

PROCEEDINGS

9TH BRAIN STORMING SESSION OF VICE CHANCELLORS

Alternative Farming Systems Involving Horticulture to Increase Crop Productivity and Doubling Farmers' Income

Solan, Himachal Pradesh
May 3-4, 2018



Organised by

Dr YSP University of Horticulture and Forestry
Nauni 173 230, Solan, HP, India

and

Indian Agricultural Universities Association, New Delhi





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**DR YSP UNIVERSITY OF HORTICULTURE AND FORESTRY
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The 9th Brain-Storming Session of Vice Chancellors of the Agricultural Universities on 'Alternative Farming Systems Involving Horticulture to Increase Crop Productivity and Doubling Farmers' Income', was organised by Dr YS Parmar University of Horticulture and Forestry, Nauni, Solan, Himachal Pradesh, in collaboration with Indian Agricultural Universities Association (IAUA), New Delhi, between May 3-4, 2018. Besides inaugural and valedictory sessions, five technical sessions were held on different sub-themes during the two days 'Brain Storming Session'.



- ❖ Technical Session I - Mechanization and high density planting
- ❖ Technical Session II - Biotechnological approaches and cultivar development
- ❖ Technical Session III - Integrated farming systems and marketing
- ❖ Technical Session IV - Nutrient and pest management in horticultural crops
- ❖ Technical Session V - Natural/organic farming for sustainable crop production

The Chief Guest of the inaugural function was Shri Mahender Singh Thakur, Hon'ble Minister of IPH and Horticulture, Government of Himachal Pradesh. Shri Suresh Kumar Kashyap, MLA, Pachhad (Sirmour) was the Guest of Honour. Before inaugurating the 9th Brain Storming Session, the Chief Guest also laid the foundation stone of **Field-Lab-cum Sale Centre and Nature Interpretation cum Training Centre (MOE & CC) and Apiculture Laboratory**. Other dignitaries present on the occasion were Dr N C Patel, President, IAUA, Dr A R Pathak, Vice President, IAUA, Dr H C Sharma, VC, Dr YSP UHF, Nauni, Solan, Himachal Pradesh, and Dr R P Singh, Executive Secretary, IAUA. Twenty-one Vice Chancellors of various Agricultural Universities of India attended the 9th Brain Storming Meet. Several presentations were made

during the two day conference with a major focus on doubling farmers income through horticultural crops, climate resilient agriculture, and importance of agricultural education for food and nutritional security.

Inaugural Session

Chief Guest:

Sh Mahender Singh Thakur
Hon'ble Minister of IPH and Horticulture
Government of Himachal Pradesh

Guest of Honour:

Sh Suresh Kumar Kashyap
MLA, Pachhad (Sirmour)

President, IAUA:

Dr N C Patel
VC, AAU, Anand, Gujarat

Vice President, IAUA:

Dr A R Pathak
VC, JAU, Junagarh, Gujarat

Secretary, IAUA:

Dr R P Singh

Chairman Organizing Committee: Dr H C Sharma

VC, Dr YSP UHF, Nauni, Solan

The 9th Brain-Storming Session of IAUA was inaugurated by Shri Mahender Singh Thakur, Hon'ble Minister of IPH and Horticulture, Government of HP in Dr L S Negi Auditorium of YSP UHF, Nauni, Solan by lighting the lamp, followed by Saraswati Vandana. Dr H C Sharma, VC, YSP UHF, Nauni, welcomed the dignitaries on the dias, participating Vice Chancellors, and the guests to the 9th Brain Storming Session. He briefed the audience about the activities and achievements of YSP UHF in horticulture and forestry. He also highlighted the role of State Agricultural Universities in strengthening the agricultural education in India, and the research and extension initiatives to sustain productivity and ensure food sufficiency for the ever-growing population.





Shri Mahender Singh Thakur, Hon'ble Minister of IPH and Horticulture, Government of HP, in his inaugural address appreciated the work being carried out by the Agricultural Universities. He highlighted the urgent need to focus on climate resilient crop production systems and natural resource management for sustainable crop production. He strongly desired formulation of R&D projects for Niche Area Development. He said that the projects should focus on diversification of horticulture by promoting all major and minor horticultural crops in Himachal Pradesh, and the mass production of quality planting material should be within the production zone in a Public-Private Partnership mode. He also released the Souvenir of the 9th Brain Storming Session of IAUA.

At the end, Shri. Rajesh Kumar, Registrar, YSP UHF, Nauni, Solan, extended a vote of thanks, followed by National Anthem and high tea.

Technical Session-I

Sub-theme: Mechanization and High Density Planting

Chairman: Col (Dr) AR Pathak, VC, AU, Junagarh
Co-Chairperson: Dr G L Keshwa, VC, AU, Kota
Panelists : Dr Premjit Singh, VC, CAU, Imphal
Rapporteurs: Dr JN Sharma, Director Research, YSP UHF, Solan
Dr Satish K Sharma, Joint Director Research (Horticulture),
YSP UHF, Solan

The first technical session on '**Mechanization and High Density Planting**' was organized in the Committee Room, VC Office, YSP UHF, Nauni, Solan. The chairperson Col (Dr) AR Pathak welcomed the guest speakers and shared his views on the sub-theme of the session. Two presentations entitled, 'Mechanization in horticulture: Potentials and limitations' by Dr N C Patel, VC, AAU, Anand, and 'High density plantations of temperate fruits for increasing farm income' by Dr Nazeer Ahmed, VC, SKUAST (K), Srinagar, were made during this session.



Based on the deliberations and discussion, the following recommendations were made during this session.

- Mechanization of cultural operations, especially for small and marginal farmers of hilly regions.
- Set up 'State of Art Tissue Culture Laboratories' for production of quality planting material.
- Effective pollination management for increasing fruit set and crop yields.
- Develop systems for high density planting of fruit crops.



Technical Session-II

Sub-theme: Biotechnological Approaches and Cultivar Development

Chairman: Dr B S Dhillon, VC, PAU, Ludhiana

Co-Chairperson: Dr P S Rathore, VC, AU, Jobner

Panelists: Dr P L Nehra, Director Research, RAU, Bikaner

Rapporteur: Dr Satish K Sharma, Joint Director Research, YSP UHF, Solan
Dr Sudhir Verma, Scientist (Soil Science), YSP UHF, Solan

The second technical session on '**Biotechnological Approaches and Cultivar Development**' was organized in the Conference Hall, Deventure Hotel, Kandaghat, Solan. Dr BS Dhillon, Chairperson, thanked Dr HC Sharma, VC, YSP UHF, for organizing the 9th Brain Storming Session and welcomed the guest speakers. He highlighted the need for a professional approach based on actual field data, while dealing with environmental and policy issues pertaining to

modern agricultural practices. Two presentations entitled '**Potential for application of biotechnological approaches in horticultural crops**' by Dr H C Sharma, VC, YSP UHF, Nauni and '**Development of cultivars for protected cultivation of vegetable crops**' by Dr A S Dhatt, Senior Vegetable Breeder-cum-Head, Department of Vegetable Science, PAU, Ludhiana, were made during this session. The recommendations made during the session were as follows:



- Use of biotechnological tools for production of new cultivars with disease and pest resistance and quality traits in horticultural crops, with emphasis on dwarf rootstocks.
- Need to educate people about biosafety of GMOs, and place emphasis on developing cultivars with drought and cold tolerance, and nutritional enrichment.
- Developing vegetable varieties suited for poly-house cultivation in collaboration with seed industry.
- Validation of polyhouse structures for different agro-climatic regions.
- Standardization of hydroponic systems for production of vegetables/ flowers.



Technical Session-III

Sub-theme: Integrated Farming Systems and Marketing

Chairperson: Prof A Ramachandran, VC, FU, Kochi

Co-Chairperson: Dr Y Hari Babu, VC, VU, Tirupati

Panelist: Dr Ashok Patel, VC, SDSAU, Gujarat

Rapporteurs: Dr Pramod Kumar, Scientist (Fruit Science), YSP UHF, Solan
Dr Sudhir Verma, Scientist (Soil Science), YSP UHF, Solan

The third technical session on '**Integrated Farming Systems and Marketing**' continued after tea in the Conference Hall, Deventure Hotel, Kandaghat, Solan. The Chairperson, Prof A Ramachandran, welcomed the speakers. Two presentations entitled '**Integrated animal and horticultural production system for enhancing farmers' income**' by Dr P H Vataliya, VC, KU, Gandhinagar, and '**Online systems for marketing horticultural produce**' by Prof. Guthi Jambunath, UAS, Raichur, were made during this session. Based on the deliberations and discussion, following recommendations were made:



- Validation and popularization of region specific Integrated Farming System (IFS) models for enhancing the farmers' income.
- Scaling-up 'Cluster Based Integrated Farming' through resource sharing.
- Utilization of horticultural waste for feeding livestock and improving soil health.
- Need to increase farmers' share in consumer rupee through better market regulation.
- Strengthening of infrastructure for supply chain, marketing, and to reduce post harvest losses.



Technical Session-IV and V

Sub-themes: Nutrient and Pest Management in Horticultural Systems, and Natural/Organic Farming for Sustainable Crop Production

Chairperson: Dr C J Dangaria, VC, NAU, Navsari
Co-Chairperson: Dr Guthi Jambunath, VC, UAS Raichur
Panelist: Dr S Pashupalak, VC, OUAT, Bhubaneswar
Rapporteurs: Dr Sudhir Verma, Scientist (Soil Science), YSP UHF, Solan
Dr Pramod Kumar, Scientist (Fruit Science), YSP UHF, Solan

The technical session IV on sub-theme ‘**Nutrient and Pest Management in Horticultural Systems**’ and technical session V on sub-theme ‘**Natural/Organic Farming for Sustainable Crop Production**’ were jointly organized after the lunch. Dr CJ Dangaria, the Chairperson, welcomed the speakers and shared his experiences on the sub-themes with the audience. Two presentations entitled ‘**Biological approaches for pest management for boosting farmers' income**’ by Dr U S Sharma, VC, MPUAT, Udaipur, and ‘**Organic Farming for sustainable crop production**’ by Dr Premjit Singh, VC, CAU Imphal, were made during the session. The major recommendations of the presentations and discussion were as follows:



- Capacity building for mass production of biocontrol agents for pest management.
- Organic farming for high value crops in niche areas.
- Use of consortia of beneficial organisms as bio-enhancer for *Jhum* cultivation.
- Simplification of procedure for certification of organic produce.
- Knowledge and resource sharing between SAUs and ICAR.

Plenary Session

- Chairperson:** Dr Ram Lal Markanda
Hon'ble Minister of Agriculture, Tribal Development & IT
Government of Himachal Pradesh
- Co-Chairperson:** Dr R P Singh, Executive Secretary, IAUA
- Rapporteurs:** Dr Sudhir Verma, Scientist (Soil Science), YSP UHF, Solan
Dr Pramod Kumar, Scientist (Fruit Science), YSP UHF, Solan

The Plenary and Valedictory Sessions were organized at the Deventure Hotel. The Chief Guest on the occasion was Dr Ram Lal Markanda, Hon'ble Minister of Agriculture, Tribal Development & IT, Government of Himachal Pradesh. All the Vice-Chancellors of Agricultural Universities, Statutory Officers and Heads of the Departments of YSP UHF, Nauni were present on this occasion.

At the outset, Dr H C Sharma, VC, YSP UHF welcomed the Chief Guest and the Chairperson. Thereafter, Col (Dr) A R Pathak, Vice President, IAUA briefed the Chief Guest and the audience about the activities of the IAUA. Dr R P Singh, Executive Secretary, IAUA and Co-Chairperson appraised the gathering about the history of Brain Storming Sessions of IAUA. Session wise proceedings were presented by Dr Satish K. Sharma, Joint Director Research, YSP UHF, Solan. Dr H C Sharma, VC, YSP UHF, Solan made his concluding remarks on the deliberations of the 9th Brain Storming Session of IAUA.

In his address, Dr Ram Lal Markanda, Hon'ble Minister of Agriculture, Tribal Development and IT, Government of Himachal Pradesh, highlighted the role of agriculture and horticulture in food and nutritional security. He appreciated the efforts of the university and IAUA for their initiatives towards quality education and research in agriculture. He emphasized the need to diversify in the present agricultural scenario under climate change.

At the end, Dr J N Sharma, Director of Research, YSP UHF, Nauni, Solan, extended the vote of thanks, which was followed by high tea.





9TH BRAIN STORMING SESSION OF VICE CHANCELLORS

DETAILED PROGRAMME

THEME: Alternative Farming Systems Involving Horticulture to Increase Crop Productivity and Doubling Farmers' Income

Day-1: Thursday, 3rd May 2018

Venue: Dr LS Negi Auditorium, YSP UHF, Nauni

INAUGURAL SESSION

| | |
|------------|---|
| 10.00 AM | Reception of Hon'ble Minister of IPH and Horticulture and the Guest of Honour |
| 10.10 AM | Foundation stone laying ceremony of Field-Lab-cum Sale Centre |
| 10.20 AM | Foundation stone laying ceremony of Nature Interpretation cum Training Centre and Apiculture Laboratory |
| 10.30 AM | Lighting of lamp (University Auditorium) |
| 10.35 AM | Saraswati Vandana |
| 10.40 AM | Felicitation of dignitaries with Bouquets and Mementos |
| 10.50 AM | Welcome address by Dr H C Sharma, Vice Chancellor YSP UHF |
| 11.00 AM | About IAUA and the Brain Storming Session by Dr N C Patel, President, IAUA |
| 11.30 AM | Release of university publications |
| 11.35 AM | Address by Shri Mahender Singh, Hon'ble Minister of IPH and Horticulture, HP |
| 11.55 AM | Vote of thanks by the Registrar, YSP UHF |
| 12.00 Noon | National Anthem |
| 12.15 PM | Field Visit |
| 1.30 PM | Lunch |

Technical session I: **02.30 PM to 04.30 PM**

Venue: **Committee Room, VC Office, YSP-UHF, Nauni**

Sub-theme: **Mechanization and High Density Planting**

Chairperson: **Col Dr AR Pathak, VCAU, Junagarh**

Co-Chairperson: **Dr GL Keshwa, VC, AU, Kota**

Presentations:

1. Mechanization in horticulture: Potentials and limitations – Dr N C Patel, VC, AAU, Anand
2. High density plantations of temperate fruits for increasing farm income- Dr N Ahmed, VC, SKUAST (K), Srinagar

Panelist: **Dr Premjit Singh, VC, CAU, Imphal**

Rapporteurs: **Dr JN Sharma, Director of Research, YSP UHF, Solan**
Dr Satish K Sharma, Joint Director Research, YSP UHF, Solan

Dinner: **7.30 PM to 9.00 PM (Hotel Deventure, Kandaghat)**

Day-2: Friday, 4th May 2018, Venue: Hotel Deventure, Kandaghat

Technical Session-II: **9.30 AM to 11.15 AM**

Sub-theme: **Biotechnological Approaches and Cultivar Development**

Chairperson: **Dr BS Dhillon, VC, PAU, Ludhiana**

Co-Chairperson: **Dr PS Rathore, VC, AU, Jobner**

Presentations:

1. Potential for application of biotechnological approaches in horticultural crops - Dr H C Sharma, VC, YSP UHF, Nauni
2. Development of cultivars for protected cultivation of vegetable crops - Dr B S Dhillon, VC, PAU

Panelist: **Dr PL Nehra, Director of Research, RAU, Bikaner**

Rapporteurs: **Dr Satish K Sharma, Joint Director Research, YSP UHF, Solan**
Dr Sudhir Verma, Scientist (Soil Science), YSP UHF, Solan

Tea Break: **11.15 AM to 11.30 AM**

Technical Session-III:**11.30 AM to 01.00 PM****Sub-theme:****Integrated Farming Systems and Marketing****Chairperson:****Prof A Ramachandran, VC, FU, Kochi****Co-Chairperson:****Dr Y Hari Babu, VC, VU, Tirupati****Presentations:**

1. Integrated animal and horticultural production system for enhancing farmers' income - Dr PH Vataliya, VC, KU, Gandhinagar
2. Online systems for marketing horticultural produce-Prof. Guthi Jambunath, UAS, Raichur

Panelist:**Dr Ashok Patel, VC, SDSAU, Sardarkrushinagar, Gujarat****Rapporteurs:**

**Dr Pramod Kumar, Scientist (Fruit Science),
YSPUHF, Solan**
**Dr Sudhir Verma, Scientist (Soil Science),
YSP UHF, Solan**

Technical Session-IV & V: 01.00 to 02.30 PM**Sub-themes:****Nutrient and Pest Management in Horticultural Systems And Natural/Organic Farming for Sustainable Crop Production****Chairperson:****Dr C J Dangaria, Vice Chancellor, NAU, Navsari****Co-Chairperson:****Dr Guthi Jambunath, VC, UAS Raichur****Presentations:**

1. Biological approaches for pest management for boosting farmers' income - Dr US Sharma, VC, MPUAT, Udaipur
2. Organic Farming for sustainable crop production - Dr Premjit Singh, VC, CAU Imphal

Panelist:**Dr S Pashupalak, VC, OUAT, Bhubaneswar****Rapporteurs:**

**Dr Sudhir Verma, Scientist (Soil Science),
YSPUHF, Solan**
**Dr Pramod Kumar, Scientist (Fruit Science),
YSPUHF, Solan**

Lunch Break:**02.30 PM to 3.30 PM**

PLENARY-CUM-VALEDICTORY SESSION: 03.30 PM to 5.00 PM

- Chairperson:** **Dr Ram Lal Markanda**
Hon'ble Minister of Agriculture, Tribal Development and IT, Himachal Pradesh
- Co-Chairperson:** **Dr R P Singh, Executive Secretary, IAUA**
- Activities of IAUA:** **Col (Dr) A R Pathak, Vice President, IAUA**
- Concluding Remarks:** **Dr H C Sharma, VC, YSP UHF, Solan**
- Chairperson's Address:** **Dr Ram Lal Markanda**
Hon'ble Minister of Agriculture, Tribal Development and IT, Himachal Pradesh
- Vote of Thanks:** **Dr J N Sharma, Director of Research, YSP UHF, Solan**
- High Tea:** **05.00 to 05.15 PM**

List of Vice Chancellors who attended the 9th Brain Storming Session of IAUA

| Sr. No | Name | University/ Association | Contact No | E mail |
|--------|------------------------------|--|---------------|---------------------------|
| 1. | Prof. US Sharma | Maharana Pratap University of Agriculture & Technology, Udaipur | 0294-24711010 | vc@mpuat.ac.in |
| 2. | Prof. Nazeer Ahmad | Sher-e-Kashmir University of Agricultural Sciences and Technology, Srinagar | 0194-2462159 | vc@skuastkashmir.ac.in |
| 3. | Prof GL Keshwa | Agriculture University, Kota | 0744-2321204 | vcakota@gmail.com |
| 4. | Dr CJ Dangaria | Navsari Agricultural University, Navsari | 02637-282554 | vc@nau.in |
| 5. | Dr. PH Vataliya | Kamdhenu University, Gandhinagar | 079-65721001 | vc@ku-guj.com |
| 6. | Dr. M Premjit Singh | Central Agricultural University, Imphal | 03852-415933 | vcofficecau@yahoo.in |
| 7. | Dr. Ashok Kumar Patel | Sardar Krushinagar-Dantiwada Agricultural University, Sardarkrushinagar, Dantiwada | 02748-278222 | vc@sdau.edu.in |
| 8. | Prof. Guthi Jambunath | University of Agricultural Sciences, Raichur | 08532-221444 | vc@uasraichur.edu.in |
| 9. | Col (Dr.) AR Pathak | Junagadh Agricultural University, Junagadh | 02852-671783 | vc@jau.in |
| 10. | Dr. A Ramachandran | Kerala University of Fisheries & Ocean Studies, Kochi | 0484-2703781 | vc@kufos.ac.in |
| 11. | Dr. Y Hari Babu | Sri Venkateswara Veterinary University, Tirupati | 08772-248986 | vcsvvu@gmail.com |
| 12. | Dr AK Sarial | CSK Himachal Pradesh Krishi Vishwavidyalaya, Palampur | 01894-230521 | vc@hillagric.ac.in |
| 13. | Dr. NC Patel | Anand Agricultural University, Anand | 02692-261273 | vc@aau.in |
| 14. | Dr. BS Dhillon | Punjab Agricultural University, Ludhiana | 01612-401794 | vc@pau.edu |
| 15. | Prof Surendranath Pashupalak | Orissa University of Agriculture & Technology, Bhubaneswar | 06742-397700 | vcouat@gmail.com |
| 16. | Dr. PS Rathore | Sri Karan Narendra Agriculture University, Jobner | 01425-254039 | vc@sknau.ac.in |
| 17. | Dr. HC Sharma | Dr YS Parmar University of Horticulture & Forestry, Nauni, Solan | 01792-252363 | vcuhf@yspuniversity.ac.in |
| 18. | Dr RP Singh | Executive Secretary, Indian Agricultural Universities Association, New Delhi | 25842422 | drsinghrp@rediffmail.com |
| 19. | Prof PL Nehra | Director of Research, Swami Keshwanand Rajasthan Agricultural University, Bikaner | 01512-250199 | dor@raubikaner.org |
| 20. | Dr AS Dhatt | Head, Department of Vegetable Science, Punjab Agricultural University, Ludhiana | 9915135797 | hodvc@pau.edu |

Organizing Committees

Reception Committee

- Dr Hari C Sharma, Vice Chancellor, Convener
- Dr N C Patel, President, IAUA, Member
- Dr R P Singh, Executive Secretary, IAUA, Member
- All Statutory Officer, YSP UHF, Members

Registration cum Secretariat cum Boarding & Lodging cum Hall Management cum Technical Session Committee

- Dr J N Sharma, Director of Research, Convener
- Dr Satish Kumar Sharma, JDR, Member
- Dr Manish Kumar Sharma, HOD, SST, Member
- Shri Sanjay Sharma, PA, Member

Food and Refreshment Committee for Inaugural Function

- Dr Rajesh Bhalla, Joint Director, Convener
- Dr Anil Kumar Handa, Professor, Member

Funds Raising Committee

- Dr Rakesh Gupta, Dean, COH, Convener
- Er Ajay Gupta, Estate Officer, Member
- Shri Hiramani Verma, Comptroller, Member
- All Professor and Heads, COH/COF, Members

Hall Management Committee for Inaugural Session

- Dr P K Mahajan, Dean, COF, Chairman
- Dr Y C Gupta, Professor and Head, FLA, Member
- Dr H R Gautam, Principal Scientist, Member
- Dr Sita Ram Dhiman, Professor, Member

Transport Committee

- Er Ajay Gupta, Estate Officer, Convener
- Dr H P Sankhyan, Principal Scientist, Member
- Er Vijay Sharma, XEN, Member

Purchase Committee

- Dr R S Chandel, Joint Director, Member
- Dr Amit Vikram, Member

Printing and Publication Committee

- Dr Vijay Singh Thakur, DEE, Convener
- Dr Raj Kumar Thakur, Joint Director, Member
- Dr Rajesh Bhalla, Joint Director, Member

Acknowledgements

We thank the IAUA for choosing YSP UHF as the venue for holding the 9th Brain Storming Session. We also thank the Hon'ble Ministers Shri Mahender Singh Thakur, and Dr Ram Lal Markanda for sparing their valuable time to address the Vice Chancellors Conference. We thank the Department of Agriculture and Horticulture, Government of HP, NABARD, SJVN, HP State Pollution Control Board, Himachal Pradesh Council for Science, Technology and Environment (HIMCOSTE), National Rural Health Mission, Sarv Siksha Abhiyan Himachal Pradesh, Jaypee University of Information Technology, Saraswati Dot Com Pvt Ltd, Manav Bharti University, and other agencies for sponsoring the conference. We thank the members of all the committees, and the staff of VC Office, DR Office, and all others involved for their help in organizing the conference, and making it a grand success.



Dr YS Parmar University of Horticulture and Forestry
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