations for Doubling Farmers' Income



**Department of Agriculture,
Farmers Welfare and Co-operation, GoG
&
Anand Agricultural University
Anand**





*Shri Parshottam Rupala, Hon'ble Union Minister of State for Panchayati Raj, Agriculture, Farmers Welfare, Government of India addressing at **Inaugural** session*



*Shri Jaydrathsinhji Parmar, Hon'ble Minister of State, Agriculture (State Minister), Panchayat, Environment (Independent Charge), Government of Gujarat addressing at **Inaugural** session*



*Shri R.C. Faldu, Hon'ble Minister, Agriculture, Rural Development, Fisheries, Animal Husbandry, Transport, Government of Gujarat addressing at **Valedictory** session*



सत्यमेव जयते
Government of Gujarat

**Proceedings of
A Consultation Workshop on
Doubling Farmers' Income by 2022- A Strategic Initiative
June 1-2, 2018**

**Recommendations for Doubling
Farmers' Income**

Editors

Sanjay Prasad, IAS

N. C. Patel, Ph.D.

**Organized by
Department of Agriculture, Farmers Welfare and
Co-operation, GoG**

&

**Anand Agricultural University
Anand**



Citation : Proceedings of a Consultation Workshop on Doubling Farmers' Income by 2022- A Strategic Initiative

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Additional Chief Secretary (Agri.), GoG
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Vijay Rupani

Chief Minister, Gujarat State

Dt. 11/07/2018

MESSAGE

India having an agrarian economy, use of modern technologies, tools and practices in agriculture are essential for enhancing production, productivity and better livelihood for our farmers. Mechanized farming with precision focus on value addition, food processing, water use efficiency and harnessing of renewable energy have the capabilities to improve agricultural yield and productivity which will help double the farmers income.

Gujarat is emerging as a trend setter in the field of agriculture with farmer friendly policies by the State Government, along with technology provided by the State Agricultural Universities and adoption of latest technologies by the farmers. Further, the clarion call given by our Hon. Prime Minister Shri Narendrabhai Modi, for doubling the farmers' income by 2022, requires to focus, on income based approach with production based intent in applying technological interventions, infrastructure and management.

I am happy to learn that the Department of **Agriculture, Farmers Welfare and Co-operation**, and **Anand Agricultural University** jointly organized a **Strategic Initiative** from 1st to 2nd **June, 2018** at **Anand** for achieving the goals.

I congratulate, **Anand Agricultural University**, and other officers and scientists for conducting the said workshop and with making fruitful recommendations, I extend my best wishes to the publication to be useful to all the stakeholders including the farmers.

(Vijay Rupani)

To,
Dr. N. C. Patel, Vice Chancellor,
Anand Agricultural University,
Anand-388 110.
Email: vc@aaui.in / ncpatel@aaui.in

R. C. Faldu



No: Agri, R.Dev, Fish, Trans/ 728
Minister,
Agriculture, Rural Development,
Fisheries, and
Transport,
Government of Gujarat
Swarnim Sankul-1, 2nd Floor,
Sachivalaya, Gandhinagar-382 010.
Date: **9 JUL 2018**

Message

We are all aware that our Hon'ble Prime Minister, Shri Narendra Modi gave a clarion call of doubling the farmers' income by 2022, when India would be celebrating 75th Year of Independence. This call have made all the agricultural scientists, policy makers and other stake holders vibrant to work on the mission mode for the prosperity of Indian farmers.

In this context, a Consultation Workshop on "Doubling Farmers Income by 2022 - A Strategic Initiative" was jointly organized by the Department of Agriculture, Farmers Welfare and Co-operation, Government of Gujarat and Anand Agricultural University during June 1-2, 2018 at Anand.

I appreciate the keen interest taken by Shri Sanjay Prasad, Additional Chief Secretary (Agri.), Government of Gujarat, Gandhinagar and Dr.N.C.Patel, Vice Chancellor, Anand Agricultural University, Anand in organizing the workshop. Also, it is noteworthy that along with other stake holders, large number of progressive farmers participated in this workshop and helped in deciding the action plan - recommendations.

I am sure, the recommendations suggested in the publication of proceedings will certainly be useful in Doubling Farmers' Income in Gujarat by 2022.

I congratulate all the agricultural scientists, officers and participants for their sincere efforts for publishing a valuable document in the form of proceedings. I extend my best wishes to all concerned including the farmers.

(R. C. Faldu)



Jaydrathsinhji Parmar



Minister of State,
Panchayat, Environment (Independent
Charge) Agriculture (State Minister),
Government Of Gujarat,
Gandhinagar

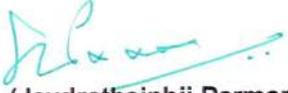
Message

The Hon. Prime Minister has advocated a seven-point strategy to double the farmers' income by 2022. These are: (1) Special focus on irrigation with sufficient budget, with the aim of "Per Drop More Crop", (2) provision of quality seeds and nutrient based on soil health of each field, (3) large investments in warehousing and cold chains to prevent post-harvest crop losses, (4) promotion of value addition through food processing, creation of a National Farm Market, (5) removing distortions and e-platform across 585 stations, (6) Crop Insurance Scheme to mitigate risks at affordable cost, and (7) promotion of ancillary activities like poultry, beekeeping and fisheries.

In order to realize the above well-articulated goal, brainstorming at the Consultation Workshop on "Doubling Farmers Income by 2022- A Strategic Initiative" was organized during June 1-2, 2018 jointly by the Department of Agriculture, Farmers Welfare and Co-operation, Government of Gujarat and Anand Agricultural University at Anand.

Appreciating the endeavour, I compliment all the team members for finalizing the proceedings and bringing out the important recommendations of the Consultation Workshop to help the policy makers as well as all concerned stake holders to fulfill the goals thereby doubling the farmers' income by 2022.

I am sure, this publication will be useful to all concerned.


(Jaydrathsinhji Parmar)

SANJAY PRASAD I.A.S.
Additional Chief Secretary



**GOVERNMENT OF GUJARAT
AGRICULTURE, FARMERS WELFARE
AND CO-OPERATION DEPARTMENT**

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FOREWORD

Gujarat is one of the most prosperous states of India owing to its agricultural growth and industrial development. Past strategy for development of the agriculture sector in India has focused primarily on raising agricultural output and improving food security. However, it has been realized that Income and incentives to the farmers are key drivers in agricultural growth. In this context, clarion call given by Hon'ble Prime Minister to "Double Farmers' Income by 2022" is very crucial to accelerate the growth rate of Agriculture in our country.

Towards achieving this effort, a consultation workshop on "Doubling Farmers Income by 2022- A Strategic Initiative" was jointly organized by the Agriculture, Farmers Welfare and Co-operation Department, Govt. of Gujarat and Anand Agricultural University during June 1-2, 2018 at Anand. I am glad that the outcome of the said workshop has been published in the form of recommendations. I am sure that the concerned departments/ organizations/ individuals will take necessary actions including policy reforms on the recommendations for doubling the farmers' income by 2022.

I appreciate the active participation of the progressive farmers, officers of the line departments, scientists of the agricultural universities and key speakers for making this workshop productive. I hope that the recommendations will be useful to the policy makers, planners, researchers as well as all stakeholders including farmers for the agricultural development in general and increasing farmers' income in particular.


(Sanjay Prasad)



Dr. N. C. Patel



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PREFACE

Keeping the clarion call of Hon'ble Prime Minister in mind, a Consultation Workshop on "Doubling Farmers' Income by 2022- A Strategic Initiative" was jointly organized during June 1-2, 2018 by Department of Agriculture, Farmers Welfare and Co-operation, Government of Gujarat and Anand Agricultural University to articulate an action plan for doubling the farmers' income by the target year, i.e., 2022.

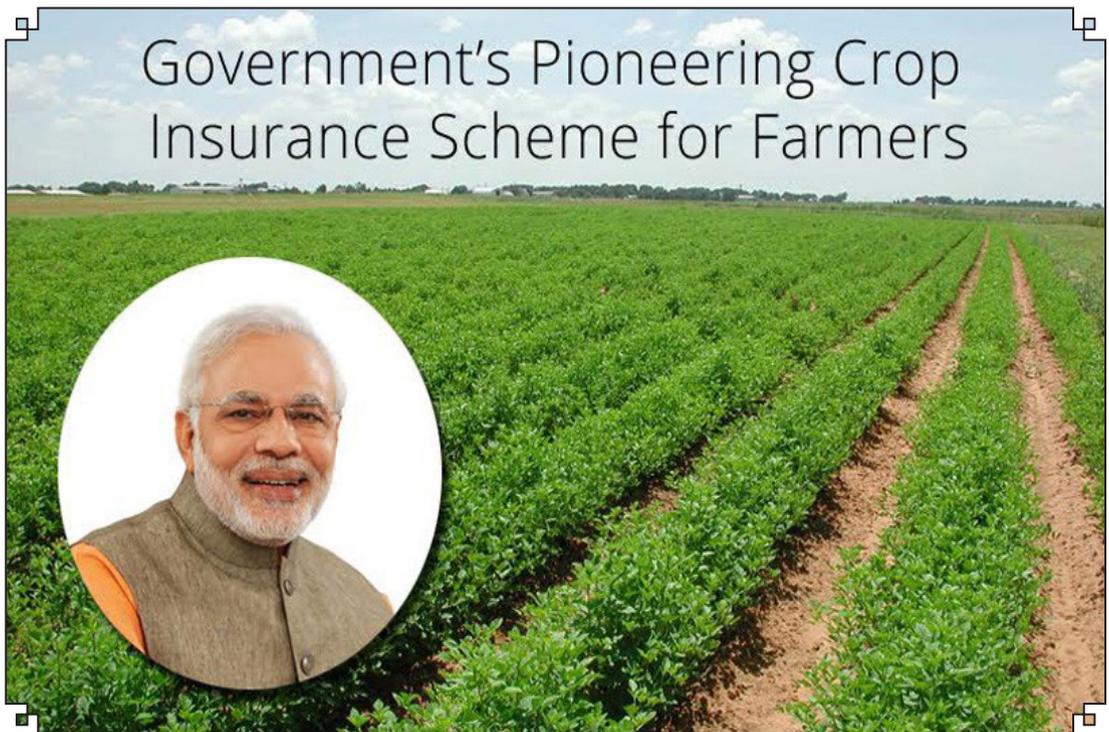
During the said workshop, as per the suggestion of Shri Sanjay Prasad, Additional Chief Secretary (Agri.), the whole group of progressive farmers, officers of line departments, agricultural scientists and experts was divided into 14 sub groups, each worked for a specific theme. Theme area-wise discussions were made to evolve result oriented recommendations duly weighted through the grassroot level experience of farmers. The interactive discussions and in-depth deliberation were very fruitful.

The themewise recommendations of each group were compiled and presented during the valedictory. Finally, this document entitled "Proceedings of the Consultation Workshop on Doubling Farmers' Income by 2022 - A Strategic Initiative – Recommendations" is published.

I extend hearty compliments to all who participated in this important workshop and congratulate the team for successful organization of the event. I am grateful to Shri Sanjay Prasad (I.A.S.), Additional Chief Secretary (Agriculture), Government of Gujarat for his inspiration, suggestions and guidance for this publication.

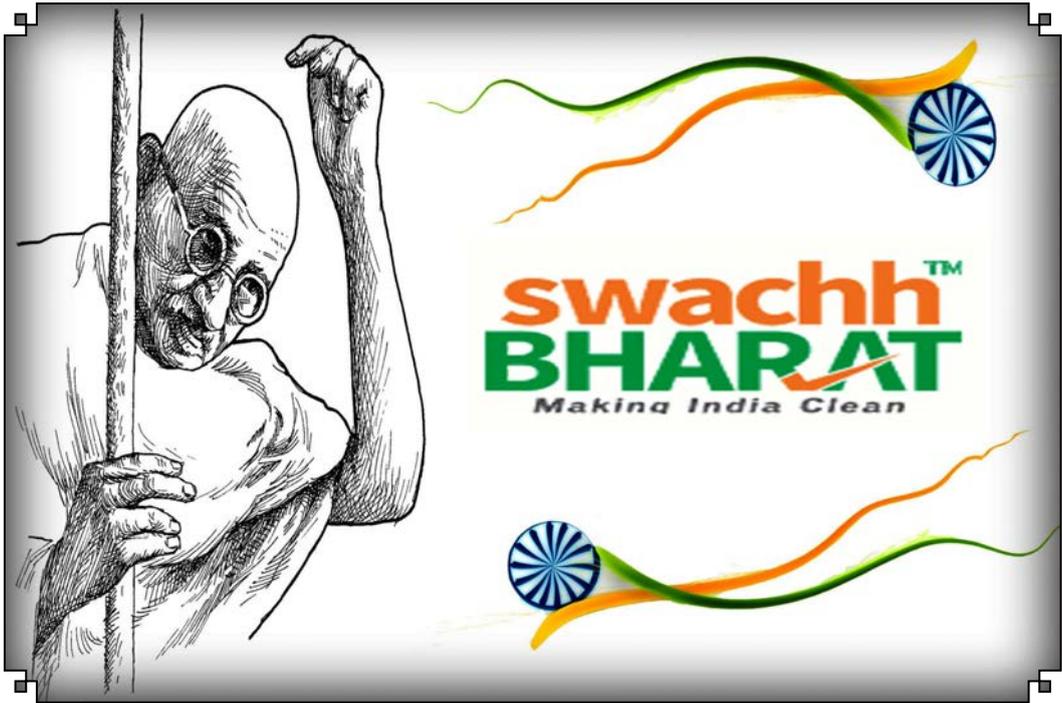
I am sure, the publication will be useful to the policy makers, line department officers, agricultural scientists and farmers for implementing the recommendations suitably to double the farmers income by 2022.


(N. C. Patel)



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Proceeding of the Consultation Workshop on Doubling Farmers' Income by 2022- a Strategic Initiative held on June 1-2, 2018 at AAU, Anand



Preamble

The Hon'ble Prime Minister has given a clarion call to double the farmers' income by the time we celebrate the completion of 75 years of Independence in the year 2022. The Union Budget 2016-17 also placed significant emphasis in this direction. Further, the Hon'ble Prime Minister has advocated a seven-point strategy to achieve this objective. These are: (1) Special focus on irrigation with sufficient budget, with the aim of "Per Drop More Crop", (2) provision of quality seeds and nutrient based on soil health of each field, (3) large investments in warehousing and cold chains to prevent post-harvest crop losses, (4) promotion of value addition through food processing, creation of a National Farm Market, (5) removing distortions and e-platform across 585 stations, (6) Crop Insurance Scheme to mitigate risks at affordable cost, and (7) promotion of ancillary activities like poultry, beekeeping and fisheries.

To realize the above well-articulated goal, the approach needs to be shifted from production aspects to farmers' income centric endeavours. The broad approach towards achieving this goal would be to increase the net income from each unit of the farm by reducing the cost of cultivation, increasing per unit yield and ensuring higher market return on produce, diversifying into more profitable sub-sectors and provide post-production and marketing infrastructure. In short, to achieve this goal in Gujarat, the way forward is - Productivity enhancement, Receipt of higher prices/value of the produce, Diversification to high value crops, Increase the area under production/cropping, Reduction in cost of cultivation, Risk mitigation to resilience in agriculture, and Minimization of harvest and post-harvest losses.

In order to put forward the local issues of the farmers in context to respective districts, for getting the ground level feedbacks with regard to implementation of the strategy/action, finding the local solutions of problems faced by farmers and for obtaining valuable suggestions for policy intervention, a Consultation Workshop on "Doubling Farmers' Income by 2022- A Strategic Initiative" was held during June 1-2, 2018 at Anand Agricultural University, Anand.

Inaugural Session

The programme was inaugurated in the august presence of **Shri Parshottam Rupala**, Hon'ble Union Minister of State for Panchayati Raj, Agriculture and Farmers Welfare; **Shri Jaydrathsinhji Parmar**, Hon'ble Minister of State, Agriculture (State Minister), Panchayat, Environment (Independent Charge), Government of Gujarat; **Shri Ishvarsinh Patel**, Hon'ble Minister of State, Co-operation, Sports, Youth and Cultural activities (Independent Charge), Transport (State Minister), Government of Gujarat; **Shri Dilipbhai Patel (MP)**, **Shri Lalsinh Vadodiya (MP)**, **Shri Sanjay Prasad (IAS)**, Hon'ble Additional Chief Secretary, Dept. of Agriculture, Farmers' Welfare and Co-operation, Government of Gujarat; **Dr. N. C. Patel**, Hon'ble Vice Chancellor, Anand Agricultural University, Anand; **Dr. A. R. Pathak**, Hon'ble Vice Chancellor, Junagadh Agricultural University, Junagadh; **Dr. P. H. Vataliya**, Hon'ble Vice Chancellor, Kamdhenu University, Gandhinagar; **Shri Mohammad Sahid (IAS)**, Secretary (Animal Husbandry), Dept. of Agriculture, Farmers Welfare and Cooperation, Govt. of Gujarat; **Shri S. K. Goyel (IAS)**, Retd. Additional Chief Secretary, Govt. of Maharashtra; **Shri Sunil Chawla**, Chief General Manager, National Bank for Agriculture and Rural Development, Ahmedabad, about 200 officers from the State Departments, 100 Scientists from State Agricultural Universities, 100 Progressive Farmers as well as invited guests and press and media.

While inaugurating the programme, **Shri Parshottam Rupala** emphasized that the idea and orientation of Government of India is now shifted from Agricultural Production to farmers' income. We used to decide, so far, the production target and put efforts to achieve it. Now, along with achieving the production target, we need to increase the farmers' income. He highlighted the measures to achieve it, which included the need for market reforms for online selling of the farmers' produce for getting maximum return. He also indicated that contract, cooperative farming can prove as a better option for the small farmers for getting higher income.

Shri Jaydrathsinhji Parmar pointed out the importance of creating awareness of farmers regarding organic farming, horticulture and animal husbandry. He also explained the significance of value addition of the farmers' produce for earning more profit.

During the inaugural session, the MoU signed between AAU, Anand and Ms. Margosa Biogrow India Pvt. Ltd., Vadodara were exchanged in presence of Hon'ble Ministers and other dignitaries. The MoU was regarding the production of Bio-fertilizer and Bio-NPK consortia. It will help promote organic farming in the State. At the end of inaugural session, Shri Mohammad Sahid (IAS), Secretary

(Animal Husbandry), Dept. of Agriculture, Farmers Welfare and Cooperation, Govt. of Gujarat proposed vote of thanks.

Orientation of Workshop

In the orientation session, Shri Sanjay Prasad (IAS), Hon'ble Additional Chief Secretary, Dept. of Agriculture, Farmers' Welfare and Co-operation, Government of Gujarat welcomed all the dignitaries and participants. Prof. R. B. Maraviya provided the primary information and motto of organizing the whole programme and briefed about the modality of the workshop. He appealed to contribute freely for fruitful recommendations.

Key note addresses were delivered by Shri B. M. Modi, Director of Agriculture, Gujarat State, Gandhinagar; Shri Sunil Chawla, Chief General Manager, National Bank for Agriculture and Rural Development, Ahmedabad; Shri S. K. Goyal (IAS), Retd. Additional Chief Secretary, Govt. of Maharashtra; Prof. Sukhpal Singh, Professor, IIM, Ahmedabad; Dr. A. R. Pathak, Hon'ble Vice Chancellor, Junagadh Agricultural University, Junagadh to set the platform for brainstorming during the workshop.

Modality

For better outcome, the whole programme was conducted by forming 14 groups in accordance with 14 various selected themes like (1) Agriculture and Field crops, (2) Soil health management, (3) Management of water resources, (4) Farming system, (5) Input supply management, (6) Farm mechanization and energy sources, (7) Horticulture, (8) Post-Harvest Management, (9) Resilience in agriculture, (10) Animal husbandry and dairy, (11) Small ruminants and poultry, (12) Fisheries, (13) Extension and ICT and (14) Logistics, marketing and quality control.

The discussion was carried out under the directives of a chairman and a supporting team comprising of a co-chairman, moderators/facilitators and rapporteurs (**APPENDIX-I**).

The parallel discussion sessions on each of the theme were held in 14 separate groups (**APPENDIX-II**) of the subject experts, the field officials, industry and institutional representatives and leading/progressive farmers enabling a complete brainstorming on the entire subject to bring out more effective strategies and measures on issues related to state agriculture and allied sector development for doubling farmers' income.

In depth discussion was carried out during afternoon session on 1st June and before noon session of 2nd June, 2018 on the specific subject area in each theme

area by respective group and the recommendations/ action points on doubling the farmers' income were drawn from all the groups.

Valedictory

The valedictory was held on 02.06.2018 from 14.30 to 18.00 hrs. It was attended by Shri R. C. Faldu, Hon'ble Minister, Agriculture, Rural Development, Fisheries, Animal Husbandry and Transport, Government of Gujarat and other dignitaries. During this session, the recommendations/ action points emerged/ drawn during the two days discussion were presented by each group on doubling the farmers' income in the presence of Shri R. C. Faldu, Hon'ble Minister, State officials, Invitee Subject Experts, Farmers etc.

During the valedictory speech, Shri R. C. Faldu, Hon'ble Minister, Government of Gujarat whole heartedly appreciated the progressive farmers for their active participation. He also described briefly the revised APMC act and suggested that the model APMC act should be circulated among the farming community in a form of leaflet for creating better awareness. At the end, he congratulated the Dept. of Agriculture, Farmers' Welfare and Co-operation, Government of Gujarat and Anand Agricultural University for successfully organizing this important programme.

After adequate churning, the recommendations/ actions were approved by the House which are summarized and included in this booklet.

In this consultation workshop, about 500 people including the dignitaries, experts, scientists, officers and progressive farmers participated as per the details given in **APPENDIX-III**.

At the end of the programme Dr. N.C. Patel, Hon'ble Vice Chancellor, AAU, Anand proposed vote of thanks.

Themewise Recommendations for Doubling Farmers' Income

Theme 1: Agriculture and Field Crops

Reduce cost of cultivation

- ↪ All the government sponsored programmes must be farmer oriented with active participation of the farmers.
- ↪ Policy should be developed to follow GAP (Good Agricultural Practices) by the farmers to reduce the economic liability.
- ↪ Insecticides/fertilizers/seeds/drip sets/farm implements/machinery and other agricultural inputs must be free from GST.
- ↪ Subsidy to be announced for organic manure to make it cost effective.
- ↪ Increase use of renewable energy in agriculture like solar energy to curtail the cost of diesel/petrol/fuel/electricity.
- ↪ Policy implementation to motivate farmers to shift from traditional field crops cultivation to remunerative and high valued horticultural crops and Agro-forestry.
- ↪ Incentive to be provided on use of bio-fertilizers.
- ↪ Have a policy to intensify the use of farm mechanization.
- ↪ Policy needed to expand the lining of field canals to save water and energy.
- ↪ Policy for compulsory adoption of micro irrigation in command area of Narmada and other rivers.
- ↪ It is an urgent urge to begin "Agricultural Clinics" for proper real time guidance to the farmers for effective use of inputs and resources.
- ↪ Encourage and support to develop small scale post-harvest technologies at village level.

Increase crop production

- ↪ To establish Centres of Excellence for major crops.
- ↪ Need to establish more seed plots for high seed production and sell it to nearby states.
- ↪ Encouragement to organic farming for better soil health.
- ↪ Policy to include mushroom cultivation, animal husbandry, apiculture, sericulture and other enterprises along with crop husbandry for financial security and higher

economic return to the farmers.

- ↪ Schedule irrigation in the command area of Narmada and other rivers as per the crop requirement.
- ↪ Ensure measures for strict implementation of “*Vara Bandhi*” and cooperative irrigation.
- ↪ Timely cleaning and maintenance of canals and regular maintenance.
- ↪ Excavate the village ponds from time to time.

Risk mitigation

- ↪ Development of cropwise modules to mitigate risk.
- ↪ Give financial aid for “Farm Ponds” for life saving irrigations in dry farming.
- ↪ Policy to encourage contract farming.
- ↪ Personal financial aid to the farmers for wire fencing to protect crops.
- ↪ Policy to integrate ginning mills and textile industry to reduce market risk to cotton growers.
- ↪ Simplify “Pradhanmantri Fasal Bima Yojana” for assured risk cover in case of failure of crop.

Fetching affordable prices/ Market management

- ↪ Establishment of cropwise AEZ (Agriculture Export Zone) in each district.
- ↪ Marketing of traditional “Bhalia” wheat.
- ↪ Special package to the resource poor districts like Dang for marketing and tube wells.
- ↪ Arrangement for timely announcement and implementation of Minimum Support Price (MSP) before selling of agricultural produce by the farmers.
- ↪ Marketing intelligence - Support to be provided to farmers.
- ↪ Encouragement to cooperative marketing.
- ↪ Policy to encourage agriculture credits through crop loan and “Kisan Credit Cards”.
- ↪ Branding, labelling and packaging of groundnut oil at village level processing units.
- ↪ Policy to encourage mini oil mill/ pulse mill/ rice mill etc. at village level.
- ↪ Make arrangement for “on farm storage” and establishment of cold chains to shrink the gap between market management and storage.

Human resource development and strengthening of extension structure

- ↪ Training programme for agricultural labourers.
- ↪ More emphasis on technical work of extension staff.
- ↪ Establishment of agriculture centres at block level.
- ↪ Publicity of agricultural technology through smart media, TV and newspapers.
- ↪ Strengthening extension force through timely filling up of all the vacant posts.
- ↪ Non-technical work/ assignments should not be given to line department officers engaged in transfer of technology.
- ↪ Full phase implementation of T & V Scheme.
- ↪ Encouragement to farmers for grading, packaging, processing and value addition at local level.
- ↪ Policy for “On Demand” easy and quick farm electrification.
- ↪ Policy needed to provide special incentive for farm mechanization to small and marginal farmers.

Venue	: Department of Microbiology & Bio-fertilizer, BACA, AAU, Anand
Chairman	: Shri B. M. Modi, Director of Agriculture, Gujarat State
Co-Chairman	: Dr. V. P. Chovatia, Director of Research, JAU, Junagadh
Facilitators/ Moderators	: 1. Dr. A. A. Kateshiya; Jt. Dir. (Agri.), Gujarat State 2. Dr. B. K. Sagarka, Prof. Agronomy, JAU, Junagadh
Rapporteur	: Dr. H. L. Dhaduk, Asso. Research Scientist & Head Medicinal Aromatic Plants Research Station, AAU, Anand
Nos. of Participants	: 28

Participants

- 1 Shri P.R. Hadiyol, Dy. Director, SAMETI, Gandhinagar
- 2 Shri P. R. Mandani, Project Director, ATMA, Valsad
- 3 Dr. K. L. Dobariya, Main Oilseed Research Station, JAU, Junagadh
- 4 Dr. L. F. Akbari, Dept. of Plant Pathology, CoA, JAU, Junagadh
- 5 Dr. M. F. Acharya, Professor, Dept. of Entomology, CoA, JAU, Junagadh
- 6 Shri K.K.Patel, District Agriculture Officer, Amreli
- 7 Shri C.N.Patel, District Agriculture Officer, Anand
- 8 Shri Ishvarbhai Nathubhai Patel, Progressive Farmer, Navsari
- 9 Shri Rameshbhai Lakhabhai Chandora, Progressive Farmer, Gir somnath
- 10 Shri S.K. Joshi, Joint Director Agriculture

- 11 Shri Naranbhai Kalabhai Patel, Progressive Farmer, Banaskantha
- 12 Prof. S. S. Kalamkar, Director & Professor - Agro Economic Research Centre
- 13 Dr. Kirit Shelat, Executive Chairman, NCCCSD
- 14 Dr. G. K. Katariya, Asso. Director of Horticulture, Rajkot
- 15 Dr. Devi Dayal, Head, CZARI, ICAR
- 16 Dr. S.K. Dera, Participant
- 17 Shri M.Sureshkumar, Scientist, CAZRI, ICAR
- 18 Dr. V.Vijay Kumar, Director, Gujarat Institute of Desert Ecology, Kutchchh
- 19 Shri Tapan Gosaliya, Participant
- 20 Shri Yogesh Singh, Participant
- 21 Shri Sandev Singh Chavda, Participant
- 22 Dr. D.M. Korat, Retd. Scientist, AAU
- 23 Shri Badarbhai Maganbhai Patel, Progressive Farmer, Panchmahal
- 24 Shri Budhabhai Bhavubhai Pavar, Progressive Farmer, Dang
- 25 Shri Maheshbhai S. Kandhoriya, Progressive Farmer, Dang
- 26 Shri Sukiravbhai Lahhubhai Gayakwad, Progressive Farmer, Dang
- 27 Shri B.V. Vasoya, DAO, Ahmedabad
- 28 Prof. R.B. Maraviya, Executive Director (Agri.), SSNNL, Gandhinagar



Theme 1 Session at Department of Microbiology & Biofertilizer

Theme 2 : Soil Health Management



Amelioration of salt affected (Saline/Sodic) soils

- ↪ The government should include Irrigation Water Analysis Scheme especially in salt affect areas as well as the areas where water quality is poor.
- ↪ The flowing/runoff water of rain must be checked with check dams/bunds for water conservation in order to improve quality of ground water. The government must provide financial assistance for such schemes.

Recommendations for effective implementation of Soil Health Card

- ↪ The soil sampling must be based on scientific method for which small audio-video clip can be prepared for educating farmers with proper soil sampling methods.
- ↪ The soil sampling must be done on GPS basis by government authorised personnel/employees. It should be constantly monitored and results must be cross-checked for quality analysis.
- ↪ Farmers who collect their soil samples at their own and bring the samples to soil testing laboratories, must be provided soil analysis reports without taking any charge.
- ↪ Soil Testing Laboratory should recruit at least one B.Sc. (Agri.) qualified employee to look after soil analysis activities and for providing proper recommendations to farmers.

Production of quality organic manure

- ↪ The farmers must be trained that they should not burn any farm/agricultural waste. They should prepare quality organic manure out of the agricultural wastes. The farmers must be encouraged with financial help for such activities.
- ↪ APMC should install vegetables and other organic waste processing units for composting. The organic manure prepared should be distributed to farmers. Govt. must frame out such scheme to encourage farmers for utilization of quality organics.
- ↪ The farmers must be trained and encouraged for using waste decomposer bacteria in the preparation of quality compost and liquid biofertilizers to cut down chemical fertilizers use and cost of cultivation, and to improve soil health. The

technologies must be popularized through suitable small audio-video clips on any mass communication devices like electronic media.

- ↪ Small units for preparation of vermicompost should be promoted and popularized among farmers, for which, Govt. should provide financial assistance.

Balanced fertilization for higher yield and management of soil health

- ↪ Farmers should be encouraged for growing vegetables adopting Training System (*Inanda* method). Also, farmers must harvest more crops by growing them under shade. Government must provide financial assistance for erection of Training System.
- ↪ There should be a government system for providing quality seeds of various forage crops in sufficient recommended quantities for green manuring in different areas of farmers.
- ↪ For improvement of soil texture, black soil available from ponds should be mixed with light textured soil. Also, sandy soil can be mixed with heavy black soil to improve soil infiltration rate and other physical properties. Farmers should be provided financial assistance for transportation of black soil/sandy soil to the desired location.
- ↪ Zero seed cum fertilizer drills should be made available on subsidy basis to the farmers in Bhal area practicing rice-wheat cropping system in order to improve soil health and crop productivity.

Venue	: Sardar Smruti Kendra Training Hall-2, AAU, Anand
Chairman	: Dr. K. P. Patel, Principal & Dean, BACA, AAU
Rapporteurs	: 1 Dr. M. V. Patel, Professor & Head, Dept. of Agronomy, BACA, AAU 2 Dr. V. P. Ramani, Associate Research Scientist, Micronutrient Project, AAU, Anand
No. of Participants	: 18

Participants

- 1 Dr. V.J. Zinzala, Associate Professor, Dept. of Soil Science & Chemistry, N. M. College of Agriculture, NAU, Navsari
- 2 Dr. C. K. Desai, Scientist (Agronomy), Krushi Vigyan Kendra, SDAU, Tharad
- 3 Shri H. V. Patel, Project Director, ATMA, Aravalli & Sabarkantha
- 4 Shri S. K. Dhimar, Project Director, ATMA, Narmada
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- 6 Shri H.C.Usdadiya, District Agriculture Officer, Jamnagar
- 7 Shri Gopalbhai Vghasiya, Progressive Farmer, Amreli
- 8 Shri Ketan Shamji Nakum, Progressive Farmer, Devbhumi Dwaraka

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- 10 Shri Bharatbhai Raysangbhai Sapara, Progressive Farmer, Surendranagar
- 11 Shri Omprakash Mina, Scientist, ICAR, IISWC, RC Vasad
- 12 Shri Rakesh Gohil, Dy. Director Agri. (Porbandar)
- 13 Dr. Anil Chichmlatpure, Head, ICAR, CSSRI, Bharuch
- 14 Dr. Indraveer Prasad, Participant
- 15 Shri H.P. Bairwa, Ass. Soil Survey Officer, Ahmedabad
- 16 Dr. S.P. Singh, Soil Survey Officer, Ahmedabad
- 17 Shri Chaudhary Rahul V., Participant
- 18 Shri Ratilal Kuvarbhai, Participant



Theme 2 Session at Sardar Smruti Kendra Training Hall - 2

Theme 3 : Management of Water Resources



Rain water management

- ↪ There should be due attention to accelerate the pace of water resources development in the state so as to increase the net water availability by roof water harvesting and storage in domestic tank for drinking water to be adopted invariably across all villages in Gujarat.
- ↪ *In-situ* and *ex-situ* rain water harvesting measures for storing rain water along with agronomical interventions and utilization towards lifesaving irrigation be implemented at all places of fall in the state.
- ↪ Capacity building programs on *In-situ* and *ex-situ* rain water harvesting measures and agronomical interventions for moisture conservation practices in rainfed farming system to be intensively executed.
- ↪ Deepening and renovation of existing farm ponds and village ponds for increasing storage capacity and percolation rate towards ground water development.
- ↪ Promotion of agronomical practices like contour cropping, strip cropping, contour bunding, deep ploughing during summer etc. in dryland farming.
- ↪ Farm bunding system and pukka outlet to be promoted to retain farm water in farm itself for better recharging and ground water development and controlling soil erosion.
- ↪ Government wasteland is to be allowed for construction of farm pond where space for farm pond in private land is not available.
- ↪ FLDs should be arranged for *In-situ* moisture conservation, well and bore recharging, roof water harvesting etc in different villages in the same line of FLDs of crops.
- ↪ Farmers should be motivated to adopt farm pond for supplemental irrigation along with adoption of integrated system for land use like growing vegetables, installation of solar panels, growing fruit trees, and agro forestry on the bank of pond.

Increase in ground water usage efficiency

- ↪ Electricity connection to be provided to micro irrigation system users only.
- ↪ Additional assistance in the form of interest subsidy to farmers for adoption of MIS and diversification of crops.
- ↪ Conveyance of irrigation water should be through pipeline network only even in case of traditional at irrigation system.
- ↪ Community based online solar power grid is to be promoted for pumping of irrigation water on cooperative basis.
- ↪ Promotion of well recharging should be given top priorities in the coastal area to prevent sea water ingress.
- ↪ Rehabilitation of abandoned open/tube well for recharging.
- ↪ The present scheme of assistance for the construction of water sump is popular among the farmers. However, need to provide additional assistance to large land holders for the construction of water sump.
- ↪ Additional subsidy in power tariff for agriculture connection should be given to those farmers who adopt MIS.
- ↪ Establishment of Agricultural Engineering Technocrat at Taluka level to suggest irrigation schedule to different crops and look after operation and maintenance of MIS.

Measures to enhance water use efficiency of canal irrigation

- ↪ Need base and timely repair and maintenance of canal network.
- ↪ Conjunctive use of ground and surface water to be adopted in shallow ground table conditions.
- ↪ Farmers must be motivated for summer crops/perennial crops like agro forestry/ horticultural crops in shallow ground water conditions in the command area.
- ↪ Scheduling of Canal should be based on cropping pattern.
- ↪ A water conservation scheme called “Sardar Patel Participatory Water Conservation Scheme” (SPPWCS) should be implemented under the expertise of agricultural engineers only.
- ↪ For better performance and output of the soil and water conservation practices, specifically water harvesting structures, the executive/implementing agency must employ Agricultural Engineers for effective implementation.

- ↪ Participatory Irrigation Management (PIM) concept should be promoted and every user must be a member of Water Users Association (WUA).
- ↪ Canal water should be distributed to farmers through creating auxiliary storage structures/ village pond/community tank.
- ↪ Incentives must be given to the farmer adopting micro irrigation system in canal command area.
- ↪ Canal water should not be given in water logged areas/high water table conditions with poor quality ground water areas.

Measures to reduce the gap between created potential irrigation and actual utilization

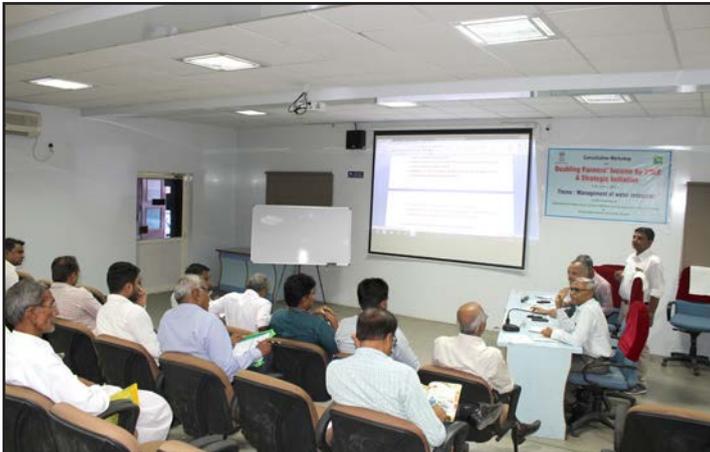
- ↪ Collection of real sown crop data for the calculation of crop water requirement.
- ↪ Minimisation in conveyance losses eg. Seepage and percolation etc.
- ↪ Distribution of water through closed conduit only for individual farmer.
- ↪ Repair and maintenance of minors and water course (disilting, removal of weeds, trees and shrubs, repairing in breakage etc.).
- ↪ Desiltation and deepening of existing reservoir for increasing storage capacity and life of reservoir.

Venue	: PG seminar hall-2, BACA, AAU, Anand
Chairman	: Pro. R. B. Maraviya
Facilitators/ Moderators	: 1 Dr. R. Subbaiah, Dean, CAET, AAU, Godhra 2 Dr. J. C. Patel, Prof. & Head, Dept. of Agronomy, CPCA, SDAU
Rapporteurs	: 1 Dr. H. D. Rank, Prof. & Head, Dept. of Soil & Water Engineering, CAET, JAU, Junagadh 2 Dr. Gautam Patel, Asso. Prof., Dept. of Agricultural Engineering College of Agriculture, AAU, Vaso
No. of Participants	: 19

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- 2 Shri R. S. Gohel, Project Director, ATMA, Porbandar
- 3 Shri R.R.Tilwa, District Agriculture Officer, Rajkot
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- 5 Dr. P. R. Bhatnagar, Scientist, ICAR, Vasad
- 6 Dr. N. P. Chauhan, Professor, Dept. of Agronomy, BACA, AAU

- 7 Shri Bornali Borah, Participant
- 8 Dr. Kinjal Ahir, Deputy Director - Agro Economic Reasearch Centre
- 9 Smt. Gitaben Rajubhai Vasava, Progressive Farmer, Panch Pipadi
- 10 Shri Dixit Makwana, Participant
- 11 Shri Ravaji Mangaji Thakor, Progressive Farmer, Golapara
- 12 Shri Mitesh Vaghasiya, Progressive Farmer, Pipalva
- 13 Shri Gandabhai L. Rabari, Participant
- 14 Shri P. P. Donga, Sr. Exe. Manager, GGRC
- 15 Shri Ashokbhai Karmashi Limbani, Progressive Farmer, Deshalpar
- 16 Shri Lakhamanbhai Chanabhai Gamit, Progressive Farmer, Katiskuva
- 17 Smt. Taraben Nayak, SEWA
- 18 Shri Naimik Joshi, SEWA
- 19 Smt. Bharti Bhavsar, Participant



Theme 3 Session at PG Seminar Hall-2

Theme 4 : Farming System



Organic Farming

- ↪ Provision and easy availability of sunn hemp (*Crotalaria juncea L.*) and dhaincha (*Sesbania bispinosa*) seeds for green manuring to the organic farmers.
- ↪ Facilitate farmers for easy availability of the seeds without chemical treatment.
- ↪ Publicity of Indigenous Technological Knowhow (ITK).
- ↪ Encouragement to farmers for adopting animal husbandry, “Gobar Gas” plants and also the drip irrigation.
- ↪ Make local arrangement for availability of bio-pesticides and bio-fertilizers and GST to be removed.
- ↪ Encourage farmers to adopt mulching.
- ↪ In case of organic farming certification provision needed to pay only the amount except subsidy and credit directly to the Government agency.

Farming System

- ↪ Recommendation to farmers to take high remunerative and short duration crops in the areas under paucity of water.
- ↪ Recommendation for remunerative cropping systems for problematic soil regions.
- ↪ Policy to encourage farmers for adoption of drip irrigation along with appropriate cropping system under command area of all rivers for judicious use of water.

Integrated farming system

- ↪ Financial aids to encourage solar power based farming system.
- ↪ Provision should be made for financial aid for solar panels for arid/ semi-arid regions and areas with scanty rainfall.
- ↪ Financial aid for farm pond to encourage fisheries in coastal and tribal tracts.

Agro-forestry

- ↪ Provision for financial aid for tress like *Subabul*, *Khijado*, *Anjan*, *Kanchnar*,

Goras-ambali etc. on the farm bunds in arid regions.

- ↪ Policy needed to resolve the problems related to expurgating of trees on the bunds.
- ↪ Different stumps of the trees should be made available easily at meagre price or supply them free of cost through forest department.
- ↪ Encourage social forestation in villages and waste lands.

Contract farming

- ↪ Encouragement to farmers for self-marketing (non branded agro produces).
- ↪ Financial aids to the farmers who want to adopt value addition.
- ↪ Provision to supply farm machinery on subsidized rate to the farmers for value addition.
- ↪ Special financial support for grading and processing implements to the small and marginal farmers.
- ↪ Government should initiate contract farming as a third party to ensure assured sale of produce and financial stability to the farmers.
- ↪ Financial aid should be provided to the farmers who are sensitive to water harvesting and conservation.

Venue	: Organic Farming Training Hall, Agronomy Farm, BACA, AAU, Anand
Chairman	: Dr. A. R. Pathak, Vice Chancellor, JAU, Junagadh
Facilitator/ Moderator	: Dr. A. M. Patel, Director of Research, SDAU, S.K.Nagar
Rapporteurs	: 1 Dr. V. J. Patel, Asso. Prof., Sheth M. C. Polytechnic in Agriculture, AAU 2 Dr. B. D. Patel, Agronomist & PI, Weed Control Project, AAU, Anand
No. of Participants	: 28

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- 9 Shri G. C. Balodi, Project Director, ATMA, Surendranagar
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- 13 Shri Chensingh Shankersangh Rathva, Progressive Farmer, Chhota udepur
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- 21 Shri Dharmesh Bhaghubhai Patel, Progressive Farmer, Chijgam
- 22 Shri D. B. Patel, Progressive Farmer, Navsari
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- 24 Shri Harshal B. Mavani, Progressive Farmer, Deshalpar
- 25 Shri N. B. Dasalaniya, Participant
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- 28 Shri Rameshbhai Dahyabhai Prajapati, Progressive Farmer, Vanch



Theme 4 Session at Organic Farming Training Hall, Agronomy Farm, BACA

Theme 5 : Input Supply Management



- Local and inferior quality seeds should be replaced with high quality seeds, and for that the “seed village program” needs a focused attention.
- To meet the growing demand for seed, Public Private Partnership (PPP) mode of seed production should be promoted.
- To increase the availability of certified seeds, C1 to C2 procedure also needs to be followed (labeled as certified C2). The group also felt that a course on “Seed production programme”, should be introduced at Under Graduate level, and it should also be a part of farmers’ training programme.
- Seed storage facility should be created at village level through FPO or other pertinent groups to address the issue of timely availability of seeds and make seed village program more effective.
- Establishment of nursery infrastructure for mass multiplication of varieties apart from root stock to mitigate the problem related to biotic and abiotic stress. These facilities should be established at Taluka place.
- Extension functionary should be effectively engaged in the extension work only. Services of extension staff should not be used for any other purposes, as it dilutes their core professional objective of transfer of technology.
- “Kisan Kalyan Kendras” should be established at Taluka places with experts of different disciplines following single window approach so that all information is available at one place. The specific purpose of these centers would be technology transfer and acting as Information kiosks. These centres should also be equipped with soil testing facilities.
- To adopt “no cost low cost” technologies; capacity building programs need to be promoted and strengthened.
- To address the adverse effect of climate change on agriculture, high yielding, insect-pest resistant, and drought tolerant varieties for crops should be developed.
- The Government should ensure through appropriate policy that MRP of agro-inputs are not unreasonably higher and maximum profit margin in the distribution channels is to be fixed. So far, there is no control of Government on MRPs and

the farmers are exploited.

- Input dealers should be encouraged for providing effective advisory services, and in lieu of that, they need to be given some recognition and incentives.
- Certification program in Dealership offered by SAUs in Gujarat needs to be widely replicated as it not only helps the dealers in their business of input supply, but also makes them capable for giving effective extension services.
- To control detrimental effect of plant protection chemicals on environment, animals, and human health, dealers should not be allowed to sell pesticides without prescription of competent authority.
- Establishment of fodder banks at Taluka level.
- In view of their highly desirable implications, the government should highly subsidize the chaff cutter and hay baler machines. The cost of subsidy on these machines is insignificant. Pasture land should be developed and protected.
- Wastelands should be converted to pasture land, to address the need of feed and fodder at local level.
- Quality cattle feed is the key component of total feed cost. However, Quality of cattle feed is one of the key problems for milk producers in the state, which must be addressed through proper policy measures.
- There is a strong need of Animal registration to address the issues of animal tracking, which eventually will help in tracking the animal trade, insurance, quality, apart from reducing animal thefts.
- Establishment of a separate cell at district level to maintain and invariably collect and update the data regarding use of soil health card on taking information decision by the farmers. This unit should work in close collaboration with “Kisan Kalyan Kendra” as suggested earlier.
- Public Private Partnership (PPP) system should be promoted to increase the availability and intensive use of various bio-inputs, such as bio-fertilizers and bio-pesticides. The system should also encourage the adoption of Integrated Nutrient Management (INM) and Integrated Pest Management (IPM).
- Credits are the main facilitator for optimum use of inputs by farmers and in turn enhance farm income. In this context, micro finance with particular focus on credit linked Self Help Groups (SHGs) and Joint Liability Group need to be promoted and strengthened in an effective way. This is mainly to address the financial need of the marginal farmers.

Venue	: Extension Education Institute-2, AAU, Anand
Chairman	: Shri. S. J. Solanki, Director Gujarat Seed Certification Agency
Rapporteurs	: 1 Dr. R. S. Pundir, Prof. & Head, Dept. of Agribusiness Economics & Policies, IABMI, AAU, Anand 2 Dr. Ritambhara Singh, Asst. Prof. Dept. of Agribusiness Economics & Policies, IABMI, AAU, Anand
No. of Participants	: 14

Participants

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Theme 5 Session at Extension Education Institute - 2

Theme 6 : Farm Mechanization and Energy Sources



Strategies for small and marginal farmers

- ↪ Promotion of small farm tools through FIG, ATMA.
- ↪ Promotion of drudgery reduction of farm tools like paddy drum seeder, single wheel hoe, cono weeder, hanging type grain cleaner through FIG and ATMA.
- ↪ Promotion of multipurpose farm implements.
- ↪ Promotion of FYM spreader.
- ↪ Promotion of cotton picking machine.
- ↪ Popularization of precision fruit harvesting tools/implements.
- ↪ Popularization of maize cob harvester.
- ↪ Creation of local manufactures/ entrepreneurship for small tools/implements.
- ↪ Need of battery operated small tools.

Skill Development for efficient use of farm equipments

- ↪ Training to the farmers regarding uses and maintenance of different tools/implements as per regional crops.
- ↪ Establishment of Regional Training Centers regarding identification, uses and working principles of different modern farm tools/implements.
- ↪ Establishment of Regional Training Centers for Repair and Maintenance of farm equipments.
- ↪ Arrangement of training for quality production of small tools and implements manufacturers and rural craftsmen, artisan.
- ↪ Bank loan facilities, guidance and help from Government for rural craftsmen, artisan and entrepreneurship.
- ↪ Emphasis on skill development training to rural youth under Agriculture Skill Council of India (ASCI).

Promoting Farm Mechanization and Agro Service Providers/Custom Hiring Centers (CHC)

- ↪ Government should promote Custom Hiring Centre (CHC) through FIG, ATMA.
- ↪ Resource conservation technologies like zero tillage, furrow raised bed planter should be promoted under CHC.
- ↪ Cleaning and grading centers should be created at taluka level.
- ↪ Implements should be reduced from existing 70 per cent to need based under service provider scheme and subsidy should be completed within two years.
- ↪ Equipments for different operations should be made available to farmers like paddy transplanter, combine harvester etc. through Custom Hiring Centre.
- ↪ Seedling transplanting machine like pneumatic planter should be promoted for planting of vegetables.
- ↪ Mulching and drip line laying machine should also be promoted under Custom Hire Centre.
- ↪ Pearl millet and sorghum harvesting and threshing machine, Onion planter and harvester should be promoted through CHC.

Solar Energy Utilization on Farm

- ↪ Popularization of soil solarization techniques.
- ↪ Introduce solar panel photovoltaic with farming system (Solar Agri Farming System).
- ↪ Community biogas plant for street light.
- ↪ Increase subsidy on solar water pump up to 10 hp.
- ↪ Implementation of online biochar techniques for crop residue management, energy generation and soil fertility improvement.
- ↪ Solar devices for sustainable green energy.
- ↪ Utilization of farm waste and cow dung for biogas generation and use of slurry for vermin-compost for improvement of soil health and additional income generation.
- ↪ Training to rural youth on solar appliances.
- ↪ Solar fencing subsidy for individual farmers to protect crops from wild animals.

Other Points

- ↪ In coming years, Drone technology should be imported from other country for spraying of insecticides in fruit, sugarcane and dense crops cultivation.
- ↪ To increase adoption level of agricultural machinery/implements in State/Country, research activities should be promoted related to modern agricultural tools and equipment.
- ↪ Testing centers of agricultural machinery should be increased (Existing one center at JAU, Junagadh).
- ↪ Establishment of separate Directorate of Agricultural Engineering in the State like Tamilnadu, Madhya Pradesh and other states so that the activities related to agricultural mechanization, soil and water conservation, irrigation management, post-harvest management and value addition and uses of renewable energy in agriculture may increase in the state.

Venue	: Department of Agril. Statistics, BACA, AAU, Anand
Chairman	: Dr. N. C. Patel, Vice Chancellor, AAU, Anand
Facilitators/ Moderators	: 1 Dr. P. M. Chauhan, Prof. & Head, Dept. of Ren. Energy, CAET, JAU, Junagadh 2 Dr. R. N. Singh, Asso. Director of Research, SDAU, S. K. Nagar
Rapporteurs	: 1 Dr. S. K. Patel, Scientist (Agril.Engg.), KVK, AAU, Dahod 2 Dr. B. S. Parmar, Asso. Res. Scientist, Dept. of NRM, CPCA, SDAU
No. of Participants	: 17

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- 4 Shri N. K. Gabani, Project Director, ATMA, Surat
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- 12 Shri Vipen Bhada, Participant
- 13 Shri Chintan P. Desai, Participant
- 14 Smt. Sunita Sanjaybhai Pava, Progressive Farmer, Vadodara
- 15 Shri Khair Alpesh N., Participant
- 16 Shri Keyur D. Patel, Participant
- 17 Shri Mahendrasinh Gohil, Participant



Theme 6 Session at Department of Agril. Statistics, BACA

Theme 7: Horticulture



- ↪ Promote plug nursery for small farmers having land holding below one ha area through financial support.
- ↪ Nursery Act needs to be implemented for ensuring quality of the planting material coming from other states.
- ↪ Motivation through financial support for dry land and minor fruit crops cultivation is required.
- ↪ Need to establish more nurseries under tribal area.
- ↪ Promote off season horticultural crop cultivation with financial support.
- ↪ Establishment of suitable market for selling organic horticultural products for better earning of farmers.
- ↪ Farmers practicing organic cultivation should be motivated and financially supported to acquire self-dependence for production of good quality seeds, organic manure and bio-pesticides.
- ↪ Subsidy should be provided on low/small capacity equipments for horticulture farmers.
- ↪ New horticulture based equipments should be included in present scheme of hiring equipments and need to establish hiring unit at block level.
- ↪ All municipalities have to identify and reserve area for direct marketing by farmers.
- ↪ More APMCs should be involved for horticultural product collection and marketing.
- ↪ Celebration of seasonal horticultural crop festivals should be promoted to establish market.
- ↪ Promote weekly *Hat* in rural/urban area for direct marketing by farmers and include horticultural nutrient rich products in the mid-day meal programme.
- ↪ Promote horti-tourism by establishing relevant infrastructure and guidelines.
- ↪ Support price needs to be announced for horticultural product to provide economical rate to farmers.
- ↪ Horticultural crops need to be included in crop insurance scheme.

Venue	: PG Exam hall-1, BACA, AAU, Anand
Chairman	: Dr. R. A. Khimani, Registrar, Gujarat Vidhyapith, Ahmedabad
Co-Chairman	: Dr. P. M. Vaghasiya, Director Horticulture, Gujarat State
Facilitators/ Moderators	: 1 Dr. B. N. Patel, Principal & Dean, Aspee College of Horti. & Forestry NAU, Navsari 2 Dr. D. K. Varu, Asso. Prof., Dept. of Horti., COA, JAU, Junagadh
Rapporteurs	: 1 Dr. Nitin I. Shah, Prof. & Head, Dept. of Horti., BACA, AAU, Anand 2 Dr. B. N. Satodia, Asso. Prof., College of Horti., AAU, Anand
No. of Participants	: 45

Participants

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- 31 Shri N.C. Gamit, Progressive Farmer, Bardoli
- 32 Shri M.R. Chaudhary, Progressive Farmer, Rajval
- 33 Shri Ranchhibhai M. Chaudhari, Progressive Farmer, Rajval
- 34 Shri Nilesh Patel, Participant
- 35 Shri B.V. Patel, H.O., Gandhinagar
- 36 Dr. Bipin Patel, Participant
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Theme 7 Session at PG Exam Hall-1, BACA

Theme 8 : Post Harvest Management



- Urgent sensitization on importance of post harvest management of all the stakeholders from grass root level including farmers, Gram Sevaks, Farmer friends, APMCs, NGOs, Cooperatives, Processors, etc. by concerned departments/ agencies and through PPP.
- Immediate relevant training and effective demonstration of crop specific post-harvest technologies to line department officials, NGOs, cooperatives and progressive farmers, followed by village/taluka level training to other farmers.
- Ensure adequate and effective availability of manpower trained for post-production aspects both at District/Taluka level.
- Urgent need to link farmers with Processors/Market through appropriate mechanisms such as two/three tier cooperatives, FPO/Farmer Producer Companies, selected NGOs or by direct intervention by Govt. or through PPP.
- Establishment of effective and low cost cold chain.
- More accurate estimation of area under particular crop as well as its estimated production and productivity, etc. be obtained through satellite images or similar techniques.
- Periodic assessment of crop specific post-harvest losses at district level followed by proper crop planning and post-harvest management measures.
- Urgent establishment of 'Special Purpose Vehicle' facilities for PHM at state level on line with GGRC.
- Making effective changes in the approach of APMCs in dealing with farmers, particularly on perishable commodities, especially auction system through legislative/administrative orders coupled with appropriate investment in PHM. APMC licenses should be liberalised for farmer groups, Agri Startups, FPOs and other entities.
- Incentivise Agri-Food StartUps, Entrepreneurs and SMEs for establishing end-to-end value chain/supply chain.

- Urgent establishment of Cluster based Post-Harvest Handling –cum – Primary Processing Centres equipped with required modern facilities.
- Operationalizing of APEDA office in the state.
- Establishment of State level Agri Export Agency.

Venue	: Sardar Smruti Kendra Training Hall-1, AAU, Anand
Chairman	: Prof. Sukhpal Singh, Centre for Management in Agriculture, IIMA
Facilitators/ Moderator	: 1 Dr. D. C. Joshi, Dean, College of FPT&BE, AAU, Anand 2 Dr. R. K. Jain, Principal, ADIT College, V. V. Nagar
Rapporteurs	: 1 Dr. S. H. Akbari, Director of Student Welfare, AAU, Anand 2 Dr. A. Nema, Assi. Prof., Dept. of Post Harvest Engineerin & Technology, College of FPT&BE, AAU, Anand
No. of Participants	: 24

Participants

- 1 Shri V. H. Hirpara, Project Director, ATMA, Amreli
- 2 Shri D.P.Jadav, District Agriculture Officer, Gandhinagar
- 3 Shri A.M. Detroja, Deputy Director of Horticulture, Gir somnath
- 4 Shri R. K. Boghara, Deputy Director of Horticulture, Porbandar
- 5 Shri D. K. Padaliya, Deputy Director of Horticulture, Surat
- 6 Dr. F. K. Modh, Deputy Director of Horticulture-Kutch
- 7 Dr. Munish Alag, Sardar Patel Institute of Economic and Social Research
- 8 Shri A. R. Gami, Project Director, ATMA, Mahesana
- 9 Shri D.M. Patel, Deputy Director of Horticulture, Botad
- 10 Shri C. M. Patel, Deputy Director of Horticulture, Baharuch
- 11 Shri N. V. Patel, Participant
- 12 Shri Rohit Sharma, Participant
- 13 Shri Anil D. Patel, Participant
- 14 Shri Jivubhai S. Patel, Participant
- 15 Shri Rameshbhai D. Prajapati, Progressive Farmer, Ahmedabad
- 16 Shri Vikram R. Pandya, Progressive Farmer, Dabhan
- 17 Smt. Vimlaben Jayeshbhai Patel, Progressive Farmer, Patan
- 18 Shri Ambalalbai Virmadasi Patel, Progressive Farmer, Mehsana

- 19 Shri Manish Vaghasiya, Progressive Farmer, Amreli
- 20 Shri Arvinbhai Gediya, Progressive Farmer, Amreli
- 21 Shri Ashwinbhai Babarbhai Patel, Progressive Farmer, Bharuch
- 22 Shri Haresh Gordhanbhai Radadiya, Progressive Farmer, Gorakhpur
- 23 Shri Arvind Kalubhai Radadiya, Progressive Farmer, Gorakhpur
- 24 Shri Samit J. Patel, Participant



Theme 8 Session at Sardar Smruti Kendra Training Hall - 1

Theme 9 : Resilience in Agriculture



Disaster management

- ↪ Occurrence of disasters (viz. floods, droughts, cold waves, heat waves, cyclones etc.) shall have to be well informed to the stake holders including farmers before the 48 hrs.
- ↪ Regular census of farm resources held by farmers shall have to be undertaken and inventories need to be kept updated.
- ↪ For appropriate and timely assessment of crop loss, use of remote sensing and geo spatial technology needs to be encouraged.
- ↪ The assistance for crop loss, land loss and animal loss should be revised from time to time as per calamities relief fund guidelines.

Risk management and diversification

- ↪ High and medium risk area should be identified and manual of drought proofing activities should be prepared and implemented.
- ↪ Availability of irrigation water at critical stages of crops needs to be assured.
- ↪ Use of solar energy shall have to be encouraged at farm level and special packages of loans at subsidized rates (@ 6-7 %) need to be offered for the interested farmers/self help groups.
- ↪ Rural processing centers for primary and secondary processing by cooperatives, PPP mode and individual farmers have to be encouraged.
- ↪ Increase the storage capacity for farm produces in identified risk areas.
- ↪ Encourage cooperative / contract farming and agroforestry in identified risk areas.

Insurance

- ↪ Crop insurance scheme shall have to be made voluntary for the loanee farmers.
- ↪ Insurance cover should be given to prevent sowing risk under any natural perils.

- ↪ Insurance companies should cover at least 20 % of total non loanee farmers under crop insurance.
- ↪ The crop having more than 50 % of total cropped area should be notified as major crop for that taluka or taluka should be made the unit of insurance for all notified crops and approximately 32-40 crop cutting experiments should be planned in such talukas.
- ↪ Seventy five percent of the premium needs to be given to insurance companies only after final coverage provided by them and 25 % share of the premium shall be given after final claim settlement.
- ↪ The loss assessment work should be given to independent agencies set up by GOI with supervision of state government, insurance companies and farmer representatives.
- ↪ A state crop insurance fund should be created in each state for implementation of PMFBY and premium shall be calculated by national technical support unit.
- ↪ The farmer's premium rate for perennial horticulture crop shall be included in guideline.
- ↪ For healthy competitions, farmers should be given option to select from more than one insurance companies.

Minimum support price

- ↪ For better realization of agricultural produce, the prices and market intelligence system need to be judged well in advanced with effective forecasting well before the season.
- ↪ A permanent collection center at block / taluka headquarter should be set up for agricultural produce procurement at minimum support price. The procurement activities carried out by such machineries and the instrumental organization can avail the loan against ware house receipt, if they do not have resources to pay farmers.
- ↪ Strengthening of the e-NAM system is advised.

Credits

- ↪ Looking into sharp inflation in cost of agricultural inputs, the prevailing crop loan amount needs to be hiked at least up to ₹ 5 lacks per annum.

↳ In case of term loan, the subsidized rate of interest (preferably 6-7 %) for farm machineries, processing and grading-packing units at village level, green house/net house, micro irrigation system etc. needs to be considered.

Venue	: PG Exam Hall-2, 1 st Floor, BACA, AAU, Anand
Chairman	: Dr. A. M. Shekh, Ex-Vice Chancellor, AAU, Anand
Facilitators/Moderators	: 1 Dr. N. K. Gontia, Principal & Dean, CAET, JAU, Junagadh 2 Shri P. S. Rabari, Joint Director of Agri., Gandhinagar
Rapporteurs	: 1 Dr. M. L. Gaur, Prof. Dept. of Agri. Meteriology, BACA
No. of Participants	: 22

Participants

- 1 Dr. V.M. Thumar, Associate Professor & Planning Officer, Directorate of Research, NAU, Navsari
- 2 Shri B. R. Baldaniya, Project Director, ATMA, Bhavnagar & Botad
- 3 Shri M. S. Patel, Project Director, ATMA, Patan
- 4 Shri P.K.Patel, District Agriculture Officer, Palanpur
- 5 Shri. S.S.Patel, District Agriculture Officer, Patan
- 6 Shri Dasharathbhai Madhavlal Patel, Progressive Farmer, Gandhinagar
- 7 Smt. Ushaben Dineshbhai Vasava, Progressive Farmer, Narmada
- 8 Shri Mangubhai Bodliyabhai Gamit, Progressive Farmer, Tapi
- 9 Dr. J. J. Patel, Assistant Director, I. C. D.P., Panchamahhal
- 10 Dr. R. N. Patel, Veterinary Officer, I. C. D.P., Panchamahhal
- 11 Dr. J. M. Patel, Veterinary Officer, I. C. D. P., Ahmedabad
- 12 Dr. M.P. Patel, Veterinary Officer, I. C. D. P., Ahmedabad
- 13 Dr. B. J. Patel, Veterinary Officer, I. C. D. P., Ahmedabad
- 14 Dr. I. H. Prajapati, Veterinary Officer, I. C. D. P., Gandhinagar
- 15 Dr. Yogi Trivedi, Participant
- 16 Shri Sovvansai Mukho Padmay, Participant
- 17 Dr. Vanrajsinh Parmar, D.P.D., Botad

- 18 Dr. S. R. Chaudhari, Retd. Director of Agriculture
- 19 Shri N. K. Kathad, Ad. Director (Agri.), GoG, Gandhinagar
- 20 Dr. M. N. Kulshrestha, I/C Professor & Head, Deptt. of Agri. Meteorology, BACA, AAU
- 21 Shri Rajesh Singh, Associate Director of Research, Directorate of Research, SDAU
- 22 Shri Alpeshkumar Barad, Participant



Theme 9 Session at PG Exam Hall-2

Theme 10 : Animal Husbandry and Dairy



Enhancing production, productivity and value

- ↪ Electricity charges for animal housing to dairy farmers should be levied at normal rate rather than the commercial rate.
- ↪ Animal husbandry/dairying should be considered as an agricultural enterprise in order to pass on the benefits of income tax waiver to dairy farmers.
- ↪ The animals should be covered under 'Mukhya Mantri Pashudhan BimaYojna' at a nominal insurance premium to be paid partly by Government and partly by the farmers.
- ↪ Increase the coverage of Artificial Insemination (AI) in indigenous cattle and buffalo breeds using frozen semen from high genetic merit bulls.
- ↪ Provide high genetic merit bulls wherever AI infrastructure is not available and also for migratory herds of traditional breeds.
- ↪ Performance linked incentives should be provided to AI workers to improve the early pregnancy success rate and to reduce infertility.
- ↪ Awareness among dairy farmers should be created to provide balanced feed and supplements during pre partum period to improve the milk yield.
- ↪ Dairy farmers should be motivated to feed their animals 50 % rice/ wheat straw: 50% gotar instead of sole rice or wheat straw.
- ↪ Vaccination programme against FMD and HS should be strengthened. Sufficient trained manpower should be made available for 100 % vaccination coverage.
- ↪ Field workers should be incentivized based on performance to increase the effectiveness of vaccination.
- ↪ Animal husbandry operations are primarily carried out by women. Hence, automation in cleaning, milking and other farm operations should be promoted to reduce work load and to increase work efficiency and thereby women empowerment.
- ↪ Training and scientific information should be provided to dairy farmers for clean

milk production.

- ↪ AI and Veterinary health services should be provided at farmer's door step through more number of mobile veterinary ambulances.
- ↪ Enhanced awareness regarding mastitis control should be created among dairy farmers.
- ↪ Human resources including Veterinarians and Para Veterinarians (Livestock Inspector/ *Gopal Mitra*, etc.) should be made available and strengthened at district level/taluka level.

Upgrading Dairy Infrastructure

- ↪ Co-operative dairy network should be strengthened further to cover all villages of the state.
- ↪ Separate processing and marketing facilities should be created for indigenous cow milk.
- ↪ Rural youths should be motivated for traditional dairy products manufacturing and marketing through Yuva Rojgar Yojna and Dairy Start-Ups.

Use of Dairy Byproducts

- ↪ Dairy farmers should be motivated for silage making whenever green fodder is available. Infrastructure facilities for silage making may be created on co-operative basis and rural youths may be motivated for Start-Ups for commercial silage making.
- ↪ Use of animal byproducts like dung and urine in organic farming should be promoted and linked with cleanliness drive.
- ↪ Dairy farmers should be trained on animal waste management.
- ↪ Vermicompost and biogas production should be promoted through co-operative dung collection at village level, similar to garbage collection in the cities and made part of *Swachhata Abhiyan*.

Fodder management

- ↪ Gauchar land development through cleaning, leveling and fencing by village committee. Fodder production should be promoted through improved seeds and tussocks / samplings through village committee.
- ↪ Fodder seeds production and distribution should be scaled up. KVKs should be involved in these activities.

- ↪ Quality of forest grass produced under forest area should be improved by reseeded. Infrastructure facilities should be created for roughage pellet and block making at grass depots in order to provide value added fodder to farmers.
- ↪ Quality of Godown and storage facility under forest department should be improved /reinforced to maintain the quality of grasses.

Quality of mineral mixture

- ↪ Regulation of quality of animal feed provided by unorganized cattle feed producers.
- ↪ Area specific mineral mixture should be promoted; production and supply of area specific mineral mixture should be entrusted to district dairy co-operatives or start-ups by rural youth.
- ↪ Training should be provided to dairy farmers especially women for maintaining daily income expenditure register for better awareness.

Venue	: PG Seminar Hall-1, BACA, AAU, Anand
Chairman	: Dr. P. H. Vataliya, Vice Chancellor, Kamdhenu University, Gandhinagar
Facilitators/ Moderators	: 1 Dr. D. B. Patil, DR & Dean, PG Studies, Kamdhenu Uni., Gandhinagar 2 Dr. S. Murthy, Res. Sci., CBS, JAU, Junagadh
Rapporteurs	: 1 Dr. D. N. Rank, Prof. & Head, Dept. of Animal Genetics & Breeding College of Vet. Sci. & A.H. , AAU, Anand 2 Dr. V. M. Ramani, Principal, College of Dairy Science, Amreli, Kamdhenu Univeristy
No. of Participants	: 20

Participants

- 1 Dr. S. K. Raval, Professor & Head, College of Vet. Sci . & A. H., AAU, Anand
- 2 Dr. Yogesh Gami, Asstt. Professor, Live stock Research station, SDAU, Sardarkrushinagar
- 3 Shri Pathik R. Dave, Project Director, ATMA, Kheda
- 4 Dr. J. S. Patel, Professor, CVS, JAU, Junagdh
- 5 Shri S.R. Kosambi, District Agriculture Officer, Bhavanagar
- 6 Shri Y.I. Sihora, District Agriculture Officer, Bhuj-kutch
- 7 Dr. B. J. Pannar, Joint Director, Directorate of A. H., Gandhinagar
- 8 Dr. Shahid Saiyad, Veterinary Officer, District Panchayat, Anand
- 9 Dr. Bharat Patel, Veterinary Officer, District Panchayat, Anand
- 10 Dr. Y. V. Mansuri, Veterinary Officer, District Panchayat, Ahmedabad

- 11 Dr. J. R. Zala, Veterinary Officer, District Panchayat, Ahmedabad
- 12 Dr. V.-K. Joshi, Veterinary Officer, District Panchayat, Nadiad
- 13 Dr. A. G. Patel, Veterinary Officer, District Panchayat, Nadiad
- 14 Dr. K. R. Patel, Veterinary Officer, District Panchayat, Nadiad
- 15 Dr. J. V. Patel, Veterinary Officer, District Panchayat, Panchmahal
- 16 Dr. B. D. Patel, Veterinary Officer, District Panchayat, Panchmahal
- 17 Smt. Bintaben Bhargavbhai Patel, A.H, Progressive Farmer, Anand
- 18 Shri Jaytibhai Maganbhai Parmar, A.H, Progressive Farmer, kheda
- 19 Shri Devshi Nakum Narayan, A.H., Progressive Farmer, Devbhumi Dwaraka
- 20 Smt. Manjulaben Chakrabhai Patel, Progressive Farmer, Sabarkantha



Theme 10 Session at PG Seminar Hall- 1, BACA

Theme 11 : Small Ruminants and Poultry



Small Ruminants

1. Sheep and Goat milk production enhancement

- ↪ Develop silvi-pasture based browsing land for goat rearing.
- ↪ Maintain high milk producing goats and regress culling of poor producers.
- ↪ Maintain high milk producing goats on total mixed ration/balanced ration.

2. Marketing of Sheep and Goat Meat/Milk/Wool

a. Meat

- ↪ Select castrated and horned white or mixed body coat colour male kids and rear on high plane of nutrition using total mixed ration.
- ↪ Maintain kids on recommended growth and finisher ration.
- ↪ Male goats must be more than one year of age.
- ↪ Base price for selling of male animals should be decided considering age and weight under regularized market considering government norms.
- ↪ Improved bucks should be distributed in the field to increase breed performance.

b. Milk

- ↪ Although Sheep and Goat milk are approved as food items under FSSAI, they have not been accepted by the society and hence selling of milk is a big issue. Therefore, it is suggested that Cooperative dairies and private milk vendors should initiate to purchase milk as per norms from sheep and goat keepers.
- ↪ Cooperative dairies should take leadership to manufacture Total Mix Ration (TMR) at remunerated rate for different categories of sheep and goats on the line of dairy cattle feed.
- ↪ Establishment of primary processing unit for goat milk at cluster level.
- ↪ Process goat milk for Cheese/Milk powder for fetching higher values in international market.

c. Wool

- ↪ Sheep breeds of Gujarat produce mainly carpet type wool which requires promotion in marketing by Sheep and Wool Development Corporation, Gujarat State.
- ↪ Modernized Sheep wool processing center should be established for value addition of sheep wool.

3. Training and Awareness

- ↪ Establishment of center of excellence/model farm for small ruminants under SAUs for imparting trainings and skill oriented technical knowhow to sheep and goat keepers.
- ↪ Sheep and goat fairs should be organized at regular interval by the State Animal Husbandry Department, Government of Gujarat.

4. Health and diagnostics

- ↪ Establishment of health and diagnostics facilities at cluster level.
- ↪ Intensification of vaccination and deworming.

5. Revisiting Loan Policy

- ↪ Nationalized banks should come forward to finance stable sheep and goat keepers at subsidized loan rates for goat and sheep rearing (Construction of shed, purchase of animals, feeds, fodders and medicine etc.).
- ↪ Introduce special policies for nomadic goat and sheep keepers.

Backyard/rural poultry farming

1. Replacement of germplasm for rural/backyard poultry farming

- ↪ In rural poultry farming, low potential desi birds (annual production 50-60 eggs) needs to be replaced with high yielding (annual production 160 eggs) improved varieties/breeds.
- ↪ Increasing the flock size from 25 to 50/100 birds with rearing in semi-intensive system.
- ↪ Establishment of mother units for rearing of chicks up to 4-6 weeks of age for easy management, reducing mortality and enhancing the acceptability by the rural farmers.

2. Supplementary feeding

- ↪ Educating backyard poultry farmers for supplementary feeding of locally available cereals, cakes of pulses and oilseeds supplemented with vitamins and minerals to exploit production potential in terms of eggs and meat.

3. Poultry health awareness

- ↪ Increasing awareness and targeting the effective vaccination and health care of rural poultry birds through formation of poultry health trained volunteers' groups in the cluster of villages under the supervision of Veterinary Officer.

4. Training

- ↪ Imparting cluster based village training to the rural poultry farmers for capacity building of farmers.
- ↪ Establishment of more poultry training centers for providing skill oriented hands on training to rural poultry farmers.

5. Marketing

- ↪ Formation of village poultry co-operatives / associations for proper marketing and fetching higher prices for valued rural based poultry products.
- ↪ Establishment of low cost preservation system for eggs and poultry meat.

Commercial Poultry Farming

1. Increased feed cost

- ↪ Commercial poultry farmers are facing the problem of rising cost of major ingredients like maize, soybean meal and oilcakes, for which sustainable availability of maize and soybean meal at reasonable/subsidized rate is needed. Hence, there is need to promote maize and soybean cultivation.
- ↪ Alternate feed resources *i.e.* ground nut cake, rapeseed cake, cotton seed cake, sunflower cake, broken rice kani *etc.* need to be popularized for incorporation in poultry feed.
- ↪ Feed additives such as enzymes, phytobiotics, probiotics, toxin binder *etc.* are to be used in feed formulation for better feed efficiency to reduce the feeding cost.

2. Poultry health and bio-security

- Establishment and / or strengthening of laboratory facilities for rapid diagnosis of emerging and reemerging diseases of poultry to overcome production losses and mortality.
- Hazard analysis and critical control points (HACCP) for bio-security needs to be strictly implemented at hatchery and farm levels to reduce mortality.

3. Poultry marketing and infrastructure

- Poultry products are perishable and market is highly fluctuating which needs to be addressed through proper cold storage and logistic facilities.
- Processing of broilers in hygienic slaughter house needs to be promoted to fetch higher price, reduce transportation cost and also to promote export.
- Cold storage facilities in the major egg producing regions need to be strengthened to address fluctuation in egg prices due to summer and festive seasons.
- Creating the awareness regarding nutritive value of poultry products through media and mass coverage will help to boost the consumption of poultry products.

Venue	: PG Exam Hall-3, 2 nd Floor, BACA, AAU, Anand
Chairman	: Dr. S. R. Chaudhary, Director of Research, NAU, Navsari
Facilitator/ Moderator	: Dr. A. M. Thaker, Principal & Dean, College of Vet. Sci. & A.H., AAU
Rapporteurs	: 1 Dr. K. N. Wadhvani, Prof. & Head, Dept. of Livestock Production & Management, College of Vet. Sci. & A.H., AAU 2 Dr. F. P. Savalia, Res. Scientist & Head, Poultry Research Station, College of Vet. Sci. & A. H., AAU
No. of Participants	: 18

Participants

- 1 Dr. Yogesh Padheria, Associate Professor, Vanbandhu College of Veterinary Science and Animal Husbandry, NAU
- 2 Dr. H. D. Chauhan, Associate Research Scientist, College of Veterinary Science and Animal Husbandry, SDAU, Sardarkrushinagar
- 3 Shri Nilesh A. Kalavadiya, Project Director, ATMA, Devbhumi Dwarka & Jamnagar
- 4 Shri P. R. Chaudhary, Project Director, ATMA, Tapi
- 5 Shri S.B. Gamit, District Agriculture Officer, Tapi
- 6 Dr. P. R. Darji, Assistant Director, District Panchayat, Vadodara
- 7 Dr. N. G. Shaikh, Veterinary Officer, District Panchayat, Vadodara
- 8 Dr. R. V. Prajapati, Assistant Director, District Panchayat, Gandhinagar
- 9 Dr. S. I. Patel, Veterinary Officer, District Panchayat, Gandhinagar
- 10 Dr. A. N. Desai, Veterinary Officer, District Panchayat, Gandhinagar
- 11 Dr. H.D. Makum, Participant
- 12 Shri Saheb P. Jayswal, Progressive Farmer, Nadiad
- 13 Shri Vijay K. Gohel, Progressive Farmer, Nadiad
- 14 Shri Hardik K. Vaghela, Progressive Farmer, Nadiad
- 15 Shri K. M. Korat, Assistant Director of Agriculture, Valsad
- 16 Shri Balubhai Arjanbhai Bambhaniya, Progressive Farmer, Gir Somnath
- 17 Shri Sunilbhai Lalabhai Khokhariya, Progressive Farmer, Banaskantha
- 18 Shri Vimalbhai Prakashbhai Patel, Progressive Farmer, Vadodara



Theme 11 Session at PG Exam Hall-3

Theme 12 : Fisheries

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- ↪ Promotion of freshwater pearl culture through polyculture practices.
 - ↪ Encouragement for new entrepreneurs to develop fresh and marine ornamental fish culture.
 - ↪ Promotion of integrated fish farming at rural level for more production and income.
 - ↪ Diversification of species in existing aquaculture practices with replacement of Carps to high income generating species including freshwater prawn, catfishes (*Pabda*, *Pangasius*), Murrels and Jayanti Rohu in freshwater.
 - ↪ Promotion of whiteleg shrimp (*L. vannamei*), Banana Shrimp, Mulletts, Milkfish, Pearl Spot & Seabass in brackish water and cobia, lobsters, crab, oysters, mussels & seaweeds in mariculture.
 - ↪ Optional employment opportunities should be created for fishermen during off fishing season.
 - ↪ Narmada and other irrigation projects of Gujarat should be utilized for cage and pen culture through leasing to fish farmers and fishermen, implementing suitable policy.
 - ↪ All the village ponds available at Rural and Urban areas should be given on lease by Fisheries Department with minimum role of Gram Panchayat in lease process.
 - ↪ There should be a facility of Gipsy hut or FRP hut near village ponds and solar roof top or power supply facilities should be given at economical rate.
 - ↪ Fish Markets should be established in each district and its operation should be done by local fishermen, supported by APMCs.
 - ↪ There should be subsidies on fry and fingerling net for fish farmers.
 - ↪ Now a days, FFDA scheme is not in operation which should be revised and implemented.
 - ↪ Establishment of Laboratories for Fish Disease Diagnosis, Soil and Water Testing of ponds in each District.
 - ↪ Urgent need to encourage value added fish products like fish chips, fish kurkure etc. through cottage industries and women self help groups.

- ↪ Facilities for selling of live fish should be supported with cold chain.
- ↪ Electricity subsidy rates should be at par to Maharashtra and Andhra Pradesh for brackish water shrimp culture giving more benefit to fish farmers.
- ↪ Flooded land or non-agricultural land near sea should be given for aquaculture activity to land holder and permission should be given to farmers as early as possible.
- ↪ There should be subsidies on generator, aerator, cable and other resources in brackish water aquaculture by government.
- ↪ Stunted yearlings should be stocked in village ponds and to be made easily available.
- ↪ Utilization of untouched cultivable water bodies in freshwater, brackish water and marine resources in Gujarat for increasing the yield and income.
- ↪ Upgradation of farmer's skills for fish farming through meaningful hands on trainings.
- ↪ Promotion of FRP portable carp hatcheries and special support needs to be given for quality fish seed production through identified and certified hatcheries to ultimately have more quality production of inland fish.
- ↪ Recirculatory Aquaculture Systems such as aquaponics should be adopted and supported.
- ↪ Development and provision of cold chain facilities like processing plants, cold storages, refrigerated van etc to protect the nutritional value of fish and prevent post-harvest losses in fisheries sector for more income.

Venue	: Extension Education Institute-1, AAU, Anand
Chairman	: Dr. Yusuf Zai, Asso. Prof., Dept. of Aquaculture, College of Fisheries, JAU, Junagadh
Facilitator/ Moderator	: Dr. R. V. Borichagar, Asso. Prof., Vanbandhu College of Vet. Sci. and A.H. (Fisheries College), NAU, Navsari
Rapporteur	: Dr. R. V. Vyas, Prof. & Head, Dept. of Agri. Microbiology, Biofertilizer Project, BACA, AAU
No. of Participants	: 17

Participants

- 1 Shri Jaimin Bhatt, Assistant Professor, Krishi Vigyan, AAU, Devataj
- 2 Shri Mahesh I. Thalotia, Superintendent of Fisheries, Gandhinagar
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- 4 Shri C.R.Patel, District Agriculture Officer, Navsari
- 5 Dr. Smit Leude, Participant

- 6 Dr. Ajit Keshav Chaudhari, Participant
- 7 Shri J.N. Parmar, District Agriculture Officer, Porbandar
- 8 Shri Parshotambhai Mohan Patel, Progressive Farmer, Bharuch
- 9 Shri Uttambhai Dayalbhai Patel, Progressive Farmer, Valsad
- 10 Shri Prashant R. Jayswal, Progressive Farmer, Nadiad
- 11 Shri Salim S. Malek, Participant
- 12 Smt. Chhaya Bhavsar, Participant
- 13 Shri N.F. Patel, Participant
- 14 Shri Ankur D. Prajapati, D.P.D., Navsari
- 15 Shri R.V. Makwana, Participant
- 16 Shri Amit Prakash Yadav, DDO, Anand
- 17 Smt. ChandraKanta Mishra, Participant



Theme 12 Session at Extension Education Institute-1

Theme 13 : Extension and ICT



- Dissemination of information on agricultural expertise in the form of advertisement in various media such as newspapers, TV channels, FM radio etc., for which a separate provision of fund for advertising such things should be sanctioned by the government.
- Establishment of advanced ICT Centers by the Government, with skilled man power and all the required facilities so that farmers can buy inputs, sell their own products and apply for subsidy etc. online.
- The staff from agriculture and related departments (Agriculture Department, Horticulture Department, Animal Husbandry Department, Agricultural Universities and Krishi Vigyan Kendras) should only be used for the promotion of agricultural services and expertise, and be excluded from other unrelated works.
- Enhancing the spread of the Farm Producers Organization; arranging the necessary requirements for input systems, sales system and value addition for farm produce, so that farmers can increase their income.
- Increase the use of social media (WhatsApp, YouTube, Twitter, Facebook etc.) in extension activities and for expanding the extension activities, a separate IT cell needs to be established.
- For providing agriculture related services, a single window system with all the infrastructure and man power at the taluka level including all agriculture affiliated departments needs to be established.
- Bring all agriculture related private stake holders such as for seeds, fertilizers, medicines, agricultural implement companies, NGOs, cooperatives and input dealers under one umbrella with specific policy by the government to include them. Increasing the honorarium of employed farmer friends under ATMA, and strengthening them through more intensive training, so that the extension activities can boost up.
- A system should be established such that agriculture and related degree/ diploma holders can serve as consultants to accelerate the extension activities at the village level by providing necessary training with provision of honorarium from the government.

- Promote agricultural extension services through Public Private Partnership (PPP) mode for spreading the qualitative and more productive technologies to the farmers.

Venue	: Sardar Patel Educational Museum, 1 st floor, AAU, Anand
Chairman	: Dr. K. A. Thakkar, Director of Extension Education, SDAU, S. K. Nagar
Co-Chairman	: Dr. K. D. Panchal, SMO, ATMA
Facilitators/ Moderators	: 1 Dr. D. R. Kathiriya, Director of Information Technology, AAU 2 Dr. V. T. Patel, Prof. & Head, Dept of Extension Education, CPCA SDAU,
Rapporteurs	: 1 J. B. Patel, Asso. Prof., Dept. of Agril. Extension & Communication, BACA, AAU 2 Dr. Y. R. Ghodasara, Professor, College of AIT, AAU
No. of Participants	: 26

Participants

- 1 Dr. S.D. Kavadi, Associate Professor, Director Extension Education, NAU, Navsari
- 2 Dr. C. D. Pandya, Junior Scientist, Krushi Vigyan Kendra, NAU, Vyara
- 3 Dr. J. J. Mistry, Associate Professor, Directorate of Extension Education, SDAU, Sardarkrushinagar
- 4 Dr. K. M. Joshi, Senior Scientist and Head, Krushi Vigyan Kendra, SDAU, Deesa
- 5 Shri S.B. Vadher, Media Consultant, Gandhinagar
- 6 Shri V. M. Bathar, Project Director, ATMA, Ahmedabad
- 7 Shri Tejal Sheth, Project Director, ATMA, Banaskantha
- 8 Shri D.G. Rathod, District Agriculture Officer, Junagadh
- 9 Shri S.B. Vaghamsi, District Agriculture Officer, Gir Somanath
- 10 Dr. Arun Patel, Director of Extension Education, AAU
- 11 Dr. H. B. Patel, Associate Director of Extension Education, AAU
- 12 Shri V. K. Bhatt, District Agriculture Officer, Mehsana
- 13 Shri Abhilekh Paul, Director (Partnership & Alliance), Bhuvneshwar
- 14 Shri Ramesh Raghu, Participant
- 15 Shri P. C. Patel, Asst. Prof, DoEE, AAU

- 16 Shri. J. D. Desai, Asst. Prof, DoEE, AAU
- 17 Shri Dahyabhai Vasharam Teraiya, Progressive Farmer, Porbandar
- 18 Shri Hasmukh M. Chavada, Progressive Farmer, Porbandar
- 19 Shri Khodabhai Jivabhai Sabhani, Progressive Farmer, Vakhatpar
- 20 Shri Pratik Mehta, Participant
- 21 Shri Ramesh N. Mehta, Progressive Farmer, Bharuch
- 22 Shri Ashwin B. Patel, Progressive Farmer, Bharuch
- 23 Shri Narshihbhai Sankarbhai Patel, Progressive Farmer, Mahisagar
- 24 Shri Golansinh Dadubha Vala, Progressive Farmer, Bhavnagar
- 25 Shri Mukeshbhai Bhagubhai Patel, Progressive Farmer, Bharuch
- 26 Shri Ramjibhai Karabhai Dhokiya, Progressive Farmer, Porbandar



Theme 13 Session at Sardar Patel Educational Museum

Theme 14 : Logistics, Marketing and Quality Control



Market Structure and Efficiency

- ↪ Unified trading license needs to be given to the traders enabling them to transact their business in all the APMCs across the country.
- ↪ Trading license should be given to optimal number of traders based on last few years' transaction data. Shortage of traders will have a negative impact on purchases whereas, surplus of traders will lead to conflicts among them.
- ↪ Quality control, logistics and auction need to be performed only by the independent third parties at the APMCs. Such third parties should have mechanism to display properties of quality parameters.
- ↪ APMC cess may be waived off or partly subsidized for contract farming companies in Gujarat following the foot-steps of many other states in India.
- ↪ To improve the prospects of market-led extension, qualified consultants should be appointed and only such consultants should be licensed for farm advocacy.
- ↪ Model APLM (Agriculture Produce and Livestock Marketing) act may be adopted by Gujarat on trial basis and modified as per the needs of the state.
- ↪ Permanent places should be given to the farmers for direct marketing at urban and peri-urban centers.
- ↪ Smart Micro Mandis concept should be encouraged at cluster level.

Market intelligence / Price and demand forecast

- ↪ Interest free credit should be availed on the basis of accredited warehouse receipts on 50% value of the produce for maximum three months, which alone can harness the benefits of market intelligence among the farmers.
- ↪ Data collection related to sale of seeds, sale of inputs, growth parameters and market prices should be done by an independent third party and factual information needs to be shared to the concerned organization so that the information is utilized. Market intelligence mechanism needs to be transparent and conveyed to all stake holders.

- ↪ Data collection process needs to be streamlined and dissemination should be regular and timely for effective market intelligence to the benefit of farming community.
- ↪ There should be at least one market intelligence (MI) cells, following DEMIC (Domestic and Export Market Intelligence Cell) of TNAU, in all the agricultural universities of Gujarat. The MI cells should be transparent about their data collection procedure, methodology and information dissemination and should work in tandem with all APMCs and traders.

MSP / Price Volatility and market stabilization

- ↪ Rejuvenation and strengthening of SAFAL model across the state.
- ↪ Replication of AMUL model for specific commodities in agriculture.
- ↪ MSP and other price mechanisms should be leveraged only to those farmers who have registered through i-Khedut portal.

PPP mode and formation of FPOs / SHGs

- ↪ FPOs also need to be accommodated at the APMCs by issuing traders' license so that they can conduct their business improving both transparency and efficiency of the markets.
- ↪ For strengthening the FPO federation in Gujarat, office-space may be given to federations like GUJPRO at Gujarat Bhavan, New Delhi and in Ahmedabad for market connectivity of the farmers. Participation of federation in national and international exhibitions must be supported by state government for promotion of farmers' products.
- ↪ FPOs need to be promoted at par with cooperatives through budgetary support. It is high time that ATMA should make development and facilitation of FPOs as one of thire key objectives in collaboration with state level federation like GUJPRO.

Better price discovery through e-NAM

- ↪ For up scaling of e-NAM and encouraging online market transactions of the farmers, price deficiency payments need to be made applicable only for those farmers who conduct their commodity transactions online.
- ↪ Commodity exchanges need to be facilitated with storage godowns / warehouses for all the important commodities produced in Gujarat state.
- ↪ Specific commodities along with their processed products should be included at e-NAM.

- ↪ Large-scale training programmes need to be conducted by ATMA, line departments, SAUs and other research and developmental organizations of the state for the farmers to improve awareness and to utilize the benefits of market intelligence, e-NAM, futures markets and export procedures.
- ↪ Assaying labs need to be installed at all the APMCs across the state which are connected to e-NAM.

Quality control

- ↪ Appoint accredited quality assessors in every APMC yard (their numbers can vary as per the volume of transactions) and certified advisory committee to suggest the best agricultural practices for the specific crop to achieve the Export Quality yields.
- ↪ Product traceability from farm to fork should be implemented at APMC for crops to improve organic certification and export procedures.
- ↪ The cropping should be done keeping in view the export demand and package of practices to reap the maximum price benefits at domestic level also.

Others

- ↪ Agro-processing zones need to be developed across the state by adopting cluster approach with special incentives pertaining to subsidy, cess and other benefits.

Venue	: TULSI, Department of Entomology, BACA, AAU, Anand
Chairman	: Shri S. K. Goyel, (IAS), Retd. Additional Chief Secretary, Govt. of Maharashtra
Facilitator/ Moderator	: Dr. Y. C. Zala, Principal & Dean, IABMI, AAU
Rapporteurs	: 1 Dr. Swaminathan, Ass. Prof., Dept. of Agril. Econ, JAU, Junagadh 2 Dr. Gangadevi, Asst. Prof., Dept. of Agril. Economics, BACA, AAU
No. of Participants	: 27

Participants

- 1 Dr M. V. Durgaprasad, IRMA, Anand
- 2 Dr. K. S. Jadav, I/c Professor & Head, Deptt. of Agri. Economics, BACA, AAU, Anand
- 3 Dr. Alpesh Leua, Associate Professor, Aspee Agribusiness Management Institute, NAU, Navsari
- 4 Shri R. M. Jadeja, Assistant Professor, SDAU

- 5 Shri H. J. Zindal, DAO
- 6 Shri B. M. Agath, Project Director, ATMA, Morbi & Rajkot
- 7 Shri Sudhanshu Jangir, IIM, Ahmedabad
- 8 Dr. Y. A. Lad, Associate Professor, IABMI, AAU
- 9 Dr. H. N. Lakhani, Participant
- 10 Shri R. K. Dhameliya, State Coordinator, ATMA, Gandhinagar
- 11 Shri J. D. Charel, DAO, Panchmahal
- 12 Shri A. P. Asari, Participant
- 13 Vishita Khanna, Assistant Professor, IABMI, AAU
- 14 Shri Rajeev Kumar, Participant
- 15 Shri Bharatkumar Maganlal Joshi, Participant
- 16 Shri Sanjaybhai Jeenabhai Parkariya, Progressive Farmer, Visavadar
- 17 Shri Pankaj D. Rathod, Participant
- 18 Shri P. B. Parmar, Project Director, ATMA, Anand
- 19 Shri Daxaben Arvindbhai Patel, Progressive Farmer, Kheda
- 20 Shri Bhupendrabhai Ganeshabhai Dabhi, Progressive Farmer, Surendranagar
- 21 Shri Paresh Chaudhary, Participant
- 22 Shri Priyank Patel, Participant
- 23 Shri Suryakant D. Parmar, Progressive Farmer, Miyasana
- 24 Shri Hiren Bhimani, Participant
- 25 Shri Aravindbhai Kalubhai Radadiya, Progressive Farmer, Gorakhpur
- 26 Shri Gopalbhai Karasanbhai Rakholiya, Progressive Farmer, Visavadar
- 27 Shri Haresh G. Radadiya, Progressive Farmer, Gorakhpur



Theme 14 Session at TULSI, Department of Entomology, BACA

APPENDIX-I

Themewise Chairman / Co-Chairman / Moderator / Facilitator / Rapporteur

Sr. No	Theme area	Discussion Sessions		
		Chairman Co-Chairman	Moderator/ Facilitator	Rapporteur
1	Agriculture and Field crops	Dr. B. M. Modi Dr. V. P. Chovatiya	Dr. A. A. Kateshiya Dr. B. K. Sagarka	Dr. H. L. Dhaduk
2	Soil health management	Dr. K. P. Patel	-	Dr. M. V. Patel Dr. V.P. Ramani
3	Management of water resources	Prof. R. B. Maraviya	Dr. R. Subbaiyah Dr. J. C. Patel	Dr. H. D. Rank Dr. Gautam Patel
4	Farming system	Dr. A. R. Pathak	Dr. A. M. Patel	Dr. V. J. Patel Dr. B. D. Patel
5	Input supply management	Shri S. J. Solanki	-	Dr. R. S. Pundir Dr. Ritambhara
6	Farm mechanization and energy sources	Dr. N. C. Patel	Dr. P. M. Chauhan Dr. R. N. Singh	Dr. S.K.Patel Dr. B. S. Parmar
7	Horticulture	Dr. R. A. Khimani Dr. P. M. Vaghasiya	Dr. B. N. Patel Dr. D. K. Varu	Dr. Nitin I. Shah Dr. B. N. Satodia
8	Post Harvest Management	Prof. Sukhpal Singh	Dr. D. C. Joshi Dr. R. K. Jain	Dr. S. H. Akbari Dr. A. Nema
9	Resilience in agriculture	Dr. A. M. Shekh	Dr. N. K. Gontia Shri P. S. Rabari	Dr. M. L. Gaur
10	Animal husbandry and dairy	Dr. P. H. Vataliya	Dr. D. B. Patil Dr. K. S. Murthy	Dr. D.N. Rank Dr. V. M. Ramani
11	Small ruminants and poultry	Dr. S. R. Chaudhary	Dr. A. M. Thaker	Dr. K.N.Wadhvani Dr. F. P. Savalia
12	Fisheries	Dr. Yusuf Zai	Dr. R. V. Borichagar	Dr. R.V. Vyas
13	Extension and ICT	Dr. K. A. Thakkar Dr. K. D. Panchal	Dr. D. R. Kathiriya Dr. V. T. Patel	Dr. J. B. Patel Dr. Y.R. Ghodasara
14	Logistics, marketing and quality control	Shri S. K. Goyel	Dr. Y. C. Zala	Dr. Swaminathan Dr. Ganga Devi

APPENDIX– II

Workshop on “Doubling Farmers’ Income by 2022 – A Strategic Initiative”

List of themewise number of participants

No.	Theme Area	Number of participants
1	Agriculture and Field crops	28
2	Soil health management	18
3	Management of water resources	19
4	Farming systems	28
5	Input supply management	14
6	Farm mechanization and energy sources	17
7	Horticulture	45
8	Post-Harvest Management	24
9	Resilience in agriculture	22
10	Animal husbandry and dairy	20
11	Small ruminants and poultry	18
12	Fisheries	17
13	Extension and ICT	26
14	Logistics, marketing and quality control	27
	Total	323

APPENDIX–III (A)

List of dignitaries participated in the Inaugural Session on June 1, 2018

Sr. No.	Name of Dignitary	Designation
1	Shri Parshottam Rupala	Hon'ble Union Minister of State for Panchayati Raj, Agriculture and Farmers Welfare
2	Shri Jaydrathsinhji Parmar	Hon'ble Minister of State, Agriculture (State Minister), Panchayat, Environment (Independent Charge), Government of Gujarat
3	Shri Ishvarsinh Patel	Hon'ble Minister of State, Co-operation, Sports, Youth and Cultural activities (Independent Charge), Transport (State Minister), Government of Gujarat
4	Shri Dilipbhai M. Patel	Hon'ble Member of Parliament (Lok Sabha)
5	Shri Lalsinh Vadodia	Hon'ble Member of Parliament (Rajya Sabha)
6	Shri Sanjay Prasad (IAS)	Hon'ble Additional Chief Secretary, Dept. of Agriculture, Farmers' Welfare and Co-operation, Government of Gujarat
7	Dr. N.C. Patel	Hon'ble Vice Chancellor, Anand Agricultural University, Anand
8	Dr. A.R. Pathak	Hon'ble Vice Chancellor, Junagadh Agricultural University, Junagadh, Gujarat
9	Dr. P.H. Vataliya	Hon'ble Vice Chancellor, Kamdhenu University, Gandhinagar
10	Shri Sanjay Nandan	Managing Director Gujarat State Warehousing Corporation, Ahmedabad
11	Shri Sudhir B. Patel, IAS	Commissioner of Fisheries, Govt. of Gujarat
12	Shri Mohammad Sahid, IAS	Secretary (Animal Husbandry), Dept. of Agriculture, Farmers Welfare and Cooperation, Govt. of Gujarat
13	Shri S.K. Goyel, IAS	Retd. Additional Chief Secretary, Govt. of Maharashtra
14	Shri Sunil Chawla	Chief General Manager, National Bank for Agriculture and Rural Development, Ahmedabad
15	Shri B.M. Modi	Director of Agriculture, Gujarat State, Gandhinagar
16	Dr. P.M. Vaghasiya	Director of Horticulture, Gujarat State, Gandhinagar
17	Shri K.D. Panchal	Director, ATMA & SAMETI, Gujarat
18	Dr. A.J. Kachhiyapatel	Director, Animal Husbandry, Gujarat State, Gandhinagar
19	Prof. Sukhpal Singh	Professor, IIM, Ahmedabad
20	Dr. A.M. Shekh	Ex. Vice Chancellor, Anand Agricultural University, Anand
21	Shri Subodh Shah	GAICL, Gandhinagar
22	Prof. R. B. Maraviya	Executive Director (Agriculture)
23	Dr. K. B. Kathiria	Director of Research, AAU, Anand
24	Dr. Arun Patel	Director of Extension Education, AAU, Anand
25	Dr. V. P. Chovatia	Director of Research, JAU, Junagadh
26	Dr. S. R. Chaudhari	Director of Research, NAU, Navsari
27	Dr. A. M. Patel	Director of Research, SDAU, Sardarkrushinagar
28	Dr. K. A. Thakkar	Director of Extension Education, SDAU, Sardarkrushinagar

APPENDIX–III (B)

List of dignitaries participated in the Valedictory Session on June 2, 2018

Sr. No.	Name of Dignitary	Designation
1	Shri R. C. Faldu	Hon'ble Minister, Agriculture, Rural Development, Fisheries, Animal Husbandry, Transport, Government of Gujarat
2	Shri Sanjay Prasad (IAS)	Hon'ble Additional Chief Secretary, Dept. of Agriculture, Farmers' Welfare and Co-operation, Government of Gujarat
3	Dr. N. C. Patel	Hon'ble Vice Chancellor, Anand Agricultural University, Anand
4	Dr. A. R. Pathak	Hon'ble Vice Chancellor, Junagadh Agricultural University, Junagadh, Gujarat
5	Dr. P. H. Vataliya	Hon'ble Vice Chancellor, Kamdhenu University, Gandhinagar
6	Shri Sanjay Nandan	Managing Director Gujarat State Warehousing Corporation, Ahmedabad
7	Shri Sudhir B. Patel, IAS	Commissioner of Fisheries, Govt. of Gujarat
8	Shri Mohammad Sahid, IAS	Secretary (Animal Husbandry), Dept. of Agriculture, Farmers Welfare and Cooperation, Govt. of Gujarat
9	Shri B. M. Modi	Director of Agriculture, Gujarat State, Gandhinagar
10	Dr. P. M. Vaghasiya	Director of Horticulture, Gujarat State, Gandhinagar
11	Shri K. D. Panchal	Director, ATMA & SAMETI, Gujarat
12	Dr. A. J. Kachhiyapatel	Director, Animal Husbandry, Gujarat State, Gandhinagar
13	Prof. Sukhpal Singh	Professor, IIM, Ahmedabad
14	Shri R. S. Sodhi	Managing Director, GCMMF, Anand
15	Dr. A. M. Shekh	Ex. Vice Chancellor, Anand Agricultural University, Anand
16	Shri Subodh Shah	GAICL, Gandhinagar
17	Prof. R. B. Maraviya	Executive Director (Agriculture)
18	Dr. K. B. Kathiria	Director of Research, AAU, Anand
19	Dr. Arun Patel	Director of Extension Education, AAU, Anand
20	Dr. V. P. Chovatia	Director of Research, JAU, Junagadh
21	Dr. S. R. Chaudhari	Director of Research, NAU, Navsari
22	Dr. A.M. Patel	Director of Research, SDAU, Sardarkrushinagar
23	Dr. K. A. Thakkar	Director of Extension Education, SDAU, Sardarkrushinagar

In addition to this, about 397 scientists of the all state agricultural universities and officers of the line departments as well as 100 progressive farmers remained present during the workshop.

Glimpses



Consultation Workshop on "Doubling Farmers' Income by 2022 - a strategic initiative" held on June 1-2, 2018

Glimpses



Consultation Workshop on "Doubling Farmers' Income by 2022 - a strategic initiative" held on June 1-2, 2018

SOIL HEALTH CARD
DEPARTMENT OF AGRICULTURE
ANAND, GUJARAT

Since 2008
SOIL HEALTH CARD NO: (S/C/0001/04)

(1) Farmer's Name : Parthasarathi Desai
(2) Village : Talala - Talala (Talala) District : Anand
(3) Account No : 205
(4) Land / Soil detail as per account :

Serial	Area (Ha)	Area (Sq. Ft.)	Soil Type
1	1.00	111,411.00	Reddish Brown
2			
3			
4			
5			

(5) Fertility class as per soil analysis of the village :

Serial	Fertility Class	Nitrogen	Phosphorus	Potash
1	Low			
2	Medium			
3	High			

(6) Details of individual soil analysis : (Survey No. : 1000-2)

No.	Depth	Moisture	Temperature
1	0-10 (0-30 cm)	12.00	28.00
2	10-20 (30-60 cm)	11.00	28.00
3	20-30 (60-90 cm)	10.00	28.00
4	30-40 (90-120 cm)	9.00	28.00
5	40-50 (120-150 cm)	8.00	28.00

pH : 7.5
EC : 0.15
Cation Exchange Capacity : 12.00
Organic Carbon : 0.50
Available Phosphorus : 1.00
Available Potash : 10.00

