

RESEARCH ACCOMPLISHMENTS AND RECOMMENDATIONS 2025



DIRECTORATE OF RESEARCH
JUNAGADH AGRICULTURAL UNIVERSITY
JUNAGADH - 362 001 (Gujarat)



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Citation:

Research Accomplishments and Recommendations-2025
Junagadh Agricultural University, Junagadh (Gujarat)

Published by:

Directorate of Research & Dean, PG Studies
"University Bhavan"
Junagadh Agricultural University,
Junagadh-362001(Gujarat)
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Publication No.:

3-1-18

Year of Publication:

June 2026

Copies:

300

Printed at:

Student Xerox





Junagadh Agricultural University
Junagadh - 362 001 (Gujarat)



Dr. V. P. Chovatia
Vice Chancellor

MESSAGE

Junagadh Agricultural University is firmly committed to academic excellence, innovative research, farmer-centered extension and holistic development. The effective dissemination of research outcomes plays a vital role in enhancing the visibility, relevance, and impact of both scientific findings and the researchers behind them. I am delighted to note that the University is publishing another informative volume for the year 2025, highlighting need-based tools, technologies and recommendations.

Saurashtra, a culturally vibrant peninsula in western Gujarat, comprises ten districts that fall under the jurisdiction of Junagadh Agricultural University. The region is characterized by considerable agro-ecological diversity, encompassing four distinct agro-climatic zones with varying soil types, rainfall patterns, temperatures and natural resources. Its rich biodiversity and diverse farming conditions support a broad spectrum of agricultural activities, including rainfed and dryland agriculture, field crops, horticulture, livestock production and other allied enterprises.

Within this diverse agro-ecological setting, Junagadh Agricultural University fulfils its integrated mandate of education, research and extension. Through its extensive network of 24 research stations across the region, the University undertakes multidisciplinary, demand-driven and farmer-oriented research. Its sustained dedication and meaningful contributions to the farming and scientific communities reflect its unwavering commitment to sustainable agricultural development and societal well-being.

I extend my heartfelt congratulations to our dedicated scientists for their remarkable achievements, including the release of six new crop varieties, the development of 38 farmer-oriented technologies, 22 innovations for the scientific community and 65 new technical programmes. I am pleased to present the **“Research Accomplishments and Recommendations 2025”** meticulously compiled by the Director of Research and his team. This publication stands as a testament to the University's research strength and commitment.

I am confident that this document will serve as a valuable source of knowledge and inspiration for scientists, students, farmers, entrepreneurs and all stakeholders engaged in the advancement of agriculture and allied sectors.

Junagadh
June 30, 2026

(V. P. Chovatia)





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Dr. A. G. Pansuriya

PREFACE

It is an honour to document the research advancements made at Junagadh Agricultural University throughout the year 2024–25. The recommendations and new technical programmes were critically discussed and approved in the 21st AGRESCO Subcommittee Meetings of Junagadh Agricultural University. These were subsequently presented in the 21st Combined AGRESCO Meeting of SAUs, organized by Sardarkrushinagar Dantiwada Agricultural University, Sardarkrushinagar, during May 05–27, 2025, through virtual mode.

The Junagadh Agricultural University represents Saurashtra region of Gujarat and about 32.74 per cent area of the state. There are 24 research stations, which include multidisciplinary main research stations, sub research stations for various crops as well as testing centers spread over 10 districts. The seven different sub-committees have been constituted and conveners were nominated to plan and monitor the research work. All the sub-committees have successfully completed their responsibilities. The University has also arranged 22nd Research Council meeting on February 01, 2025 for approval of new research projects and research activities to be under taken during year. The university has also signed as many as seven MoU for research activities. Total 28 new projects of Plan, ICAR, RKVY and other Agencies worth Rs. 695.00 lac were approved in the University during the year 2024-25.

During the year 2024-25, total 8153 quintal breeder/ nucleus seeds of different crops were produced to fulfill the demand of private and public sectors as per the national and state indents. Under Megaseed project, 11195 quintal of truthful/ foundation/ certified seeds of different crops were produced and supplied to the farmers & various farms of the University under the brand “Gir Sawaj”. Apart from these, 1.48 lac planting material of different fruit crop graft, sapling, seedling, ornamental & medicinal plants were produced and provided to the farmers. Total 25545 kg Bioagents viz. *Trichoderma*, *Beauveria*, *Metarhizium*; 8157 liter liquid biofertilizers viz. *Rhizobium*, *Azotobacter*, *PSB*, *KMB*, *HNPV*, *SNPV*; 10460 Fruit fly trap/ lure; 30097 Pheromone trap/ lure etc. were produced in large amount and supplied to the farmers at reasonable price. Altogether, 9811 soil,





plant and irrigation water samples were analyzed at different centres and KVKs of the University.

Total three different technologies were granted for patent and design under IPR Act. A total of 142 different farm machinery, implements and equipment's have been tested by Gujarat's only Farm Machinery Testing and Training Center operating at the University. Four implements/ equipments were developed for the benefits of the farmers.

During 21st Combined AGRESKO meeting of SAUs, **six new crop varieties i.e. Pigeonpea (GT 112: Sorath Bhuri), Brinjal (GLB-11: Sorath Priya), Bottle gourd (GBG-2: Sorath Nidhi), Pearl millet (GHB 1305: Sorath Maru Shakti), Sesame (G. Til 21: Sorath Kalapi and G. Til 9) and Soybean (G. Soy 5: Sorath Leela)** varieties were released for Gujarat state. Apart from that, **Sesame variety G. Til 9** is recommended at the national level. The 21st Combined AGRESKO also resulted in **38 Technologies/Recommendations for farmers** and **22 recommendations for the scientific community**. Additionally, **65 new technical programmes** were formulated to initiate research aimed at addressing applied and basic problems in agriculture and allied fields.

Summary of 21st Combined AGRESKO meeting of SAUs

Sub Committee	No. of Recommendations		New Technical Programs
	Farmers	Scientific	
Crop Improvement	06*	01	01
Crop Production	15	06	19
Plant Protection	07	05	13
Horticulture & Forestry	06	01	06
Agricultural Engineering	08	01	12
Basic Science	01	01	08
Social Science	07	07	06
Total	06*+38	22	65

*No. of crop varieties released

I take this opportunity to express my sincere gratitude to Dr. V. P. Chovatia, Hon'ble Vice Chancellor, Junagadh Agricultural University, for his unwavering guidance, constant encouragement, and valuable support in strengthening the research activities of the University. His visionary leadership has played a pivotal role in advancing cutting-edge research at university aimed at addressing emerging challenges and newer issues in agriculture and allied sciences. Thereby greatly contributing to the successful publication of this volume.

Junagadh
June 30, 2026


(A. G. Pansuriya)



RECOMMENDATIONS FOR FARMERS

I. CROP IMPROVEMENT

CROP VARIETIES RELEASED

Total six new crop varieties of JAU *i.e.* Pigeonpea (GT 112: Sorath Bhuri), Brinjal (GLB-11: Sorath Priya), Bottle Gourd (GBG-2: Sorath Nidhi), Pearl millet (GHB 1305: Sorath Maru Shakti), Sesame (G. Til 21: Sorath Kalapi) and Soybean (G. Soy 5: Sorath Leela) were released for the benefit of the farmers of the state during the year 2024-25.

Pigeonpea: Gujarat Tur 112 (GT 112: Sorath Bhuri)

Farmers of Gujarat state growing pigeonpea are recommended to grow dark red colour medium maturing (176 days) variety Gujarat Tur 112 (GT 112: Sorath Bhuri). It recorded 2245 kg/ha average seed yield, which was 8.6, 14.6, 18.9, 17.0, 9.4, 19.4 and 24.4 per cent higher over check varieties GJP 1, AGT 2, BDN 2, GT 104, GT 106, GT 108 and BDN 716, respectively. Seeds of this variety are of very large size (11.10 g/100 seeds). This variety found moderately resistant against wilt and SMD diseases with low pod borer damage.



(Pulses Research Station, JAU, Junagadh)

Brinjal: Gujarat Long Brinjal-11 (GLB-11: Sorath Priya)

The farmers of Gujarat state growing the brinjal crop during late *kharif* / *rabi* season are recommended to grow brinjal variety Gujarat Long Brinjal-11 (GLB-11: Sorath Priya). The variety has recorded a mean fruit yield of 440 q/ha, which was 12.0, 12.4 and 20.8 per cent higher over check varieties *viz.*, GJLB-4 (393 q/ha), GAB-6 (390 q/ha) and Punjab Sadabahar (363 q/ha), respectively. The fruits of GLB-11 are medium in size with a medium long shape and pinkish in colour with good shining. This variety was found comparable to all check varieties against little leaf disease. Whitefly population was found low as compared to check varieties.



(Vegetable Research Station, JAU, Junagadh)



Bottle Gourd: Gujarat Bottle Gourd-2 (GBG-2: Sorath Nidhi)

The farmers of Gujarat State growing bottle gourd during *kharif* season are recommended to grow bottle gourd variety Gujarat Bottle Gourd-2 (GBG-2: Sorath Nidhi). The variety has recorded the mean fruit yield of 261 q/ha, which was 18.6 and 29.4 per cent higher over check varieties ABG-1 (220 q/ha) and Pusa Naveen (202 q/ha), respectively. The fruits of GBG-2 are medium long and elongated curved with flat shape of apex at peduncle end and attractive light greenish in colour. This variety was found moderately resistant to moderately susceptible against mosaic, resistant to moderately resistant against downy mildew disease and resistant to immune against powdery mildew disease.



(Vegetable Research Station, JAU, Junagadh)

Pearl millet: Gujarat Hybrid Bajra 1305 (GHB 1305: Sorath Maru Shakti)

The *kharif* pearl millet growing farmers of Gujarat state are recommended to grow early maturing biofortified (high Fe and Zn content) hybrid GHB 1305 (Sorath Maru Shakti). This hybrid recorded average 2472 kg/ha grain yield which was 14.6 per cent higher than check hybrid GHB-538. It has also recorded average 6203 kg/ha dry fodder yield which was 29.3 per cent higher than check hybrid GHB-538. This hybrid found resistant against major pearl millet diseases like downy mildew, blast and rust and tolerant to resistant for pest like shoot fly, stem borer and *helicoverpa* larvae.



(Pearl millet Research Station, JAU, Jamnagar)

Sesame: Gujarat Til 21 (G. Til 21: Sorath Kalapi)

The farmers of Gujarat state growing sesame in summer season are recommended to grow Gujarat Til 21 (G.Til 21: Sorath Kalapi). This variety recorded seed yield of 1593 kg/ha which was 17.5 and 22.3 per cent higher over the check varieties GT 3 and GJT 5, respectively. Seeds of this variety are white



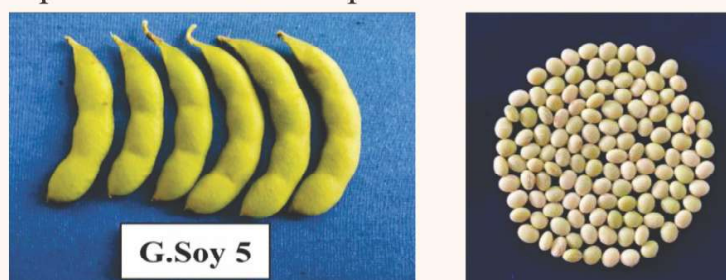
and bold; and it recorded 47.37 % oil content. This variety showed lower incidence of stem and root rot, phyllody disease and thrips.



(Agricultural Research Station, JAU, Amreli)

Soybean: Gujarat Soybean 5 (G. Soy 5: Sorath Leela)

The farmers of Gujarat state growing soybean during *kharif* season are recommended to grow early maturing variety Gujarat Soybean 5 (G.Soy 5: Sorath Leela). This variety matures in 90 days and recorded mean seed yield of 2294 kg/ha, which was 20.5 per cent higher over the check variety JS 20-34 (1903 kg/ha). This variety recorded 19.9 % high oil yield and 17.1 % high protein yield over the check variety JS 20-34. This variety showed lower incidence of *Rhizoctonia* root rot and *Phytophthora* diseases as well as prodenia and thrips infestation as compared to check varieties.



(Agricultural Research Station, JAU, Amreli)

II. CROP PRODUCTION

Nutrient Management

Real time nitrogen fertilization using leaf colour chart in wheat

The farmers of South Saurashtra Agro-climatic Zone growing wheat are recommended to apply either 60 kg N/ha as basal + 30 kg N/ha when LCC $\leq$ 3 + 30 kg N/ha when LCC $\leq$ 3 or 40 kg N/ha as basal + 40 kg N/ha when LCC $\leq$ 3 + 40 kg N/ha when LCC $\leq$ 3 besides FYM 5 t/ha for securing higher yield and net realization. Take LCC observation at weekly interval for LCC value.



(Department of Agronomy, CoA, JAU, Junagadh)





Effect of levels and schedules of nitrogen fertigation on growth and yield of summer sesame

The farmers of South Saurashtra Agro-climatic Zone growing summer sesame are recommended to apply basal dose of fertilizer (10-25-0 kg N-P₂O₅-K₂O/ha) at time of sowing and then N fertigation with 50 kg/ha in water soluble form through drip fertigation (one week after sowing) in six equal splits at 10 days interval for getting higher yield and net returns.



(Department of Agronomy, CoA, JAU, Junagadh)

Effect of NPKS levels on growth, yield and nutrient uptake by *kharif* soybean

The farmers of South Saurashtra Agro-climatic Zone growing *kharif* soybean are recommended to apply 30 kg nitrogen, 60 kg phosphorus and 30 kg sulphur at the time of sowing besides FYM 5 t/ha for getting higher seed yield and net realization.



(Department of Agronomy, CoA, JAU, Junagadh)

Evaluation of multi cut fodder sorghum varieties under different levels of nitrogen

The farmers of North Saurashtra Agro-climatic Zone growing multi-cut fodder sorghum are recommended to grow sorghum variety SSG 59-3 (Mithi Sudan) with application of nitrogen 40 kg/ha at basal, 40 kg/ha at 21 days after sowing and 40 kg/ha after each cut along with 40 kg/ha P₂O₅ at basal for achieving higher green and dry fodder yield and net realization.



(Grassland Research Station, JAU, Dhari)

Effect of cow dung on yield and nutrients uptake by wheat

The farmers of South Saurashtra Agro-climatic Zone growing wheat are recommended to apply 60 % RDF (72-36-36 kg N-P₂O₅-K₂O as basal) to wheat along with slurry (cow dung: water - 1:3) of 1500 kg/ha fresh cow dung (up to five days) (1/2 at basal and 1/2 at 30 DAS) with irrigation for getting higher yield and net return.



(Dept. of Soil Science & Agril. Chemistry, CoA, JAU, Junagadh)

Cultural Practices

Dynamics of soil weed seedbank in *kharif* groundnut

The farmers of south Saurashtra Agro-climatic Zone growing *kharif*



groundnut are recommended to use following practices for effective management of wheat residue, weeds, better management and reduction of soil weed seedbank along with profitable cultivation of groundnut and for sustaining of soil health;

Wheat residue incorporation *fb* reduced tillage (rotavator) and application of waste decomposer 75 ml/ha with pre-sowing irrigation and *Trichoderma Viride* 5 kg/ha + 20 kg N/ha and suicidal germination (Application of Ethylene 2 L/ha + KNO₃ 2 kg/ha with pre-sowing irrigation *fb* killing the weed flush by subsequent light harrowing) along with Inter-culturing and hand weeding at 15, 30 & 45 DAS according to availability of labourers.



(Department of Agronomy, CoA, JAU, Junagadh)

Guava based alternate land use system under rainfed condition

The farmers of North Saurashtra Agro-climatic Zone (AES-VI) having two years old guava plantation at 6.0 m x 6.0 m spacing under rainfed are recommended to intercrop groundnut at 45 cm spacing (initial two years 10 rows, from third year 8 rows) in between two rows of guava for getting higher yield and net return.



(Main Dry Farming Research Station, JAU, Targhadia)

High density planting and detopping in *Bt.* Cotton under rainfed condition

The farmers of Bhal and Coastal Zone-VIII growing *Bt.* cotton under rainfed condition are recommended to sowing of cotton at 75 cm x 30 cm spacing for getting higher yield and net returns under rainfed farming condition.



(Dry Farming Research Station, JAU, Vallabhipur)

Response of *Bt.* cotton to moisture conservation practices under rainfed condition

The farmers of Bhal and Coastal Zone-VIII sowing *Bt.* cotton under rainfed condition are recommended to sow cotton with tied ridges and furrow at 3.0 m interval or Broad bed and furrow (120 cm x 60 cm) or ridge and furrow (30 cm x 60 cm) for getting higher yield and net returns under rainfed farming condition.



(Dry Farming Research Station, JAU, Vallabhipur)





Effect of mulching on different cultivars of castor under conserved soil moisture condition of *Ghed* area

The farmers of South Saurashtra Agro-climatic Zone (*Ghed* area) growing castor under conserve soil moisture are recommended to grow castor under Silver black plastic mulch (25 micron) for obtaining higher yield and net returns under rainfed conditions.

(*Dry Farming Research Station, JAU, Ratia*)

Irrigation Management

Effect of drip irrigation schedules and plastic mulch on yield of *rabi* sweet corn

The farmers of South Saurashtra Agro-climatic Zone growing *rabi* sweet corn sown at 40-80-40 cm x 20 cm in paired row planting are recommended to irrigate the crop with surface irrigation at 1.0 IW/CPE with wheat straw mulch (5 t/ha) (15-20 DAS) for securing higher yield and net realization.



Details of drip system

Particulars	Details	Particulars	Details
Lateral spacing	90 cm	Operating pressure	1.2 kg/cm ²
Dripper spacing	60 cm	Operating frequency	Alternate day
Dripper discharge rate	4 lit./hr.	Irrigation schedule	1.0 PEF

(*Department of Agronomy, CoA, JAU, Junagadh*)

Response of castor to subsoiling and furrow irrigation

The farmers of South Saurashtra Agro-climatic Zone are recommended to sow the castor in in-row subsoiling (by subsoiler at 45 cm depth) prepared before sowing and irrigate the crop through furrow irrigation at 15 days interval (0.8 IW/CPE ratio) after cessation of monsoon for getting higher yield and net realization.

(*Department of Agronomy, CoA, JAU, Junagadh*)

Weed Management

Bio-efficacy evaluation of pre-mix herbicides in summer soybean

The farmers of South Saurashtra Agro-climatic Zone growing summer soybean are recommended to apply pendimethalin 30 % EC (60 ml/10 L water) 900 g/ha as pre-emergence *fb* pre-mix propaquizafop 2.5 % + imazethapyr 3.75 % ME (40 ml/10 L water) 50 + 75 g/ha as post-emergence at 30 DAS
OR pre-mix pendimethalin 30 % + imazethapyr 2



% EC (50 ml/10 L water) 750 + 50 g/ha as pre-emergence *fb* pre-mix fluazifop-p-butyl 11.1 % + fomesafen 11.1 % SL (20.3 ml/10 L water) 125 + 125 g/ha as post-emergence at 30 DAS **OR** pre-mix pendimethalin 30 % + imazethapyr 2 % EC (50 ml/10 L water) 750 + 50 g/ha as pre-emergence *fb* IC & HW at 30 DAS **OR** pendimethalin 30 % EC (60 ml/10 L water) 900 g/ha as pre-emergence *fb* pre-mix imazamox 35 % + imazethapyr 35 % WG (2 g/10 L water) 35 + 35 g/ha as post-emergence at 30 DAS for effective weed management and achieving higher seed yield and net realization.

(Department of Agronomy, CoA, JAU, Junagadh)

Bio-efficacy evaluation of different herbicides in *Bt* cotton

The farmers of South Saurashtra Agro-climatic Zone growing *Bt* cotton are recommended to do IC & HW at 20, 40 and 60 DAS **OR** apply tank-mix pendimethalin 30 % + pyriithiobac sodium 10 % EC (30 + 7.5 ml/10 of water) 450 + 37.5 g/ha as pre-emergence *fb* pre-mix pyriithiobac sodium 6 % + quizalofop-ethyl 4 % EC (25 ml/10 of water) 75 + 50 g/ha as post-emergence at 30 DAS *fb* IC & HW at 60



DAS **OR** tank-mix pendimethalin 30 % + pyriithiobac sodium 10 % EC (30 + 7.5 ml/10 of water) 450 + 37.5 g/ha as pre-emergence *fb* IC & HW at 30 & 60 DAS **OR** pendimethalin 30 % EC (60 ml/10 of water) 900 g/ha as pre-emergence *fb* IC & HW at 30 & 60 DAS as per availability of labours for effective weed management and achieving higher seed cotton yield and net realization.

(Department of Agronomy, CoA, JAU, Junagadh)

Integrated weed management in autumn planted sugarcane

The farmers of South Saurashtra Agro-climatic Zone growing autumn-planted sugarcane are recommended to apply ametryne 80 % WG (50 g/10 L water) 2.0 kg/ha at 15-20 DAP followed by inter culturing and hand weeding at 60 and 90 days after planting **OR** hand weeding at 30, 60 and 90 days after planting and inter culturing at 45 and 90 days after planting for effective weed management and securing higher cane yield and net return.



(Main Sugarcane Research Station, JAU, Kodinar)



III. PLANT PROTECTION

Entomology

Standardization of number of pheromone traps for shoot and fruit borer, *Leucinodes orbonalis* (Guenée) in brinjal

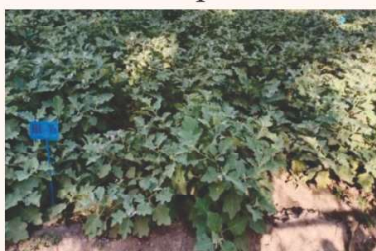
Farmers of Gujarat growing brinjal are recommended to install 40 sex pheromone traps per hectare (equal distance between each trap) after 15 days of transplanting for effective management of brinjal shoot and fruit borer and the lure to be changed three times at an interval of 40 days.



(Department of Entomology, CoA, JAU, Junagadh)

Effect of different sequence based insecticidal spray against shoot and fruit borer, *Leucinodes orbonalis* (Guenée) in brinjal

Farmers of Gujarat growing brinjal are recommended to apply sequence-based spraying of emamectin benzoate 5 SG 0.002 % (4 g /10 L water), chlorpyrifos 20 EC 0.04 % (20 ml/10 L water), azadirachtin 1.0 EC 0.002 % (20 ml/10 L water) and chlorantraniliprole 18.5 SC 0.007 % (4 ml/10 L water) at 15 days interval after pest crosses ETL (5 % fruit damage) for the effective management of brinjal shoot and fruit borer. A minimum pre-harvest interval (PHI) of 3 days for emamectin benzoate 5 SG 0.002 %, azadirachtin 1.0 EC 0.002 % and chlorantraniliprole 18.5 SC 0.007 % should be kept.



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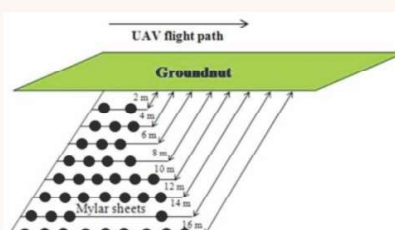
Year	Crop	Pest	Pesticides with formulation	Dosage				Total Quantity of Chemical suspension required/ ha	Application schedule	Waiting period/ PHI (days)
				a.i./ ha	Quantity of formulation Kg or ml/ha	Con. (%)	Dilution in water (10 lit.)			
2024-25	Brinjal	Brinjal shoot and fruit borer	Emamectin benzoate 5 SG	10	0.20 kg	0.002 %	4 g	500 L	Sequence based spraying of emamectin benzoate 5 SG 0.003 %, chlorpyrifos 20 EC 0.04 %, azadirachtin 1.0 EC 0.002 % and chlorantraniliprole 18.5 SC 0.007 % at 15 days interval after pest crosses ETL (5 per cent fruit damage)	03
			Chlorpyrifos 20 EC	200	1.0 lit.	0.04 %	20 ml			-
			Azadirachtin 1 EC	10	1.0 lit.	0.002 %	20 ml			03
			Chlorantraniliprole 18.5 SC	40	0.20 lit.	0.007 %	4 ml			03

(Department of Entomology, CoA, JAU, Junagadh)



Standardization of operational procedures for application of biopesticides through drone against defoliators in groundnut

Farmers of Gujarat growing groundnut are recommended to apply three sprays of *Beauveria bassiana* 1.15 WP (Min. 1×10^8 cfu/g) @ 3 kg/ha in 20 L water through drone at a speed of 2 m/sec. and 2 m above crop canopy during morning or evening time in windward direction, first spray at initiation of pest and second spray at 10 days after first spray for effective, economical and time saving management of *Helicoverpa armigera* and *Spodoptera litura*.



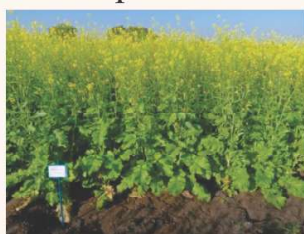
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Year	Crop	Pest	Pesticides with formulation	Dosage				Total Quantity of Chemical suspension required/ ha	Application schedule
				a.i./ ha	Quantity of formulation Kg or ml/ha	Con. (%)	Dilution in water (10 lit.)		
2024-25	Groundnut	<i>H. armigera</i> and <i>S. litura</i>	<i>Beauveria bassiana</i> 1.15 WP	34.5	3.0 kg	0.173 %	-	20 L	First spray at initiation of pest infestation, subsequent two sprays at 10 days interval

(Department of Entomology, CoA, JAU, Junagadh)

Evaluation of insecticides against aphid, *Lipaphis erysimi* (Kalt.) infesting mustard

Farmers of Gujarat growing mustard are recommended two sprays of thiamethoxam 25 WG 0.01 % (4 g/10 L water), first spray when aphid crosses the ETL (1.5 aphid index/plant) and the second spray at 15 days after the first spray for the effective management of pest. A minimum pre-harvest interval (PHI) of 21 days should be kept.



CIBRC Format

Year	Crop	Pest	Pesticides with formulation	Dosage				Total Quantity of Chemical suspension required/ ha	Application schedule	Waiting Period/ PHI (days)
				g a.i./ ha	Quantity of formulation g, ml, kg or l/ha	Con. (%)	Dilution in water (10 lit) (ml/g)			
2024	Mustard	Aphid	Thiamethoxam 25 WG	50	0.20	0.01 %	4	500 L	First spray when pest cross ETL level (1.5 aphid index/plant) and second spray at 15 days after first spray	21

(Main Oilseeds Research Station, JAU, Junagadh)



Management of sucking pests in cotton

Farmers of Gujarat growing cotton are recommended three sprays of flonicamid 50 WG, 0.02 % (4 g/10 L water) or dinotefuran 20 SG, 0.008 % (4 g/10 L water), first spray at pest initiation and subsequent two sprays at 15 days interval after first spray for effective and economical management of aphid, jassid, thrips and whitefly. A minimum pre-harvest interval (PHI) of 25 and 15 days, respectively should be kept.



CIBRC Format

Year	Crop	Pest	Pesticides with formulation	Dosage				Application schedule	Waiting period/ PHI (days)
				g. a.i./ ha	Quantity of formulation Kg or ml/ha	Con. (%)	Dilution in water (10 lit.)		
2024-25	Cotton	Aphid, Jassid, Thrips and Whitefly	Flonicamid 50 WG	75	150	0.02 %	4 g	First spray at pest appearance and subsequent two sprays at 15 days interval after first spray	25
			Dinotefuran 20 SG	40	0.200	0.008 %	4 g		15

(Cotton Research Station, JAU, Junagadh)

Plant Pathology

Management of post-harvest diseases of mango

Mango growers of Gujarat are recommended to dip harvested mango fruits with hot water ($52 \pm 1^\circ\text{C}$ for 5 minutes) for effective management of stem end rot and fruit rot.



(Department of Plant Pathology, CoA, JAU, Junagadh)

Effect of different substrate mixture on growth, yield and nutritional value of oyster mushroom (*Pleurotus ostreatus*)

Farmers of Gujarat growing oyster mushroom [*Pleurotus ostreatus* (Jacq.ex.fr) *P. kumm*] are recommended to use wheat straw + cocopeat + lime + gypsum + sucrose (70:27:1:1:1) or wheat straw + tea waste + lime + gypsum + sucrose (70:27:1:1:1) as substrate for higher production of mushroom.





(Department of Plant Pathology, CoA, JAU, Junagadh)

IV. HORTICULTURE AND FORESTRY

Effect of different chemicals on flowering, yield and quality in mango (*Mangifera indica* L.) cv. Kesar

The farmers of South Saurashtra Agro-climatic Zone growing mango under high-density planting are recommended to spray salicylic acid 1500 ppm (1.5 g/l of water) at flowering stage and at two weeks after fruit set for obtaining higher yield and net profit.



(College of Horticulture, JAU, Junagadh)

Effect of sarcotesta and time of sowing on seed germination and seedling growth of papaya (*Carica papaya*) cv. GJP 1

The farmers of Gujarat raising seedlings of papaya are recommended to soak the seeds for 24 hours in water followed by removal of sarcotesta (thin transparent layer) by gentle hand rubbing before sowing during the 1st week of June for getting higher germination and survival percentage of seedlings with net return.



(College of Horticulture, JAU, Junagadh)

Effect of various locations on Green Dwarf and D x T coconut variety in Saurashtra region

The farmers of South Saurashtra Agro-climatic Zone growing coconut cv. Green Dwarf and D x T are recommended to establish coconut orchard only in coastal region where average relative humidity is pertaining more than 70 %.





(College of Horticulture, JAU, Junagadh)

Effect of different growing media on growth and yield of cucumber under polyhouse condition

The farmers of Gujarat growing parthenocarpic cucumber under naturally ventilated poly house are recommended to use grow bag with base media Soil + Vermicompost (1:1 v/v) to obtain higher yield and net return.



(College of Horticulture, JAU, Junagadh)

Effect of Biofertilizers on seedling growth of coconut (*Cocos nucifera* L.)

The farmers of Saurashtra region growing coconut seedlings are recommended to treat the coconut seeds with *Azotobacter* (minimum 1×10^8 cfu/g) 100 ml + PSM (minimum 1×10^8 cfu/g) 100 ml + *Arbuscular Mycorrhiza* (3000 IP/g) 100 g per 10 liters of water for 24 hours before sowing and drenching in third and fifth month after sowing in 100 m² area to get good quality seedling and economical production.



(Agriculture Research Station (Fruit Crops), JAU, Mahuva)

Effect of pre-sowing treatment on seedling growth of coconut (*Coconut nucifera* L.) cv. T x D hybrid

The farmers of South Saurashtra Agro-climatic Zone growing coconut var. T x D are recommended to make a hole of 1.5 cm diameter at top part up to shell followed by water soaking for 10 days to get early germination.





(Fruit Research Station, JAU, Mangrol)

V. AGRICULTURAL ENGINEERING

Performance of broccoli under different cultivation methods

The farmers of South Saurashtra Agro-climatic Zone are recommended to adopt raised bed (bed size: top width: 50 cm, bottom width: 70 cm, height: 10 cm and spacing between two bed: 90 cm) land configuration with silver black plastic mulch (25 micron) and drip irrigation (16 mm lateral spaced at 90 cm, dripper of 2 lph discharge spaced at 40 cm) for broccoli cultivation during the *rabi* season to obtain higher yield, water use efficiency and net return.



(Dept. of Renewable Energy Engineering, CAET, JAU, Junagadh)

Extraction of peanut protein isolate from partially defatted peanut flour by modifying iso-electric precipitation method

Industrialists are recommended to adopt a process technology developed by Junagadh Agricultural University for the production of protein isolate from partially defatted peanut flour. In this technique, peanut protein isolate is obtained by mixing the partially defatted peanut flour with water and enzyme at specific alkaline extraction pH and sonicated followed by incubation at specific condition. Then acid precipitation using HCl was done followed by freeze drying. With this, isolate recovery, protein yield and protein content are obtained as 59.17 %, 89.99 % and 91.25 %, respectively.

(Dept. of Processing and Food Engineering, CAET, JAU, Junagadh)

Extraction of peanut protein isolate from partially defatted peanut flour iso-electric precipitation method using organic acids

Industrialists are recommended to adopt a process technology developed by Junagadh Agricultural University for the production of protein isolate from partially defatted peanut flour. In this technique, peanut protein isolate is obtained by mixing the partially defatted peanut flour with water and enzyme at specific alkaline extraction pH and sonicated followed by incubation at specific



condition and precipitated using organic acid. The precipitation using citric acid resulted in isolate recovery, protein yield and protein content as 55.71 %, 86.56 % and 93.14 % respectively. The precipitation using ascorbic acid resulted in isolate recovery, protein yield and protein content as 55.71 %, 82.89 % and 89.80 %, respectively. The precipitation using acetic acid resulted in isolate recovery, protein yield and protein content 52.48 %, 73.17 % and 82.48 %, respectively.

(Dept. of Processing and Food Engineering, CAET, JAU, Junagadh)

Study on preparation, packaging and storage of passion fruit (*Passiflora edulis f. flavicarpa Deg.*) nectar beverages

Farmers/ food processing entrepreneurs are recommended to store passion fruit nectar (17° Brix) at ambient temperature by filling in PET bottle which can be kept safely up to one month.



(College of Horticulture, JAU, Junagadh)

Modification of the existing onion planter for pelleted seeds

Farmers growing onion crop are recommended to use the tractor mounted onion planter developed by Junagadh Agricultural University for sowing onion crop by direct seeding method. The direct seeding method saves about 98.09 percent time and 77.99 per cent cost involved in sowing onion crop as compared to the transplanting method.



(Dept. of Farm Machinery & Power Engineering, CAET, JAU, Junagadh)

Development of semiautomatic channel for border irrigation

Farmers are recommended to use metallic or PVC border irrigation channels developed by Junagadh Agricultural University instead of kachha channels to reduce seepage loss up to 87 % compared to kachha channels. Adoption of border irrigation channels can increase the additional crop area by 200 sq.m per hectare. With a system lifespan of five years, the annual cost was found Rs. 1,029 and Rs. 440 per meter of channel length for metallic and PVC channels, respectively.



With automation, the annual cost was Rs. 1,232 and Rs. 643 per meter of channel length for metallic and PVC channels, respectively.

(Dept. of Irrigation & Drainage Engineering, CAET, JAU, Junagadh)

Response of tillage and *In situ* moisture conservation on alteration of soil in cotton crop

The farmers of North Saurashtra Agro-climatic Zone growing cotton under rainfed condition are recommended to incorporate cotton stalk into the soil with tillage practices of rotavator one month after harvest and primary tillage with cultivator for getting higher crop production and net return with maximum rain water infiltration and rain water use efficiency.



(Main Dry Farming Research Station, JAU, Targhadia)

Study on dehulling characteristics of different sesame cultivars

The sesame processing industries and entrepreneurs are recommended to adopt the dehulling process developed by Junagadh Agricultural University to dehull the sesame variety G.Til 3. This process suggested to soak the sesame seed in 50 °C hot water for 74 minutes and 30 seconds followed by dehulling for 7 minutes using indigenous sesame dehuller developed by Junagadh Agricultural University to improve the dehulling efficiency of sesame seed. This dehulling process protocol achieved a dehulling efficiency of 83.92 %, a hullability of 70.11 %, a yield loss of 1.61 %, an embryo recovery of 83.97 %, and an extraction rate of 91.06 %.



(Agricultural Research Station, JAU, Amreli)

VI. BASIC SCIENCE

Effect of growth regulators on growth and yield of chickpea

Farmers in North Saurashtra Agro-climatic Zone cultivating chickpea during the *rabi* season are recommended to spray salicylic acid @ 20 ppm (0.2 g/10 litre) at flower initiation stage for achieving higher yield and net returns through enhanced growth parameters.

(Main Dry Farming Research Station, JAU, Targhadia)





VII. SOCIAL SCIENCE

Export cost estimation and mileage of major commodities of Saurashtra

Exporters and farmers (including those aspiring to export) are recommended to utilize Junagadh Agricultural University “Online Export Cost estimation program”. This tool assists in estimating the export expenses and mileage for major commodities, allowing users to anticipate and streamline their preparations before entering into the export process.

RECOMMEDATION FOR SCIENTIFIC COMMUNITY

I. CROP IMPROVEMENT

Synchronization of flowering in parental lines of released hybrids of pearl millet viz., GHB 1129 and GHB 1225

The scientists involved in hybrid seed production of pearl millet are informed that to avoid staggered planting of parental lines of hybrid GHB 1129, apply foliar spray of 2 % urea to female line (ICMA 99222) at boot leaf stage along with recommended dose of fertilizers for getting higher hybrid seed yield. In case of hybrid GHB 1225, to avoid staggered planting apply foliar spray of 2 % DAP to female line (ICMA 98222) at boot leaf stage along with recommended dose of fertilizers for getting higher hybrid seed yield.

(Dept. of Genetics & Plant Breeding, CoA, JAU, Junagadh)

II. CROP PRODUCTION

Dynamics and depletion of soil weed seedbank in wheat

It is informed to scientific community that for effective weed management along with weed seedbank depletion and achieving higher grain yield of wheat, apply ethylene 2 L/ha + KNO₃ 2 kg/ha with pre-sowing irrigation as suicidal germination *fb* killing the weed flush by subsequent harrowing *fb* HW at 30 DAS. Further, the seed physical extraction method is more precise over the seed emergence method for proper estimation of soil weed seedbank.

(Department of Agronomy, CoA, JAU, Junagadh)



Effect of silicon on chickpea under saline irrigation water

It is informed to scientific community that, chickpea crop irrigated with saline irrigation water yield was decreased with increase in salinity levels from 2.0 to 8.0 dS/m. With increase in soil application of silicon in form of SiO₂ at the time of sowing from 0 to 300 ppm there was increased in yield and Si content in soil and



decreased in Na/K ratio in plant and soil, $EC_{2.5}$, SAR and ESP of soil under saline irrigation water. Application of 300 ppm silicon performed better with different salinity tolerance criteria like highest mean seed yield (10.17 g/plant), as well as mean salinity index (78.65 %) and yield reduction 36.80 % at EC 8.0 (dS/m) over control, 50% yield decline at EC level 9.59 dS/m.

(Dept. of Soil Science & Agril. Chemistry, CoA, JAU, Junagadh)

Effect of silicon on wheat under saline irrigation water

It is informed to scientific community that, wheat crop irrigated with saline irrigation water, yield was decreased with increase in salinity levels from 2.0 to 8.0 dS/m. With increase in soil application of silicon in form of SiO_2 at the time of sowing from 0 to 300 ppm there was increased in yield and Si content in soil and decreased in Na/K ratio in plant and soil under saline irrigation water. Application of 300 ppm silicon (Si_4) performed better with different salinity tolerance criteria like highest mean seed yield (16.35 g/plant), as well as mean salinity index (77.76 %) and reduction at EC 8.0 (dS/m) over control 35.6 %, 50 % yield decline at EC level 10.12 dS/m.



(Dept. of Soil Science & Agril. Chemistry, CoA, JAU, Junagadh)

Study on relative salinity tolerance of leafy vegetables

It is informed to scientific community that, among the different leafy vegetable crops like coriander, fenugreek and spinach, higher mean salinity index (69.12) and mean leaf yield (619.64 g/plot) was observed in spinach crop. While, 50 % yield reduction at EC 8.02 dS/m for spinach, 6.09 dS/m for fenugreek and 4.78 dS/m for coriander. Spinach crop found more salt tolerance as compared to coriander and fenugreek on the basis of salinity indices.



(Dept. of Soil Science & Agril. Chemistry, CoA, JAU, Junagadh)

Soil test-based fertilizer recommendation for targeted yields of coriander

Soil testing laboratories are informed that the nutrients requirement for production of one quintal coriander seed was assessed as 3.92, 0.51 and 2.61 kg; N, P_2O_5 and K_2O , respectively and the fertilizer prescription equations are: for N: $[FN: 8.13 \times T - 0.46 \times SN - 0.23 \times FYM]$, P: $[FP_2O_5: 4.75 \times T - 3.60$



x SP - 0.24 x FYM] and K: [FK₂O: 8.05 x T - 0.56 x SK - 0.26 x FYM] with FYM 5 t/ha. While, without FYM the fertilizer prescription equations are: for N: [FN: 11.16 x T - 0.63 x SN], P: [FP₂O₅: 9.41 T - 7.13 x SP] and K: [FK₂O: 9.23 x T - 0.63 x SK]. Targeted yield concept could be effectively adopted from 12.5 to 17.5 q/ha for site specific fertilizer recommendation to achieve high yield of coriander in the medium black calcareous soils of Saurashtra region of Gujarat.

(Dept. of Soil Science & Agril. Chemistry, CoA, JAU, Junagadh)

Evaluation of soil textural classes in the soils of different talukas of Rajkot district

It is informed to scientific community that in Rajkot district overall soil texture class is clay (25.48, 30.19 and 44.33 % sand, silt and clay, respectively), i.e. 51 % area of soils of Rajkot district. Among the different talukas, Gondal and Jetpur talukas soils are comes under silty clay loam soil texture. While, remaining talukas like Rajkot taluka, Padadhari, Jam-Kandorna, Kotda-Sangani, Vinchhiya, Dhoraji, Upleta, Jasdan and Lodhika come under clay soil texture.



(Dept. of Soil Science & Agril. Chemistry, CoA, JAU, Junagadh)

III. PLANT PROTECTION

Entomology

Effect of different sequence based insecticidal spray against shoot and fruit borer, *Leucinodes orbonalis* (Guenée) in brinjal

Sequence based spraying of spinetoram 11.7 SC 0.01 % (8.5 ml /10 L water), azadirachtin 1.0 EC 0.002 % (20 ml/10 L water), lambda-cyhalothrin 4.9 CS 0.003 % (6.0 ml/10 L water) and spinosad 45 SC 0.016 % (3.5 ml/10 L water) at 15 days interval after pest crosses ETL (5 % fruit damage) was found effective for the management of brinjal shoot and fruit borer.

(Department of Entomology, CoA, JAU, Junagadh)

Evaluation of insecticides against aphid, *Lipaphis erysimi* (Kalt.) infesting mustard

Two sprays of afidopyropen 50 DC 0.10 % (20 ml/10 L water) or dinotefuran 20 SG 0.008 % (4 g/10 L water) or clothianidin 50 WDG 0.025 % (5 g/10 L water), first spray when pest cross ETL (1.5 aphid index/plant) and second at 15 days after first spray for effective management of aphid in mustard.

(Main Oilseeds Research Station, JAU, Junagadh)



Evaluation of different ready mixed insecticides against sucking insect pest in groundnut

Two sprays of thiamethoxam 12.6 + lambda-cyhalothrin 9.5 ZC 0.007 % (3 ml/10 L water) or imidacloprid 19.81 + beta-cyfluthrin 8.49 OD 0.01 % (4 ml/10 L water) or pyriproxyfen 10 + bifenthrin 10 EC 0.02 % (10 ml/10 L water), first spray at initiation of the pest infestation and second spray after 15 days of first spray for effective management of thrips and jassid in groundnut.



(Main Oilseeds Research Station, JAU, Junagadh)

Efficacy of different insecticides against eriophyid mites (*Aceria guerrenonis* Keifer) infesting coconut cv. D x T

Four sprays of etoxazole 10 EC 0.01 % (10 ml/10 L water) or abamectin 1.9 EC 0.0025 % (12.5 ml/10 L water), first spray in early November and subsequent three sprays at two months interval after first spray was found effective against eriophyid mite (*Aceria guerrenonis* Keifer) in coconut.

(Agricultural Research Station (Fruit Crops), JAU, Mahuva)

Plant Pathology

Management of twister disease complex in onion

Soil application of chlorantraniliprole 0.4 G (10 kg/ha) and copper oxychloride 50 WP (1.25 kg/ha) at the time of transplanting along with two sprays of tebuconazole 50 + trifloxystrobin 25 WG 0.075 % (10 g/10 L water) or azoxystrobin 18.2 + difenoconazole 11.4 SC 0.03 % (10 ml/10 L water), first spray at initiation and second spray at 15 days after first spray for effective management of twister disease complex.

(Dept. of Plant Pathology, CoA, JAU, Junagadh)

IV. HORTICULTURE AND FORESTRY

Effect of different storage temperature on pollen viability of coconut cv. Green Dwarf

The pollen grains of coconut var. Green Dwarf can be stored up to 303 days with good viability at -40 °C temperature, 272 days with good viability at -20 °C temperature, 226 days with good viability at 50 % RH in Desiccators at room temperature 194 days with good viability at -4 °C temperature and 135 days with good viability at room temperature.

(College of Horticulture, JAU, Junagadh)

V. AGRICULTURAL ENGINEERING

Study on dehulling characteristics of different sesame cultivars.

The scientific community is informed to adopt the Peleg model ($M_t = M_o$





$\pm (t/[K_1+K_2t])$ for effectively described the hydration behaviour of sesame seed varieties at soaking temperatures of 35, 45, and 55 °C. The hydration temperature showed a significant impact on the hydration kinetics of sesame seeds. Sesame seeds exhibited a higher absorption rate at the initial soaking stage, followed by a slower, steady absorption phase. The Peleg capacity constants, K_1 and K_2 , decreased with increasing hydration temperature, indicating enhanced water absorption rates and capacities with an increase in the temperature. The activation energy (E_a), were determined as 38.74, 33.37, 30.68, 37.85, and 33.23 kJ/mol, for G.Til 3, G.Til 4, GJT 5, G.Til 6 and TKG 22 sesame varieties respectively. The similar entropy data and negative enthalpy values for all sesame varieties indicate that-the hydration process is exothermic and energetically favourable for diffusion.

(Agricultural Research Station, JAU, Amreli)

V. BASIC SCIENCE

Optimization of regeneration protocol using different plant growth regulator in pomegranate (*Punica granatum* L.) Cv.'Bhagwa' cultivar

A regeneration protocol was successfully developed from using nodal explant for pomegranate (*Punica granatum* L.) cv. 'Bhagwa,' highlighting the following key findings:

Surface sterilization with Carbendazim-50 % @ 10 min + Cefotaxime @ 7 min + Kanamycin @ 5 min + Ketokenazol @ 10 min + 0.1 % HgCl @ 3 min was effectively prevented contamination in nodal explant.

Transfer of explants every 24 hours reduces 90 % polyphenol accumulation.

Shoot initiation was achieved using MS + 0.2 mg/L BAP + 0.1 mg/L NAA.

The highest number of multiple shoots was observed using MS + 0.2 mg/L BAP + 0.1 mg/L KIN.

Root induction was optimal with MS + 0.3 mg/L IBA using WPM media for root development.

Hardening was most effective when plantlets were acclimatized in a 3:1 soil-to cocopeat ratio, with a 94 % survival rate.

(Department of Biotechnology, JAU, Junagadh)

VI. SOCIAL SCIENCE

Credit flow and its utilization behaviour among farmers in Saurashtra region, Gujarat

It is recommended to policymakers that the financial institutions should focus on improving the return on equity ratio, working capital ratio, and asset turnover ratio of the farmers to enhance their repayment capacity. Besides, farm income levels need to be given more weightage than income from other sources while risk rating the loan applications of farmers and making a priori distinction between potential defaulters and non-defaulters.

(Dept. of Agril. Economics, CoA, JAU, Junagadh)



Time series forecasting of area and production of vegetable crops in Gujarat

It is recommended to the scientific community that area and production of the selected vegetable crops viz., okra, tomato, potato, brinjal and onion can be precisely predicted using the following models with reasonable RMSE, MAE and MAPE.

Crop	Selected forecasting model	
	Area	Production
Okra	TDNN	TDNN
Tomato	5 YMA Cubic	TDNN
Potato	Hybrid	Hybrid
Brinjal	TDNN	TDNN
Onion	Hybrid	Hybrid

(Dept. of Agril. Statistics, CoA, JAU, Junagadh)

Strengthening statistical analysis programmes using python machine learning and data visualization

The scientists/researchers of SAUs are recommended to use new computer programs developed by the Junagadh Agricultural University using the Python Machine Learning and Data Visualization techniques for the data analysis of three types of experiments conducted in Latin Square Design (LSD), Split Plot Design and Strip Plot Design which are requirement specific, unique, user friendly with the important features of descriptive auto conclusion and auto data visualization.

(Dept. of Agril. Statistics, CoA, JAU, Junagadh)

Sensitization level of farmers about safe usage of pesticides in Junagadh district of Saurashtra region

To promote safe usage of pesticide among farmers, it is recommended that extension functionaries need to increase their knowledge on safe usage pattern of pesticides through trainings and by providing farm literature to select correct pesticide along with its dosage as well as safe handling and disposal techniques.

(Dept. of Agril. Extension Education, CoA, JAU, Junagadh)

Adoption of natural farming in Saurashtra region

The adoption level of natural farming farmers was found to be medium to low. The farmers got low yield during initial period. Trainings are required regarding the natural farming practices and to organize method demonstrations for the preparation of different natural farming inputs. Besides, it is suggested to government institutions to enhance marketing facilities for farmers produce and provide subsidy to farmers in the initial period of natural farming adoption.

(Dept. of Agril. Extension Education, CoA, JAU, Junagadh)

Social media usage pattern of students of Junagadh Agricultural University





Junagadh Agricultural University should create educational videos and share on well-known video sharing platforms for informal learning. Furthermore, networking sites ought to be used to disseminate the most recent information about the University's accomplishments, job openings, and newly added facilities. Additionally, faculty members should also counsel and encourage students to restrict the number of social media accounts they have and the daily amount of time they spend on these platforms. In order to avoid distractions and enhance academic productivity, students should be motivated to monitor the purposes behind their social media usage.

(Post Graduate Institute of Agribusiness Management, JAU, Junagadh)

Impact of Krishi Vigyan Kendra's trainings on knowledge of farmers about the recommended cotton production technologies

It is advised that extension personnel organize effective training programs on recommended cotton production technologies. The trainees should be educated, innovative and actively engaged with mass media. Trainings should be scheduled for one or two days, preferably before the onset of the monsoon, and conducted at both the village and KVK levels followed by demonstrations, lectures and field visits.

(Krishi Vigyan Kendra, JAU, Amreli)





Table-1: Production and distribution of “Gir Sawaj” brand quality seeds; planting materials of bio-agent and liquid bio-fertilizers during the year 2024-25

Sr. No.	Particular	Production
1	Nucleus and Breeder Seeds (q)	8153.10
2	Truthful, foundation and certified seeds (q)	11195.48
3	Fruit crop graft (Nos.)	10210
4	Fruit crops saplings (Nos.)	43176
5	Seedlings (Nos.)	49529
6	Ornamentals & Medicinal plants (Nos.)	45363
7	Bioagents (<i>Trichoderma</i> , <i>Beauveria</i> , <i>Metarhizium</i>) (kg)	25545
8	Liquid biofertilizer (litre) (<i>Rhizobium</i> , <i>Azotobacter</i> , PSB, KMB, HNPV, SNPV)	8157
	Trichocard (Nos.)	7301
9	Fruit fly traps (Nos.)	3460
10	Fruit fly lure for fruit and vegetable crops (Nos.)	7000
11	Pheromone Trap (Nos.)	11445
12	Pheromone Lure for Pink bollworm (Nos.)	4056
13	Pheromone Lure (Nos.) (<i>Heliothis</i> , Brinjal shoot & fruit borer, <i>Spodoptera</i> and Fall armyworm)	14596

Table-2: Patent and Design granted during the year 2024-25

Sr. No.	Title of Patent/ Design	Patent/ Design No.	Date of Grant
Patents			
1.	A Composition for Male Confusing Technique of Shoot and Fruit borer in Brinjal crop	536789	03/05/24
Design			
2	Pneumatic Left-Over Groundnut Pod collector	423827-001	04/11/24
3	Unmanned Mechatronic Precision Planter	435749-001	06/02/25

Table-3: No. of Farm Machineries/ Implements/ equipments (category wise) tested at testing centre of FMPE, CAET during the year 2024-25

Category	Name of Equipment / Machine	No. of Equipments / Machines Tested
A	Land development, tillage & seedbed preparation equipment	85
B	Sowing and planting equipment	24
C	Intercultivation equipment	00
D	Plant protection equipment	05
E	Harvesting and threshing equipment	14
F	Equipment for residue management	14
G	Post-harvest and agro processing equipment	00
H	Hand tools	00
Total		142







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