



RESEARCH REPORT



Research Chapter -4 2018-19

COLLEGE OF HORTICULTURE
ANAND AGRICULTURAL
UNIVERSITY

15th ANNUAL REPORT OF THE YEAR 2018-19

College of Horticulture

Anand Agricultural University, Anand

Performa: A (Part I)

1. Importance of Research Centre / Department along with work carried out during 2018- 19 (in brief):

The prime mandate of College of Horticulture is to impart education in the field of horticulture science coupled conducting research on various disciplines like fruit, vegetable, flower as well as on post harvest technology. During the year 2018-19 following experiments were conducted under College of Horticulture:

Horticulture:

- i. Evaluation of vegetables during different season under different shade net condition
- ii. Effect of different organic manures and PGPR consortium on growth, yield and quality of sapota (*Manilkara hexandra L.*) cv. Kallipatti
- iii. Effect of rooting media on propagation through herbaceous shoot tip cutting of African marigold (*Tagetes erecta L.*) cv. Calcutta selection under net house
- iv. Nutrient management through organics in broccoli (*Brassica oleracea var. italica L.*)
- v. Evaluation of different chrysanthemum genotypes for yield and growth parameters
- vi. Nutrient management through organics in onion (*Allium cepa L.*) as intercrop in sapota orchard
- vii. Effect of different spacing on growth and yield of capsicum cv Indra under poly house in middle Gujarat condition

Crop Protection:

- viii. Bio-efficacy of botanicals against Powdery mildew of Fenugreek.
- ix. Bio-efficacy of agrochemical against bacterial canker (*Xanthomonas axonopodis pv. citri*) in citrus.
- x. Evaluation of insecticides against aphid infesting chrysanthemum
- xi. Validation and promotion of sustainable and adaptable IPM technology for brinjal crop

Crop Improvement:

- xii. Evaluation of sesame genotypes in summer season along with molecular characterization
- xiii. Induction of mutation in rose and lilly

Post Harvest Technology:

- xiv. Development of value added product containing wheat and chickpea *ponk*.
- xv. Technology for production of Indian gooseberry (aonla) murabba
- xvi. Production technology for clarified wood apple juice
- xvii. Development of production technology for vegetable based juice from carrot and tomato

xviii. Standardization of moringa pulping technique using brush type pulper.

Social Sciences:

xix. Modelling and forecasting of area, production and productivity of major fruit crops in Gujarat-An application of Artificial Neural Network

2. Research recommendations with photographs (2018-19): **NIL**

3. **Output during 2018-19 [No. of trials allotted (new / ongoing) and conducted successfully]**

No. of successfully conducted : 15

No. of new trails allotted : 05

4. Salient achievements during the year with photographs and information (Other than approved recommendation): **NIL**

5. Variety/ Breed/ Machinery etc. Released / developed with brief information and photographs.: **NIL**

6. For breeding: Generation wise detail and new crosses made during the year: **NIL**

7. Seed production information: **NIL**

8. **Project title and financial outlay under projects of:**

Budget Head: 12987-02

| Year | Recurring | | | Non-recurring | | |
|---------|----------------|-------------|----------|----------------|-------------|---------|
| | Sanction grant | Expenditure | Balance | Sanction grant | Expenditure | Balance |
| 2018-19 | 37,82,000/- | 37,25,879/- | 56,121/- | 7,61,000/- | 7,57,314/- | 3,686/- |

9. **Awards / Honors etc. information with photographs:**

Dr. Prity Kumari, Assistant Professor, awarded best paper in ‘Statistical Modelling and Forecasting’ session for paper entitled ‘Statistical models for forecasting area, production and yield of fruit crops in Gujarat, India’ at 72nd Annual Conference of Indian Society of Agricultural Statistics during Dec. 13-15, 2018 at ICAR-Central Institute of Agricultural Engineering, Bhopal, M.P.

10. **Important events**

10 A. **Seminar / Symposia / Conference / Training organized :** NIL

10 B. **University teachers who have participated in Seminar/Symposia/Conference /Training:** Appendix - 1

10 C. **Names and Details of dignitaries visited:** NIL

Performa: A (Part II)

11. List of Research paper published during year 2018-19:

i. International journal

1. Gajera R.R., Nema A., Sharma H. and Joshi D.C. (2018). Processing and quality evaluation of bottle gourd (*L. siceraria*) juice, *Int. J. of Chemical Study*, 6(3): 2727-2731
2. Patel J. J., Patel D. A., Parmar H. K., Damor A.S. and Patel D. K. (2018). Diallel analysis for combining ability studies in castor (*Ricinus communis* L.). *Int. J. of Chemical Studies*, 6(3): 2950-2956.
3. Vaishali, Sharma H., Sharma A., Nema A. and Gajera R.R. (2019). Effect of shellac coating on minimally processed grapes, *Int. J. of Chemical Studies*, 7(2): 1843-1848.

ii. National journal

1. Barad A. H. (2018). Bio-efficacy of seed treatment insecticidal molecules against cucumber leaf miner, *Liriomyza trifolii* (Burgess), *J. of Entomology and Zoology Studies*, 6(6): 251-255
2. Chakraborty S., Patel D. A., Parmar H., Dhaduk H. L. and Sasidharan N. (2018). Genetic diversity analysis in soybean (*Glycine max* (L.) Merrill.) using SSR markers. *J. Pharmacognosy and Phytochemistry*, 7(3): 2380-2384.
3. Chaudhari U. C, Singh A, Ahlawat T. R, and Thatte. S (2018). Effect of various levels of nitrogen on quantitative and qualitative parameters of Rose var, "Top Secret" under poly house condition. *J. Applied and natural Science*, 10 (1): 417-420.
4. Kumari Prity, Mishra G. C. and Srivastava C. P. (2018). Predictive models for pod damage by pod fly in Pigeonpea for North East Plain Zone of India, *Int. J. Agricult. Stat. Sci.* 14(2):465-468.

12. Number of research paper presented at Seminar/ symposia etc. for 2018-19:

i. International level

1. Gajera R.R (2019). Storage characteristics of whey based fruit beverage. A paper presented in International Symposium on Engineering Technologies for Precision and Climate Smart Agriculture held at Banaras Hindu University, Varanasi during 28-30, January, 2019.
2. Gajera R.R (2019). Rain or Shine: Promising Technology for Clean Energy Harvesting. A paper presented in International Symposium on Engineering Technologies for Precision and Climate Smart Agriculture held at Banaras Hindu University, Varanasi during 28-30, January, 2019.

ii. National level

1. Kumari Prity (2018). Statistical models for forecasting area, production and yield of fruit crops in Gujarat. A paper presented in 72nd Annual Conference of Indian Society of Agricultural Statistics at ICAR-Central Institute of Agricultural Engineering, Bhopal, M.P during 13-15, December, 2018.

iii. Popular articles published for the year 2018-19:

1. Patel H. C., Vasara R. and Patel Dharmishta (2018). *Krushni Van (Agro forestry) Padhdhati nu Mahatva, Vrukshoni Vaigyanik Kheti*, pp: 15-17.
2. Patel H. C., Vasara R., and Patel Dharmishta (2018). *Mablak Avak Apatu Vruksh: Safed Chandan (Sukhad), Vrukshoni Vaigyanik Kheti*, pp: 56-59.
3. Patel H. C., Satodiya B. N. and Patel Dharmishta (2018). *Sag- Kheduto no Kamau Dikro, Vrukshoni Vaigyanik Kheti*, pp: 60-62.
4. Kacha H. L., Patel H. C. and Paradva D. R. (2018). *Limdo, Vrukshoni Vaigyanik Kheti*, pp: 78-84.
5. Soni N.V. and Patel H. C. (2018). *Biyo, Vrukshoni Vaigyanik Kheti*, pp: 107-108.
6. Patel H. C. and Patel Dharmishta (2018). *Jambu ni Vaigyanik Kheti Padhdhati, Vrukshoni Vaigyanik Kheti*, pp: 117-119.
7. Soni N.V. and Patel H. C. (2018). *Khatar Apatu Vruksh- Karanj, Vrukshoni Vaigyanik Kheti*, pp: 120-122.
8. Soni N.V. and Patel H. C. (2018). *Cheriya (Tavar), Vrukshoni Vaigyanik Kheti*, pp: 171-176.
9. Soni N.V. and Patel H. C. (2018). *Vruksho- Tel Mate na Nava Stroto, Vrukshoni Vaigyanik Kheti*, pp: 177-179.
10. Soni N.V. and Patel H. C. (2018). *Tel Apatu Vruksho na Vividha Upayogo, Vrukshoni Vaigyanik Kheti*, pp: 180-187
11. Parmar Amita, Patel H. C. and Vasara R. (2018). *Bilani Kheti, Vrukshoni Vaigyanik Kheti*, pp: 85-87.
12. Kotecha A. V. (2018). *Desi Bavad, Vrukshoni Vaigyanik Kheti*, pp: 94-96.
13. Kotecha A. V. (2018). *Sharu, Vrukshoni Vaigyanik Kheti*, pp: 94-96.
14. Shah, N. I., Maheriya, P.A. and Chaudhari, U.C. (2018). *Samajik Vanikaran, Anand Agricultural University, Anand*, pp: 18-21.
15. Shah, N. I., Maheriya, P.A. and Chaudhari, U.C. (2019). *Fal pakoma Sajiv kheti, Gujarat Bagayat Vikas Parisad*, pp: 8-10.
16. Chaudhari, U.C. and Paradva D. R. (2019). *Deshi gulab ni kheti padhdhti, Gujarat Bagayat Vikas Parisad*, pp: 44-48.

13. Books / Book chapters published:

i. Books/ Booklets:

| Sr. No. | Name of Book | Name of Authors | Name of Publisher |
|---------|---------------------------|---------------------------------------------------------|---------------------------------------|
| 1. | Vrukshoni Vaigyanik Kheti | Patel H. C., Soni N. V., Patel M. J. and Panchal, B. H. | Anand Agricultural University, Anand, |

ii. Book chapter:

| Sr. No. | Name of Book | Book Chapter | Name of Authors | Name of Publisher |
|---------|--------------------|------------------------------------------------------------------------------------|-----------------------------------------------|---------------------|
| 1. | Today and tomorrow | Management of post harvest diseases of vegetable and fruit crops through bioagents | Patil R. K., Prajapati H. N. and Pandya J. P. | New delhi publisher |

APPENDIX-1

University teachers who have participated in Seminar/Symposia/Conference Training during the year 2018-19

| Sr. No. | Name of Teacher/ Scientist | Participated | Duration |
|---------|------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| 1 | Dr. R. R. Gajera and Dr. A.V. Kotecha | National workshop on “Enhancement of farmer’s income through post harvest management” held at College of FPTBE, AAU, Anand | 28.08.2018 to 29.08.2018 |
| 2. | Prof. Hitiksha K. Parmar | Winter school on “Current and emerging trends for conservation and sustainable utilization of forest genetic resources” at Navsari Agricultural University, Gujarat | 24.09.2018 to 14.10.2018 |
| 3. | Dr. C. H. Raval | National workshop on “Yogic farming, Organic farming and zero budget natural farming held at AAU, Anand | 17.09.2018 to 18.09.2018 |
| 4. | Dr. A. H. Barad | National seminar on “Uttar Gujaratana Bagayati pakoma pak sarnkshan by PPAG” held at SDAU, Dantiwada | 29.09.2018 |
| | | Short term training (5 days) on “Fruit fly: Surveillance and Management” held at NIPHM, Hyderabad | 29.10.2018 to 02.11.2018 |
| 5. | Dr. C. H. Raval | National Seminar on “Developments in soil sciences” held at AAU, Anand | 27.11.2018 to 30.11.2018 |
| 6. | Dr. D. D. Parekh and Dr. Amita B. Parmar | Winter school on “Processing Value Addition and Waste Utilization Of Medicinal and Aromatic Plants with Advance Techniques” at ICAR-Directorate of Medicinal and Aromatic plants Research (DMAPR), Boriavi, Anand, Gujarat | 30.11.2018 to 20.12.2018 |
| 7. | Dr. Prity Kumari | 72 nd Annual Conference of Indian Society of Agricultural Statistics at ICAR-Central Institute of Agricultural Engineering, Bhopal, M.P. | 13.12.2018 to 15.12.2018 |
| 8. | Dr. R. R. Gajera | 53 rd Annual convention of ISAE and International Symposium on Engineering Technologies for Precision and Climate Smart Agriculture held at BHU, Varanasi. | 28.01.2019 to 30.01.2019 |
| 9. | Dr. C. H. Raval and Dr. H. N. Prajapati | 21 Days Refresher course at HRDC, UGC, V. V. Nagar | 28.01.2019 to 17.02.2019 |
| 10. | Dr. R. R. Gajera and Dr. Amita B. Parmar | State level seminar on “Gau adharit sajjiv kheti” Organised by Gujarat Association for Agricultural Sciences, Ahmedabad | 18.02.19 |
| 11. | Dr. Prity Kumari | 21 days training programme on “Modern statistical techniques in Genetics” under the aegis of Centre of Advanced Faculty Training (CAFT) at IASRI, Library Avenue, Pusa, New Delhi | 01.02.2019 to 21.02.2019 |

Performa: B

Name of Unit: College of Horticulture

Details of Seminar/ Symposia/ Conference/ Training attended by the faculties

| | | |
|---|-------------------------------------------------------------------------------------------------------|----|
| 1 | Total number of national seminar attended by total faculty in the year | 03 |
| 2 | Total number of international seminar attended by total faculty in the year | 00 |
| 3 | Total number of workshop & conferences attended by total faculty in the year | 04 |
| 4 | Total number of research papers presented by faculty at conferences in India & abroad during the year | 03 |
| 5 | Number of research contribution to Scopus till date by permanent faculty | 02 |
| 6 | Number of research contribution to Scopus by permanent faculty | 01 |
| 7 | Total number of research publications of existing permanent faculty in national journals | 04 |

Details of Research Publications

| Name of Faculty Member | Name of the Research Paper | Year of Publication | Name of the Journal |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|----------------------------|--------------------------------------|
| A. H. Barad | Bio-efficacy of seed treatment insecticidal molecules against cucumber leaf miner, <i>Liriomyza trifolii</i> (Burgess) | 2018 | J. of Entomology and Zoology Studies |
| Prity Kumari | Predictive models for pod damage by pod fly in Pigeonpea for North East Plain Zone of India | 2018 | Int. J. Agricult. Stat. Sci. |
| U.C. Chaudhari | Effect of various levels of nitrogen on quantitative and qualitative parameters of Rose var, "Top Secret" under poly house condition | 2018 | J. Applied and natural Science |
| Hitiksha Parmar | Genetic diversity analysis in soybean (<i>Glycine max</i> (L.) Merrill.) using SSR markers | 2018 | J. Pharmacognosy and Phytochemistry |
| 8 | Total number of research publications of existing permanent faculty in international journals | | 03 |

Details of Research Publications

| Name of Faculty Member | Name of the Research Paper | Year of Publication | Name of the Journal |
|------------------------|----------------------------------------------------------------------------------------------------|---------------------|------------------------|
| R. R. Gajera | Processing and quality evaluation of bottle gourd (<i>L. siceraria</i>) juice | 2018 | Int. J. Chemical Study |
| R. R. Gajera | Effect of shellac coating on minimally processed grapes, International Journal of Chemical Studies | 2019 | Int. J. Chemical Study |
| Hitiksha K. Parmar | Diallel analysis for combining ability studies in castor (<i>Ricinus communis</i> L.) | 2018 | Int. J. Chemical Study |
| 9 | Total number of books published by existing permanent faculty in the year | | 01 |

Number and value of research projects undertaken by the University with various organization in the year

| Sr. No. | Research Projects | Number / Value |
|---------|-------------------------------------------------|----------------|
| 1 | Number of research projects | NIL |
| 2 | Total value of research projects (Rs. Lakhs) | |
| Sr. No. | Consultancy Projects | Number / Value |
| 1 | Number of consultancy projects | NIL |
| 2 | Total value of consultancy projects (Rs. Lakhs) | |

Details about Patent and Intellectual Property Rights (IPRs) filed by the University

| Sr. No. | Patents | Number |
|---------------------|-----------------------------------------------------------------------------------------|--------|
| 1 | No. of Patents Filed | NIL |
| 2 | No. of Patents Published | |
| 3 | No. of Patents Granted | |
| 4 | No. of Patents Licensed | |
| 5 | Intellectual Property Rights (IPRs) | |
| 6 | Total earning from Patents (in Rupees) | |
| Awards / Fellowship | | |
| 1 | Number of prestigious national & international awards received by the permanent faculty | NIL |
| 2 | Total number of permanent faculties received Research awards | |
| 3 | Total number of permanent faculties awarded Emeritus Fellowship | |